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Introduction

Public infrastructure is a key driver of inclusive green economic growth and development and the reduction of social inequalities (Schwartz and others 2020). Roads, bridges, electricity, railways, and airports connect markets, facilitate production and trade, and create economic opportunities for work and education. Water and sanitation, irrigation, schools, and hospitals improve people's lives, skills, and health; and with broad-based access, public infrastructure supports income and gender equality. Digital infrastructure supports economic development and inclusion. Done right, public infrastructure helps reduce pollution and build resilience against climate change and natural disasters.[1] Infrastructure investment also plays a key role in securing a green recovery after the COVID-19 pandemic (IMF 2020).

Yet, creating quality infrastructure has often been challenging. Almost all countries have their iconic white elephants—major investment projects with no or negative social returns—that never delivered on their initial promise. Infrastructure projects that were poorly designed, had large cost overruns, experienced long delays in construction, and yielded poor social dividends are common. Examples of poor project appraisal, faulty project selection, rampant rent seeking and corruption, or lack of funding to complete ongoing projects abound and not only in low-capacity countries. And even perfectly good public infrastructure may deteriorate quickly when maintenance is inadequate, which often reflects a lack of funding or political attention.

Losses and waste in public investment are often systemic. On average, over one-third of the funds spent on creating and maintaining public infrastructure are lost because of inefficiencies (IMF 2015). These inefficiencies are closely linked to poor infrastructure governance—defined as the institutions and frameworks for planning, allocating, and implementing infrastructure investment spending. Estimates suggest that, on average, better infrastructure governance could make up more than half of the observed efficiency (Schwartz and others 2020).

The need for stronger infrastructure governance for quality investment is widely recognized, and initiatives have been launched to provide guidance on good practice. Yet, most countries still lack the institutions needed to produce good infrastructure outcomes. Countries frequently stumble over key institutional issues. For example, they may struggle to finance projects in a fiscally sustainable way given limited resources. Selecting projects with the highest social and economic returns can prove difficult, as can ensuring that funding will be available throughout project implementation. Budgeting for operations and maintenance costs, ensuring that procurement is transparent and rigorous, or harnessing private sector skills, innovation, and funding without creating undue risks to public finances can also be challenging. Table I.1 gives an overview of some key publications on infrastructure governance.

The Public Investment Management Assessment (PIMA) is a comprehensive and standardized framework to assess public investment management (PIM) and infrastructure governance for countries at all levels of economic development.[2] PIMAs evaluate the procedures, tools, and decision-making and monitoring processes used by governments to provide infrastructure assets

[1] The IMF is currently piloting a PIMA Climate Change module, which will assess countries' ability to systematically reflect climate change considerations in their public investment (IMF 2021).

[2] Stringent use of the terms "governance" and "management" implies that infrastructure governance focuses on high-level, strategic, and institutional decisions whereas public investment management focuses on operational procedures and practices. See, for instance, Governance Guiding Principles, "Governance versus Management," Government of Scotland, https://www.governanceprinciples.scot/governance-vs-management. In practice, there is considerable overlap between the two terms; the PIMA framework covers both concepts.

Table I.1. Key Publications on Infrastructure Governance

Title of Publication	Source
Public Investment and Public-Private Partnerships: Addressing Infrastructure Challenges and Managing Fiscal Risks	Corbacho, Funke, and Schwartz 2008
A Diagnostic Framework for Assessing Public Investment Management	Rajaram and others 2010
What You Should Know About Megaprojects and Why: An Overview	Flyvbjerg 2014
Making Public Investment More Efficient	IMF 2015
Getting Infrastructure Right: A Framework for Better Governance	OECD 2017b
Public Investment Management Handbook for Capacity Development	Japan International Cooperation Agency 2018
Public Investment Management Assessment: Review and Update	IMF 2018c
G20 Principles for Quality Infrastructure Investment	Ministry of Foreign Affairs of Japan 2019
Well Spent: How Strong Infrastructure Governance Can Reduce Waste in Public Investment	Schwartz and others 2020
Public Investment Management Reference Guide	World Bank 2020
Strengthening Infrastructure Governance for Climate-Responsive Public Investment	IMF 2021

and services to the public. They take a systematic approach to analyzing infrastructure governance issues that allows countries to quantify and benchmark their practices against peers. The in-depth analysis, complemented with cross-country comparisons, raises awareness and builds a shared understanding among key stakeholders of required reform actions. This can help countries to develop an overarching strategy that is accessible to policy makers and development partners alike.

