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Industry Agenda

Strategic Infrastructure
Steps to Prepare and Accelerate Public-Private Partnerships

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Contents

Foreword

Foreword by the World Economic Forum

Today's global infrastructure demand is estimated at approximately US$ 4 trillion in annual expenditure, with a gap – or missed opportunity – of at least US$ 1 trillion every year. In spite of the much needed investment in infrastructure, and the significant supply of private capital from pension funds, insurance firms, sovereign wealth funds and private equity funds in excess of US$ 60 trillion, countries are often faced with the paradox of a dry pipeline of projects.

A country's competitive economic advantage clearly depends on a properly articulated vision for infrastructure and long-term planning. However, government leaders must critically inspect their project portfolios and decide which ones to accelerate first based on their strategic importance, independently of the restricted duration of a political cycle. Yet vision and planning alone are not sufficient, and it is fundamental that governments learn how to assess and select the right infrastructure delivery model at the early stages of the project preparation process.

While it is true that governments are the leading financiers of the vast majority of strategic infrastructure projects, they are incapable of closing the gap alone, and the private sector must also play a role. Without innovative financing and delivery models, as well as private companies that are suited to carry out the much-needed infrastructure projects, it will not be possible to meet the demand. In fact, infrastructure is coming of age as an investment class and has shown its ability to resist inflation, outperforming general equities. And even traditional infrastructure companies (of "bricks and mortar" reputation) have launched infrastructure funds in response to the demands of investors worldwide, who seek a diversified portfolio of infrastructure assets with attractive returns.

The World Economic Forum's Strategic Infrastructure Initiative is a collaborative reflection of the steps required to effectively and efficiently deliver economic infrastructure projects; while the first phase investigated infrastructure project identification and prioritization, the current second phase is focusing on how governments can prepare and accelerate key infrastructure projects through a Public-Private Partnership delivery model that provides optimal economic and social benefits for their countries. The Strategic Infrastructure Initiative, with its linkages to the B20 and G20, and its cumulative track-record of pan-regional engagement of the private sector, government and civil society, has identified some key challenges. These include a lack of project preparation and sluggish progress, as well as insufficient mobilization of capital flows into the investment in physical assets.

This report assumes that infrastructure projects have already been selected and prioritized on the basis of a country's infrastructure vision and plan, and that a life-cycle based economic valuation has indicated that the Public-Private Partnership delivery model renders value for money. In this context, the four best practice areas concerning Public-Private Partnerships covered in this report are: (i) managing a rigorous project preparation process, (ii) conducting a bankable feasibility study, (iii) structuring a balanced risk allocation and regulation, and (iv) creating a conducive enabling environment. For each of these best practice areas the report identifies and explores six critical success factors that governments should be aware of and seriously consider when preparing an infrastructure project to be delivered as a Public-Private Partnership.

The Strategic Infrastructure Initiative – and its Knowledge Series Reports – will provide a roadmap to inform governments and key stakeholders of best practices while providing actionable frameworks that ensure resources and funding in order to secure and accelerate a robust pipeline of bankable projects at an early stage. Furthermore, the Initiative will continue to carve out a space for a number of future regional and national discussions – throughout the next two years – including in Africa, Asia, and Latin America, but also in Europe and North America, which will transform the globally acquired knowledge and experience into concrete measures that contribute to boosting strategic infrastructure development.

This report is a direct result of a cooperative process with leaders from government, civil society and the private sector, particularly the engineering and construction, financial services and investors industries. In this regard, we would like to thank and acknowledge the World Economic Forum partner companies that served on the Strategic Infrastructure Initiative Steering Committee: ABB; Alcoa; Amec; Arup; Bilfinger; CH2M HILL; CVC Capital Partners; Fluor Corporation; GE; Hindustan Construction Company; Leighton Holdings; Petrofac; Prudential; Punj Lloyd; Siemens; SNC-Lavalin Group; and Welspun Corporation.

We would also like to thank the many experts who contributed to the Report through their role on the Strategic Infrastructure Initiative Advisory Committee: Norman Anderson (CG/LA Infrastructure); Victor Chen Chuan (University of Sichuan); Nathalie Delapalme (Mo Ibrahim Foundation); Angelo Dell'Atti (IFC); Clive Harris (World Bank Institute); Rashad Kaldany (IFC); Rajiv Lall (IDFC); Yves Leterme (OECD); Clare Lockhart (Institute for State Effectiveness); Thomas Maier (EBRD); Rajat M. Nag (Asian Development Bank); Mthuli Ncube (African Development Bank) and Mark Romoff (Canadian Council for Public-Private Partnerships).

Finally, we would like to give special acknowledgement to the leadership provided by Hamish Tyrwhitt (Chief Executive Officer of Leighton Holdings), Gordon Brown (Prime Minister of the United Kingdom 2007-2010 and Chair of World Economic Forum Global Issues Group), Tidjane Thiam (Group Chief Executive, Prudential and Chair of the Cannes G20 High-Level Panel on Infrastructure and Cannes B20 Task Force on Infrastructure Development), Rajat M. Nag (Managing Director General, Asian Development Bank), and Donald Kaberuka (President, African Development Bank), and thank them for their genuine, relentless interest and commitment to the Strategic Infrastructure Initiative. The experience, perspective and guidance of all the above people and organizations substantially contributed to a number of remarkable discussions with particular highlights at the World Economic Forum on East Asia in May 2012, the World Economic Forum on India in November 2012, and the World Economic Forum Annual Meeting in January 2013.

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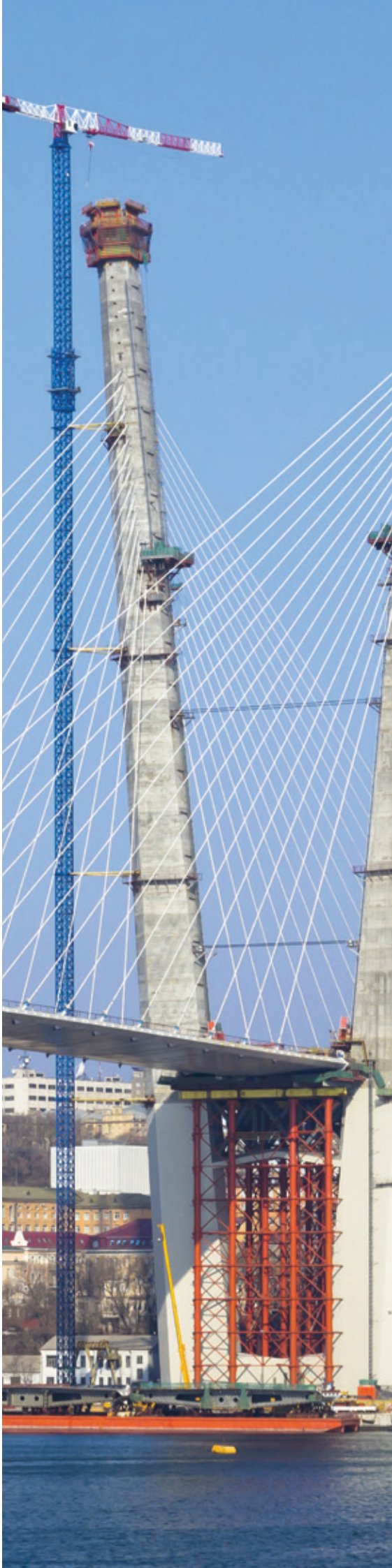

Foreword by the International Finance Corporation (IFC)

Economic growth and prosperity depends on modern infrastructure. That much is obvious from the experience of a host of developing countries—including those in sub-Saharan Africa, where infrastructure development has accounted for half the recent acceleration in the region's economic growth.

Such development is also essential for lifting people out of poverty. China, for example, spent about US$ 600 billion in the 1990s and early 2000s to upgrade its road system and connect its largest cities—an investment that helped increase real incomes by an estimated 6 percent. Not surprisingly, demand is growing across the world for greater investment in roads, bridges, airports, and telecommunications.

The need is enormous. As this report notes, the gap in funding available for infrastructure projects is about US$ 1 trillion a year. It's a gap that can be filled only by bringing together capital and know-how from the public and private sectors. Public-private partnerships, or PPPs, can be a major force in modernizing infrastructure in affordable ways—and in improving the quality of life in local communities.

The World Economic Forum has played a vital role in identifying innovative solutions for infrastructure development. Last year, under its Strategic Infrastructure Initiative, it proposed a comprehensive framework for selecting and prioritizing infrastructure projects in any given country, building on the knowledge of all relevant stakeholders.

This report represents the logical next step—how to implement the prioritized projects effectively and efficiently. It provides a detailed guide to governments on the best ways to plan a PPP project, including designing the project structure and governance, conducting feasibility studies, managing risks, and building a conducive enabling environment.

At IFC, we know from experience that effective project preparation and careful risk allocation are essential for attracting investor interest, achieving the desired results, and ensuring the sustainability of a PPP project.

As the largest global development institution focused on the private sector, we have been advising governments on PPPs for more than two decades. In the past decade alone, our PPP advisory group has helped in the successful implementation of more than 250 infrastructure projects in more than 100 countries. These projects have been in a wide range of sectors—including, energy, transport, water, and telecommunications—and have improved the lives of millions of people in developing countries.

We believe that innovative approaches can make a transformational difference. We continue to develop creative PPP structures and models—including the use of rooftop solar panels to generate electricity in India, and efforts to rebuild the electricity grid in post-conflict Liberia. We also provide significant financing for private investment in infrastructure, making more than 100 investments each year.

This report makes a significant contribution to strengthening best practices in infrastructure development. We look forward to working with the World Economic Forum, and with the members of the Strategic Infrastructure Initiative Steering and Advisory Committees to build on this important work.

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Context and Objectives of the Report

Infrastructure is a key driver of sustained economic growth and social well-being, but infrastructure development by the public sector has often turned out to be slow and/or inefficient in many countries. While the investment requirements for infrastructure are huge, the fiscal situation of many countries is increasingly constrained. In such an environment, Public-Private Partnerships (PPPs) offer a promising way forward: they can accelerate infrastructure development by tapping the private sector's financial resources and skills in designing, building and operating infrastructure effectively and efficiently on a whole life-cycle cost basis. Early PPP experiences have been both promising and sobering: some projects have proven to be financially viable, with social and economic benefits, while other projects have been plagued by delays, cost overruns or renegotiations. This report identifies a key challenge that many governments are faced with – the lack of effective PPP project preparation – and recommends actionable best practices to address this issue.

The report's role is not to advocate PPPs relative to other modes of infrastructure delivery, but rather to provide neutral advice if the PPP route is chosen. (The basis for that choice – a rigorous value-for-money analysis – was discussed in *Strategic Infrastructure: Steps to Prioritize and Deliver Infrastructure Effectively and Efficiently*, the previous report of the Strategic Infrastructure Initiative.)

Target Audience

This report is designed primarily for senior government leaders and for the officials responsible for planning and delivering infrastructure projects. Other stakeholders would also benefit from the report – the private sector (construction and operating companies, financiers and others), multilateral development banks, the donor community, and civil society. The formulation of this "common language" and best practices on PPP preparation will enable them all to have a more productive engagement with governments.

Structure and use

The report is structured in keeping with the PPP preparation best practice checklist in figure 2, with four main chapters, each subdivided into six sub-chapters describing the critical success factors. According to the reader's interest, the relevance to the local context, and the country's level of maturity in the various critical success factors, the checklist can help to identify the most relevant best practices, and the reader can then refer directly to the corresponding sub-chapters.

While the report specifically addresses issues of PPPs, many of the presented best practices are also applicable to projects procured under traditional delivery and financing models.The best practices related to the project preparation process (chapter 1) and to the feasibility study (chapter 2) are relevant for both PPP and non-PPP modes, but those related to risk allocation (chapter 3) are specific to PPPs. Some of the best practices related to the enabling environment (chapter 4) are again applicable in a broader context, but are customized to account for the features of PPPs.

Scope

The report is intended to serve as a "roadmap" to direct governments and other stakeholders to the critical success factors in PPP project preparation. It does this by providing an actionable framework and case studies. The report is not a compendium of the whole PPP life cycle: its focus is on project preparation exclusively, and it assumes that the best practices related to project identification and prioritization, as well as to choice of delivery mode, have been consistently applied. The framework and recommendations have deliberately been kept generic so that the principles and insights can be applied broadly in developed and developing economies and across sectors of economic and social infrastructure.

In the context of this report, infrastructure is defined in such a way as to include:

- Economic infrastructure: assets that enable society and the economy to function, such as transport (airports, ports, roads and railroads), energy (gas and electricity), water and waste, and telecommunications facilities;
- Social infrastructure: assets to support the provision of public services, such as government buildings, police and military facilities, social housing, health facilities, and educational and community establishments. At issue here are not just traditional "bricks-and-mortar" PPPs, but also public-service PPPs, such as running a passport service for citizens.

This definition specifically excludes two other kinds of infrastructure: soft infrastructure (i.e. the public institutions required to maintain society, notably the legal and judicial system, the education and health systems, and the financial system); and industrial infrastructure (such as mine works or interconnecting roads within a large factory complex).

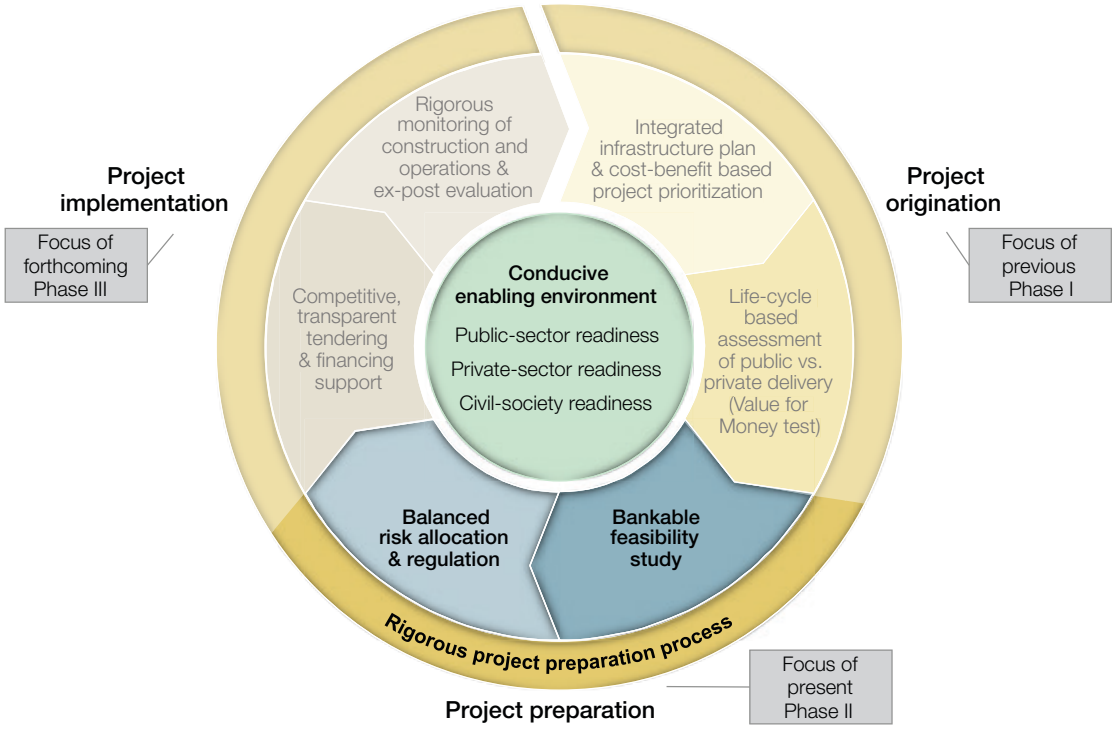
Executive Summary

Many countries are facing significant infrastructure needs, owing to growing populations, economic growth and rapidly progressing urbanization. The strong demand for infrastructure and its insufficient provision imply a global investment gap of at least US$ 1.0 trillion per year.[1] As many governments do not have the financial resources and skills to provide the required infrastructure assets, they are increasingly looking at the private sector to close the gap. In fact, institutional investors hold substantial assets under management, for which they are seeking attractive, long-term investment opportunities.

In such an environment, Public-Private Partnerships (PPPs) can accelerate infrastructure development by tapping the private sector's financial resources as well as its skills in delivering infrastructure effectively and efficiently on a whole life-cycle cost basis. But despite this seeming fit between demand for and supply of private sector participation, too few projects get off the ground. The reason for this paradox – especially in developing countries, though also in some developed countries – is the "project preparation gap", i.e. the lack of well-prepared, bankable PPP projects where investors are sufficiently reassured by the commercial and technical feasibility, the risk allocation, the public sector`s contractual commitment and capacity as well as the institutional and legal framework. Furthermore, of those PPPs that have been implemented, several have been plagued by delays, cost overruns or renegotiations as a result of a suboptimal preparatory phase.

This report, developed within the framework of the World Economic Forum's Strategic Infrastructure Initiative, outlines government best practices in overcoming the various challenges and closing the preparation gap. As shown in figure 1, the report focuses on the subset of PPP best practices that guide the public sector through the crucial preparation phase – from the initial decision to structure a project as a PPP, on through the feasibility study and regulatory contract design, to the point where the project is bankable and ready for tendering. In line with the Initiative's previous report, *Strategic Infrastructure: Steps to Prioritize and Deliver Infrastructure Effectively and Efficiently*, this report assumes that projects have been identified and prioritized on the basis of an integrated infrastructure plan and rigorous economic cost-benefit analysis, and that the PPP delivery mode has been indicated by an unbiased value-for-money analysis of the whole life cycle (see the synopsis of phase I report on project origination best practices).

Figure 1: PPP best practice framework



The four best practice areas detailed in this report are:

1. Managing a rigorous project preparation process: How to effectively set up the project team and leadership, design the project governance structure and project management, and secure the required preparation funding;
2. Conducting a bankable feasibility study: How to conduct a robust and high-quality technical, commercial, legal and environmental feasibility study;
3. Structuring a balanced risk allocation and regulation: How to balance efficiency incentives, risk mitigation, and public-interest safeguards to ensure a successful long-term partnership between the public and the private sector;
4. Creating a conducive enabling environment: How to enhance public, private and societal readiness for PPP projects.

For each of these four areas, this report identifies six critical success factors that governments should take into consideration when preparing PPPs (see figure 2). While the report focuses on the specific issues of PPPs, many of the presented best practices, including those related to the project-preparation process, the feasibility study and (to some extent) the enabling environment, are also relevant to other project delivery modes. Depending on the country's maturity in each critical success factor and the relevance of the particular success factor to the country's particular context, governments can use this holistic checklist to identify and prioritize the areas where change is required.

Figure 2: Checklist of PPP preparation best practices

Rigorous project preparation process	Team and leadership	**1.1.** Assemble an experienced, cross-functional team	**1.2.** Secure buy-in and leadership of high-level political champions and public servants
	Governance & project mgmt	**1.3.** Set up a governance structure with clear roles/responsibilities and a coordinator	**1.4.** Pursue rigorous project management, and devise multi-stage planning
	Preparation funding	**1.5.** Secure sufficient preparation funding, and minimize costs through standardization	**1.6.** Leverage project-preparation facilities (with cost recovery, advisory and monitoring)
Bankable feasibility study	Technical scope	**2.1.** Conduct robust and sophisticated demand forecasting	**2.2.** Fix contractible, innovation-friendly output specification cross-checked by cost forecast
	Commercial attractiveness	**2.3.** Apply user charges, ancillary revenues, land-value capture and government payments	**2.4.** Test bankability continuously and conduct market sounding early
	Prerequisites	**2.5.** Pursue proactive, inclusive and professional stakeholder engagement	**2.6.** Complete holistic legal feasibility check and expedite permits and land acquisition
Balanced risk allocation and regulation	Incentives	**3.1.** Adopt a life-cycle oriented contract model aligned with the policy objectives	**3.2.** Apply incentive-based price regulation and evaluate competition options
	Risk mitigation	**3.3.** Identify all risks, allocate them to the best-suited party, and apply risk sharing/mitigation	**3.4.** Adopt regulation that is adaptive to exogenous changes and volatility
	Safeguards	**3.5.** Fulfil social objectives via enforced quality regulation and efficient monitoring	**3.6.** Provide for government intervention options in a predictable and fair way
Conducive enabling environment	Public-sector readiness	**4.1.** Establish a solid legal framework and independent regulators/dispute resolution	**4.2.** Enhance individual capacity with training, and build institutional capacity in PPP units
	Private-sector readiness	**4.3.** Facilitate access to local currency, long-term finance and guarantees	**4.4.** Develop a competitive and capable local industry/workforce and pursue trade reforms
	Civil-society readiness	**4.5.** Insist on transparency and enforce anti-corruption standards	**4.6.** Optimize public communication, information and participation

Managing a rigorous project preparation process

The PPP preparation process is quite complex, as it involves large teams and multiple stakeholders (including ministries, regulators, engineering firms, banks and users), as well as a multitude of interfaces between the different functional feasibility studies and the regulatory contract design. So it is of paramount importance to assemble capable and experienced cross-functional teams with a well-defined governance structure backed by strong and committed political and project leadership. A project management office should define a multi-stage project plan along with decision gates and potential exit ramps, and should flag issues early, as well as coordinate and monitor the workstreams. When responsibilities are spread across different levels of government and jurisdictional boundaries, decision-making can be improved and accelerated by establishing a designated coordinating authority, and by defining clear roles and responsibilities for all other agencies involved.

High-quality project preparation is also costly – for medium and large-sized projects the feasibility studies and contract design typically consume 1-3% of the total costs. In many cases, insufficient or ad-hoc funding has led to poor quality, inconsistencies and delays in project preparation. PPP planners need to ensure sufficient upfront funding, to be disbursed at set milestones, to conduct a thorough feasibility study. Governments should also establish project-preparation facilities – i.e. dedicated funds for feasibility studies – with cost-recovery mechanisms as well as supervisory and advisory capabilities, to provide sustainable sources of project-development funding. To reduce the funding needs, the planners should try increasing the standardization of the project-preparation process; for example, by using common feasibility-study guides, standard specification manuals or adjustable draft concession agreements.

Conducting a bankable feasibility study

Many PPPs have failed owing to a faulty appraisal of just one single variable: demand.[2] The optimism bias inherent in many demand forecasts – for greenfield toll roads, for instance, actual traffic after the facility opens is on average 23% and sometimes even 50% below projections – has led to notorious renegotiations or even bankruptcies. To avert forecast inaccuracies, it is crucial to maintain the independence of the forecaster, ensure high-quality data and process guidelines, and challenge the results under multiple robust methodologies and scenarios as well as from different stakeholder perspectives. The forecast itself should take into account factors such as willingness to pay, inter- and intra-modal competition, ramp-up effects, and long-term macroeconomic and population trends – depending on which factors are most relevant for a given asset and environment.

Besides estimating future demand, project promoters also need to determine the project's technical specifications. Before detailing these, they should pause and consider various alternative ways of easing the infrastructure bottleneck – for example, managing demand through new pricing models, or reducing transmission losses rather than making costly capital expenditures. The project promoters must also make sure, when drafting the technical specifications, that these are outcome/output-oriented, so that potential contractors can devise innovative and cost-effective solutions. And lastly, the project promoters should carefully forecast costs and assess risks to avoid gold-plated designs (which are over-specified well past the point at which extra effort is adding value).

Once the demand and cost estimates are made, it is time for the evaluation of the project's commercial viability. A common danger here is to focus too sharply on user charges or direct government payments as funding sources.[3] For certain assets in high-density environments, ancillary revenues

– for instance, from retail operations – and land-value capture can contribute up to 50% of the funding requirement. When user charges are applied, they should be differentiated by time, location and usage intensity: such differentiation can maximize revenues and ensure efficient capacity usage. Although user charges often arouse opposition, they tend to gain acceptance when the new infrastructure asset proves that it gives users a higher service level or new opportunities. As for the adverse social consequences of user charges, these should be mitigated through tariff reductions or alternatives – for instance, a slower rural road parallel to the tolled highway. For some particular assets, bankability needs to be enhanced by asset-bundling or viability-gap funding – i.e. the provision of a public subsidy to make a project viable for investors – but without sacrificing fiscal prudence, transparency and competitiveness. To evaluate the attractiveness and the risks of the overall PPP project to the private sector, the project's planners must conduct a robust business-case analysis, including sensitivity analyses on key risks and potential economic scenarios. They should then carry out early "market sounding" – testing the proposed PPP package with a wide range of construction and operating firms, multilateral development banks and financiers – to understand key concerns and elicit suggestions for improvement.

Apart from the technical and commercial aspects, there are two other frequent sources of project delays: stakeholder opposition and incomplete legal prerequisites. It is crucial, even in the feasibility stage, to conduct proactive and professionalized stakeholder engagement. The project's planners should consult thought leaders across all stakeholder groups (some of which may already be, or may become, active promoters of the project), as well as less organized groups such as ordinary local residents. This consultation process should actively engage the citizenry on aspects of the project by communicating transparently both negative and positive impacts and providing feedback opportunities. Efforts must be made to mitigate the social and environmental impact: these should not only focus on short-term measures and cash compensation, but also take a longer-term view – for example by arranging community-owned maintenance of facilities or by providing administrative support in the case of involuntary resettlement. In addition, prior to tendering, public-sector sponsors should complete the other essential preliminaries: obtain land-planning and environmental permits, acquire land and rights-of-way, as well as dedicate funding and obtain approvals for the construction of essential connections to the infrastructure asset.

Structuring a balanced risk allocation and regulation

PPPs tend to be contracted for 20 years or more – a timeframe with potentially major changes. It is often the quality of the risk allocation and the regulation that determine if a partnership can successfully master these uncertainties while continuing to fulfil the expectations of both the public and the private side.

There is a fundamental design objective in the allocation of risk and in the regulation of price, service and investment – namely, striking a balanced trade-off between attractiveness for the private sector on the one hand and safeguarding public interests and optimizing overall economic returns on the other. The chosen trade-offs are sector-, country- and asset-specific, yet the fundamental objective stays the same: to allocate risks to the party best able to manage them. For example, governments can increase investor attractiveness by sharing or mitigating difficult-to-manage risks, such as traffic volume, by means of sliding scales, guaranteed minimum off-takes, least-present-value-of-revenues auction mechanisms, or availability-based concessions. On the other side, governments can protect the public interest by various means: choosing a concession model and pricing regime that incentivizes the concessionaire to operate efficiently and invest adequately, or introducing service regulation that provides quality incentives via bonus and penalty schemes, for instance. In addition, the regulatory system can include adaptive mechanisms that self-correct against economic cycles or commodity price volatility for concessionaires. Many regulations, for example, automatically adapt to inflation, while many power-sector regulations include pass-through clauses for volatility in the cost of fuel. With regard to public-sector intervention options – whether they concern contract termination, capital expenditure or financing – these need to be clearly defined in the contract; they should have well-specified triggers and an established consultation and decision-making process to balance public-sector flexibility with the private sector's desire for predictability.

Creating a conducive enabling environment

In addition to sophisticated preparation, any PPP project also relies on a conducive enabling environment. If a broader PPP programme is pursued, the public sector needs to ready itself with regard to legislation, institutions and capacity building. Needed first of all is a robust legal and institutional PPP framework, with an independent regulatory function and a trusted dispute-resolution process to enhance regulatory commitment. Secondly, the public sector needs to attract high-quality local staff through solid pay and career prospects, and to train them to build up the capacity (in particular, financial, legal and transaction skills) for negotiating with the private sector on an equal basis. But individual capacity building needs to be complemented by institutional capacity building – for example, by disseminating standardized tools and knowledge products and by establishing PPP units with adequate executive authority (not just an advisory function), located in a powerful central ministry such as the Ministry of Finance.

Governments can also help to increase the readiness of the private sector and civil society for PPPs. They should foster the development of a resourceful and competitive local set of industries as well as a skilled workforce. To attract both local and international companies to the market, governments would do well to formulate a steady project pipeline and an integrated infrastructure plan, while also enabling policy dialogue with the private sector. To complement industry development, governments should take further measures, to improve the concessionaires' access to local currency, long-term financing – by such means as creating innovative risk-guarantee and currency hedging/convertibility schemes, facilitating access to investment opportunities, and developing domestic capital and banking markets. Furthermore, to unlock demand for infrastructure, governments might need to initiate trade reforms; for example, faster border and visa procedures would enable higher throughput for a cross-border highway and would increase trade flows.

Civil society's readiness for PPPs can be enhanced by communicating more effectively the PPP value proposition and its relevance for social and economic progress, as well as by introducing participatory elements during the feasibility study. Transparency standards need to be maintained: they are critical in deterring, detecting and penalizing corruption in both the public and private sectors, and will help to reassure the public at large.

The way forward

The recommendations presented in this report are aimed at helping governments to close the "project preparation gap" and accelerate infrastructure development. Governments should start by reviewing and benchmarking their PPP policies and frameworks against the best practice checklist presented here to identify those areas most relevant to the country's particular context and most in need of change. Based on these insights, governments should aim to standardize their PPP approach along best practices; for example, by establishing

a clear gateway/approval process; by institutionalizing project-preparation facilities, viability-gap funding or financing/guarantee facilities; and by providing model documents for contracts and RfPs/RfQs. To maximize the value of PPPs, governments should structure them as a long-term programme within a national infrastructure plan, instead of as a series of separate projects. Governments also need to recognize that building a conducive enabling environment takes time, and that initial projects are unlikely to excel along all identified best practice dimensions. The build-up should proceed at a measured pace: the initial emphasis should be on uncontroversial projects, relatively less complex contracting modes, and financially attractive assets; as lessons learned are incorporated and as the enabling environment matures, more complex and demanding PPPs can be undertaken across various sectors. However, governments should keep their expectations flexible and realistic by also looking beyond PPPs: the PPP approach to infrastructure projects is no failsafe silver-bullet solution, and if a PPP will not deliver the best value for money, it should be abandoned and perhaps replaced by a better-suited delivery mode (PPPs are an option, not an objective). But overall, a well-designed PPP strategy and programme – complemented by other policies to improve infrastructure prioritization, delivery and operations – can give developed or developing countries a great opportunity to boost their infrastructure, increase competitiveness, and achieve major socio-economic advances.

Overview of the Strategic Infrastructure Initiative

The Strategic Infrastructure Initiative of the World Economic Forum supports governments in their efforts to address and debate two fundamental questions to maximize their returns on investment from strategic infrastructure projects:

- How should they prioritize which infrastructure projects create the greatest impact on economic growth, social uplift and sustainability?
- Once they have selected the investments, how should they prepare, procure and deliver these assets most efficiently and effectively?

The first phase in 2011/12 centred on project identification and prioritization, and produced the report *Strategic Infrastructure: Steps to Prioritize and Deliver Infrastructure Effectively and Efficiently* in September 2012 (a synopsis is provided on page 13 as these practices are a precondition for this report). The second phase in 2012/13, which is summarized in this report, focused on project preparation, specifically looking at Public-Private Partnerships as an exemplary project delivery mode. The third phase in 2013/14 will investigate issues of existing infrastructure assets, such as throughput optimization as well as operations and maintenance. Figure 3 provides an overview of the three phases of the Initiative and their respective topic focus.

The Initiative expands on work already commissioned by the World Economic Forum, including *Paving the Way: Maximizing the Value of Private Finance in Infrastructure* (2010) and *Positive Infrastructure: A Framework for Revitalizing the Global Economy* (2010).

The Initiative draws on partners from the Forum's Infrastructure & Urban Development and other relevant industries, including Mobility, Energy and Investors. Experts from multilateral development banks, academia, governments and the wider infrastructure community are also participating in the Initiative. Refer to figure 11 for an overview of the various meetings at which the Initiative partners convened.

Figure 3: Overview of the Strategic Infrastructure Initiative

	Phase I	Phase II	Phase III
Project phase and title	**Project origination**	**Project preparation**	**Project implementation***
Specific topics addressed	**Prioritization and selection of infrastructure projects** — Infrastructure planning & project identification — Project prioritization & selection — Choosing delivery modes	**Preparation and acceleration of Public-Private Partnerships** — Project preparation process — Feasibility study — Regulatory design — Enabling environment	**Operations and maintenance of existing infrastructure** — Operations & maintenance — Throughput optimization — Upgrades & renewals — Environmental & social impact optimization
Delivery modes	— Public, private and PPP delivery	— Specifically addressed PPPs as an exemplary delivery mode	— Public, private and PPP delivery
Outputs	 — Report published in Oct. 2012 — Strategic Infrastructure Planner Tool and Framework	 — Report in May 2013 — PPP Maturity Assessment Tool	 — Report in spring 2014 — Operations & Maintenance Evaluation Tool

* Tentative planning for Phase III

Source: World Economic Forum; Global Strategic Infrastructure Initiative

Synopsis of Phase I Report

Project origination best practices

This report assumes that the best practices related to project origination will be applied consistently – as they constitute a key precondition for successful project preparation. Those critical success factors have been described in detail in the previous report of this Initiative, *Strategic Infrastructure: Steps to Prioritize and Deliver Infrastructure Effectively and Efficiently*.

In particular, it is assumed here that governments will create a comprehensive infrastructure vision and plan that addresses economic, social and sustainability needs. This ideal infrastructure plan will be developed in a methodical way, starting from an analysis of the current infrastructure status and needs, incorporating all the various stakeholder and agency inputs. Such a plan should be based on a broader, national economic plan and would take an integrated, cross-sector, and system-wide perspective – including the major cities and even assuming a cross-border perspective – to account for the interdependencies between the different components of the infrastructure network. The optimal infrastructure plan will carefully consider both greenfield developments and brownfield capacity enhancements. In addition to considering hard assets, it will also consider infrastructure efficiency improvements (for example, by influencing user behaviours through peak pricing or car-sharing incentives) and soft infrastructure improvements (for example, by enabling trade reforms). The infrastructure planners should also make provisions for updating the infrastructure plan regularly, as conditions and requirements change.

After identifying the projects, the plan will prioritize them using robust cost-benefit analysis, explicitly taking into account the performance throughout the whole life cycle and the various socio-economic objectives. The plan will then be translated into a continuous project pipeline, with a clear timeline for each project and an indication of the most appropriate financing and delivery mode – private, public or via PPP. To decide on that delivery mode, governments should conduct a value-for-money analysis that determines whether delivery as a PPP or traditional procurement/financing is the cheaper option on a whole life-cycle cost basis. This process has to be unbiased and thus should be based on high-quality data and a clearly specified and standardized evaluation process.

Delivery mode choice needs to be based on value-for-money analysis

Government to conduct value-for-money analysis to choose appropriate delivery model

Value-for-money analysis needs to consider both costs and benefits of available delivery modes

- Costs: Efficiency in investment, operations and maintenance (PPP typically better); Financing costs, transaction and contract oversight costs (PPP typically worse)
- Benefits: Potential non-financial impacts such as accelerated and enhanced project delivery

Result of the value-for-money analysis typically depends on a number of factors

- Size of capital expenditure involved
- Project size relative to transaction costs
- Design/implementation expertise of private sector
- Feasibility of risk identification and allocation
- Specification of service needs as outputs
- Possibility to estimate long-term asset costs
- Stability of technological aspects

Possible options include public, PPP and private delivery

Public
- Civil works contract: DBB* & DB*
- Service contracts

Public-Private Partnership
- Management contracts
- Lease/ affermage
- Concession, BOT*, DBO*, DBFO*

Focus of this report

Privatization
- Regulated privatization
- Liberalization and full divestiture

A PPP project yields "value-for-money" if provides a net positive economic gain greater than that of any alternative procurement route (i.e. the public sector comparator)

*DBB = design-bid-build DB = design-build BOT = build-operate-transfer DBO = design-build-operate DBFO = design-build-finance-operate

Source: *The Guide to Guidance, How to Prepare, Procure and Deliver PPP Projects*. July, 2011. Luxembourg: European Investment Bank.

Introduction: The PPP Project Preparation Gap

Infrastructure projects – from ports to pipelines, from hospitals to highways, from water and sewage systems to phone systems – provide the bedrock of a nation's prosperity and well-being. They facilitate transport, promote communication, provide energy and water, boost the health and education of the workforce, and enable the whole economy to flourish. The costs of building infrastructure are vast, but the costs of failing to make such investments are incalculable. An improved infrastructure produces abundant benefits of three types – on the economy, on the environment and on social progress:

- First, economic development and competitiveness hinge crucially on infrastructure development. Public infrastructure reduces the costs of trading, and thus facilitates economies of scale and enhances production efficiency for other sectors. On average, infrastructure investments yield a 15-25% economic return.[4] Fit-for-purpose infrastructure in Africa, for example, would increase the annual growth of GDP per capita by 2.2%.[5]
- Second, improved infrastructure helps to reduce environmental damage. Better roads will reduce fuel consumption and extend the life of vehicles. Reduced congestion at ports and airports will reduce carbon dioxide (CO_2) emissions. An expansion of gas and electricity networks will lead to a reduction in off-grid diesel generators and other inefficient and polluting energy sources.
- Third, improved infrastructure will help to achieve the United Nations Millennium Development Goals on poverty, education, gender and health in developing countries. Without large-scale infrastructure advances, the grim status quo will continue: currently, 1.6 billion people are without electricity, 884 million have no secure supply of safe water, and 2.5 billion lack proper sanitation.[6] But paved roads have doubled girls' school attendance in Morocco; clean water has reduced child mortality by 55% in India, and in Colombia 72% of children with electricity at home read in the evening, compared to 43% of those without.[7] And in developed countries, improved infrastructure will enhance user quality; for example, in the United States, traffic could exceed capacity at nearly 20 major airports by 2015, implying drastic delays.[8]

While the global infrastructure requirements are huge, governments' fiscal budgets are increasingly constrained in the wake of the global financial crisis of 2008. In addition, infrastructure development by the public sector has often been slow and inefficient. In such an environment, Public-Private Partnerships (PPPs) are an important way forward: they can accelerate infrastructure development by tapping the private sector's financial resources and its skills in delivering infrastructure effectively and efficiently on a whole life-cycle cost basis. So far the overall global PPP experience has been both promising and sobering: some projects have proved to be financially viable, with broader socio-economic benefits, but other projects have been affected by delays, cost overruns and contract disputes.

One of the most pressing challenges is the lack of effective PPP project preparation and acceleration towards bankability. While institutional investors hold substantial assets under management, for which they are seeking attractive, long-term infrastructure investment opportunities, many projects are stalling in the pipeline and have failed to get off the ground. The reason for this paradox, especially in developing countries but also in some developed countries, is the "project preparation gap", i.e. the shortage of well-prepared, bankable PPP projects where investors are sufficiently reassured by the commercial and technical feasibility, the risk allocation, the public sector`s contractual commitment and capacity as well as the institutional and legal framework.

To bridge the project preparation gap and to overcome the challenges of the PPP model, this report offers recommendations with actionable best practices on taking advantage of these opportunities for infrastructure advancement. But first, it is worth looking at the scale of the investment needed.

The Infrastructure Investment Needs

Global demand for infrastructure has powerful underlying drivers:

- By 2050, the global population will increase by about 2.3 billion people, to reach a total of about 9.3 billion;[9]
- By 2050, the urban population worldwide will increase by 2.6 billion, almost doubling its present size and reaching a total of about 6.3 billion;[10]
- Industrialization and rising living standards in emerging countries will drive global economic growth at a rate of about 2% per year in real terms, so that by 2050, worldwide per capita GDP will more than double from its present level of US$ 10,000 to about US$ 21,000;[11]
- Increasing globalization of supply chains and increasing regional economic integration drive the need for globally interconnected communication and transportation networks.

So massive is the impact of these megatrends that current infrastructure development activity is failing to keep pace with demand:

- Actual infrastructure construction, or supply, amounts to US$ 2.7 trillion per year, representing about 3.8% of global GDP;[12]
- Needed infrastructure construction, or demand, is about US$ 3.7 trillion per year, representing about 5.2% of global GDP;[13]
- The shortfall, or the so-called global infrastructure investment gap, therefore amounts to at least US$ 1.0 trillion per year.

The immediate effects of the shortfall are well-known – and dire. Ports and airports suffer severe capacity constraints and delays: in Brazil, for example, ships typically have to wait 15 to 20 days to load Brazilian grain for export.[14] In many countries, the road and rail networks are grossly deficient: in Africa, for example, some 40% of the food produced perishes on the way to market.[15] In many rapidly developing economies, electricity shortages are a chronic feature of daily life: in India, for example, supply is 9% below demand on average, and 40% below demand during peak periods.[16]

But these infrastructure deficits also have tremendous long-term implications for economic growth and social progress. The affected countries are less competitive, and conducting business is more difficult. Three recent reports from the World Economic Forum have highlighted the problem. According to The Global Competitiveness Report, 15-17% of corporate decision-makers in India and Brazil identify infrastructure deficiencies as the top constraint on doing business.[17]

According to the *Global Risks Report*, one of the foremost risks to the global economy is the prolonged neglect of infrastructure investment and upgrading.[18] And according to the *Global Agenda Survey 2012*, global business leaders consider constraints in critical infrastructure to be one of the most underestimated trends.[19]

The Opportunity for PPPs

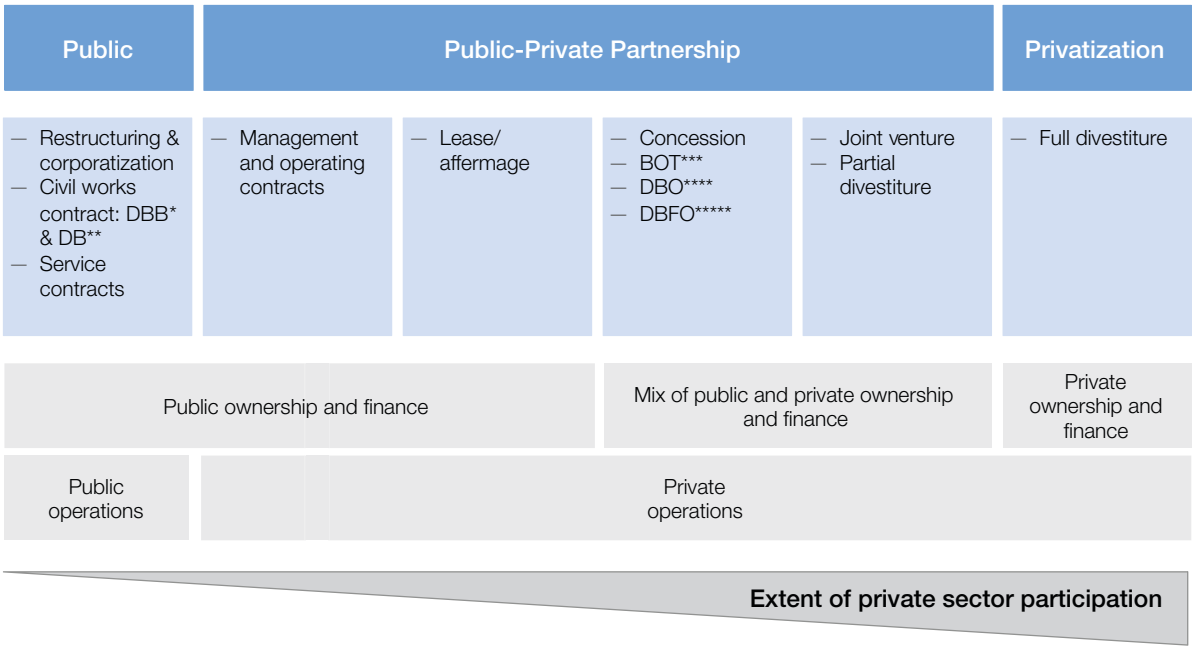
The reason that PPPs were developed in the first place is that traditional public delivery of infrastructure projects has often proved to be disappointing in many countries. Unfortunately, projects procured under the traditional model regularly go over budget and over schedule – and often disregard the resulting life-cycle costs. For example, a survey of major rail and road projects in Europe and North America during the period 1927–1998 shows an average overspend of 28%, with little variation from decade to decade.[20]

Today the problem of public infrastructure delivery inefficiency is exacerbated as public finance is no longer so readily available. As budget deficits have become widespread and public debt has grown in Organisation for Economic Co-operation and Development (OECD) countries, governments have been reducing their investments in infrastructure projects, delaying many essential projects.[21] In the case of emerging countries, the picture is more varied, but the principle remains the same: government coffers alone are an unreliable way to finance and deliver the infrastructure projects that the growth trajectory of countries requires. In such an environment, PPPs can be a viable way forward to overcome the limitations of the traditional delivery models.

While there is no international consensus on the definition of a PPP, this project-delivery model is commonly understood as follows: it involves medium- or long-term contracts between a public-sector authority and a private party, with the private party delivering certain defined infrastructure services or works. PPP contracts are characterized by the bundling of activities across the life cycle (including design, construction, operation and maintenance); the private party assumes or shares substantial risk, has some control over the asset, and often raises private finance for capital expenditures (see figure 4 for an overview).[22]

Figure 4: Overview of Public-Private Partnership vs public and private project delivery

Public-Private Partnerships fall between public project delivery and privatization



*DBB = design-bid-build **DB = design-build ***BOT = build-operate-transfer ****DBO = design-build-operate *****DBFO = design-build-finance-operate

Source: World Bank PPP in Infrastructure Resources Centre. "PPP Arrangements / Types of Public-Private Partnership Agreements." Available at http://ppp.worldbank.org/public-private-partnership/agreements

Based on these characteristics, PPPs offer various potential advantages over public project delivery, as outlined in figure 5 (despite their challenges, described in the next section).

Figure 5: Potential advantages of PPPs

Public-Private Partnerships promise several potential advantages

Potential advantage	Description
 **Improved project selection**	— Wasteful or "white elephant" projects – that is, economically underproductive projects – are potentially filtered out (at least for user revenue-based PPPs), as both the government and private investors tend to conduct more thorough due diligence. — The private sector has no bias between greenfield or brownfield investments, but the public sector may prefer the funding of new assets which attract much publicity (and votes), whereas routine maintenance has low visibility and thus may be neglected.
 **Accelerated infrastructure provision**	— When public financing for infrastructure is constrained or provided slowly in a "pay as you go" fashion, private sector investment can reduce delays in project implementation and hasten the macroeconomic benefits – particularly in an emerging country context with major bottlenecks.
 **Whole life-cycle cost optimization**	— PPPs address the life-cycle dependencies between design, construction and operations effectively as they assign the full asset responsibility to a single party. — PPPs attempt to unbundle risks and allocate to the best party able to manage them. — The private sector, being subject to the profit motive and capital market discipline, strives to operate efficiently and exploits technical and managerial expertise (e.g. preventive maintenance, lean operations) and economies of global scale, and will invest in technology and process innovations early to reduce whole life-cycle costs.
 **Revenue innovation**	— The private sector systematically maximizes revenue opportunities, for example by increasing asset capacity and utilization or by setting and segmenting user prices (i.e. applying demand management). — At the same time, it is often more innovative in matters of developing new customer services and products, as well as ancillary businesses.

In addition to these advantages, the private sector has vast disposable funds. Institutional investors in OECD countries have assets under management amounting to an estimated US$ 71 trillion. More specifically, investment funds have US$ 28 trillion at their disposal, insurance firms US$ 22 trillion, and pension funds US$ 19 trillion.[23] The same is true for emerging countries where these investors have also piled up significant reserves over the last decade. In addition, increasingly active sovereign wealth funds have about US$ 5 trillion at their disposal.[24]

For these institutional investors, infrastructure project risk-return profiles present an attractive alternative investment – especially with real fixed income returns being near zero in the wake of the global financial crisis. Although the infrastructure investment characteristics may vary greatly depending on the specific sector, asset and country, the overall appeal of infrastructure investments is considerable. The main attractions are:

– *Matching of assets and liabilities*. Infrastructure investments tend to be of long duration – the typical technical life of infrastructure assets is between 30 and 70 years, and concessions mostly last between 20 and 40 years – so they accord well with the long-term obligations of pension funds and insurance firms.[25]
– *Stable returns*. Cash flows are reliable and volatility is subdued, as infrastructure firms often enjoy a natural monopoly based on high entry barriers; once construction is completed, operational risks are generally low, and demand is fairly predictable and inelastic to price changes.
– *Portfolio diversification*. Infrastructure services are generally essential goods with low substitutability, so demand is often relatively stable; therefore, infrastructure returns show a lower correlation with the wider economy and other assets than other equity investments do.
– *Hedge against inflation*. Thanks to strong pricing power, to regulatory regimes that adjust user charges to the Consumer Price Index, and to low operational cost exposure, infrastructure returns are generally considered to be well hedged against inflation.

Accordingly, institutional investors are planning to increase their portfolio allocations to the infrastructure asset class. Research by Preqin in 2012 suggests that insurance companies aim to increase their infrastructure investments from the current 1.1% to their target allocation of 2.6% of assets under management, while pension funds aim to increase from 2.8% to about 5.0%.[26]

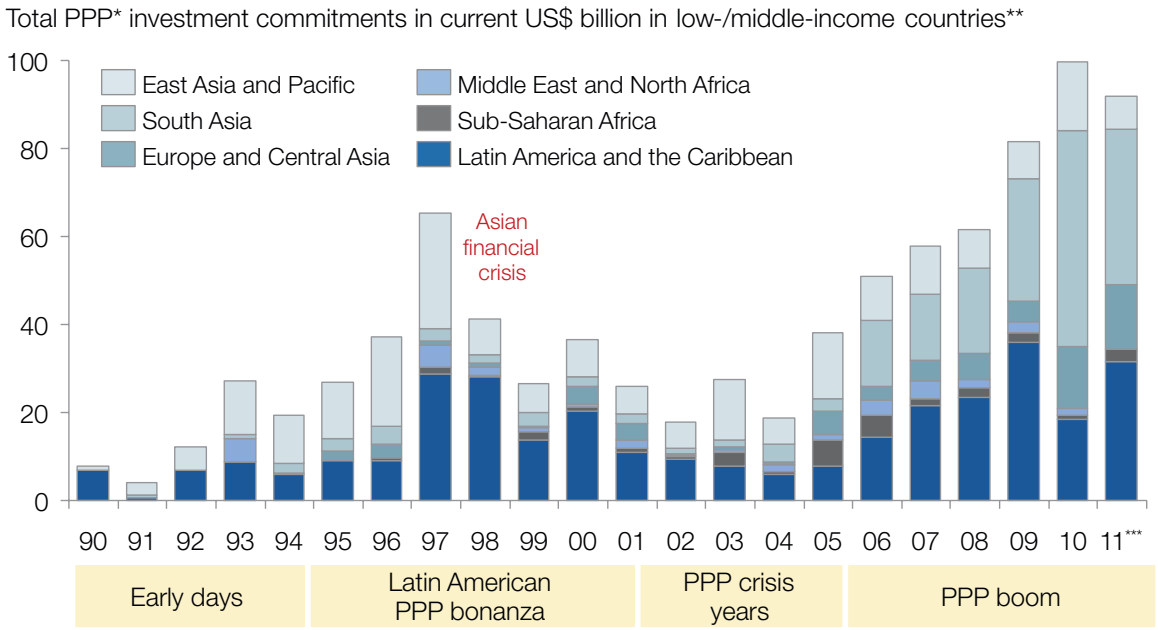
Given these background trends, PPPs can contribute effectively to closing the looming infrastructure gap. They help to screen out the least viable infrastructure projects, and thereby potentially reduce construction needs. They also contribute to efficient project delivery by tapping the private sector's integrated skills in project management, design, construction and operations. Lastly, PPPs also incentivize a productive use of infrastructure assets by adopting innovations to optimize capacity, maximize utilization and increase revenues.

Although PPPs offer benefits in the developed world (particularly for major rehabilitation and renewal projects with large capital expenditure involved), their greatest potential lies in emerging and developing countries. In these countries, efficiency gains are more impressive as local standards and capacity tend to be comparatively modest. The economic and social benefits of new infrastructure emerge quickly, as PPPs may enable earlier project financing and completion and thus ease infrastructure bottlenecks. Finally, emerging countries are more likely to commission greenfield infrastructure projects – the kind of projects particularly suited to the PPP model since they bundle the design, construction and operations aspects and thereby enhance the efficient delivery of infrastructure on a whole life-cycle basis.

While in many developed countries PPP volumes remained relatively flat over the past decade,[27] they have been increasing rapidly in emerging and developing countries over the last two decades (see figure 6).

Figure 6: Infrastructure PPP investments in developing and emerging countries

Infrastructure PPPs are on the rise in emerging and developing countries



* This includes management and lease contracts, concessions (or management & operation contracts with major private capital commitments), and greenfield projects (excl. merchant contracts), but excludes divestitures/privatizations. ** Following the World Bank definition *** Data as of December 2012. Sometimes projects are included in the database later, hence 2011 figures may be downward biased.

Source: The World Bank and Public-Private Infrastructure Advisory Facility (PPIAF). Private Participation in Infrastructure Database, 2012. http://ppi.worldbank.org/index.aspx.

The Challenges for PPPs

Offsetting the many advantages of PPPs are various challenges, as listed in figure 7.

Figure 7: Potential challenges of PPPs

Public-Private Partnerships also face several potential challenges

Potential challenge	Description
Restricted control & flexibility	— Governments are sometimes unwilling to share control of infrastructure due to the inflexibility to influence future system design and operations, particularly with regard to national interests, social objectives and integration with other facilities.
Transaction & monitoring time and costs	— The indirect and direct costs of management time and advice from experts in the preparation, procurement and monitoring of PPPs can be very high – yet are often unavoidable. As these expenses are largely fixed, PPPs are only cost-effective above a certain project size.
Regulatory failures	— The design of regulatory regimes is sometimes sub-optimal, or the originally conceived regulation is gamed by special interest lobbying ("regulatory capture"). — Private operators might have insufficient incentives to regard safety, equity, community and environmental considerations, raising the risk of market failure if no adequate regulations for internalizing these issues have been stipulated.
Incomplete contracts	— Even the best PPP contract cannot foresee all circumstances that may arise over a concession duration of multiple decades. Thus, the need to amend the contract can entail lengthy and expensive renegotiations between the partners.
Public budget risks	— If a PPP uses availability payments and is over-dimensioned, this may lead to excessively high future government payments – and possibly costly renegotiations. — In some cases, politicians have excessively used PPPs with availability payments, effectively moving public obligations into the future and off the government's balance sheet with a resulting large contingent liability to the public budget.

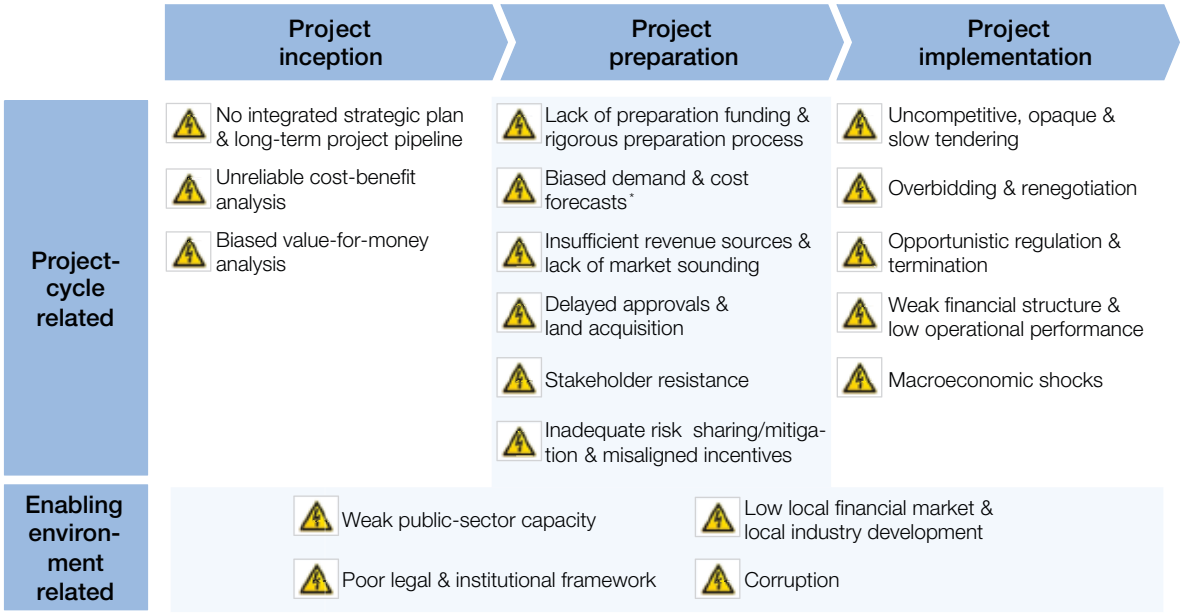
As a consequence, in developed and developing countries alike, many promising PPPs have ended in failure. In Bolivia, for example, a water-project PPP was terminated after protests targeted a 35% water-price increase.[28] In Spain, motorway-project PPPs have been bankrupted or renegotiated after traffic levels turned out to be half of the original forecast. In emerging countries, though relatively few PPPs (about 6%) have experienced distress or cancellation,[29] a high number of PPPs (more than 50%) have involved subsequent renegotiation during their life cycle.[30]

The Imperative for Best Practice PPP Preparation

The reasons for these failures are as varied as the projects themselves. They range from inaccurate cost-benefit analysis during project origination, to an uncompetitive bidding procedure during project procurement, to a weak financial structure and low-quality operations during project execution. (See figure 8 for a list of the most prevalent issues.) But the issues are not only related to the project cycle itself; many are also related to the enabling environment: corruption, weak government institutions and legal systems, shortage of private-sector skills, and so on.