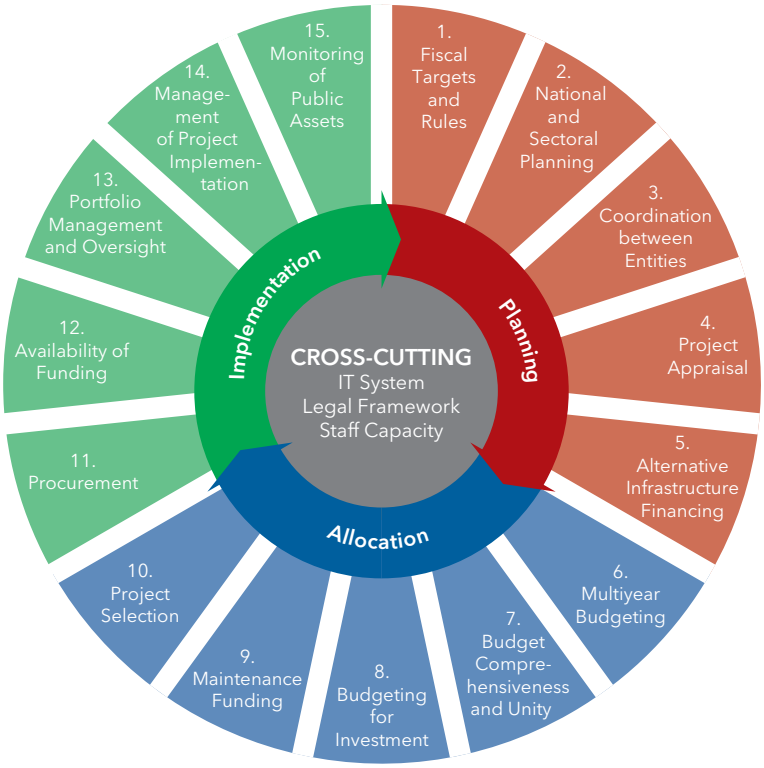
PIMAs evaluate 15 institutions, or practices, involved in the three key stages of the public investment cycle (Figure I.1): (1) planning sustainable investment across the public sector; (2) allocating investment to the right sectors and projects; and (3) implementing projects on time and budget. All three stages are critical from a macro perspective:

- *Planning*: Efficient investment planning requires institutions that ensure public investment is fiscally sustainable and effectively coordinated across sectors and levels of government and that projects are subject to rigorous appraisal.
- *Allocation*: Allocating public investment to the most productive projects requires comprehensive, unified, medium-term planning, and objective criteria for selecting projects.
- *Implementation*: Timely and cost-effective implementation of public investment projects requires institutions that ensure projects are fully funded, transparently monitored, and effectively managed throughout their implementation.

Each institution is analyzed along 3 dimensions that reflect the key features of the given institution, resulting in a total of 45 dimensions. Three possible scores are assigned to each dimension, and the average of the 3 dimensions within an institution produces a score for that institution.

To complete the analysis, PIMAs also include a qualitative assessment of three cross-cutting enabling factors that often impact the overall effectiveness of infrastructure governance institutions: the legal and regulatory framework, IT systems, and general staff capacity. For instance, poor integration of IT systems may limit data sharing on projects. Weak IT systems can have a negative impact across the project cycle, but particularly during implementation when knowing the correct status of projects, the amount of funds spent, and

Figure I.1. Overview of the PIMA Framework



Source: IMF 2018c.

the condition of individual assets is important for efficient resource use.

A key feature of the PIMA is that it makes a clear distinction between the institutional design (what is on paper) and effectiveness (what is in practice). This is important because what exists on paper may differ from the actual practice. For example, a country can establish fiscal rules to set limits on fiscal aggregates, but it might fail to consistently comply with these rules. Alternatively, a country may have developed guidelines for project appraisal, but these are only applied to few projects. In some cases, actual practices might also be stronger than the institutional design. Low scores in either one or both of these dimensions help inform the reform priorities for the country.

By covering the full public investment cycle in a comprehensive manner, the PIMA also addresses the networked nature of infrastructure governance. The benefits of having strong institutions in some areas may be jeopardized by weaknesses in other areas. For example, a country may have high-quality practices for planning public investments, but these will not be effective if insufficient funding is allocated to project preparation, or if funding gaps exist during project implementation.

The PIMA framework was established in 2015 and reviewed and updated in 2018. The 2018 update found that the framework had been well received by member countries, with several PIMAs completed and a strong pipeline of new requests in place. The PIMAs showed that there is much room for strengthening PIM in most countries, with weaknesses spread across the investment cycle. While leaving the structure of the 2015 framework unchanged, the revised 2018 PIMA framework highlights key aspects of maintenance, procurement, independent review of projects, and the enabling environment (for example, adequacy of the legal framework, information systems, staff capacity).

At present, PIMA is the most comprehensive internationally recognized framework for detailed assessment and comparison of PIM practices. There is an extensive literature on PIM issues, and several other methodologies have been applied to analyze different PIM practices and results. Also, there are comprehensive conceptual models for the analysis of PIM, as well as recommendations on good practices (Table I.1). The PIMA framework draws on and is consistent with this literature.[3] However, the specific assessment methodology and its strong macro-fiscal perspective are unique to PIMA. The only other widely used tool that includes explicit scoring of PIM practices is the Public Expenditure and Financial Accountability framework, which includes a single composite indicator for investment management.[4]

[3] PIMAs are undertaken during IMF missions in close collaboration with country authorities and often include contributors from other institutions, in particular the World Bank and regional development banks.

[4] See PEFA.org for more information about the PEFA framework.