Figure 8: Reasons for PPP failures

Public-Private Partnership failures and dry pipeline are particularly due to preparation issues



* Planning fallacy, optimism bias and strategic misrepresentation

However, the foremost reason for most of these failures or false starts is inadequate project preparation: notably, poor demand forecasts, delayed land acquisition and approvals, and inadequate risk allocation. For example, ineffective project preparation delayed the ambitious Philippines PPP programme, and most of the ten projects announced in 2010 were held back owing to insufficiently rigorous feasibility studies.

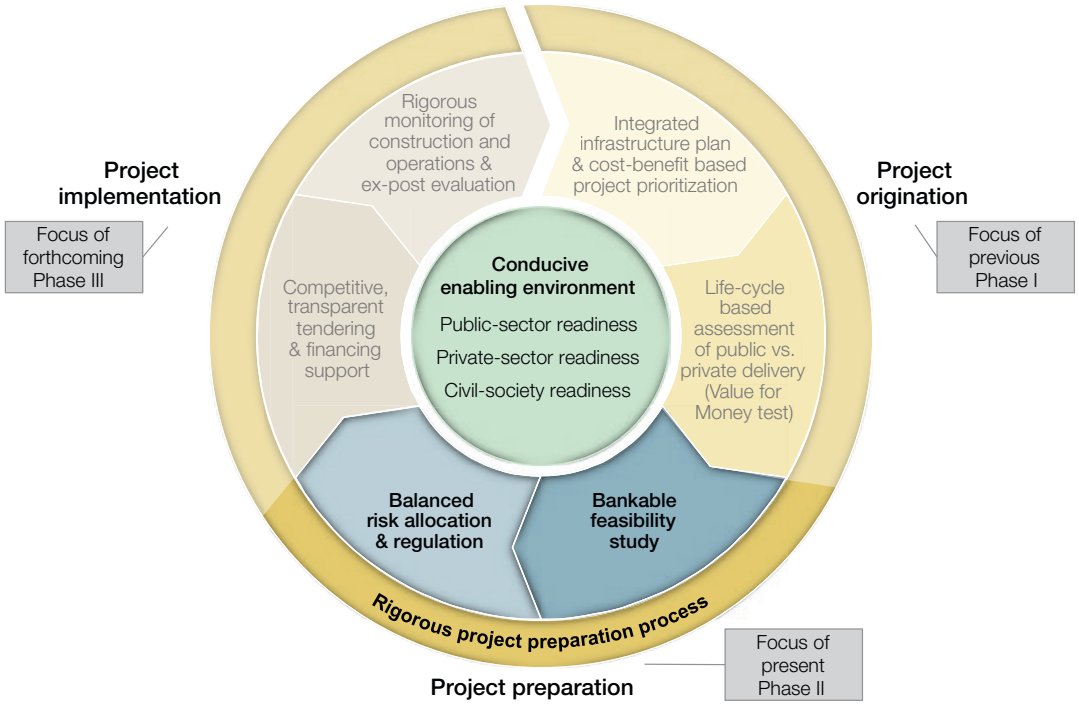
If PPP planners could just get the preparations right, that would not only reduce the issues that beset well-advanced projects, but would also increase the number of projects that get launched in the first place. To put it another way, optimized preparation would help to resolve the "PPP preparation gap". As Rajat M. Nag, Managing Director-General of the Asian Development Bank, expressed it at the 2012 World Economic Forum on East Asia, "Every week I receive calls from investors looking for investment opportunities, and every day I receive calls from project managers requiring financing." Therein lies the paradox: a severe shortage of bankable PPP investment projects despite the huge infrastructure construction and financing needs.

This preparation gap obviously has severe negative implications for users and governments. Projects are late or not delivered at all, and the preparation phase is needlessly long or expensive. For the private sector, these preparation issues imply lost investment opportunities. Additionally, if the tender documents are deficient or unclear, the potential bidders have to generate the required information via extensive due diligence, and this process is costly and wasteful. (The problem is compounded when multiple bidders conduct bid preparations in parallel.)

This report outlines best practices that governments can adopt to close the project preparation gap and to address the shortcomings of many PPP projects. As shown in figure 9, the focus is on the project preparation phase, which guides the public sector step by step – from the initial decision to identify a suitable project and structure it as a PPP (which this report assumes has been dealt with rigorously as described in the Phase I report), right through to the point where the project is bankable and ready for tendering. This report details the following four main best-practice areas, and is organized into four main chapters accordingly:

1. Managing a rigorous project preparation process: How to effectively set up the project team and leadership, design the project governance structure and project management, and secure the required preparation funding (chapter 1);
2. Conducting a bankable feasibility study: How to conduct a robust and high-quality technical, commercial, legal and environmental feasibility study (chapter 2);
3. Structuring a balanced risk allocation and regulation: How to balance efficiency incentives, risk mitigation and public-interest safeguards to ensure a successful long-term partnership between the public and the private sectors (chapter 3);
4. Creating a conducive enabling environment: How to enhance public, private and societal readiness for PPP projects (chapter 4).

Figure 9: PPP best practice framework



Drawing on extensive consultations with the multistakeholder constituencies of the World Economic Forum's Strategic Infrastructure Initiative (see figure 11 for an overview of the various meetings at which the Initiative partners convened), this report identifies and discusses 24 critical success factors and actionable best practices (see figure 10).

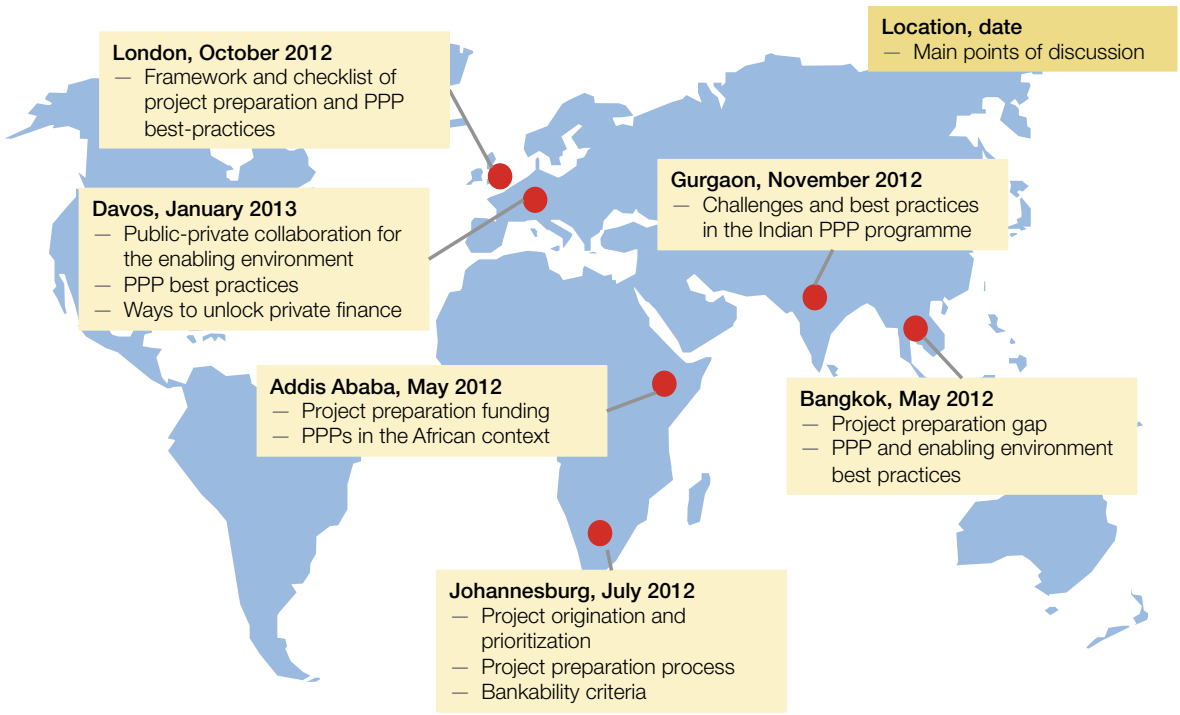
Figure 10: Checklist of PPP preparation best practices

Rigorous project preparation process	Team and leadership	**1.1.** Assemble an experienced, cross-functional team	**1.2.** Secure buy-in and leadership of high-level political champions and public servants
	Governance & project mgmt	**1.3.** Set up a governance structure with clear roles/responsibilities and a coordinator	**1.4.** Pursue rigorous project management, and devise multi-stage planning
	Preparation funding	**1.5.** Secure sufficient preparation funding, and minimize costs through standardization	**1.6.** Leverage project-preparation facilities (with cost recovery, advisory and monitoring)
Bankable feasibility study	Technical scope	**2.1.** Conduct robust and sophisticated demand forecasting	**2.2.** Fix contractible, innovation-friendly output specification cross-checked by cost forecast
	Commercial attractiveness	**2.3.** Apply user charges, ancillary revenues, land-value capture and government payments	**2.4.** Test bankability continuously and conduct market sounding early
	Prerequisites	**2.5.** Pursue proactive, inclusive and professional stakeholder engagement	**2.6.** Complete holistic legal feasibility check and expedite permits and land acquisition
Balanced risk allocation and regulation	Incentives	**3.1.** Adopt a life-cycle oriented contract model aligned with the policy objectives	**3.2.** Apply incentive-based price regulation and evaluate competition options
	Risk mitigation	**3.3.** Identify all risks, allocate them to the best-suited party, and apply risk sharing/mitigation	**3.4.** Adopt regulation that is adaptive to exogenous changes and volatility
	Safeguards	**3.5.** Fulfil social objectives via enforced quality regulation and efficient monitoring	**3.6.** Provide for government intervention options in a predictable and fair way
Conducive enabling environment	Public-sector readiness	**4.1.** Establish a solid legal framework and independent regulators/dispute resolution	**4.2.** Enhance individual capacity with training, and build institutional capacity in PPP units
	Private-sector readiness	**4.3.** Facilitate access to local currency, long-term finance and guarantees	**4.4.** Develop a competitive and capable local industry/workforce and pursue trade reforms
	Civil-society readiness	**4.5.** Insist on transparency and enforce anti-corruption standards	**4.6.** Optimize public communication, information and participation

This checklist presents a holistic overview of the critical success factors that should be in place to make PPPs successful. The large number of individual best practices illustrates how complex PPPs can be, but it certainly does not imply that successful PPPs are unachievable – many countries and projects have also mastered the challenge by focusing on certain aspects that are most relevant in their particular context. In reality, many countries are already mature in several of these aspects, and perhaps need to direct their efforts towards upgrading just a few of the critical success factors. (Readers may use the checklist to navigate through the report and jump directly to the chapters of most interest.)

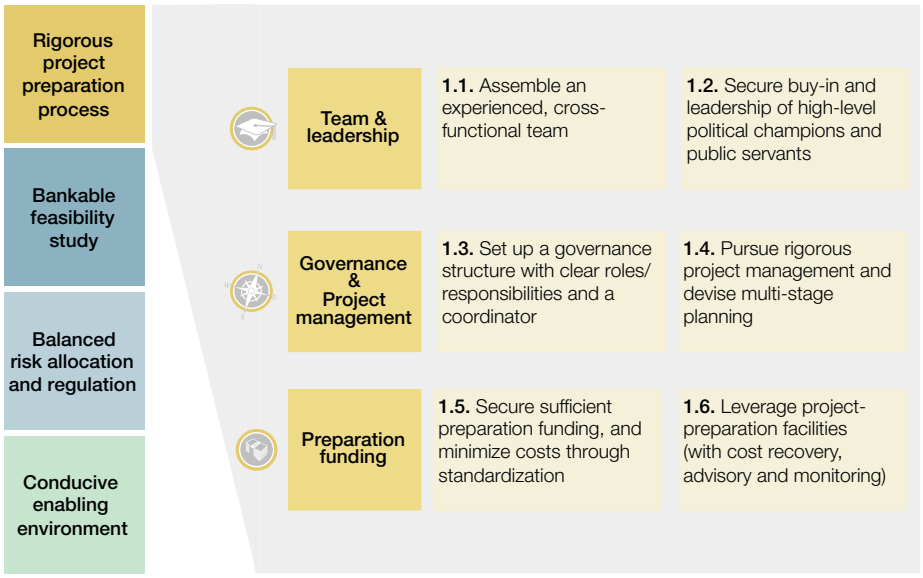
Best practices related to project origination and project implementation (as illustrated in the PPP best practice framework above) are beyond the scope of this report. They have been covered in a previous report of the World Economic Forum's *Strategic Infrastructure Initiative, Strategic Infrastructure: Steps to Prioritize and Deliver Infrastructure Effectively and Efficiently* (see synopsis of best practices on page 13), and will be elaborated in a future publication on operations and maintenance of existing assets.

Figure 11: Key meetings of the Strategic Infrastructure Initiative in 2012/13



1 Managing a Rigorous Project Preparation Process

The PPP preparation process is key to getting any good project going in its respective supporting framework. First, the project needs an experienced cross-functional team as well as steady leadership by the government sponsors. The preparation process also requires a clear governance structure and structured project management to coordinate the various workstreams. Finally, adequate funding must be secured to pay for such thorough preparations, ideally via project-preparation facilities.



1.1 Team

The success of a PPP project, as with any large-scale project, depends on the presence of competent teams preparing and executing it. The staff at the government agency promoting a PPP might all be experienced in traditional procurement, but if they have never been involved in a PPP before, they might struggle to launch the project smoothly. PPPs typically have more complex dimensions than standard projects as all responsibilities are packaged in one long-term contract. As a consequence, unwary PPP planners might be tempted to underestimate or even ignore the requisite procedures and the financial, legal and transaction skills required.

Assemble an experienced, cross-functional team, complemented with quality advisers as required. Team composition is crucial. It should cover a broad range of functional expertise (see figure 12), sector know-how, and project-management as well as deal-making experience – ideally, from team members who have worked on PPPs before. Note that different project stages will need different skills and mindsets, so the number and mix of staff will need to be adjusted over time.

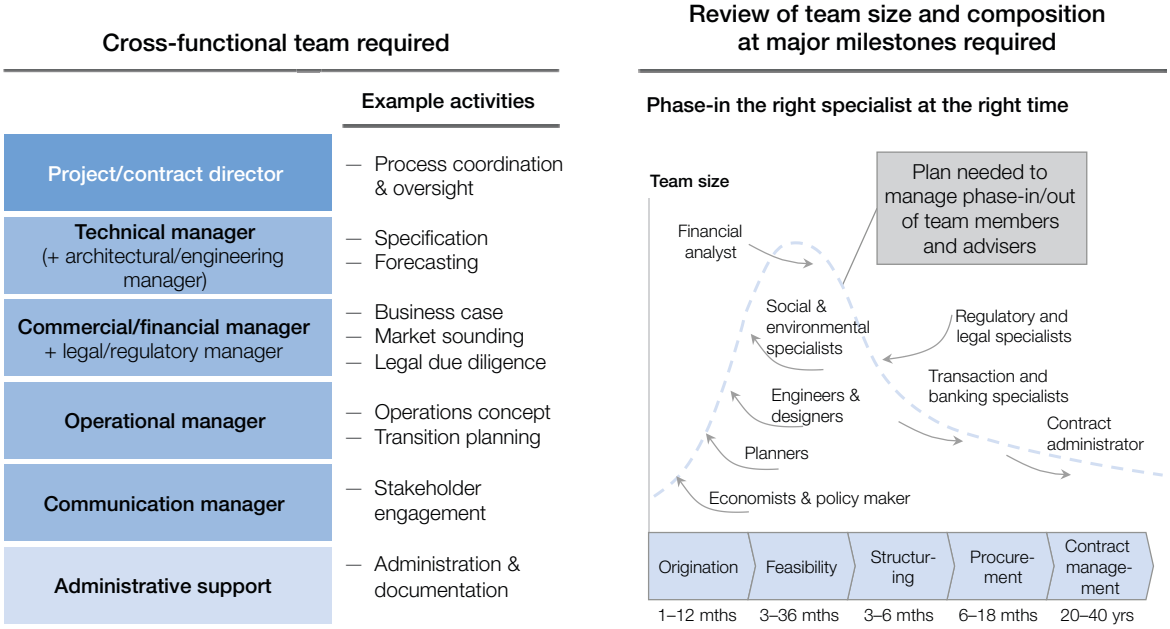
Some agencies preparing PPPs may need to reinforce their staff and fill knowledge gaps by occasionally hiring additional expert staff or using advisers from multilateral development banks, academia or the private sector. Such advisers can provide functional expertise, train the agency's staff and accelerate the progress of the project. Some steps and precautions to take in regard to involving them are:

- Identify suitable advisers with the help of the PPP unit or local/multilateral development banks;
- Base the selection on experience and quality, not just on cost;
- Align incentives through adequate compensation schemes and strict output and progress checks.

Assign an experienced project director. An experienced, full-time project manager on the government side will have to excel if the process is to run smoothly. He or she will need to have prompt access to key decision-makers and enablers, have the ability to navigate the stakeholder maze, and be familiar with both private- and public-sector environments. He or she also needs proven transaction and negotiation skills, as well as the ability to deal with the different functional teams by "speaking their language" and "finding a common language" for them to coordinate.

Figure 12: Skill requirements for PPP preparation

Many different skills and mindsets are required for Public-Private Partnerships – and the needs change over the project life cycle



Source: *National Public Private Partnership Guidelines, Volume 2: Practitioners' Guide*. March, 2011. Commonwealth of Australia: Infrastructure Australia

1.2 Leadership

A further risk to PPP preparations is the lack of attentive and consistent guidance from senior government sponsors – guidance that could determine the fate of a project. For example, the cancellation of the Visakhapatnam water, sewage and urban road PPP project in Andhra Pradesh, India, was due at least in part to the change of commissioner during the planning phase.[31]

Assure buy-in and leadership from high-level politicians and technocrats. Political will is a key pre-condition for PPP success. A PPP project will benefit greatly if a prominent public figure champions it and demonstrates personal commitment to it. For example, the Chief Minister of Andhra Pradesh was strongly involved in setting up the Hyderabad airport PPP. Ideally, this public figure will articulate a clear vision and goal that appeals to stakeholders, keeps the project focused and minimizes distractions. The political leaders backing the project should not just endorse it, but also be accountable for its success and for removing roadblocks. An interesting example is that of the African Presidential Infrastructure Champion Initiative (PICI), where national presidents report progress on infrastructure projects to their peers at the African Union Summits, sometimes "naming and shaming" suboptimal or delayed projects and those responsible for them. For the optical-fibre project in Algeria, Niger and Nigeria, the Initiative has facilitated a joint declaration between the partner countries and accelerated the feasibility study and project funding.

While politicians are essential to providing direction, the project also needs the whole-hearted backing of high-level civil servants. They ensure unbiased planning and continuity if the government changes; after all, the timeline for preparing and executing infrastructure projects exceeds the 4-year lifespan of any particular government.

1.3 Project Governance

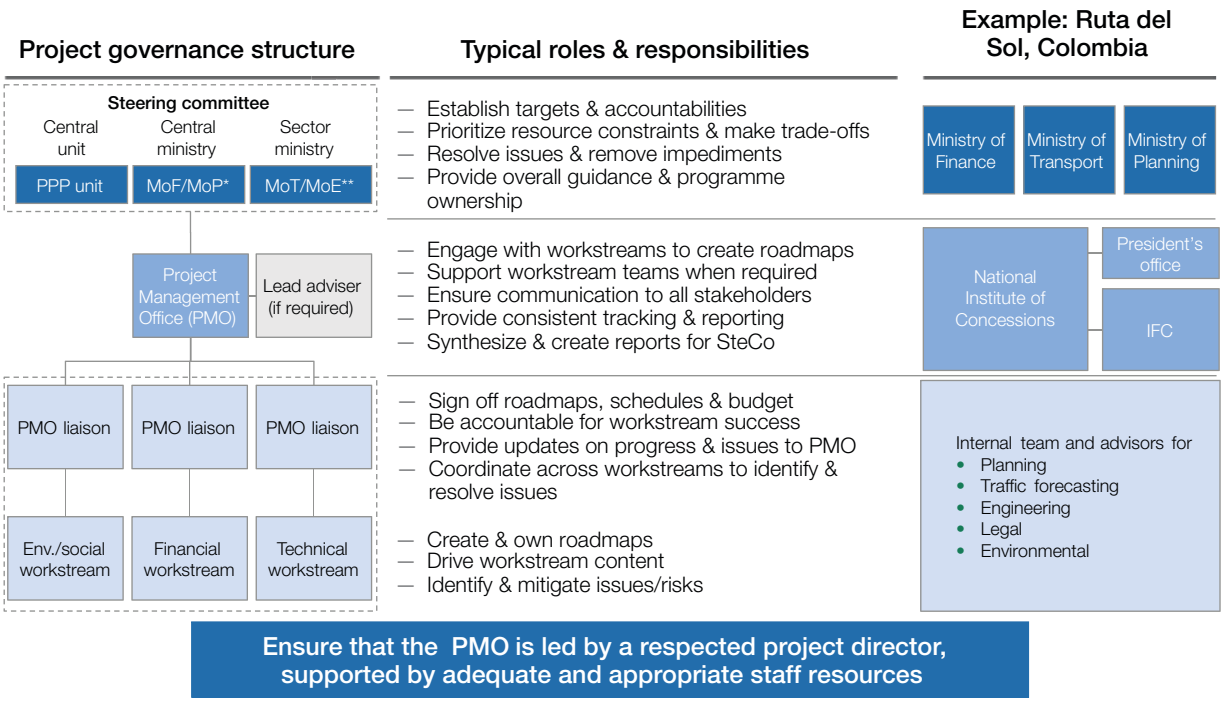
Preparing a PPP project is a complex and lengthy process involving multiple agencies and stakeholders as well as large cross-functional teams. To avoid confusion about each group's roles and responsibilities and to enable quick decision-making, PPP preparation requires a dedicated and clear governance structure.

Set up a governance structure involving all key stakeholders with clear roles and responsibilities. To help the project develop and launch as smoothly as possible, the PPP promoters would do well to take the following actions:

- Draw up a detailed governance structure, including a steering committee, a project management office (PMO) and the workstream teams. The steering committee should have at least one representative from each ministry or agency involved, but its size should be limited. (Refer to figure 13 for a typical project governance structure.) The assigned roles and responsibilities of each agency should be clearly formulated, and accountability should be enforced in regular meetings.
- Select one agency (or committee) as a central point of contact and communication hub to coordinate the other agencies and facilitate their decision-making. For example, for the Latur Water Supply Project in India, the process was mediated and coordinated by the state-level nodal agency for water supply and sanitation, which had extensive experience in handling consumers, strong government backing and technical knowledge. Such coordinating authorities are particularly helpful for cross-border projects. For instance, Energie des Grands Lacs (EGL) prepares and procures the Ruzizi III hydropower plant PPP on behalf of the Democratic Republic of Congo, Rwanda and Burundi.
- Consider establishing a separate governmental delivery vehicle with full-time, focused staff for the project preparation prior to tender. This entity will help to bypass bureaucratic procedures that are inherent to many government agencies, and will increase staff flexibility and commitment. In India, for example, each ultra mega power plant (UMPP) was assigned its own project preparation entity to secure clearances and land acquisition.

Figure 13: Project governance set-up

Project governance with well-defined roles and responsibilities



* Ministry of Finance/Ministry of Planning ** Ministry of Transport/Ministry of Energy

Source: *Report of the international conference on public-private partnerships 'PPP DAYS' 2012.* February, 2012. Geneva: United Nations Economic Commission for Europe.

1.4 Project Management

For PPP preparations – as for other large infrastructure projects – workstreams are interconnected and interdependent in so many ways, yet sometimes operate independently, as if in silos. The government project promoters must take proactive steps to prevent that isolation and keep the workstreams coordinated and aligned through rigorous project management; otherwise, the interlinkages could cause problems that become apparent only during procurement. And at that point, the promoters will have to backtrack to deal with the issues, and the project could be delayed.

Establish an "activist" PMO to plan, coordinate and monitor the PPP preparation process. The PMO should take an energetic and diligent role in driving the preparation process. Its list of duties includes the following:

Planning

- Define, align and articulate the top-level strategic objectives that the project is intended to address. Select metrics that enable the measurement of project success.
- Initiate a staged feasibility study with gateway reviews, ideally following a standardized approach that is used for all projects, as in the United Kingdom. Define clear criteria, required information and decisions to be made to proceed through each stage gate (for example, the preparation of best practices in this report could be used as checklist). Continuously and vigorously look for a "NO" at multiple possible exit ramps because exiting at the earliest possible stage conserves funds, avoids the planning fallacy and adds credibility to projects that move forward.
- Define required deliverables and timelines for the overall feasibility study and each workstream and support the teams in drawing up their action plan and in detailing the tasks, milestones, accountabilities and risks.

Coordinating

- Keep in contact with political leaders and high-level technocrats to maintain their support.
- Enable communication among the teams, and between them and the steering committee.
- Ensure the accountability of each workstream manager while enabling the exchange of functional expertise within a project and across projects.
- Identify interdependencies between workstreams; note, for example, the need for aligned assumptions.

Monitoring

- Check that progress conforms to the project plan, and evaluate workstream outputs against best practices and country- and sector-specific PPP guidance.
- Submit regular reports to the steering committee and stakeholders, customized to their information needs.
- Identify, evaluate and track emerging risks and issues proactively and continuously – and bring them to the attention of the steering committee; develop risk-mitigation strategies, and institute a pre-defined issue-resolution process for different scenarios.
- Track and assure the continued validity of underlying assumptions.
- Encourage work teams to raise concerns and warning signals early by fostering a culture of transparency and assigning accountabilities for risks to individuals.

1.5 Project Preparation Funding

To deliver a high-quality PPP project on time, the preparation needs to be very thorough. Yet such preparation is expensive. The feasibility studies and contract design typically amount to 1-4% of the total project investment. Preparation costs typically are 1-2% for large projects (> US$ 500 million), 2-3% for medium projects (> US$ 100 million) and 3-4% for small projects (< US$ 100 million).[32] As preparation costs are largely fixed, small projects are mostly not suited for PPPs.

Nevertheless, the investment into project preparation is a price worth paying. If a project's preparation is rushed and of low quality, it could lead to delays, inconsistencies, a lack of private-sector bidders, and sometimes increased costs on adaptations that have to be made in a repeated feasibility study.

Securing and disbursing the preparation funding takes careful planning. If the implementing government agency does not have the required preparation funding (as is often the case in developing countries), the PPP promoters need to get external funding commitments for the preparation process. And they need to plan the disbursement of the funds in detail. Specific actions include:

- Identify a wide range of possible funding sources, including project preparation facilities (PPF), taking into consideration the particular sector and life-cycle focus of these funds. For example, the Infrastructure Consortium for Africa operates an online searchable database to quickly identify suitable project-preparation facilities.
- Apply to multiple sources for backing. To make the request convincing, illustrate the economic, environmental and social benefits of the project realistically, and demonstrate the linkages to complementary projects.
- Start modestly, perhaps with an initial pre-feasibility study, and then, in subsequent phases, expand the scope and level of detail of the preparatory work. Disburse the funds according to a plan that has pre-defined stages and decision points with triggers (so that the project go-ahead or exit after each stage depends on the deliverables and the updated project's viability).
- Secure upfront commitment to the whole feasibility study, with funds to be allocated to each phase of the preparation process. For example, the Infrastructure Consortium for Africa's "Tunnel of Funds" concept identifies and aligns available funding facilities along the project's life cycle.

By standardizing the preparation process, the PPP promoters can minimize the funding needs for feasibility studies. The PPP programme in India serves as a model in this regard. Standards were established for several elements of the preparation process and were then adopted fairly widely. The result has been a quick roll-out of PPPs, making the country the largest PPP market among emerging economies globally. More importantly, this standardization has also resulted in impressive savings of costs and time. Recommended actions include:

- Standardize the process of selecting advisers for feasibility studies.
- Draft model concession agreements for each sector (based on consultations with the industry).
- Develop standard technical specification manuals for each type of project. Ideally, these are outcome-oriented rather than prescriptive in nature.
- Produce standardized requests for qualifications/requests for proposals (RfQs/RfPs) for procurement.

In some cases, the private sector might take the lead in developing projects. Governments sometimes facilitate private-sector driven project initiation and preparation by allowing unsolicited project proposals from corporations. Private companies may be willing and able to take the initiative, and their unsolicited proposals have produced innovative solutions with overall lower costs. For example, in the United States, a major contractor proposed high-occupancy/toll (HOT) lanes for the I-495 highway in Virginia.

Note that unsolicited proposals need an unusual degree of scrutiny to prevent companies from abusing their information advantage and creating an uncompetitive procurement process. In World Bank-funded projects, unsolicited proposals are actually not permitted, and the World Bank advises that any unsolicited proposal should be treated with great caution.[33] And in the Philippines, unsolicited proposals were suspended and the mechanisms reviewed after controversial cases came to light. This was done to regain the trust of civil society in a fair and transparent procurement process.

The following guidelines and safeguards should be observed:

- Before giving consideration to an unsolicited proposal, make sure that the public sector has sufficient capacity to evaluate how cost effective the project would be, and how well the project fits the existing infrastructure plan of the country or region. For example, for a power plant in Tanzania (which was directly negotiated after an unsolicited proposal), the technology choice of using heavy oil instead of indigenous gas turned out to be suboptimal, and the project was poorly integrated into the overall power-sector plan.[34]
- If an unsolicited proposal is submitted, channel it into a well-defined, transparent and competitive procurement process.
- Allow fairly generous deadlines to give competing firms sufficient time to prepare their bids.

To incentivize the private sector to put effort into project identification and development, the proposer of the project needs to be rewarded by:

- A scoring advantage in the bidding evaluation (in Chile, for example, proposers have been rewarded with a bid bonus added to the evaluation score[35]);
- The right to match the best bid and win the contract (the so-called Swiss challenge, which has been used in several states in India);
- A developer's fee, paid by the government or the winning bidder, to reimburse the proposer for the project development costs, including an adequate return.

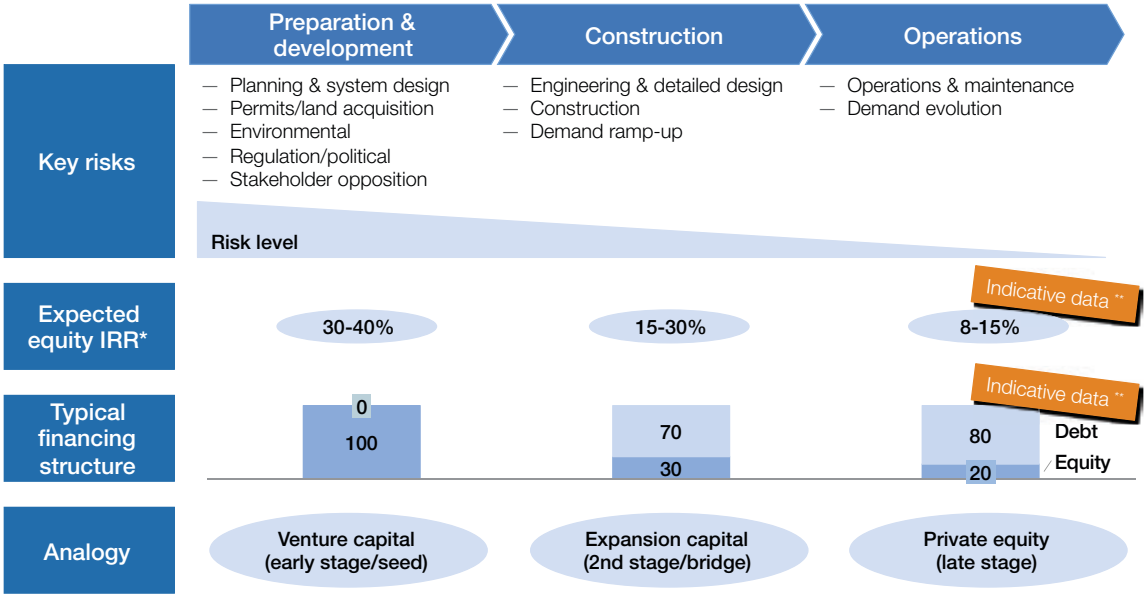
1.6 Project Preparation Facilities

Public-sector budgets are often ill-suited to covering the large preparation costs that PPP projects involve. In a sense, feasibility studies are a high-risk investment, since the end-point could well be a decision not to proceed with the project. The later life-cycle stages are far less risky, since they seldom bring the entire project to a halt. So the managers of public-sector finances, often being risk-averse, are reluctant to dig deep into their operating budgets to fund the preparation phase.

In many low- and middle-income countries, attempts are being made to address the problem via special project development facilities (PDFs) or project preparation funds (PPFs).[36] But these have a long way to go. The gap between required funding and available funds remains huge. For example, the New Partnership for Africa's Development (NEPAD) Infrastructure Project Preparation Facility (IPPF) can offer only a small fraction of the preparation funding estimated for the projects of the Programme for Infrastructure Development in Africa Priority Action Plan (PIDA-PAP). Most of the PPFs have relatively low endowments, often less than US$ 20 million, and they will quickly become depleted if no recovery mechanism is available.

Figure 14: Risk and return characteristics of project life-cycle phases

Project preparation has different risk and return characteristics relative to later project life-cycle



* IRR = internal rate of return
** Expected equity IRR and typical financing structure depend on project type, sector, local financing market conditions, concession type and length, and the country environment.

For effective and sustainable PPFs, the design should incorporate these considerations:

PPFs need thoughtful governance, and should make provision for cost-recovery and value-adding services.

- Ensure that PPFs have clear eligibility criteria (a specified sector, limited environmental impact, and so on), strong institutional oversight, and disbursement caps (for example, the India Infrastructure Project Development Fund (IIPDF) provides up to 75% of total project-preparation costs).
- Structure PPFs to provide value-added services and capabilities like a venture capital fund – advisory, supervisory, networking. Besides providing funds, PPFs can play an important role in driving the overall preparation process in accordance with established best practices.
- Make sure that the PPF has adequate staff with the required financial and operational expertise. One solution might be that of joint public and private facilities with mixed teams.
- Assure that the PPF stays involved over the course of the project to strengthen accountability and monitoring and to enable the sharing of lessons learned across multiple projects.
- Provide the PPF with adequate initial funding that is supplemented or replenished from time to time. Initial funding sources can include the government and donors, but could also include private-sector players that are interested in advancing project preparation.
- Enable the PPF to recover its preparation expenses if the project is tendered to a private-sector partner for a concession fee; that can help the PPF to become more financially sustainable (as with the South African PPP Project Development Facility or the IIPDF). Possible recovery mechanisms include:
  - Fixed fees: for example, a specified percentage margin on top of the incurred preparation costs ("cost-plus") or a fixed compensation from a rate sheet, depending on the project size (as used in India).
  - Variable success fees: a sum tiered according to the winning bid or the number of bidders.
  - Equity stakes in the tendered PPP or a share above a targeted return level.

The infrastructure development company InfraCo, for example, is structured as a principal project developer, originating and preparing projects and recovering its expenses by retaining a shareholding in the project. Among its projects is the first large-scale PPP in Cape Verde, the Cabeólica Wind Power project, which has been prepared thoroughly by working in close partnership with the national utility and the government, and by bringing in experts in renewable energy and carbon financing. Thanks to this diligent preparation, the project launched very promptly, secured loans from multilateral banks, and successfully attracted an equity financier.

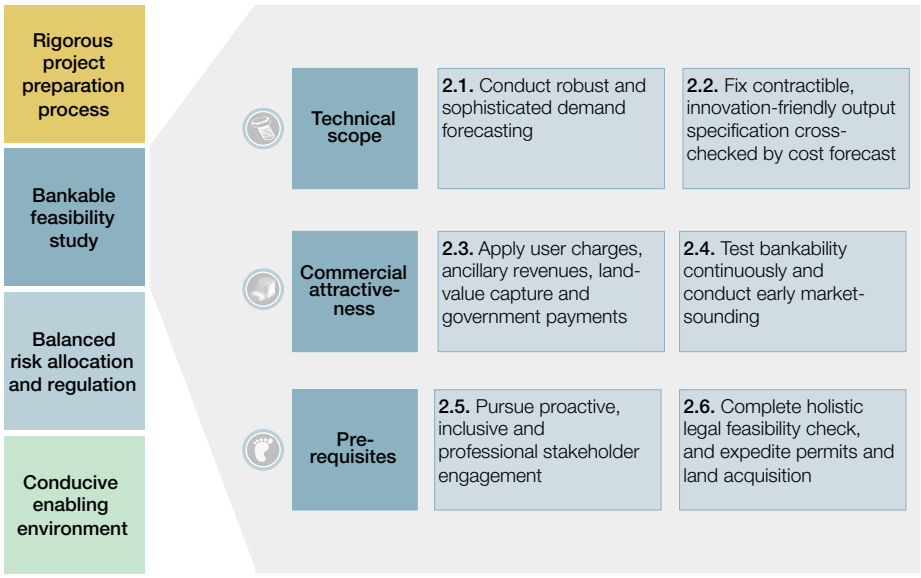
The current fragmented assortment of PPFs remains unsatisfactory, and needs to be consolidated and better coordinated.

For example, the total commitment to project preparation funds in Africa is only about US$ 190 million and is scattered across 16 different facilities.[37]

- Encourage efforts to coordinate the various PPFs and exchange information among them, for example, by standardizing application procedures and information requirements for interested parties. That will help to reduce multiple applications and will ease the administrative burden of those applications.
- Promote the pooling of resources by facilitating PPF mergers or syndication arrangements.
- Focus individual PPFs on specific sectors or initiatives (such as transport corridors) and on highly transformative projects, rather than running them as "generic" facilities, which lack the sector and regional expertise as well as the scale to be effective.
- Ensure that development banks work systematically to capture and analyse data on PPF performance and derive best practices that can be shared across countries.

2 Conducting a Bankable Feasibility Study

To assess a project's feasibility, the government authority promoting the project needs a clear picture of the technical scope, the commercial attractiveness, and the project prerequisites. First, the promoters need to forecast the demand that the facility is going to attract; this requires a robust and unbiased approach. Then, in drafting the technical specifications, they need to ensure that these specs are innovation-friendly yet realistic and cost-conscious. For the assessment of the project's revenue potential, the promoters should look not only at user charges or direct government payments, but also at other possible sources, such as pursuing ancillary business opportunities and capturing incremental land value. Next, the promoters need to put considerable effort into testing the project's bankability, both through internal business-case analysis and through external market sounding. Lastly, the government needs to engage the various stakeholders proactively to secure their support, and it needs to meet legal requirements in advance, including permits and land acquisition, to avoid delays.



2.1 Demand Forecasting

To assess the feasibility of a PPP, the project's promoters have to estimate the likely level of usage that the infrastructure asset will attract (though investors will also require an independent demand forecast). Unfortunately, demand forecasts are very unreliable, and represent one of the key risks inherent in PPPs, particularly for transport infrastructure.

The forecasting inaccuracy comes about in two ways. Occasionally it takes the form of underestimation, such as for the Bangalore airport and the Delhi-Gurgaon highway where the infrastructure eventually proved too limited in capacity. Far more commonly, the problem is over-optimism in the short-term – recorded toll-road traffic after opening the facility, for example, is on average 23% below the original traffic forecast.[38] These overestimates have led to many bankruptcies and renegotiations. The M1/15 toll-road in Hungary is a case in point, with a traffic shortfall of more than 50% and a subsequent restructuring of the concession.[39] This failure also affected successor projects where private finance was impeded due to a loss of investor confidence and an increase in risk premiums. Alarmingly, the quality of forecasts has not improved much over time, despite advances in data quality and methodology. While both of these factors can cause a problem, the persistence of the issue is due mainly to human failures and biases, including strategic misrepresentation and optimism bias.[40]

The actions and safeguards needed to optimize demand forecasts can be grouped into five broad categories: planning adequate time and resources, providing data and process guidelines, applying a robust methodology, reviewing and validating the results, and addressing the forecast's uncertainty.

Follow a structured approach with adequate time and resources. Ensure sufficient time and funding so that the demand estimate can be fine-tuned and validated on the basis of feedback from stakeholders. Bring in a team of experienced and neutral analysts; ascertain that they have no vested interests; and provide them with appropriate guidance, continuous supervision, ex-post evaluation and incentives.

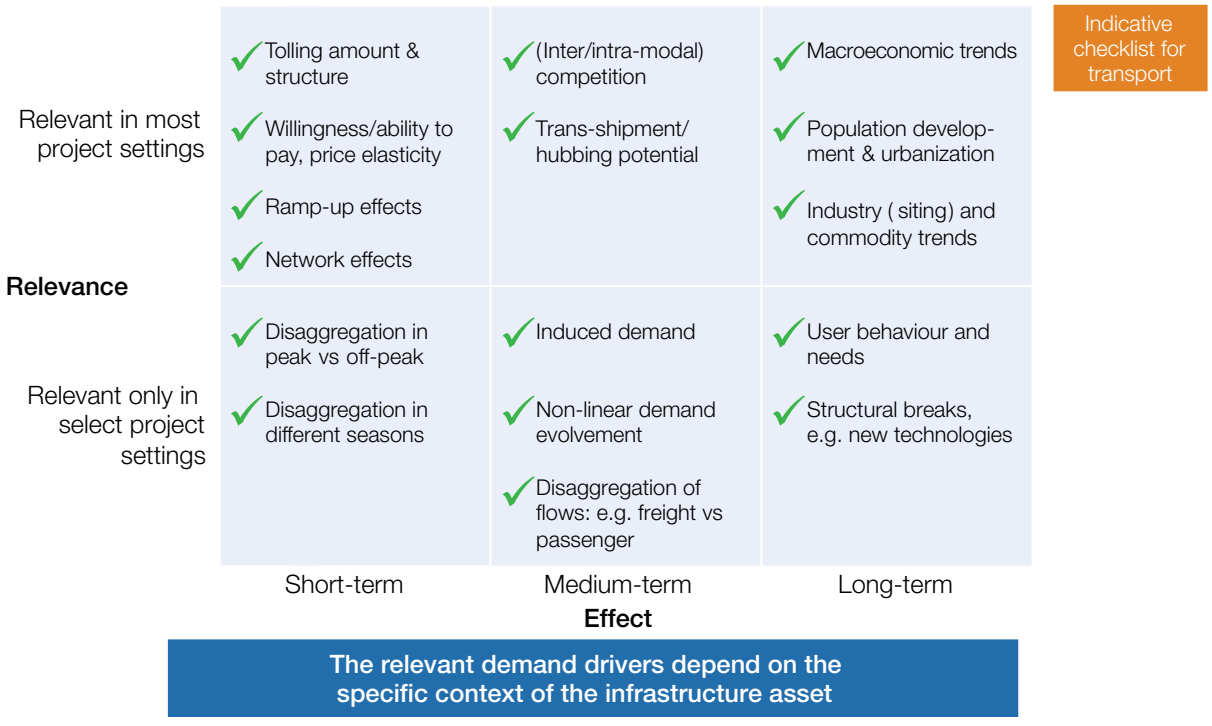
Ensure the availability and quality of data and provide standardized process guidelines. Instead of relying on secondary data only, acquire fine-grained and context-specific primary data by conducting on-the-ground surveys to clarify market needs and users' willingness to pay. For example, for a greenfield toll road, the traffic on existing roads needs to be counted, distinguished by different times of day (peak vs off-peak), different seasons and for different user groups and trip types (such as discretionary leisure travellers vs commuters), ideally with a history of a few years to reveal usage trends. The population data has to be sufficiently up-to-date, not based on a census from ten years before, given the fast-evolving demographics in emerging countries.

Governments should also provide integrated secondary data in a central database, as well as tools, guidelines and process checklists. For example, New Zealand and the United Kingdom have a library of model parameters and standards for modelling, validation and documentation. And Australia implemented a National Transport Data Framework to provide readily available and consistent data across states.

Apply a sophisticated forecasting methodology that accounts for the key demand drivers, and check the robustness of the forecast by means of triangulation and risk analysis. Select a forecasting methodology that incorporates the key demand drivers that are particularly relevant to the circumstances. (See figure 15 for an overview of typical key demand drivers for transportation assets.) For example, the methodology for toll roads should include an explicit modelling of parallel, un-tolled roads, of ramp-up effects,[41] and of user values of time and price elasticity. In contrast, the methodology for container ports should emphasize the estimated level of trans-shipment, the macroeconomic and industrial trends, and the anticipated strategies of shipping lines. Compare the results against those produced by other, simpler methodologies (such as a linear extrapolation), and test the forecast for robustness and riskiness by such means as benchmark comparisons (such as reference-class forecasting and backcasting), probabilistic simulations, sensitivity analyses and scenario analyses.

Figure 15: Critical demand forecast drivers

Forecasting needs to account for the most critical demand drivers



Invite selected stakeholders and independent experts to review and validate the forecast. Guard against misrepresentation and optimism bias by involving a range of reviewers – both independent experts and stakeholders with varied interests in the project and different levels of risk-aversion. These stakeholders could include the sponsoring government ministry, potential concessionaires and users, and also typical "devil's advocates" such as potential lenders or the Ministry of Finance. Don't just focus the discussion on the model results, but also trigger a critical review of the assumptions and model dynamics by explaining them fully and clearly.

Acknowledge and address the uncertainty of the forecast. Estimate the level of uncertainty inherent in the final forecast, and make it public, so as to ensure transparency on the demand risks involved in the project. For example, some rating agencies use a traffic risk index that rates the uncertainty of a highway traffic forecast by considering such factors as the country's tolling culture, the level of car ownership, the forecast horizon, and the quality of data (see figure 16 for details).[42] In addition, take into account the uncertainty rating when designing the contract's risk allocation (for example, by using revenue risk sharing models, revenue guarantees, or availability-based concessions where demand risk is borne by the government), the PPP's scope (demand risk for a corridor or network is easier to asses than for a single asset), and when evaluating private-sector bids, to reduce the likelihood of intentionally inflated bids and the winner's curse phenomenon (for example, by imposing common macroeconomic assumptions or using Vickrey auctions[43]).

Figure 16: Components of a traffic risk index

Traffic risk index combines different risk factors to create transparency on the overall demand uncertainty

Exemplary components of traffic risk index	Magnitude of uncertainty	
Tolling culture	**Toll roads well established** and data on actual acceptance available	**No previous toll roads** in the country and uncertainty over toll acceptance
Tariff escalation	**Flexible rate setting** - no government approval needed	**Regulatory approval** needed for tariff increases
Time horizon	**Near-term** forecast	**Long-term** forecast
Road network	**Already existing road**, clear view on future network design	**Early planning of a new site**, multiple options for future network design
Surveys/data	**Easy to collect data** and experienced surveyors	**Little data available** and no data sharing among authorities
Private users	**Clear market segments**, simple toll structure, few origins and destinations	**Unclear market segments**, complex toll structure, multiple origins and destinations
Commercial users	**Fleet operator pays toll**, clear time/ operating savings, simple route choice	**Owner-driver pays toll**, complicated time savings and route choice
Traffic growth	**High car ownership,** growth correlated with established predictable factors	**Low car ownership,** growth depends on many uncertain factors
Macro-environment	**Stable local economy** and predictable population growth	**Weak or volatile local economy** and population development unclear

Traffic risk index has been adopted by a number of traffic consultants, sponsors and rating agencies, e.g. Standard & Poor's

Source: Bain, R., L. Polakovic. *Traffic Forecasting Risk Study Update 2005: Through Ramp-Up And Beyond*, 2005. Standard & Poor's. http://www.robbain.com/Traffic%20Forecasting%20Risk%202005.pdf.

2.2 Technical Specifications

In drafting the specifications for a project, PPP promoters should remain constantly alert to three broad dangers: defining inadequate project requirements and changing the project scope; over-restricting the way that contractors might approach the project; and misjudging the amount of time and costs needed to complete the project.

For PPPs, the public sector specifies outputs or performance levels. This approach differs from that of common public-sector procurement, which is based on detailed input specifications. If PPPs take that restricted approach, they could discourage innovative solutions. For example, the specifications for the Bangkok Blue Line required the entire system to be run underground, which involved unnecessarily high costs, higher than those required by a more flexible approach combining underground with above-ground routes.

Measures to minimize these dangers fall into four broad categories: defining the scope and interfaces of the project, ensuring an innovation-friendly output/outcome specification, keeping input constraints to a minimum, and cross-checking the cost and complexity of the project.

Define the scope and interfaces of the project, after conducting diligent baselining. Identify and understand problems with the infrastructure status quo by analysing current performance and capacity. Do not assume to know what is needed, but conduct a user survey to clarify the requirements.

Evaluate different solutions – notably, improving, expanding or replacing the existing system. Solutions can often be found that address the infrastructure bottleneck by managing demand through new pricing models, or by reducing transmission losses (for instance, high-voltage direct-current electricity transmission suffers lower electrical losses than common alternating-current systems), or by increasing the productivity and capacity of existing assets via additional investment and new technologies (such as automated highway tolling, next-generation air-traffic systems, or new telecommunication protocols). Careful consideration of such alternatives can yield significant capital expenditure savings. For example, Mumbai's water-distribution system was upgraded very economically by reducing leakage and theft: the initial proposal – a new water-supply line of more than 100 kilometres – would have cost six times as much if it had been implemented.[44]

Establish the boundaries of the project early and assess the boundary risks of the project and its interdependence with other projects. For example, for the Bangkok Skytrain, ridership was initially jeopardized by poor road access to the train stations and poor integration with other transport modes; fortunately, later improvements, such as the addition of feeder buses and new aerial walkways, helped to increase ridership.[45] And assess the safeguards against such setbacks; for instance, get approvals for essential connections early and impose contractual penalties for late completion of complementary public-sector undertakings, such as electricity transmission lines to a hydropower plant, a feeder road or an urban redevelopment programme.

Ensure that output/outcome specifications are contractible and innovation-friendly. All specifications should be measurable, clear and achievable; for example, for a bridge they would stipulate that it will be used "by vehicles up to 40 tonnes", not "by heavy vehicles" or "by any road vehicles". In the output specifications, list the performance and service requirements very clearly, but keep them as broad as possible to encourage competition between different technical solutions and allow bidders to propose their own innovative approaches. A good example of broad specification is that of the rural electrification project in Senegal, where the specified

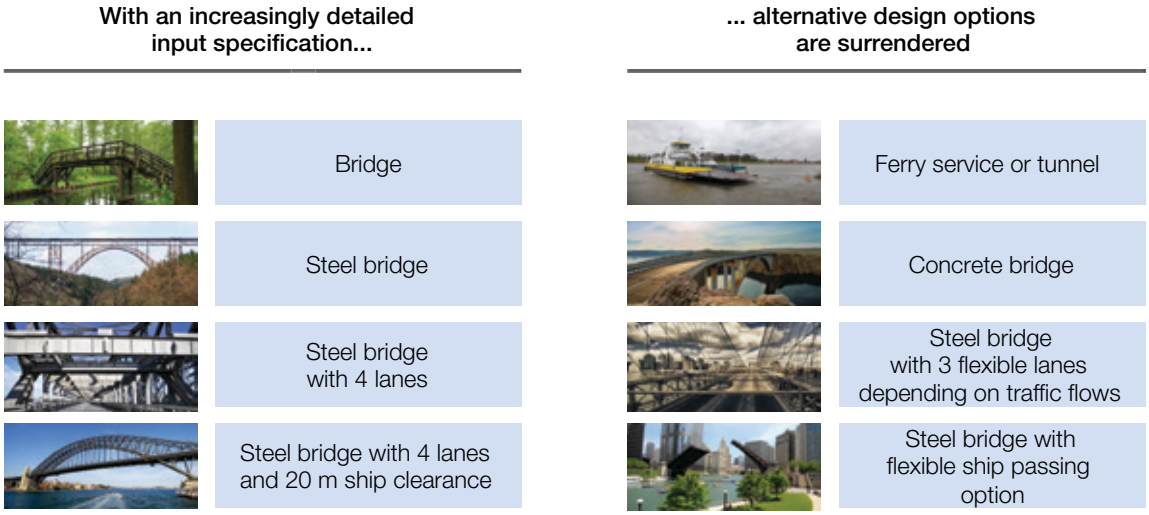
goal was simply to connect the maximum number of households – leaving it to the concessionaire to optimize connections and on-grid vs off-grid power supplies. Similarly, the specifications of the PPP bridge over the Ohio river in Indiana allowed the contractor to evaluate various design alternatives – such as the use of LED lighting, more robust pavement and "weathering steel" that does not need to be repainted – to reduce whole life-cycle costs.[46] Or consider the example of urban transit, which could be specified as technology-neutral: it would then be left to the concessionaire to choose between light-rail and monorail options (or even bus rapid transit), on the basis of capacity needs, future flexibility, and network and depot compatibility, as well as speed and safety.

If possible, allow for strategic flexibility options that the concessionaire can apply to enable the project to adapt to changing needs over the long term; such flexibility is of particular relevance for infrastructure assets, given the high uncertainty of future user requirements or demand. Two examples: Heathrow Terminal 5 used modular components for its check-in area (to adapt to fluctuations in passenger numbers) and its aircraft parking stands (to adapt to various aircraft types); and the Tagus Bridge in Portugal was constructed in such a way as to allow a railway line to be added later on, alongside the car lanes.

Use input specifications sparingly and selectively. Every additional input specification surrenders design options (see the illustration for a bridge in figure 17), and thus might increase costs. If possible, use input specifications only where necessary for the sake of benefiting society, and where the private sector is unlikely to deliver them otherwise (i.e. where delivering them would not be in its own interests anyway). Input specifications might be needed to compel the integration of systems and services (for instance, for public-transport ticketing and scheduling), or to ensure compliance with health, safety and environmental standards, or to enhance the cyber-security of critical infrastructure. If input specifications are used, contractors should be given some flexibility and be permitted to propose alterations to over-stringent project designs along international design codes and standards.

Figure 17: Example of over-specification of project requirements

Over-specification leaves no room for creative and innovative solutions



Don't specify all bells and whistles

Conduct realistic cross-checks on the expected cost, schedule and complexity involved in delivering the PPP. While output/outcome-based specifications allow efficiency gains by eliciting innovative solutions, they implicitly carry the risk of gold-plating (where work has gone well past the point at which extra effort is adding value), as the public sector has no immediate way of knowing how any particular specification will impact on costs and the construction schedule. To prevent such performance requirements from going over-budget and beyond user needs, some precautionary measures are essential: forecast the likely capital and operating expenses, comprehensively assess the risks involved, including both uncertainty risks and event risks, and check the fit between the output specifications and actual user requirements. Check during the market sounding process (see chapter 2.4) whether the project type and size is manageable by the companies (or consortia) active in the market. Beware of unfamiliar complexity and technical challenges in new and untried systems: the new passport-processing PPP in the United Kingdom, for instance, overran its budget and suffered a significant delay. Such assets, where the requirements are difficult to specify owing to the intrinsic technical uncertainties and the likelihood of fast-paced changes, are ill-suited for PPP delivery.

Set out detailed technical requirements for a successful financial close and provide a granular overview of the design and construction risks along a risk matrix (including an initial assessment of which party will bear them) in the tender document so that potential bidders can assess them well.

Establish various milestones at which specifications can change, but define an early point at which they will be frozen to avoid late adaptations close to tender or even after a successful tender – these adaptations have often led to severe cost increases.

2.3 User Charges and Other Funding Sources

The financing requirements for infrastructure projects are huge – up to a few billion dollars in some cases. If the investment has to be recovered over the project's life cycle (and especially if it also has to provide an adequate return for the investor), where are the revenues to come from? In traditional procurement, the funding[47] comes predominantly from government tax revenues, and the services provided have sometimes been offered to users at unrealistically low prices. But with public budgets often so depleted nowadays, that model is unsustainable.[48]

In contrast, many infrastructure PPPs make their business case by exploring a diverse range of funding sources: user charges, ancillary revenues, land-value capture, and direct government payments. (Increasingly, these are also adopted by projects delivered under traditional procurement as well.) In developing and emerging countries, more than half of PPPs rely on user-based funding sources such as direct user charges, purchase agreements with private entities, or sales to the wholesale market. In the United Kingdom, however, the majority of projects are backed by government payments.[49] While the optimal mix will vary from project to project, there are some common tasks and responsibilities that PPP planners should take into account for each source.

Apply user charges if possible, and ensure enforcement, but mitigate the adverse social effects. User charges are beneficial from an economic point of view, as they incentivize consumers to use the service responsibly and sparingly, and help to manage congestion; but they are highly unpopular with many users and politicians, particularly when applied to previously free infrastructure. Hence, finesse is needed in designing the fee structure and enforcement process. As appropriate, adopt all or some of the following techniques:

- Make sure that the infrastructure improvement really does raise the quality of the service for users – and communicate this value-add actively. Users do generally value (and readily pay for) improved services, as when a new toll road saves them valuable time in commuting to work each morning.
- Institute differentiated rates. Specifically, adjust charges according to time, location and usage; for example, a toll road in Santiago de Chile has three price levels based on the volume of traffic at any given time. Fine-tune this differentiation to maximize revenues and incentivize the efficient use of capacity.
- Develop payment mechanisms that maximize efficiency but remain accessible to all users. Use technologies, such as e-tolling on motorways, that are user-friendly and serve to increase usage. For example, cross-Israel Highway 6 uses two different mechanisms – transponders for pre-registered users and convenient car-plate identification – each with a different pricing scheme. If required, also retain payment mechanisms that are accessible to poor or less adaptable users; for example, the Barranquilla water PPP in Colombia uses payment booths in poor districts to cater to clients without bank accounts.
- Devise and implement effective payment-enforcement procedures. If necessary, press for relevant legislation, involve the police, and take the necessary measures to detect illegal usage. For example, the Manila water PPP now monitors usage by means such as CCTV, improved meters and pressure-control systems.
- Implement mechanisms to mitigate the adverse social consequences of user charges; notably, subsidies or reduced tariffs for at-risk groups, and the provision of alternative infrastructure facilities. (At the same time, however, be aware of unintended consequences such as a fall in demand or revenues.) For example, in South Africa, some local residents are entitled to reductions in highway-user charges if they have no other travel options. And in Nigeria, the Lekki Expressway overcame resistance by opening a slower un-tolled rural road alongside.

Take advantage of ancillary revenues. Make plans for the project to receive ongoing funding through ancillary businesses, such as retail outlets, advertising, accommodation and cross-selling. The type of ancillary business is sector-specific, as outlined in figure 18, but various possibilities exist in each sector. Some sectors have explored the possibilities systematically and vigorously – notably, best-practice airports generate 50% or more of their revenues from the so-called non-aviation business[50] – but other sectors such as roads and education are lagging behind. Pursue innovative opportunities, such as leveraging the project's scale (a motorway PPP might offer road-cleaning services to nearby villages) or its tangible and intangible assets (renting out space for fibre-optic cables along a highway, or for open-air concerts at an airport car park; using a transit network's electronic payment scheme for non-transport payments or promotion activities).

Capture incremental land value. Make plans to tap the likely rise in value of urban real estate near to the project site – the value increase is often more than 10% of the original value, and the value can even double in cases where the local infrastructure improvements are particularly impressive.[51] During the brief window of opportunity between the devising of the project and the publicizing of it, adopt one of the two main options, if possible. The first option is to buy up the land shortly before announcing the plan publicly, and then sell the land to independent real-estate developers; for example, the new metro

Figure 18: Examples of ancillary business opportunities and the revenue potential

Ancillary businesses provide significant revenue opportunity for PPPs – but potential and type vary by sector

Sector	Examples for ancillary businesses	Revenue potential
Airports 	— Retail, food & beverage, Internet, banking/foreign exchange, advertising, fueling, ground handling, aircraft maintenance and repair, catering, events	20-50%
Ports 	— Ship maintenance and repair, container leasing, tugging, intermodal transport, export-import services, warehousing, packaging, economic zones	10-20%
Highways 	— Gas stations, restaurants, shopping, e-tolling card, freight centres, parking, road cleaning for close municipal roads	0-10%
Urban Rail 	— Restaurants, shopping, intermodal offers (e.g. bikes, car rental), real estate development for offices, residential and retail	10-40%
Electricity 	— Gas cross-selling, energy saving solutions, decentralized energy generation, demand response management, CO_2 certificate management, smart home, smart meter, e-mobility	0-10%
Education 	— Student accommodation, canteen and café, parking, shopping, kindergarten, sports facilities	0-15%
Hospitals 	— Restaurants, shopping, over-the-counter medicine, spas, health centres, geriatric care	0-15%

lines in Brasilia and Copenhagen raised 85% and 50% respectively of their required funding through the sale of land.[52] The second option is to buy the land and make the joint development of it part of the PPP package; for example, in Hong Kong the metro operator MTR derives about 40% of its profits from property development and rental. Alternatively, governments may create "infrastructure improvement districts" and levy an added annual property tax to all land that is within a certain distance of the enhanced infrastructure.

Maintain government payments if necessary. Suppose that the above three sources of revenue are not enough or that users cannot be charged directly, but the project's social and economic benefits remain compelling. In that case, arrange to bridge the "viability gap" by means of government payments. For some assets such as social infrastructure, these government payments will make up the majority of funding. To ensure an efficient project-preparation process, adopt an institutionalized approach to this viability-gap funding whereby projects can apply for funding according to clearly defined criteria.

To prevent wasteful "white-elephant" projects, set up stringent control mechanisms, require a rigorous cost-benefit analysis prior to approval, and impose a cap on the subsidy; for example, viability-gap funding in India is limited to 20% of the total project volume. (However, in countries with lower demand growth prospects, a higher viability-funding cap may be necessary.[53])

The procuring agencies should also keep constant watch on the long-term affordability of the PPP (including any contingent liabilities), particularly if direct government availability payments are used; and they should properly account for these long-term obligations in their public budgeting, following Eurostat or International Monetary Fund (IMF) guidance.

To maximize efficiency, use the viability-gap funding requirement as a bidding variable, and select the concessionaire that needs the least subsidy. Structure the availability payment to provide incentives for operators to excel, such as by correlating disbursement with the level of their performance; for example, on the A1 project in Yorkshire, part of the availability payment by the government was inversely proportional to the amount of congestion created by building works. Also, carefully evaluate whether demand-side subsidies may be more effective than supply-side payments to operators.

Some of these government subsidies can be generated from the revenues of financially attractive concessions. For example, to promote universal access to mobile communication, the Ugandan government set up a Rural Communications Development Fund, which is financed by the three main licensed telecom operators: they pay 1% of their gross revenues into the fund, and this money goes to subsidizing independent operators in rural areas that are expensive to serve.[54]

2.4 Bankability Testing and Market Sounding

A well-structured PPP should attract several bidders to ensure a competitive tendering process (yet, too many bidders will make the transaction uneconomical due to the high costs of bid preparation for each firm).[55] For example, in British Columbia, Victoria and South Africa, which are regarded as leading PPP markets in their respective regions, the average number of bidders is three. In some cases, unfortunately, PPPs prove unappealing and attract just one or two bidders or perhaps none at all. In 2004 in India, for instance, several port and highway PPPs failed to attract a single adequate offer.[56] And in the Philippines, the troubled MRT2 metro project eventually had to be delivered by the public sector alone, following unsuccessful attempts at procurement.

This lack of bankability is usually due to faulty preparation of the PPP, specifically an under-emphasizing of the private sector's concerns and interests. The designers of the PPP might lack experience of the relevant market or industry and fail to look at the package from a private-sector perspective. The PPP's promoters have to be sure of its bankability, and that involves continuous and stringent evaluation by means of

internal financial analysis, and proper market sounding with external parties.

Conduct a thorough, holistic financial analysis. As for any large capital project, a proposed PPP needs thorough financial analysis to make its business case. The private-sector bidders will conduct their own analysis as part of due diligence, but the project promoters should precede them and analyse the project from the private sector's perspective to clarify its financial viability and to prepare for potential questions from investors.

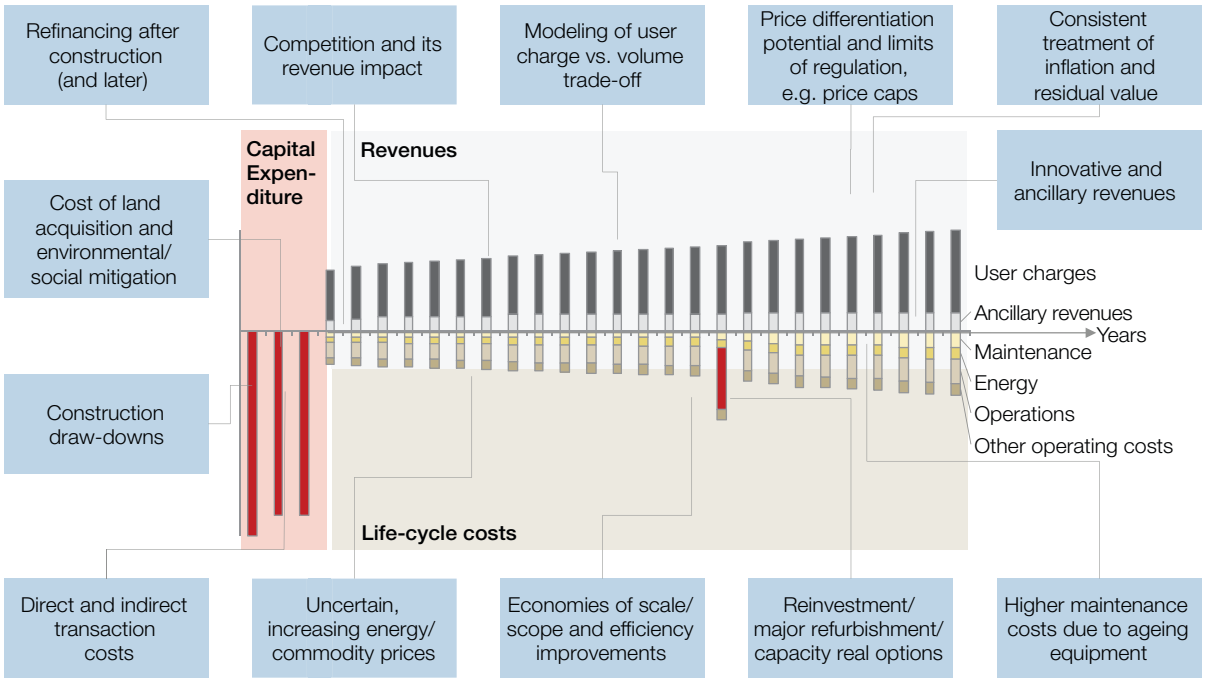
Identify and model all revenue and cost sources over the whole life cycle, as illustrated in figure 19. Recognize the increasing uncertainty over time and ensure that the analysis covers all significant life-cycle events, such as refinancing and asset renewal/replacement. In addition, explore real options[57] that provide flexibility and allow for adaptation to changing environments – as such flexibility represents another source of value. Coordinate with the various functional teams to secure all relevant input information – on such topics as usage forecasts, operations concepts, and environmental-impact mitigation – and validate with them that the assumptions made in the financial model are operationally feasible. In the past, some business cases have been based on outdated data, so as a precaution, note any changes in scope and assumptions using tracking tools, and adjust the analysis accordingly. Also, build long-term institutional capacity and support by making use of assumption guidelines, modelling templates, and a benchmark database of transaction and financing costs as well as capital and operating expenditures.

Keep in mind that the main aim of investors is adequate risk-adjusted returns. Accordingly, thoroughly assess risks by means of simulations, scenario analysis and so on, remembering to concentrate particularly on the key risks such as delays. Assess whether the resulting equity returns are aligned with the opportunity costs of equity. Getting the costs of equity and debt right is no easy task: take into account such factors as the financing structure, the regulatory regime, country stability, and the operational asset characteristics, and consider how risk exposure might change over the life cycle as a result of sequential risk resolution and debt repayment.

Armed with this detailed business-case analysis, update and review the economic cost-benefit analysis as well as the value-for-money analysis, and on that basis decide whether the project really is viable overall and a PPP is still the best way forward. Even if considerable effort has gone into all these preparations, it is never too late to pull the plug (though obviously this should happen at the earliest possible time) to avoid further sunk costs, or to decide on an alternative delivery mode.

Figure 19: Overview of cost and demand drivers in financial model

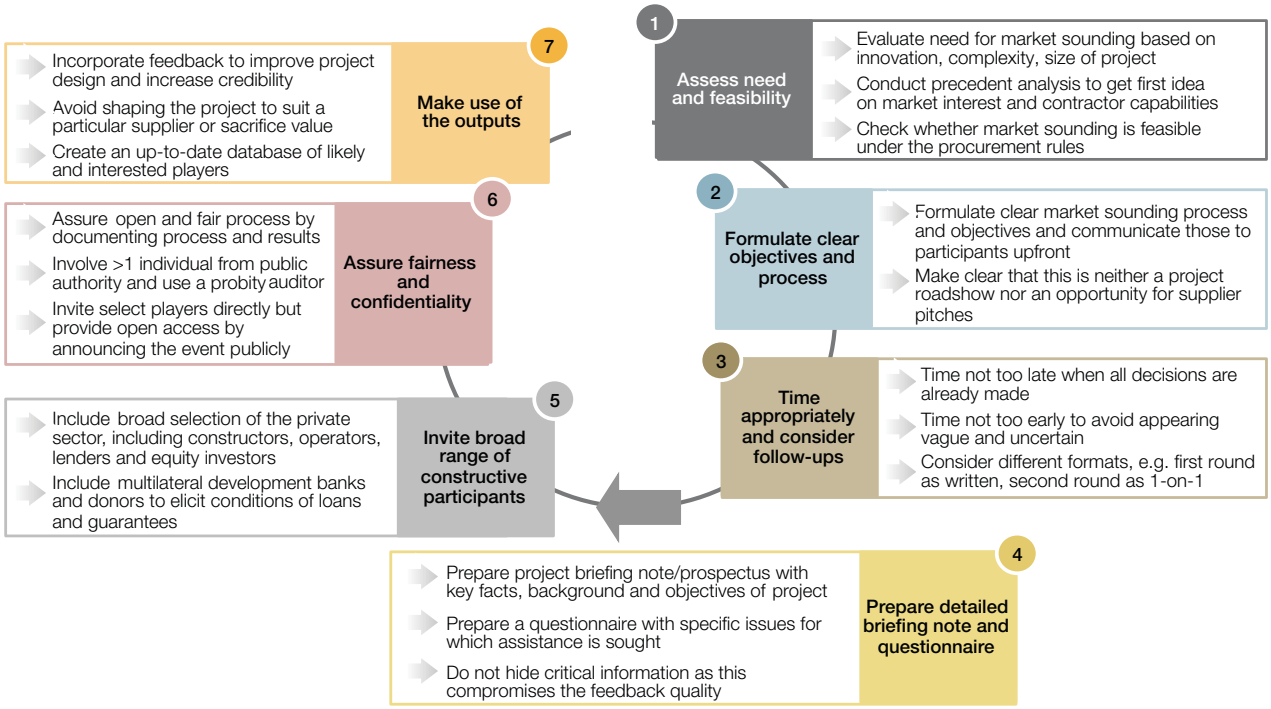
Bankability testing needs to account for all relevant value drivers



Conduct early market sounding. Take early measures to establish how interested the market is in the project to help guard against over-optimism, match the project requirements to the market's capabilities, and reassure potential bidders that the deal is on track. Plan the market sounding thoroughly with sufficient time to get meaningful comments, as outlined in figure 20. Make sure to invite a broad range of respondents, including potential contractors, subsystem suppliers, multilateral development banks and financiers, to understand their specific concerns and solicit ideas on how to shape the project. Consider holding one-on-one sessions with confidentiality agreements to get the real concerns regarding the project, the contract, the procurement process, and the legal and institutional framework on the table. For example, the market sounding for the Southbank Institute of Technology PPP in Queensland involved 13 private firms, including building contractors, facility managers, and information and communications technology (ICT) suppliers. It yielded innovative ideas on commercial activities such as hotels, parking, retail, offices, student housing and childcare; it also helped to validate assumptions on the business case, the risk allocation, and an important strategic decision – to leave relocation management with the private sector, who could then integrate it closely with the construction schedule.

Figure 20: Process for market sounding

Market sounding needs to follow a well-planned process



Source: *Attracting Investors to African Public-Private Partnerships: A Project Preparation Guide*. 2009. Washington DC: The International Bank for Reconstruction and Development/The World

If the PPP project fails the bankability testing or market sounding, consider amending the decisive parameters that make the business case – or even consider a different, more suitable contracting mode such as a design-bid-build or a design-build contract.[58] Also, investigate the possibility of subsidies and asset bundling. For example, packaging several toll roads into a single tender should reduce relative transaction costs for both the public and private sectors, and might increase the project's financial attractiveness by enabling cross-subsidies (between rural and urban services, for instance) or by exploiting economies of scale or scope for the concessionaire's service delivery. However, take care not to over-bundle, in case some potential bidders are deterred by the size of the deal or the diversity of the operational skills required.

2.5 Stakeholder Engagement

Infrastructure is a public good, with great economic and social relevance for many different stakeholders. Some infrastructure PPPs, however, can have a negative impact on the environment or on particular population groups – for example, car commuters are, in at least one respect, adversely affected by highway tolls. The public opposition that then arises can delay or even halt a project; for instance, a new water-filtration plant proposed in Canada was cancelled after public protests, and a South African toll road was delayed. To prevent or reduce such setbacks, PPP promoters need to engage all stakeholders and address their needs and concerns. In fact, stakeholder engagement is becoming more important than ever, now that businesses are under such close scrutiny by the media and regulators, and now that opposition is so easily aroused and coordinated via social media. Note the converse, however: stakeholders can be eager promoters of infrastructure projects, and PPP promoters would do well to take advantage of such momentum.

Yet PPP promoters often still take a half-hearted approach to stakeholder engagement – an approach that is reactive, ill-planned, unprofessional and under-resourced. For proper stakeholder engagement, they should be undertaking the following tasks and responsibilities: starting promptly on stakeholder engagement, identifying all stakeholders and preparing for targeted engagement, developing mitigation measures in partnership, and professionalizing the approach.[59]

Start designing and conducting stakeholder engagement promptly, during the feasibility study phase. Take the initiative in communicating with stakeholders: provide information and invite feedback before formal opposition develops. Ideally, reach consensus prior to tender. For example, the sponsors of the Alandur Sewerage Project in India ensured early involvement of the public through surveys and citizen's committees coupled with targeted outreach explaining the project costs, benefits and tariffs; as a result, the project proceeded smoothly, with citizens agreeing to pay one-time connection fees and thereby contributing 29% of the financing.[60]

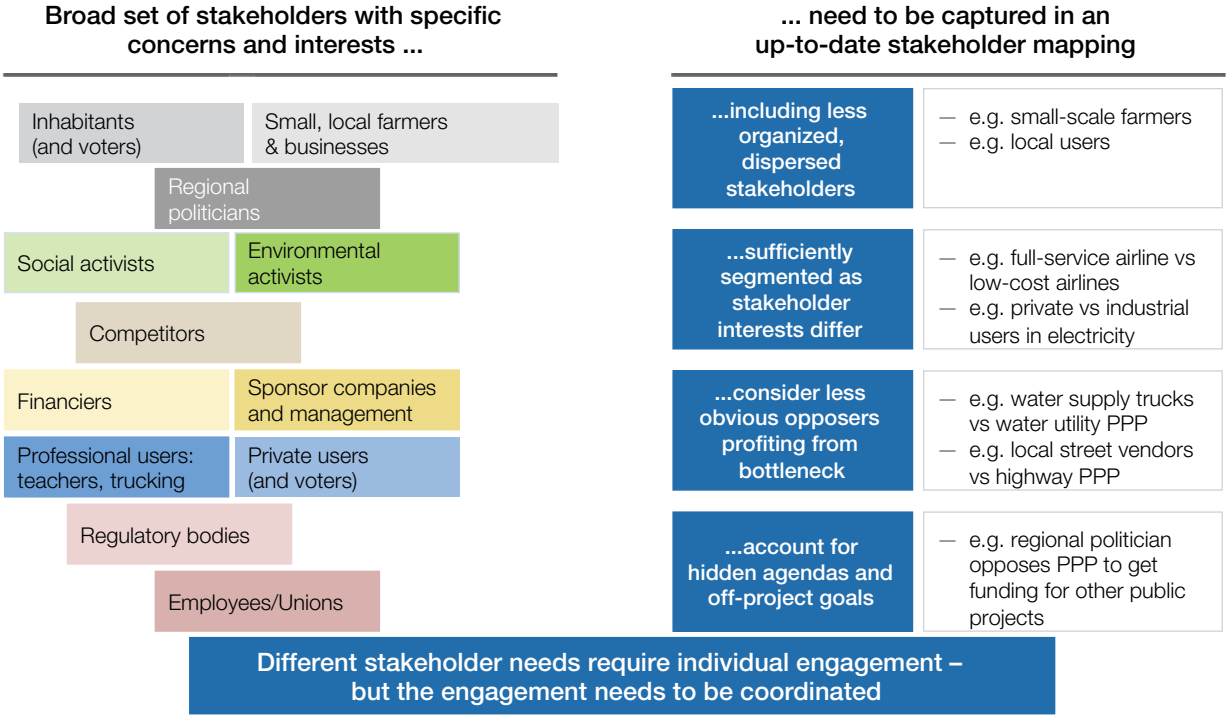
Begin with an integrated analysis of the project's likely impact over time – both its environmental and its social impact. Make sure to differentiate the effects on various regions and social groups, and compare the impact against that of earlier, benchmark projects; to that end, make use of frameworks such as Envision, a tool to evaluate the sustainability of civil infrastructure developed by Harvard University. Then provide stakeholders with a transparent, standardized overview report, covering the potentially adverse impacts along the project's entire life cycle (planning, construction, operations, and decommissioning) and the plans for minimizing the impact.

Identify and classify stakeholders and their interests, and prepare for targeted and customized engagement. Look widely when listing and profiling relevant stakeholders – from government departments, regulators and customers to potential private-sector contractors and financiers, and from trades unions, environmental activists and local homeowners to less organized interest-groups such as local farmers or street vendors. Analyse stakeholder concerns and interests, being particularly attentive to such factors as:

- Adequate segmentation; for instance, differentiate private vs industrial users of electricity, or low-cost vs full-service airlines as airport users.
- Hidden agendas; for instance, from regional politicians who prefer to advance other projects.
- Local culture; for instance, the Coder hydropower project in Gabon impinged on local fishing and cultural practices related to the waterfalls, but progressed smoothly thanks to proactive engagement that included constructing a fish ladder and avoiding encroachment on sacred sites.

Figure 21: Overview of potential stakeholder groups and their interests

Individual stakeholders and their interests need to be identified – despite high complexity



Design a customized communication programme for each stakeholder group, taking into account the specific information needs and cultural norms in each case. Exploit multiple communication channels, from mass media to workshops or individual briefings. Leverage technologies – if the target population has access to them – such as 3D models or Web pages to improve understanding of the project, or social media to elicit feedback efficiently. Or provide lively examples of similar projects elsewhere by bringing trusted individuals into the community to speak about their experience or by offering tours to those sites. For example, the Rustenberg Rapid Transport project organized a three-day tour for minibus-taxi drivers to visit existing bus rapid transit systems in Johannesburg and Cape Town.

Partner with the local community and future concessionaires in facilitating and sustaining the project itself and the mitigation measures. Gain the active support of influential local representatives, such as religious leaders or non-governmental organizations (NGOs), to help win wider support. Provide reassurance by jointly agreeing on sustainable mitigation measures – discounted charges (but not free services), new job opportunities and job training, support for resettlement, and so on. Since stakeholder engagement is an ongoing process, transition the programme to the concessionaire; for example, in the case of the Barranquilla water PPP, the private-sector partner ran an information campaign on water meters and the likely savings of piped water relative to expensive supply by water trucks. To ensure such continuity, include the bidders' capabilities and track record on stakeholder management in the tendering evaluation criteria.

Professionalize stakeholder engagement. Provide sufficient resources and assign skilled staff (not just re-purposed engineers) to a dedicated communications team, with clearly defined roles and responsibilities. Include a local spokesperson in the team – someone that the stakeholders can easily relate to; for example, the communications team for the Gold Coast Rapid Transit system in Australia included community representatives (see the case study in figure 22).

Institutionalize a standardized approach to stakeholder engagement that includes the following phases: stakeholder identification along a standardized framework, stakeholder mapping using relationship maps, stakeholder issue, interest and objective analysis, planning of the form and frequency of stakeholder engagement, and implementation, coordination and evaluation of activities.[61]

Figure 22: Case study on stakeholder engagement: Gold Coast Rapid Transit Project, Australia

Professional and well-planned stakeholder engagement leads to success

Well-resourced & professional...

Dedicated resources
- Communications team based in project office
- Participation of technical experts

Professional management
- Customer service charter for enquiries and complaints
- Local spokesperson to create a face for stakeholders

... well-planned ...

Early, proactive engagement
- Started during early planning
- Reached out to stakeholders

Targeted approach
- City-wide information through mass media
- Individual, detailed briefings of key stakeholders: formation of a business taskforce and two community reference groups to capture views of localities and provide input on route options

Stakeholder pressure prevention
- Differentiation between sensitive and vocal stakeholders
- Resisting temptation to over-service vocal stakeholders by keeping on track towards goals

... and rigorously executed approach

Multiple information channels
- Fact sheets & newsletters
- Static displays in shopping centres & public areas
- Website, e-mail, hotline
- Community info sessions (> 250 briefings)
- PR work for media coverage
- Identification and empowerment of community experts acting as endorsers and answering questions

Active stakeholder participation
- Opportunities for two-way engagement: e.g. six weeks to comment on concept design and impact management plan
- Provision of achievable options for stakeholders aligned with overall objectives and plans

300,000 stakeholders informed and engaged with influence on key decisions

Source: *Gold Coast Rapid Transit: Making a good project, a great project. A Critical Retrospective.* Australian Government http://gcrtlessonslearned.com.au/workspace/assets/uploads/files/gcrt-lessons-learned-technical-4f9f6864ebbed.pdf.

2.6 Legal Due Diligence, Permits and Land Acquisition

Another key cause of delays in PPP projects is that of legal issues: specifically, the complexity of and conflicts between the various relevant laws, the lack of legal prerequisites, and the difficulty in acquiring land.

The legal feasibility of a PPP depends on complying with – and reconciling – various levels of law (national, municipal), various sector-specific laws (such as utilities, rail and education), and various fields of law (taxation, health and safety, and so on).

The legal prerequisites involve approvals, permits or licences in relation to such aspects as: land zoning, town planning, environmental standards, building standards, health and safety regulations, and sanitary and fire-protection requirements. The permits could be delayed if the procedures for obtaining them are particularly inefficient. Securing a licence for a hydropower plant, for example, takes 30% longer in Brazil than in the United States.[62]

In India, problems over land acquisition are responsible for about one-third of all the delays affecting infrastructure projects, including the high-profile cases of Mumbai Metro and Gurgaon Highway. The problems are often due to bureaucratic red tape, but sometimes due to confusion over title rights. In the case of the Bangalore waste PPP, for example, the authorities struggled to establish the rightful ownership of the land in question. In some countries, property rights are frequently disputed or problematic, owing to land fragmentation based on inheritance law, for instance.

For a PPP project to proceed smoothly and to avoid the high costs of delay, its promoters should first ensure that it is legally failsafe. The tasks and responsibilities they should undertake are:

Clarify the legal position across the various law areas before tendering. Consult legal experts and experienced government officials to identify any legal risks to the project. Seek out and study similar cases from the past, for comparison purposes. If the project does appear to face legal obstacles, evaluate all potential corrective actions – whether adjusting the project itself or modifying the law.[63]

Arrange a government initiative to establish an efficient standardized process to secure approvals, permits and licences. Governments should take the following actions:

- Secure the approvals directly prior to tender; for example, in the case of the Alandur Sewer Project, the municipality took on responsibility for the acquisition of key approvals related to road cutting, service shifting and environmental issues.[64]
- If the responsibility for securing approvals is allocated to the private sector, for instance when design decisions affect the likelihood of building permits, clearly explain the information requirements and offer appropriate assistance. Engage the high-level technocrats and/or political figures that champion the project to resolve issues.
- Establish a standardized approval process with a strict timeline for each procedure – preferably along pre-defined stage gates with gateway reviews. Encourage inter-ministerial cooperation through appropriate levels of delegated authority, joint process audits and an exchange forum.

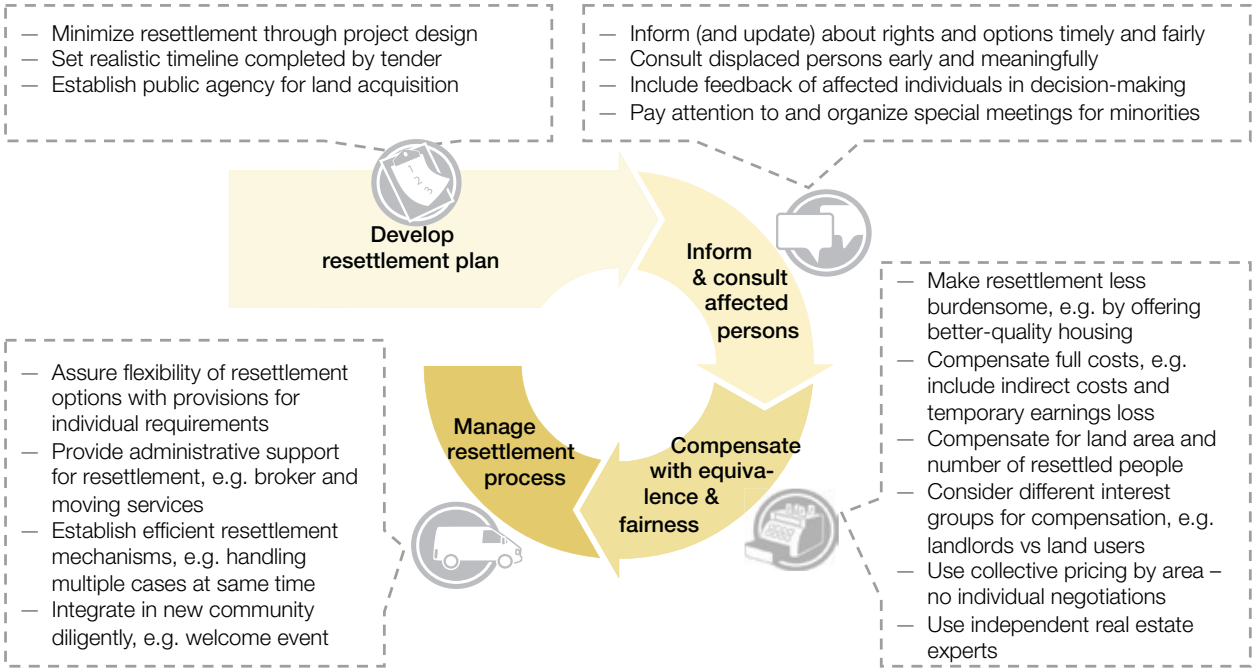
Optimize and expedite land acquisition or rights-of-way acquisition. Consider adopting any of the following options, if appropriate to the context:

- Use real-estate experts to get realistic planning and fair value appraisals early.
- Require land acquisition to be completed by the government agency before putting the project out to tender. This practice is standard in South Korea. Similarly, Indonesia passed a law in 2012 that requires the land agency to prepare and implement land clearance, in accordance with strict timelines and compensation rules, prior to handing over the land to the requesting institution and later the concessionaire.
- Impose penalties or require compensation if the land is not acquired on time. For example, the contractors of the Hyderabad Metro project were contractually entitled to compensation if the government failed to supply 90% of the land within 120 days after signing the agreement, with a liability for each day of delay.[65]
- Allocate the responsibility for land acquisition to the private sector, but capping the cost of the land acquisition, with the government having to pay any excess rather than the contractor. That arrangement is often adopted in Chile.

Besides the financial challenges, land acquisition also poses social challenges. To mitigate these, design the project in such a way as to minimize involuntary resettlement. When displacement or expropriation is unavoidable, ensure adequate public consultation and involvement, and provide fair compensation. Be sure not to overlook vulnerable groups: for example, tenants may not receive compensation while owners do. But note that compensation requires more than money. So if necessary, provide administrative support for resettlement; for many people, it will probably be the first time that they move. Empower people to make their own life choices by providing personalized resettlement options, instead of telling them where to move to.

Figure 23: Strategies for social-impact mitigation of land acquisition

Adverse social impacts of land acquisition require mitigation



Source: *Involuntary resettlement policy.* November, 2003. African Development Bank.

3 Structuring a Balanced Risk Allocation

As PPP promoters strive to balance the interests of the private sector with those of the public sector, they face a complex challenge: to maintain sufficient incentives for the private sector, while minimizing unmanageable risks and allowing for public safeguards. First, they have to determine the optimal contract to achieve the policy objectives. Then they have to design price regulation and perhaps initiate competitive elements to encourage efficiency and avoid monopolistic abuse. They have to identify individual risks conscientiously, allocate them efficiently, and adopt various measures to mitigate them – or implement regulatory mechanisms that adapt to changing circumstances. Besides regulating prices, they might also need to regulate quality to protect public interests. Finally, they might need to introduce some public-sector intervention options, but structure them carefully so that they remain predictable for the private partner.

3.1 Contract Model

To exploit the efficiency potential of a PPP, the planners need to choose an appropriate contract model.[66] That choice will differ from project to project. In making the choice and then customizing the contractual model for a particular project, the sponsors will have to strike a balance between two considerations: on the one hand, ensuring the attractiveness of the project for the private sector; on the other, safeguarding public interests and keeping overall economic costs down.

In designing the regulatory contract, the promoters need to adopt a structured and principle-based approach where early agreement with stakeholders on design principles makes it easier to iron out contractual details later on. The promoters must also be sure to take account of the industry-specific context and to keep sight of the overall incentive system, as the interdependent regulatory levers are so numerous.[67]

To design an appropriate contract model, the PPP promoters have to clarify three elements: the type of contract; the amount of service bundling within the contract; and the length of the contract.

Choose the type of contract on the basis of policy objectives and stakeholder readiness. The PPP promoters will have (or certainly should have) clear policy objectives for the project – how much financing to raise, how to optimize the asset quality and costs, how much control to retain, and so on. The project might remain almost entirely under public-sector control, or it might involve the private sector in various degrees of intensity during various phases of its life cycle. The five main models, in ascending order of the risk that the private sector assumes, are:[68]

1. A service contract, for specific operational aspects: the cleaning of a motorway, for example, might be contracted out to a private company for a contract fee.
2. A management contract, where a bundle of services – perhaps the operations and maintenance of a motorway – is contracted out to a private operator for an agreed contract fee.
3. A lease contract, where a private company leases or acquires temporary ownership of the asset for a certain fee and takes full responsibility for operating it, assuming all or most commercial risks.
4. A concession contract, where a private company raises the financing to (re-) design and (re-)build an asset in return for a limited period of full operating rights and maintenance obligations.
5. Divestiture or privatization, where the infrastructure asset is sold off to the private sector (by initial public offering (IPO) or a trade sale). The private operator then takes on all risks and rewards from the operation of the infrastructure asset throughout its life cycle. The government would retain regulatory powers, however, to prevent the abuse of the monopoly situation.

Figure 24 shows in tabular form some of the characteristics of the five different models.

If the policy objective is to transfer risk to the private sector, to incentivize long-term efficiency, and to raise financing, then the concession and divestiture models are the most appropriate. However, these models can be adopted only if the loss of long-term public-sector control over the asset is acceptable and if the enabling environment permits. In other words, these models are conditional on stakeholder readiness. Do private-sector companies have the know-how and the financing? Can the civil service muster enough skilled personnel to regulate and make the deal work? By contrast, service contracts and management contracts are easier to implement, since most of the control and risk remain with the public sector. But they would tend to produce less efficiency improvements from life-cycle optimization, integrated asset operations and new forms of revenue sources. However, they can be implemented at various points in time for shorter durations, whereas concessions are best whenever the asset needs to be expanded, upgraded and rebuilt.

Governments also need to carefully consider the physical scope of the PPP contract, i.e. to determine the assets that will form part of the contract and separate them from neighbouring government assets. For example, a concession may be granted for a power plant, while a management contract is assigned to operating the adjacent electricity-transmission network. And in some cases, a hybrid model might be appropriate; for example, an airport runway could be government-funded and operated, whereas the commercial activities in the terminals could be operated under a PPP structure. But the scope of services covered in the PPP also deserves close scrutiny. For example, social infrastructure PPPs such as hospitals and schools focussing on the facility aspect (and not the medical aspect) have proven to perform quite well in terms of value for money.

In choosing an appropriate contract model, the government often faces an inherent conflict of interest: on the one hand, it has the long-term duty to optimize the sector and maintain some control for the sake of the public good; on the other hand, it might have the short-term aim of maximizing its own revenues, either by granting a full divestiture or a very long concession (or by allowing high user charges). This conflict of interest obviously needs very careful management.

Figure 24: Contract type and risk allocation

Contract type determines high-level risk allocation

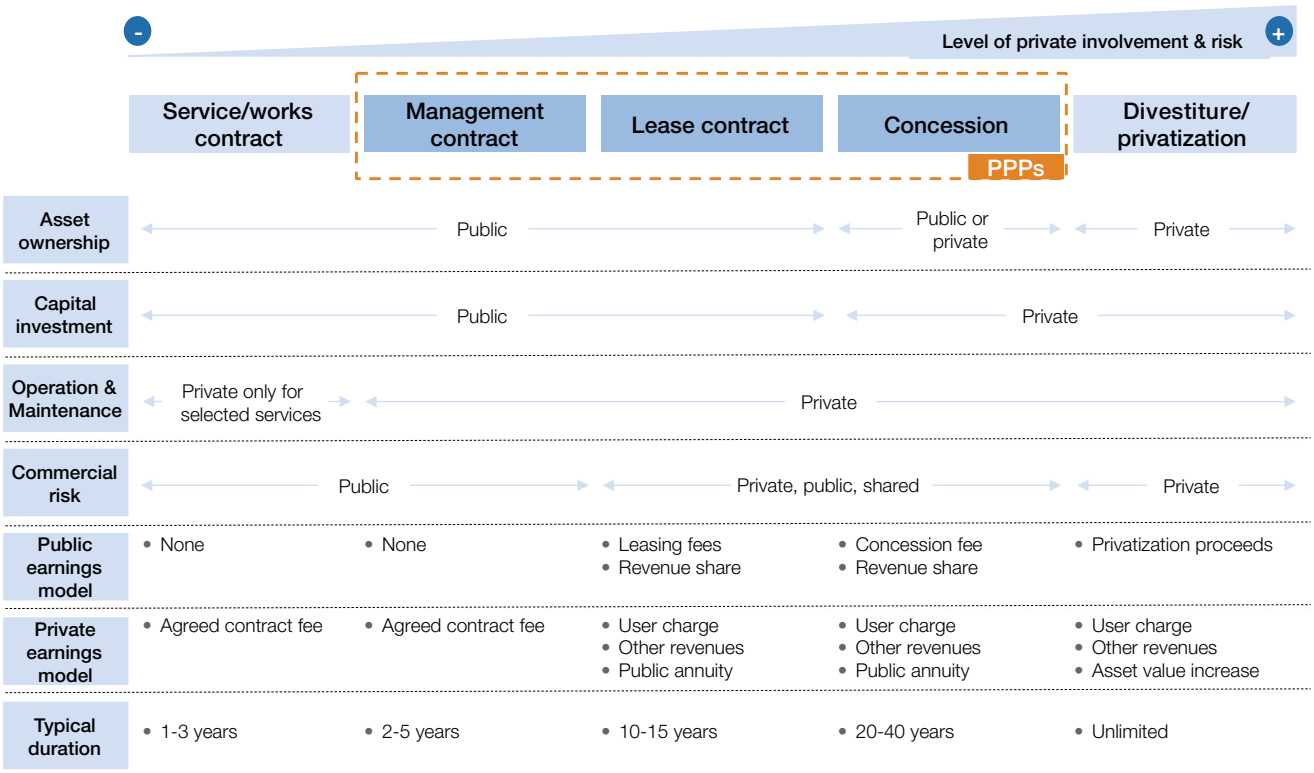
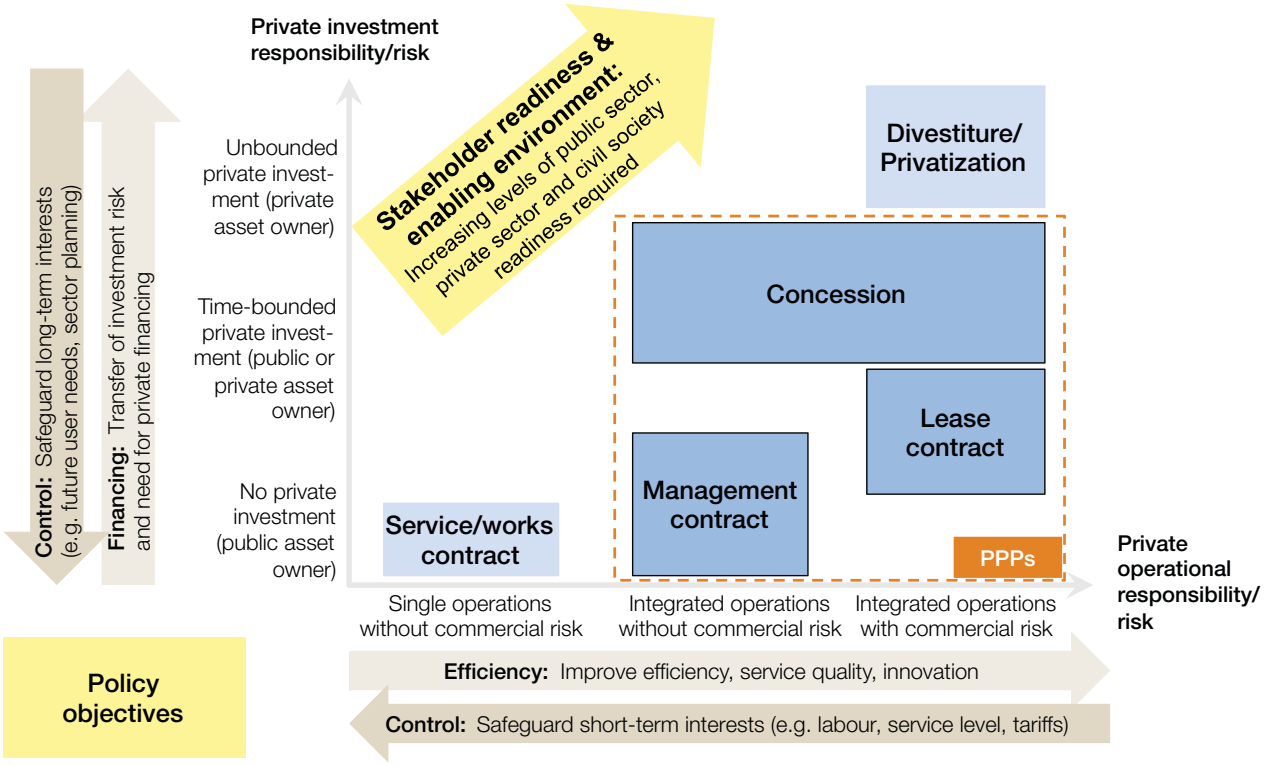


Figure 25: Trade-offs in the choice of contract type

Choice of contract type depends on policy objectives and stakeholder readiness

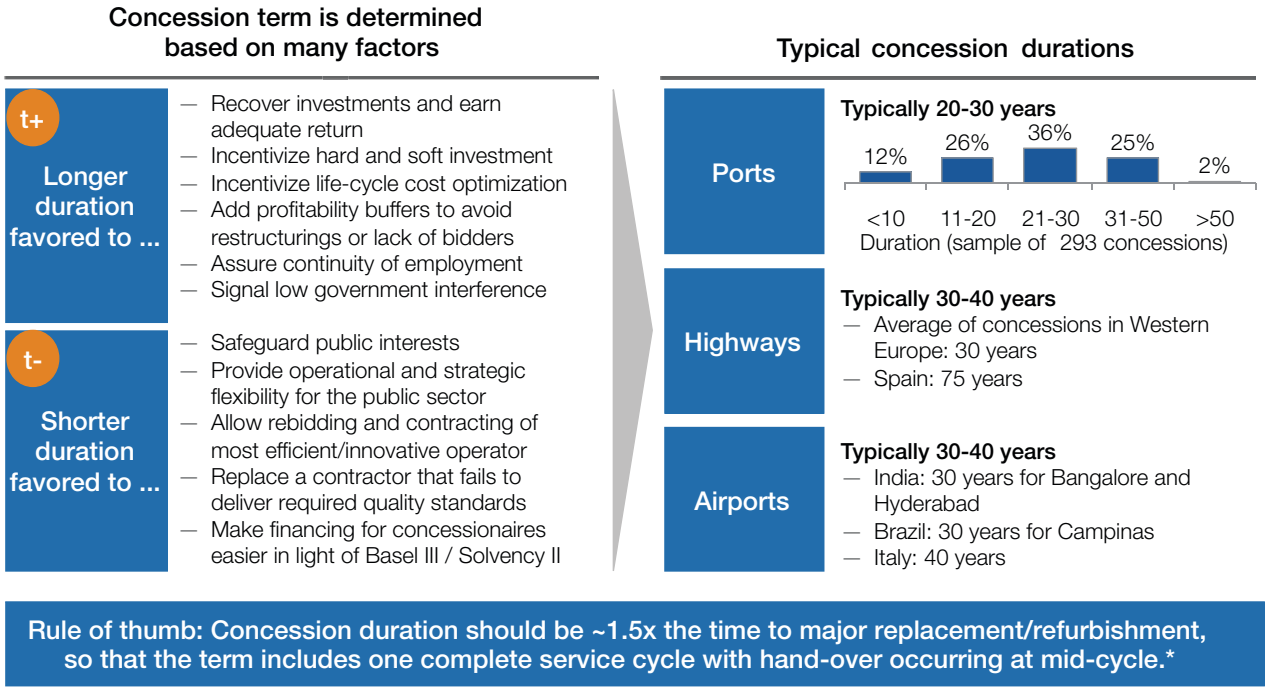


Bundle services within the contract to optimize the trade-offs along the life cycle. If the policy objective is to optimize life-cycle value, then the contract should bundle various responsibilities – design, build, operate, and maintain. In that way, the concessionaire will be able to maximize the efficiency of the life-cycle trade-offs. For example, if the company responsible for building the project is also responsible for maintaining it, the company would have an incentive to carry out the construction work to a very high standard or in an innovative way that reduces the frequency or cost of later maintenance work.

In some instances, however, such bundling may be contra-indicated. Perhaps the private-sector companies best equipped to handle the build or operations phase have far less expertise in design than a specialist design firm has, or than the public sector has. Or perhaps a major policy objective for the PPP promoters is to retain a high level of state control over the planning and designing of the asset. In such cases, the contracts would be tendered individually rather than in one bundle.

Figure 26: Factors to determine concession term and typical concession durations

Concession term has to take many situation-specific factors into account, resulting in diverse durations



* For a highway, for example, major refurbishment occurs after 20-25 years supporting the typical concession durations of 30-40 years.

Source: Farrell, S. *Observations on PPP Models in the Ports Sector*, 2010.

Base the length of the concession on the investment involved and the amount of long-term flexibility needed. Concessions vary greatly in length, the number of years mostly ranging between 20 and 40 as depicted in figure 26.

The duration has to be determined with finesse: from the private sector's point of view, usually the longer the better; from the public sector's, vice versa. A longer term will encourage the private sector to bid for the project and invest in the first place by holding out the promise of a good return and signalling that government interference will be light. It will add buffers for long-term demand risk, and enable the recovery of transaction costs and "soft" investments, such as marketing, training and IT. It will also spur the private operator to maintain high efficiency at all phases of the project's life cycle. For greenfield assets, the concession period should include the construction phase – that will incentivize early completion by the contractor. The M7 motorway near Sydney, for example, was duly completed eight months ahead of schedule, and opened a year earlier than expected.[69]

On the other hand, a shorter term has the advantage of safeguarding public interests. It gives the project's sponsors greater operational and strategic flexibility. It enables them to replace a substandard concessionaire sooner rather than later, or at least to use that threat to induce the incumbent to raise standards. Moreover, any follow-up concession is likely to be less risky than the original one, since the demand forecast will now be much more accurate. In view of these advantages, some countries actually set a legal cap on the length of concessions – for example, 50 years in Chile.

Different types of service often call for different contract durations, and might therefore be unbundled – hard, asset-intensive services deserve longer terms than soft, labour-intensive services. So in Portugal, for example, some hospital PPPs have assigned longer terms for the core real-estate component than for cleaning services. Unbundled services can lead to high coordination costs, however; so PPP promoters need to very carefully study whether the unbundling approach really would deliver greater value for money than an integrated operations approach covering hard and soft services.

Another possibility to consider is that of variable-term concessions. In these contracts, the duration is not pre-defined, but is based on a revenue/traffic or rate of return threshold. For example, for the Vasco da Gama Bridge in Portugal, the concession was to be terminated by a cap of 2.25 billion vehicles crossing the bridge. Another approach is to auction concessions based on the lowest discounted revenue requirement, and to end the concession once this sum has been reached. Such an approach has been used in Chile (see chapter 3.4).

3.2 Price Regulation and Competition

Infrastructure projects tend to involve such great capital expenditure that entry barriers are bound to be high, and often a natural monopoly will result. When that happens, the usual risks arise: the monopolist operator could be tempted to overcharge users and neglect investment and operational efficiency. To prevent that abuse of market power, and to create incentives for efficiency and innovation, the project's promoters have two standard levers – apply price regulation or introduce elements of competition (note, that when markets are fully competitive, PPPs may not be appropriate and privatization could be considered).

A regulatory price regime should incentivize efficiency and investments – and guard against the abuse of monopoly power. The regulator would decide between two main approaches: setting prices based on incurred costs and setting a price cap. In the former approach, the price would be set (and regularly adapted) to ensure an adequate rate of return on the operator's expenses and investments – and the government or the user would carry most of the cost risk. The main drawback is that of potential inefficiency: the operator would have only limited incentive to cut costs and might over-invest. For example, the PPP

for the Trencin Water System in Slovakia initially granted over-generous terms to the concessionaire, who enjoyed a guaranteed profit margin while facing few risks and service responsibilities.[70] In the second approach, the price cap is typically based on a cost forecast plus a fair return, and can be adjusted annually by an I-X formula (= inflation - efficiency increase), to provide for inflation and the contractor's expected performance improvement. This time the operator bears much of the operational cost risk. The main drawback now would be that the operator, with strong cost-efficiency incentives, might under-invest and produce a poor-quality service.

The regulatory price regime has a further role: to prevent the concessionaire from setting disproportionately high prices and exerting monopoly power. That danger was evidenced in Mexico's early road PPP programme, for example, where auctioning based on the shortest concession length led to excessive and increasing tolls. If the pricing regime limits itself to prescribing average prices for the product basket, that still leaves the concessionaire much leeway, and pricing strategies by can still be fairly sophisticated. To optimize the use of capacity, the regulatory regime could allow peak or congestion pricing (higher prices at times of higher demand), but not to the extent of allowing the exploitation of any particular user group (such as rush-hour office workers dependent on a commuter train) that has low price sensitivity due to the monopoly status of the infrastructure for their specific needs.

The pricing regime should also provide incentives for capital expenditures: usage-based pricing, for instance, would incentivize investments in quality. While existing prices should be adequate to cover replacement capital expenditure, they might be insufficient in covering enhancement and expansion investments. So the pricing formula should make provisions for these upgrades, particularly if the new capacities are initially not fully used.

Competition – in its various forms – can likewise promote efficiency, but is not always applicable in PPPs and in infrastructure industries. Competition tends to drive higher quality and innovation, cost-efficiency and lower prices, and greater investment. To take a simple example, the improvements made by the private operator of Moscow's second airport, Domodedovo, led to rapid enhancements in the downtown rail link and terminal structures at the main airport, Sheremetyevo.

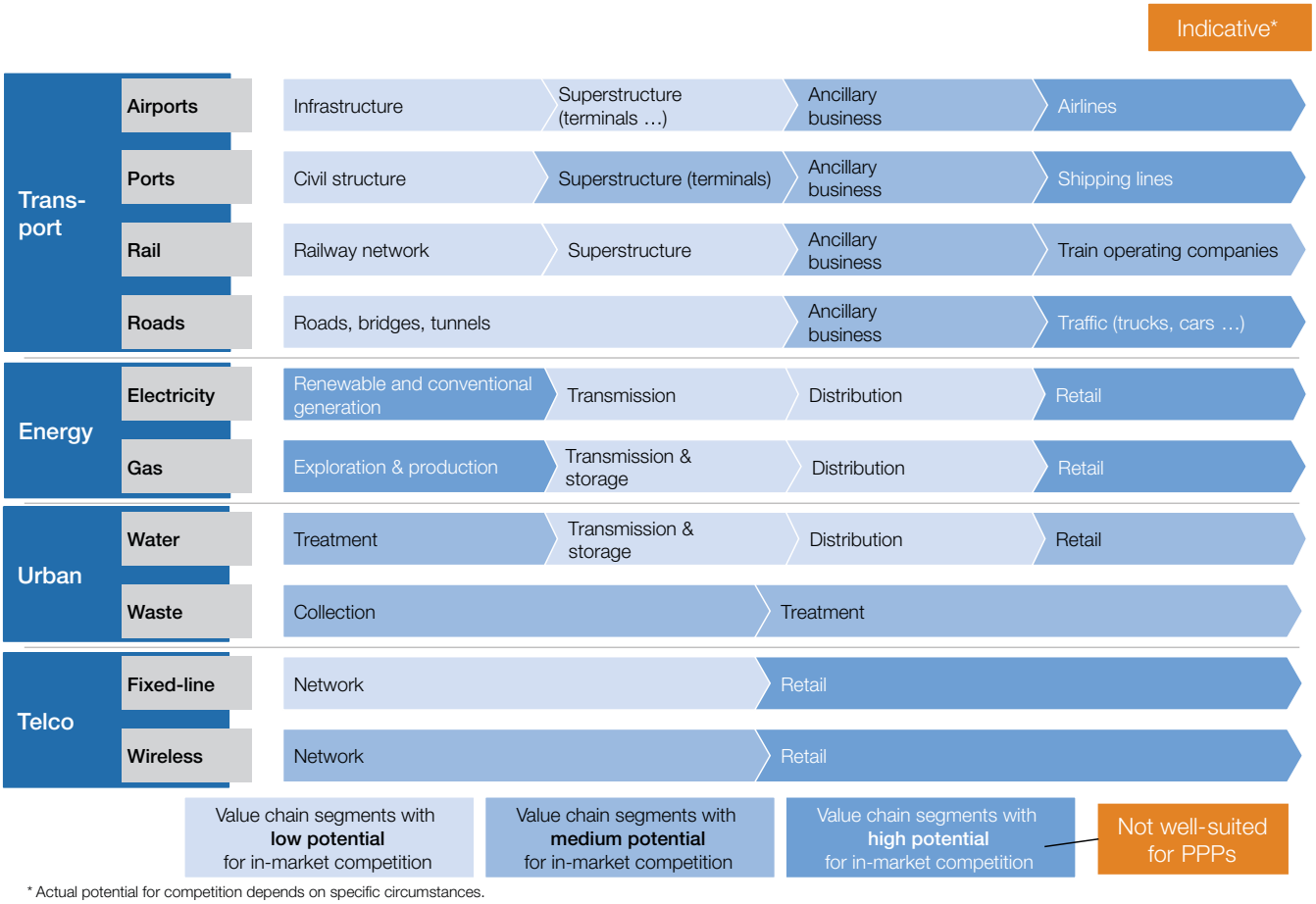
By defining the scope of the PPP, governments can actively influence market design and thus the feasibility of competition – and that could make certain regulations unnecessary. Competition can come in various forms, and PPP promoters will need to decide which is the most appropriate for the current project.

Most infrastructure assets constitute a natural monopoly. The only possible competition is "for-the-market" competition, i.e. private-sector bidders compete at auction for time-limited monopoly rights to operate the asset. To make use of for-market competition, it is often necessary to arrange "horizontal" unbundling, i.e. separating services across geographies (for instance, tendering water utilities region by region) or separating businesses that use the same infrastructure assets (for instance, tendering railway freight services separately from passenger services).

However, some infrastructure assets can also accommodate "in-market" competition, where different infrastructure operators continually compete for customers; for example, the operators of two closely situated ports. In such a case, the project promoters need to evaluate whether a PPP is still be most appropriate way forward or whether regulated privatization is more suitable. In some sectors, in-market competition often requires prior "vertical" unbundling, i.e. dividing a formerly integrated industry into separate segments of the value chain (for example, splitting an electricity-supply network into distinct components – electricity generation, transmission, distribution and retail). But in many cases, the regulators need to impose fair-access pricing terms to enable third-party players to access essential facilities that are owned by incumbent firms. Figure 27 shows which parts of the infrastructure value chain are most amenable to in-market competition.

Figure 27: Infrastructure value-chain segments and their potential for competition

Various parts of the infrastructure value chain have potential for in-market competition



* Actual potential for competition depends on specific circumstances.

Even where competition is not feasible for the whole asset, there are still various options to instil competition at sub-asset level:

- Selected services at a PPP asset can accommodate in-market competition. For example, following the deregulation of ground-handling services in the European Union, many airports have found that their own incumbent ground-handling services have progressively lost market share to new competitors – enabling airlines to choose which ground-handling company to hire.
- Asset-light services at a PPP asset can be repeatedly subject to for-market competition if contracts are kept short. Take the example of the light rail system in Oporto: the approach taken was for separate tenders – a 20-year contract for network extension and maintenance, but just five-year contracts for network operations – and the frequent rebidding process for the operations contract helps to keep operations competitive and enables the government to achieve savings.[71]

When deciding whether competition has potential, project promoters will need to conduct a rigorous analysis. For a port, for example, the level of competitiveness depends not only on the location of any nearby ports, but also on technical port characteristics (crane capacity, available draft under different tidal conditions, and so on), local and hinterland infrastructure (such as storage facilities and transportation time and costs), and operational excellence (such as container turnaround times and ease of customs procedures).

In many cases, it turns out that competition, though feasible, is not actually beneficial. For instance, competition might lead to a loss of economies of scale, to a loss of system coordination, or to sub-optimal use of capacity. For example, when Toronto Pearson Airport's terminal 3 opened in 1991 as a private competitive venture, it coordinated poorly with the other terminals and duplicated some of their costs; in 1997 it was bought by the airport's main operator, Greater Toronto Airports Authority.

3.3 Risk Allocation and Mitigation

Infrastructure projects are almost inevitably risky. The risks arise at each stage of the project's life cycle (see figure 28) and have to be divided carefully between the public and private sector partners of the PPP. If the allocation is misjudged, that could have severe consequences – on the one hand, inadequate incentives for the private contractor; on the other, bankruptcy or costly bail-outs.

The allocation of risks between the public sector and the private sector often tends to follow a generic pattern (build, operations and maintenance to the private sector, site risk and select "macro" risks to the public sector). But the detailed distribution will vary from time to time, according to the project's distinctive circumstances.

To achieve well-balanced and customized risk allocation, the project's promoters can divide their work into three broad sections: identifying and assessing the risks; determining the party best able to manage the risk; and reassuring investors by taking measures to mitigate and share risks. More specifically, the tasks and responsibilities that the promoters need to carry out are:

Identify and assess all possible risks inherent in the project throughout its life cycle – and make them transparent.

- Within a reasonable budget and time frame, conduct a wide-ranging preview of the project to anticipate all possible risks, including unconventional risks. For instance, leverage checklists, apply scenario techniques, host expert workshops, and review earlier cases.
- Create a risk register or matrix, systematically identifying all risks – not just those related to design, construction, financing, operations and maintenance, but also political and "macro" risks, such as inflation, floods, new tax laws, emerging technologies or new spatial developments.[72]
- Classify each risk as either continuous or "digital" (one-off), and evaluate all the risks identified in terms of their likelihood and their potential impact.

Figure 28: Potential risks along the project's life cycle

All potential risks along the project cycle have to be identified

Design & construction	Site risk	Availability of site (land acquisition/rights-of-way), quality of site (geological conditions, existing asset condition), zoning permits
	Design risk	Inadequate planning, substandard design vs user requirements, lack of system integration, delayed construction permits, delay in PPP approval
	Construction risk	Time delays, completion risk, cost overruns, quality issues, sub-contractor underperformance, untried and complex technologies, design change requests
	Environmental and social risk	Delayed environmental permits, environmental constraints for construction and operation, stakeholder opposition, costs of social and environmental mitigation
Operations	Commercial risk	Lower demand than forecast, higher price elasticity, network interface risk, revenue collection risk
	Operating cost risk	Higher operating costs, maintenance costs, labour costs and commodity prices
	Performance risk	Operational inefficiency, system underperformance, reduced asset availability and capacity, service interruptions, innovation risk
	Financing risk	Refinancing availability, borrowing rate risk, counter-party and government sponsor risk
Political & macro	Macroeconomic risk	Changes to economic growth, population, demographics, industrial development, interest rates, exchange rates, inflation
	Regulatory risk	Changes in regulated prices, competition, sector framework, taxation
	Political risk	Breach of contract, expropriation, currency inconvertibility, no profit repatriation
	Force majeure	Natural or man-made events, e.g. earthquake, flood, hurricane, civil war, riot, crime, strike

Note: This list of risks is for reference and is not necessarily exhaustive. While it covers the typical and major risks, many risks are specific to the project circumstances.

Determine the party best able to manage the risk, and allocate the risk accordingly.

- Allocate the risk to the party that is best able to control the likelihood of occurrence, to limit the risk's impact, and to absorb the risk at the lowest cost. To make this allocation accurately, analyse the risk's correlation to other risks, and the private sector's ability to pass the risk on (for example, through insurance, sub-contracting or hedging). Also, study the skills and tools that the candidate contractors have to manage each identified risk – that is, to minimize the likelihood and impact of the risk (for instance, through project management or technical solutions such as earthquake-resistant construction).
- Start with the accepted and common standards of risk allocation (see above) and evaluate the need for project-specific adjustments. For example, if demand is affected by policy decisions (such as urban planning, gas tax rates, or complementary government infrastructure), the demand risk should be assigned to the public sector. But if demand can be influenced strongly by the concessionaire's marketing or operations, the risk should be allocated to the private sector.
- Assess the implications of transferring risk from the public sector to the contractor, i.e. the increase in cost of capital and its effect on the project's bankability.
- Consider the limits of risk allocation. Often, risks have to be bundled – that is, allocated in groups – as the cost of identifying and allocating each individual risk is excessive. So in practice, only a few particularly significant risks are separated from a bundle of risks and singled out for specific allocation (for example, geological risks would be treated separately from general construction risks). And bear in mind that risk transfer to the private party is mostly limited by that party's equity exposure.

Risk allocation does not need to be an "either-or" decision, however; options are available between the two extremes of allocating solely to one sector or the other.

Attract investors by pre-emptively sharing and mitigating risks that are difficult to manage. If the perception is that the project's risks outweigh the opportunities, potential investors will stay away. For the more formidable risks, such as traffic risk, the project's promoters need to understand that assigning such risks to the private sector will increase the price they are paying. As a consequence, they may apply various techniques to reduce these risks for the private sector. Besides direct government support (such as co-financing, subsidies or administrative support), these techniques involve various risk-sharing and mitigation mechanisms.

Figure 29: Options for risk mitigation and sharing

PPP planners have various options for risk mitigation and sharing

Mechanism		Example	Risk exposure: Private	Risk exposure: Public
No risk mitigation and sharing	Revenue / Demand*	— For highway M1/M15 in Hungary, private sector bears traffic risk alone	◆	
Risk sharing	Revenue / Demand*	— Sliding scales and earnings sharing schemes, e.g. used at Frankfurt Airport with a 33% traffic risk sharing		◆
Risk mitigation/ guarantees	Revenue / Demand*	— Minimum revenue guarantees often used in Korea and Chile and also for Gautrain in South Africa and the Dakar toll road — Minimum waste guarantee by municipality for solid waste management facility in India		◆
No risk allocation to private sector	Revenue / Demand*	— Availability payments are nowadays the standard practice for urban transit or rail PPPs and are also often used for roads		◆

* These examples refer to risk mitigation and sharing mechanisms for demand risk. Similar approaches can be applied for other risk factors.

Some specific examples of sharing and mitigating measures are:

– Risk-sharing: Sliding scales or earnings-sharing schemes set a pre-determined profit range for the concessionaire; any upside and downside risks beyond this range are shared symmetrically between the public and private sectors. Such sharing mechanisms help to align the interests of both contractual parties, and so will increase the sustainability of the arrangement and reduce the incidence of painful renegotiations.

  Risk-sharing is often applied to refinancing, to avoid public discontent that may arise from windfall profits when interest rates are decreasing (for instance, in the United Kingdom the proportion has been 70:30 in favour of the government).[73] Various sharing mechanisms are used, including a one-off payment to government, a reduction of tariffs for users, or an agreement to reinvest a proportion of the profits (for example, the concessionaire of the M6 toll-road in England committed to reinvest 30% of the refinancing gains into improving local infrastructure).[74]

  Another example of risk-sharing is the use of "hybrid tills" for ancillary revenues, as at Rome and Frankfurt airports, where the revenues from ancillary businesses are partly retained by the operator and partly go to cross-subsidize the core infrastructure business, thus aligning the interests of the two contractual parties.

– Risk-mitigation with guarantees: In some contracts the private partner is guaranteed a minimum level of revenue. For example, the Dakar toll-road project makes provisions to compensate the operator if average traffic levels, and hence revenues, fall below a stated threshold. If the government does offer such a "lower cap" to protect against downside risk, it seems only fair that it should also apply an upper cap. Such symmetrical risk-sharing usually suits private investors, who tend to be more concerned about potential downsides than about the chance of excessive returns.

– Availability-based payment schemes (rather than usage-based), in which the operator is reimbursed by the public sector regardless of usage, though subject to agreed standards of service. These schemes are recommended when the end user cannot be charged directly (as in the case of prisons), and where the concessionaire has little influence over demand (as in many urban transit projects, back-up electricity-generating plants or highways that are part of a broader network). For example, the Doyle Drive/ Presidio Parkway PPP in California uses availability payments on these grounds: the private concessionaire can influence traffic volume only to a limited extent, since the concession covers just a small part of the overall road network. These availability-based concessions are becoming more widespread as the private sector increasingly prices demand risks and the public sector understands PPPs as a way to optimize risk allocation.

Obviously, the above mechanisms can also be combined. For example, the payment bands applied for the Beiras Litoral and Alta Shadow Toll Road in Portugal combine availability-based government payments with "shadow tolls" that are adjusted to the traffic level. In this contract design, the concessionaire can certainly cover its fixed costs, but the price received per car decreases at a high number of users. Likewise, some Indian road concessions also combine an annuity model with user tolls.

PPP promoters should be aware that these sharing and mitigation techniques come at a cost – both indirect and direct. Revenue guarantees, for instance, could indirectly cause complacency: the danger is that they reduce quality incentives for the concessionaire. And if contingent guarantees become effective, they lead to a direct burden on the government budget. For example, some Hungarian availability-based road concessions that were over-dimensioned have led to high costs for the government.

3.4 Adaptive Regulation

Some risks in infrastructure projects are difficult to predict: a severe shortfall in demand, input-price volatility, refinancing conditions, national economic shocks, and so on. The problem is compounded by the long contract durations of PPPs because the risks are likely to change significantly during the course of the contract. As the revenues and costs fluctuate, so too does the concessionaire's income. A promising venture can turn into an unprofitable burden, and could eventually drive the project company to bankruptcy. On the other hand, it might turn into a bonanza, producing high profits for the concessionaire, possibly at the expense of the public.

To be more flexible when these uncertainties occur, contracts should contain some built-in adaptation mechanism for prices and profits. Its purpose is not to remove all risk from the operator – risk exposure remains a useful incentive for efficiency – but rather to spread uncontrollable risk more evenly between the contractual parties and over time. Adaptation mechanisms are of two types: automatic and manual.

Adopt automatic adaptation mechanisms to buffer exogenous revenue and cost risks. In some PPP projects, various adjustments are triggered automatically by external developments, and thereby help to keep the operator's profits within reasonable margins. The mechanisms can be classified into those that are cost-related and those that are revenue-related. The cost-related mechanisms include:

– A "cost pass-through": it automatically enables the operator to increase prices for consumers whenever the operator's own input costs rise unavoidably above a tolerable level. So, electricity prices might rise in line with the rising costs of the coal or gas used in generating the electricity. The Siza Water Utility PPP in South Africa's KwaZulu-Natal province is an example of what happens if uncontrollable cost increases cannot be passed-through. Following a 20% price increase by the bulk supplier, the company was unable to pay its annual concession fee, which led to a renegotiation of the contract.[75]
– Indexing to inflation: this indexation is standard practice in concessions, and is usually incorporated in price regulation via the aforementioned I-X formula (= inflation - efficiency increase). This adjustment is often based on the consumer price index, which is not always a properly suitable measure. It is often preferable to use an index that accurately reflects the contractor's real cost exposure. For example, in some European countries, electricity-grid regulation relies on a formula combining consumer, labour and construction-price indices.

Below are some of the revenue-related mechanisms used in practice:

– Adjusting the length of the concession to actual demand: least present value of revenues (LPVR) concessions are auctioned and are won by the bidder that stipulates the least discounted revenues for the whole concession period – which terminates once the specified revenues have been collected (or the specified volumes have been reached). Such variable-time concessions effectively buffer demand risk for the concessionaire, and bypass the risk of over-optimistic usage predictions. This system has been adopted in Chile, for example, for the Santiago-Valparaíso Highway and for the Iquique and Puerto Montt airports. (See figure 30 for details.)
– An automatic subsidy in the form of shadow charges: this mechanism might be activated if the operator's profits fall below a specified threshold because a necessary customer price increase is disallowed for political reasons. For example, the Chengdu water PPP contract obliges city authorities to pay the full difference to the contractor when input costs rise unavoidably and if consumer-tariff increases are denied by the authorities.
– "Revenue smoothing" to counteract economic cycles: this mechanism can be used, for instance, at airports that have traffic variations.

Figure 30: Example of least present value of revenue concessions

Least present value of revenue concessions automatically adapt their duration to actual demand

Least present value of revenue (LPVR) mechanism

Variable-time/endogenous period concessions
- — Term is not predetermined, but depends on posteriori revenues
- — Concession ends when the collected revenue reaches the amount quoted in the bid

Auction mode
- — Concessionaire is selected based on lowest discounted revenue requirement over the whole concession duration

Advantages and issues

Advantages
- \+ Most efficient construction firm wins auction – not the one with the highest demand forecast
- \+ No exposure to hard-to-predict traffic risk
- \+ Financing costs lower due to less commercial risk
- \+ Operating efficiency incentives as toll increases not feasible
- \+ If the contract has to be terminated, compensation is easy to calculate

Issues
- − Little incentives for quality and demand enhancement
- − Lack of flexibility if revenue generation takes significantly longer than expected
- − Variable loan term possibly needed

Cases of LPVR in Chile

Santiago – Valparaíso Highway (1998)
- — Five participating firms with winning bid below estimated costs
- — PPP got largest and least expensive infrastructure bond issued in Chile up to then

Iquique and Puerto Montt airports (2008)
- — Five bidders with winning bid ~65% of maximum LPVR set by government

Source: Engel, E., R. Fischer, A. Galetovic. "Least-Present-Value-of-Revenue Auctions and Highway Franchising". In *Journal of Political Economy*, 2001, vol. 109, no. 5: 993-1020.

Implement manual adaptation mechanisms with well-defined limits. When no automatic adaptation mechanism is applicable, contractual arrangements may still permit an adjustment based on mutual agreement and negotiation between the two parties. Contracts sometimes allow for regular reviews, and these might indicate the need to change the price cap, the quality targets or the service requirements. In addition, an exceptional review or renegotiation might be initiated, either by the government or by the contractor.

These manual adjustments are in some respects less satisfactory than the automatic adjustments. They provide some discretionary scope to the regulator, for example in making certain assumptions, and are therefore less predictable. And on the operator's side, there is the prospect of opportunism, since the operator – in effect a monopolistic service provider – is negotiating from a position of strength. To anticipate and prevent any abuse, the contract should specify fees and caps to discourage unwarranted or excessive requests.

The review process itself will ideally follow a set of standard principles. These include:
- – Prior stakeholder consultation; for example, with the operator and the users of the service;
- – An independent and authoritative decision-maker in the case of disputes either an independent regulatory institution or an expert panel (see chapter 4.1);
- – A set of principles of regulation pre-formulated in the contract (in addition to specific rules) to help guide the required adaptations;
- – Benchmarking to provide guidance on the amount of adjustment needed.

3.5 Quality Regulation

Most PPP project types have conflicting objectives: between low tariffs for users and high service quality – that is, good availability, reliability, safety, accessibility, and other safeguards of public interests. In pursuit of the former goal, the project's sponsors will impose price caps on the operator. Unfortunately, that undermines the second goal, since the operator's incentive (especially in a monopoly service) is now to cut costs or sweat assets and thereby neglect or reduce quality. To counteract that perverse incentive, and instead incentivize the operator to maintain or improve quality, quality regulation is needed.

The responsibilities and tasks of the project's promoters or regulators can be grouped under four headings: determining the need and strategy for quality regulation, customizing the quality targets, designing powerful incentives, and developing a cost-effective monitoring system.

Determine the need for quality regulation and devise a quality strategy

- If social objectives are important – for instance, a universally affordable service or specified hygiene standards – articulate these at the outset of the contract development.
- Assess how far the operator has incentives to deliver high quality anyway (for example, if the operator can increase traffic through higher quality), and on that basis decide how much quality regulation is needed to make up the shortfall.
- As one approach, consider an initially light quality regulation with voluntary standards and operator-user agreements (plus monitoring of the delivered quality) while retaining the right to enforce strict quality targets in case of under-performance – this combination will optimize the balance between the private operator's freedom and the public's need for safeguards. For example, Auckland airport uses a lenient quality regime with voluntary standards backed by the requirement to publish key performance indicators (KPIs) and candid annual reports.

Customize the quality standards and targets

- To diagnose problems more easily, select a wide range of informative quality targets. (Figure 31 presents some KPIs used for different sectors.) These targets should relate not just to inputs (resources used to enable the service) and outputs (objective measures of the service) but also to outcomes (user perceptions of the service). For inputs, the targets might include the amount of investment and the quality of the maintenance work. For outputs, the targets might include breadth of coverage, the levels of congestion and delay, and the safety record. And for outcomes, the targets might include customer complaints and levels of customer satisfaction. In combination, these metrics can reliably diagnose quality issues – the causes could include under-resourcing, operational problems, increased congestion, or just changing customer preferences.
- In setting quality targets, strive to incentivize efficient trade-offs between cost and quality. The best way of doing this is by creating an aggregated index from a variety of data points (but beware of the relative weightings, as they may cause unintended incentives). These can include data from benchmarking, customer surveys, and normative standards (environmental or public-health norms, for instance). The target that the regulators should set is a modest one – not maximum quality, but the same quality that a competitive market would produce: "user-optimal" quality.

Figure 31: Examples of sector-specific quality KPIs

Quality Key Performance Indicators (KPIs) are sector specific

	Selected examples	Rail	Airport	Road	Electricity	Telecom	Water
Input	Cost			– Cost for winter service			– Network maintenance
	Investment	– Investment in superstructure				– Investment in new technology	
	Asset	– Rail screening	– Runway condition	– Lighting/marking/ pavement condition			– Pipe conditions
Output	Availability & congestion	– On-time performance	– % flights delayed	– Lane availability & shutdowns – Traffic speed	– SAIDI * – SAIFI **	– Dropped call rate	– Supply & sewer interruptions
	Coverage/ affordability		– Hinterland accessibility		– % of house-holds connected	– Fixed lines/ mobile phones per capita	– Restrictions for non-payment
	Safety	– Incidents	– Number of apron incidents	– Number of accidents			– Water quality tests
Outcome	Customer benefits	– Reductions in commute times	– Increase in connectivity	– Reductions in journey times	– Speed of call centre response	– Time till connected	
	Customer complaints					– Customer complaints about bad reception	– Water quality complaints
	Customer satisfaction			– Customer comments on road quality			

* System average interruption duration index: Average time per year that supply to a customer is interrupted.
** System average interruption frequency index: Average number of times per year that supply to a customer is interrupted.

Design a powerful system of incentives and enforcement

- Devise and invoke appropriate penalties, such as statutory fines for substandard service, or compensation payments to inconvenienced customers. For instance, in the telecommunications sector, operators with licence exclusivity often have to pay penalties if they fail to meet universal coverage targets.
- Encourage or enforce comparative public reporting of operators' performance; in countries with a strong civil society and free press, such naming-and-shaming (or conversely, appraising-and-praising) serves as a simple and low-cost incentive to operators to optimize the quality of their service.
- Consider a pay-for-performance system, with bonuses and penalties for the concessionaire as a way of rewarding or penalizing performance levels directly. Such systems are used in many availability-based road PPPs, where the criteria include traffic jams and safety levels. They are also used in UK water companies, where the targets include not just water quality but also environmental performance and customer service.

Develop a cost-effective quality-monitoring system

- Strike a balance between the cost of collecting the data and the quality of the data collected. To manage the cost, begin by limiting the number of KPIs and the frequency of monitoring; but when problems are signalled, increase the number and frequency.

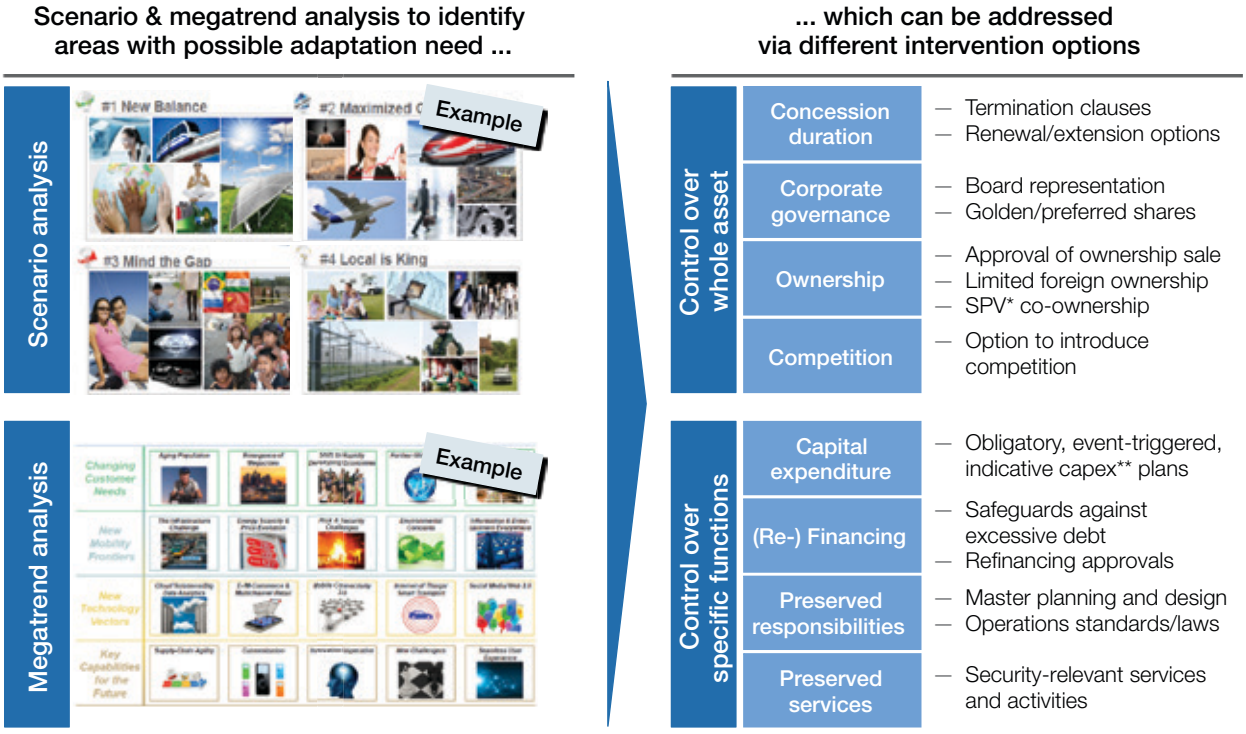
– Ensure that the data is relevant, reliable and verifiable, and that the segmentation of the data (by customer, by geography, across a time-series) is sufficient to identify root causes and to suggest actionable remedies.
– Design clear punitive/remedial processes, making sure that they are in line with other regulatory processes.

3.6 Intervention Options

PPPs are generally contracted for 20 years or more – a timeframe that potentially will embrace some major changes. So PPPs can, during their lifetime, become unsuited to satisfying society's infrastructure needs. Just consider, for instance, how the needs and duties of a public-transport concessionaire might transform, in the face of such developments as rapid urbanization, new safety laws, or new emerging technologies. It is crucial, therefore, to incorporate some adaptability into the contract, whereby the public sector authority can retain some control over the project. However, there is an inherent conflict: while the public sector's interest lies in flexibility, the concessionaire's interest lies in predictability. So once again, a balance has to be struck. Figure 32 lists the various levers that the public-sector partner can pull to exercise its influence. Already during the preparation phase, the PPP planners should be conducting comprehensive scenario and megatrend analysis to identify the areas likeliest to require long-term adaptation. As a ground rule, these intervention options should be designed so as to provide sufficient predictability for the private-sector partner. Any of these public-sector options should be clearly defined in the contract (and should not be introduced later), with well-specified triggers and an established decision process requiring consultation with the concessionaire.

Figure 32: Overview of intervention options

Use megatrend and scenario analysis to identify areas with possible need for public interventions



* SPV = special purpose vehicle ** capex = capital expenditure

Source: World Economic Forum. "Connected World: Transforming Travel, Transportation and Supply Chains".

Public-sector options on concession termination and duration to incentivize high-quality service delivery
Termination options should specify different levels of breaches and most – except for blatant abuse – should be activated by the government only after a cure period (12-18 months), so that the operator has a chance to bring the service up to the required quality standards. If that fails and the public sector does then invoke the termination clause, the compensation paid to the operator should follow well-defined valuation guidelines (inclusive of an appropriate penalty). In contrast, a concession-extension option can be used as a "carrot" rather than a "stick" for the concessionaire to maintain high performance and quality levels year after year. For container-terminal concessions at ports, for instance, about 15% include renewal options, and a further 5-6% have been extended by mutual agreement (out of a sample of 293 concessions).[76]

Public-sector options to introduce competition at a later stage to provide alternatives for users
Exogenous changes over the life of a PPP contract may favour the need and potential for competition: an expanding market, industry deregulation, and technological advances that alter the minimum efficient scale. Any public sector option to introduce competition at a later stage should set clear conditions for such a change (for instance, threshold capacity-use ratios) and potential compensation payments. And the government should first consult with the current operator and give it a chance to propose alternative solutions before granting licences to competing operators or building new, rival, state-owned infrastructure assets. For instance, an incumbent airport operator might propose a terminal or runway expansion if the current services cannot cope with the traffic level, or conversely, the operator might propose improving accessibility to hinterland areas to pre-empt the construction of a rival airport there. Yet the government should carefully evaluate such proposals in order not to sacrifice value-for-money and competitiveness for the construction of these additional facilities.

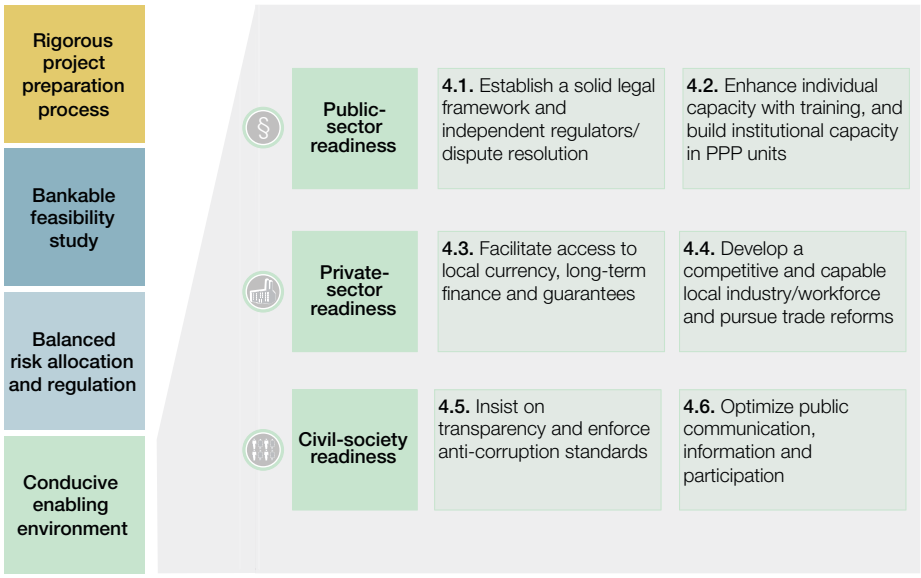
Public-sector preserved areas of services and responsibility to maintain control
In some PPP projects, some aspects will remain under the control of the public-sector authority. These are the aspects which the private sector has little direct incentive to optimize, but which need to be optimized for the overall benefit of society. They include aspects such as master planning, system integration and security-relevant activities. In some PPPs, however, the private sector is responsible for such aspects. If these aspects are subjected to regulatory changes midway through the project, the concessionaire must be compensated fairly; for instance, if new security regulations necessitate the installation of special scanners at airports, the cost should come out of the public purse rather than out of the operator's own pocket.

Public sector influence on capital expenditure
Control of capital expenditure – whether planned investment at the start of a project or unanticipated investment midway through the project – can range from strict government prescription on the one hand, to a fully independent market-based approach by the operator on the other. The former approach risks overinvesting to ensure sufficient capacity while the latter risks underinvesting. In between the two extremes are various forms of cooperative or collaborative decision-making, and these are often preferable. For unanticipated investments, the ideal outcome-based contract would specify the trigger (for instance, a threshold capacity-use ratio) and the time-scale, though these should be indicative rather than rigid, and enforced only after consultation. The contract should also specify an adequate return on the investment.

Public-sector influence on refinancing
The contract may also specify the conditions for any refinancing arrangements by the contractor. Inadequate refinancing can cause excessive debt, and thus a reduction of the contractor's efficiency incentives and an increased risk of bail-outs, tariff increases or service disruptions. So the regulator may reserve the right to approve refinancing or make the refinancing conditional on certain pre-specified credit ratings or financial ratios of the PPP entity. Alternatively, the government may assume refinancing risk by providing a standby refinancing facility.

4 Creating a Conducive Enabling Environment

For a PPP programme to proceed smoothly, it needs a favourable environment in addition to adequate project-specific preparation. Both sides of the partnership – public and private – have to be ready and able to deliver a pipeline of projects. The public sector has two broad challenges to deal with: establishing a sound legal and institutional framework, and building the necessary capacity among civil servants. As for the private sector, if it is to deliver PPPs efficiently it needs the backing of policies that will improve its access to finance and foster a competitive and capable industry. And as for civil society at large, the challenges are: helping ensure that the PPP programme progresses in a transparent and corruption-free way, and getting stakeholders to accept the programme.[77]



4.1 Public Sector Readiness: Legal and Institutional Framework

Infrastructure projects require a long view – their duration is far greater than that of most governments, so PPPs need a stable legal and institutional underpinning that is resistant to political volatility. If investors perceive serious weaknesses in the legal and institutional framework, they will be reluctant to invest their money in long-term infrastructure projects – or will ask for excessive equity returns to compensate for the political risk. In fact, political and policy risk is often the most relevant (and the most unpredictable) risk in emerging and developing countries. It includes the danger of renationalization, as recently happened with the railways in Zambia and Tanzania or with airports in Bolivia, but it can also take forms of creeping expropriation, such as tax law changes, impartial regulatory price reviews, or an increase in land charges. Political and regulatory risk is not confined to developing or fragile countries; just consider the unexpected changes of renewable feed-in tariffs in several European countries, or the proposed cuts in gas-transportation tariffs in Norway. But clearly, if the country lacks a sound legal and institutional framework with reliable mediation and arbitration mechanisms in the event of disputes, investors might not have sufficient trust to enter such a long-term partnership.

Besides mitigating regulatory risk, a sound legal and institutional framework has a further crucial role to play: enhancing procedural clarity and efficiency. That is, the relevant laws must be clear and avoid imposing undue restrictions on such requirements as transfer of ownership, foreign investment, sub-contracting, and user charges. The institutions involved in a PPP – both the contracting agencies and the regulators – need to be efficient and reliable, or the projects will fall short of their potential. Even in countries with well-regarded bureaucratic structures, things can go wrong: the A1 motorway in Poland suffered a seven-year delay because of ill-defined laws and other problems; and in Thailand, a confusing institutional framework for land transport has led to overlapping and unclear responsibilities between the various ministries, transit authorities, commissions and departments involved.

To ensure the strongest possible framework for PPPs, and to maximize the appeal of such projects for investors, governments have to work on four main areas: formulating a comprehensive PPP policy, designing a robust and stable legal framework, optimizing the institutional set-up, and enabling efficient and reliable dispute resolution. More specifically, the tasks and responsibilities that governments should attend to are:

Formulate a comprehensive PPP policy. In a comprehensive PPP policy, the government defines what it intends to do and what it chooses not to do with regard to PPPs. It

clarifies and publicizes the objectives and roles of PPPs in the overall infrastructure-policy context, as well as the advantages and the limits of the PPP approach. And it guides the creation of a full PPP programme, and helps to transform that programme into an active pipeline. To formulate this policy, the PPP planners should take the following measures:

- Articulate the various objectives of the PPP programme – not only focusing on financing but also considering efficiency and social and environmental aspects.
- Define the scope of prospective projects clearly – the sectors, the minimum project size, the contract types, and so on.
- Establish transparent principles of implementation, such as rigorous procedures for value-for-money testing, procurement and public-interest safeguards in regulation.
- Specify the rules on operational aspects, including labour rights and health and safety.
- Seek regular input from all stakeholders – relevant ministries, private companies, and representatives of civil society – to fine-tune the policy and ensure benefits for both sides of the partnership.

Design a robust and stable legal and regulatory framework.

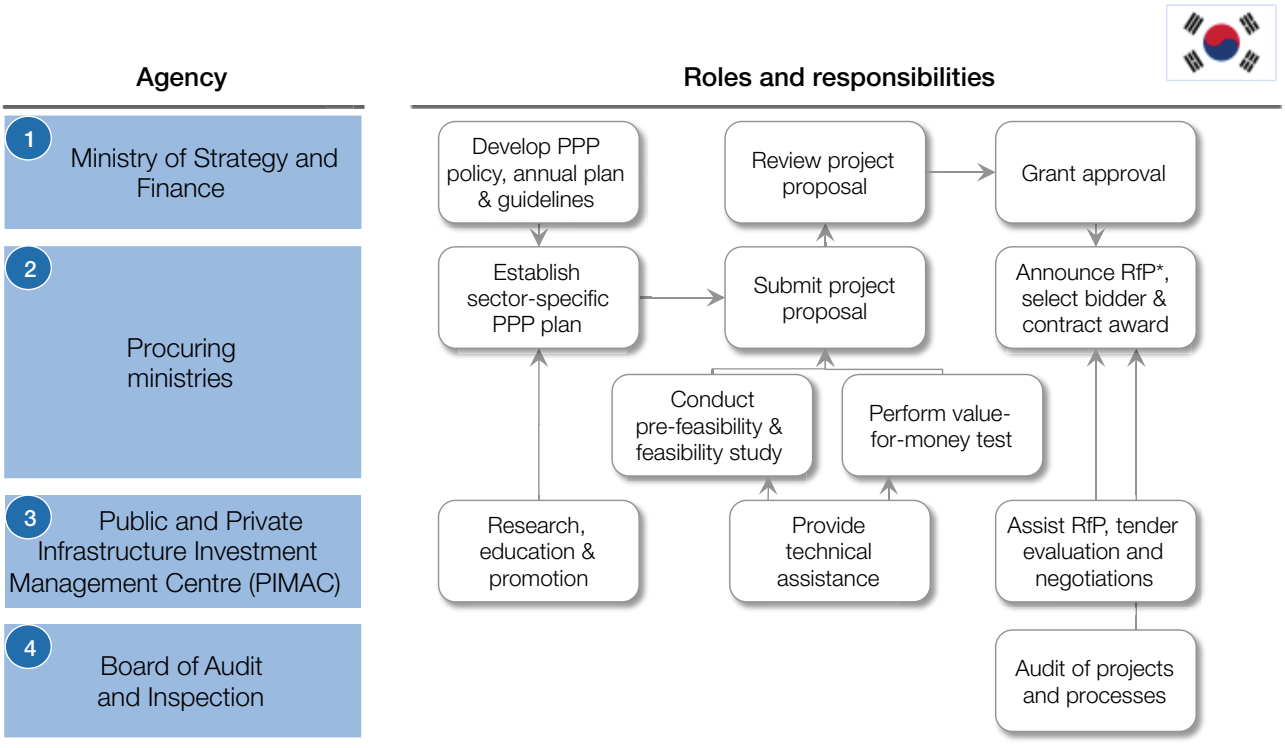
- Promote specific PPP legislation, or at least precise PPP regulations that conform to the country's general laws. Note that user charges, for instance, or private ownership of infrastructure assets could create conflicts with the law as it stands.
- Develop a legal framework that is characterized by simplicity, integrity and predictability. The relevant laws would ideally be few in number, consistent with existing laws and norms, and unambiguous, but would also be adaptable to different project types.
- Strike a balance between setting regulatory norms in the legal framework and allowing project-specific modifications in each contract with regard to the risk allocation, the bid evaluation criteria, and so on.
- Strive for legislation that applies across sectors and regions.

Optimize the institutional framework by assigning clear roles and distinct responsibilities.

- Accelerate planning and decision making processes by auditing the existing approach and standardizing it to best-practices.
- Assign separate authorities for policy-making, contracting/monitoring, and dispute resolution to prevent conflict of interests.
- Establish a transparent governance structure, with responsibilities and competencies clearly defined. South Korean PPP governance serves as a useful model in this regard, as illustrated in figure 33.
- Harmonize PPP governance and institutions across regions, and clarify the responsibilities of the various levels of government – central, provincial and municipal.
- Limit the number of sector regulators – that is, institutions responsible for setting the regulatory framework, technical standards or specific price caps.

Figure 33: Example of PPP governance in South Korea

Each government agency needs clear roles and responsibilities



* RfP = Request for proposal

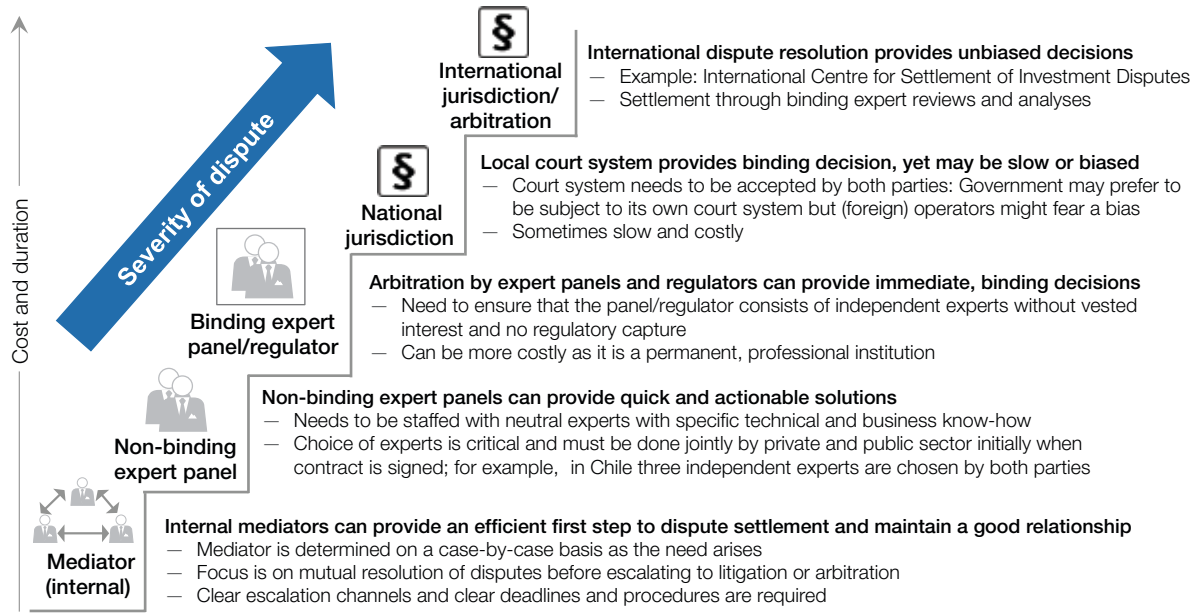
Source: Jooste, Stephan F. and W. Richard Scott. *Organizations Enabling Public Private Partnerships: An Organization Field Approach*. October, 2009. Collaboratory for Research on Global Projects.

Enable efficient and reliable dispute resolution.

- Establish dispute-resolution mechanisms that are tiered according to the severity of the dispute; for example, an internal mediator for low-level disputes; binding or non-binding expert panels and arbitrators for more serious issues; and courtroom jurisdiction (national or international) for very serious disputes. Focus first on speedy and informal dispute-resolution approaches, with the overarching objective of understanding the other side's position and actively looking for win-win solutions, and avoiding damage to the long-term partnership. Initiate an informal dispute resolution soon after the issue arises – do not wait for it to become pressing and to escalate.
- Set up independent regulatory institutions similar to those used in energy and telecoms in many developed countries. Consider, as an alternative to regulatory institutions, an expert panel; Chile, for example, uses such panels, where three experts are jointly nominated by both contractual parties. Such independent regulatory institutions and panels can have a positive welfare effect, as they reduce the regulatory/political risk premium that equity investors demand. And they are useful in complementing "regulation by contract" with an element of "regulation by institution", when disputes arise due to the incompleteness of long-term PPP contracts. It is essential to ensure the political independence of these institutions: keep them at arm's length from any vested interests – government or private – by such means as guaranteed funding that is not reliant on the public budget, public monitoring, fixed appointment terms for commissioners, and transparent and inclusive processes for appointing those commissioners.
- Make a variety of provisions that will discourage opportunistic renegotiations. These provisions might include review and arbitration panels, freeze periods after the initial signing of the contract, charges for contract-change requests, periods of prohibition of future contracts for contractors that are in gross non-compliance, and maximum renegotiation amounts; for example, Colombia restricts renegotiations to 20% of government funding.
- In the event of disputes, carefully balance the private sector's interest in financial sustainability with the public value-for-money objective. Bear in mind that bankruptcies and a possible service disruption are costly – but only in selected circumstances should governments offer "bail-outs" through contract renegotiations. If they give the impression that such bail-outs are readily available, that would reduce the private sector's long-term incentives.

Figure 34: Options for dispute resolution

Different dispute resolution options can be used



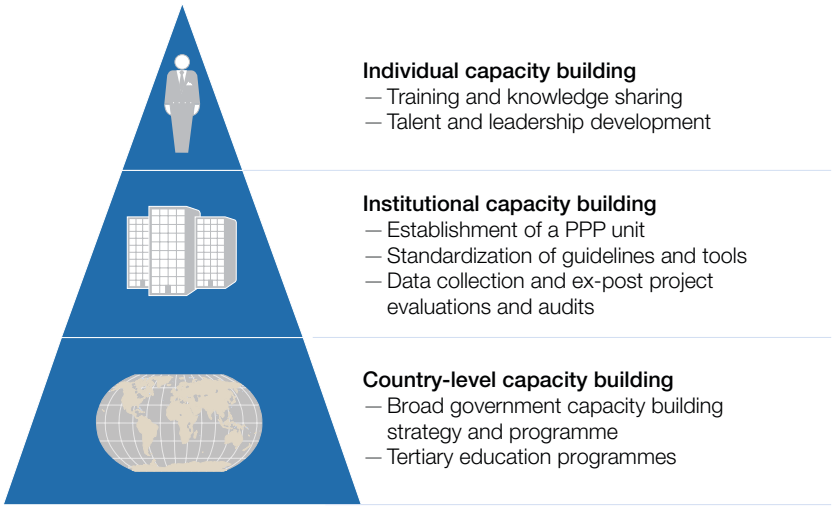
Sources:
- *Best Practices on Contract Design in Public-Private Partnerships*. September, 2007. Washington DC: The World Bank.
- Public-Private Infrastructure Advisory Facility (PPIAF). *Dispute Resolution – Checklist and Sample Wording*. April, 2008. Washington DC: The World Bank.
- *Private-Public Partnerships Reference Guide Version 1.0*. 2012. Washington DC: The World Bank.
- *PPI & Solution of Regulatory Conflicts: Expert Panels in Chile*. February, 2007. New Delhi: International Conference on India's Infrastructure Needs with PPPs.

4.2 Public Sector Readiness: Capacity Building

For the public sector, PPP projects impose large capacity requirements. At each phase of the life cycle, considerable skilled manpower is needed – for planning, engineering, legal, financial, economic or administrative work. Many governments, particularly local or regional governments in low-income countries, simply do not have enough of that vital resource. But even in high-income countries where PPP skills may be available in central units of government, civil servants in the agencies implementing PPPs will often lack the necessary expertise – in particular, they might lack skills that may be non-essential in traditional public procurement but that are crucial to PPPs (such as financial, legal, and transaction skills). And if governments cannot match the skills of their private-sector counterparts, it could result in unbalanced contractual agreements.

Figure 35: Capacity-building strategies

Individual and institutional capacity building need to complement each other



Training is key, but for sustainable individual capacity building, governments must complement it with a holistic approach to talent management. All too often, the civil servants assigned to plan and manage a PPP are inexperienced and untrained for the role. Governments would do well to introduce dedicated training programmes or to upgrade them if they already exist. For maximum impact these programmes should be practical, multidisciplinary, and cost-effective. Some options worth considering are:

- Adopt a structured training programme involving on-site as well as off-site training and using experiential learning modules and other principles of adult learning: Just better guidelines will not drive change. In Indonesia, for example, a monthly training course and a quarterly customized programme are offered with on-site visits to successful PPP projects.
- Set and maintain standards for different knowledge levels. Align these standards with the PPP certification scheme currently being developed by the IFC.
- Partner with academic institutes and the private sector when appropriate. For example, Uruguay cooperates with the Polytechnic University of Madrid, and the Philippines with Japan's Toyo University; and in India, civil servants receive training from the Confederation of Indian Industry.
- Take advantage of international support. The World Bank Institute, for instance, hosts Global PPP Days and e-conferences, and also regional forums. The European PPP Expertise Centre (EPEC) runs workshops and a helpdesk that provides support.
- Adopt a train-the-trainer approach, or establish a centralized training unit to achieve economies of scale. In the United Kingdom, for example, Local Partnerships, a joint venture between the Local Government Association and Partnerships UK, supports local public bodies to improve their PPP capabilities, and delivers about 1,000 skills events to more than 100 local authorities in England each year. In countries with a federal-state structure, a centralized training unit would be an advantage: not only can it keep overall costs down, it can also generate some standardization and cross-fertilization across states.
- Consider setting up a fellowship programme with other public-sector agencies, multilateral development banks or with private-sector firms, to broaden the horizons of government employees involved in PPPs.
- Conduct training more widely, so as to include potential contracting agencies as well as other government agencies whose staff might be involved in the project, such as the agencies responsible for granting approvals.

Governments should also look beyond training, and take a longer-term, strategic approach to capacity building through talent management and development. They need to establish clear policies on human resources planning, recruitment and selection, people development, work rules, processes and culture, and retention. The conscientious approach taken by Singapore's public services is a useful model here: it offers dedicated generalist and specialist career tracks, customized training, university scholarships, attractive performance-based compensation, and a culture of performing.[78] To lure high-quality staff, for instance, the trick is to shift the emphasis from salary (it might prove difficult to exceed the salary level of other public agencies, and nearly impossible to compete with the private sector) to the institution's other attractions – the status and empowerment it might confer, its contribution to nation-building, and so on.

Individual learning should be complemented by institutional capacity building. The shortfall in government capacity can also be offset by institutionalizing PPP units. These central agencies for PPP know-how can help to excel in the PPP process across various aspects – policy formulation, technical assistance, quality control, and project promotion and marketing. The unit should have executive authority (not just an advisory role) sponsored at a high level, ideally located within a strong central-government department. For example, the South African PPP unit is based in the National Treasury, from where it coordinates PPP activities across sectors and projects, and transfers knowledge to other government agencies. In countries with a strong planning or policy-coordination agency, that agency could be the ideal location for the PPP unit. The PPP unit also needs competent staff with adequate public- and private-sector backgrounds, including economists, accountants, lawyers and engineers.

Some of the ways that PPP units can enhance their effectiveness are:

- Target specific government failures by means of the PPP unit. For example, if procurement incentives are poor, emphasize quality control; and if tender and transaction costs are unduly high, standardization and dissemination of best practices are needed. Experience shows that comprehensive PPP unit functions correlate with higher success: For example, PPP units in South Korea, the UK, and in Victoria/Australia that have a broad policy, technical assistance, quality control and project promotion role have been relatively more successful than PPP units that have been operating within a more limited mandate.[79]
- Follow a learning-by-doing approach. Gain maximum benefit from the learning by capturing know-how centrally and finding roles for the up-skilled staff in other projects. For example, in Saint Petersburg, the central PPP unit was assigned project implementation to speed capacity building and standardization.
- Seek to expand institutional know-how by developing appropriate toolkits – guidelines, template contracts, best-practice checklists, and so on. Rather than reinventing the wheel in pursuit of them, leverage existing materials and customize them where necessary to conform to local circumstances, laws and capacity.
- Build accurate and consistent data on the cost and time performance of PPPs vs traditional procurement to make informed choices on delivery mode and to secure the best value for money. This benchmarking should extend beyond financial metrics and should also include metrics on maintenance, quality, throughput and operations.

- Cooperate across borders with other PPP units – perhaps via regional networks such as the Africa PPP Network – to enable peer-learning, facilitate regional projects and harmonize PPP approaches and standards.
- To optimize future PPPs, conduct a retrospective evaluation of the PPP preparation and implementation process and assess whether adequate value for money has been delivered.
- Leverage the PPP unit to provide PPP-skills training to public officials in other government agencies and ministries that may contract PPPs or be involved in them in some function.

Although they are not PPP units in a narrow sense, two interesting institutional set-ups are used in Africa to address the public sector capacity gap. First, the APIX investment promotion agency in Senegal, which was created in 2002 under the direct supervision of the president's office, has attracted skilled staff with business and engineering competences, effectively facilitating a number of concessions, including the Dakar airport and the Dakar-Diamniado toll highway. Second, the Infrastructure Concession Regulatory Commission in Nigeria, which was established to promote PPPs, identify potential projects and regulate them, has been crucial in raising the limited awareness of PPPs in Nigeria and to facilitate one of the largest PPPs in the country to date, the Lekki-Epe highway.

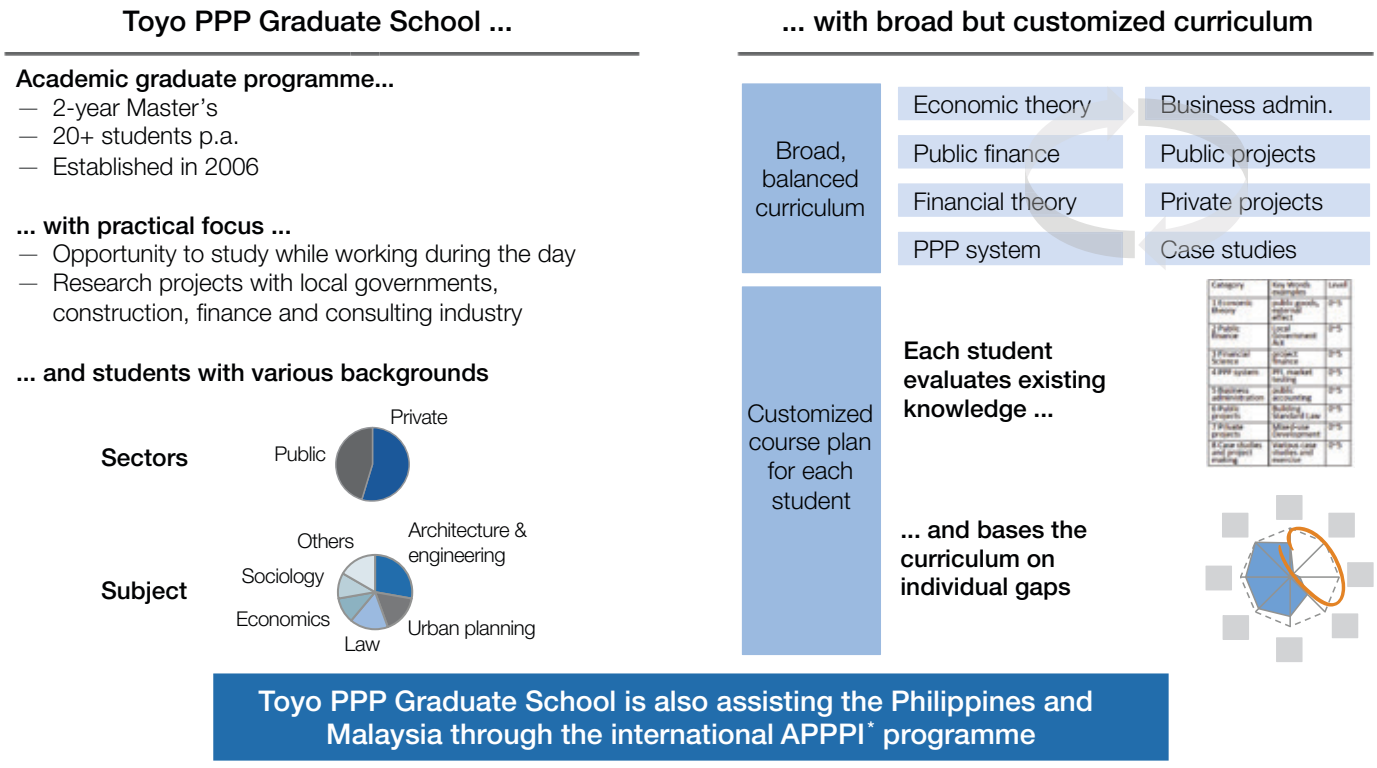
A PPP unit (or any other governmental infrastructure institution) seldom represents an island of excellence in an otherwise weak public sector. So governments also need to develop public-sector capacity across the country.

By arranging country-level capacity-building initiatives, governments can draw on a pool of educated staff. Forward-looking policy-makers who consider PPPs a key way of delivering infrastructure projects should create a conducive climate to boost capacity on a broad basis. Two broad measures worth taking are:

- Embed capacity building in national strategy, basing it on multistakeholder commitment. For example, Ghana has climbed to the top ranking of the Africa Capacity Index,[80] thanks to diligently diagnosing capacity gaps in its 2009 PPP Diagnostic and Capacity Building Study and taking measures to bridge them. These measures involved making changes to government structures and procedures, including the plan to establish a PPP unit and a PPP review unit, and enhancing public-sector management training (much of it with the help of the Australian High Commission, which arranges training workshops and provides scholarships for management studies at Australian universities). Chile is another good example of a country that has embarked on the long process of comprehensively modernizing its public sector and attracting high-quality staff into its public institutions.
- Establish a tertiary education programme specializing in PPPs or infrastructure. The PPP Graduate School at Toyo University in Japan serves as a model in this regard. It provides practical and customized courses to students from a wide variety of private- and public-sector backgrounds. An evaluation is made of each student's existing knowledge to identify the student's specific education needs with regard to economic theory, PPP design, project management and finance. Governments too can cooperate with leading international universities to address their capability shortfalls in planning, economic, technical, commercial, regulatory, transaction and project management skills.

Figure 36: Example of tertiary PPP education: Toyo PPP Graduate School, Japan

Capacity building can be supported with tertiary education programmes



*APPPI = Asia Public/Private Partnership Institute.

Source: *Creating public sector capacity in Japan*. February, 2012. Presentation at PPP Days Geneva. http://www.unece.org/fileadmin/DAM/ceci/documents/2012/ppp/ppp_days/Day2/Nemoto.pdf.

4.3 Private Sector Readiness: Access to Finance

Infrastructure projects are very capital-intensive, with slow payback and significant early life-cycle risks – notably construction, political and demand risks. As local equity and bond markets in low- and middle-income countries are often illiquid and inefficient, and banking markets tend to focus on short-term lending, these countries often have few willing local long-term lenders and equity investors available. Accordingly, the private party that contracted the PPP might struggle to raise the requisite financing. And international lenders and investors face additional currency risks, and so tend to be cautious – sometimes over-cautious: they are easily discouraged by the gaps in information and the perceived (often misperceived) level of risk in developing countries. In the wake of the financial crisis, risk aversion has even increased in many developed countries (as manifested in reduced leverage ratios in recent PPP deals), and the new Basel III banking regulations are expected to reduce long-term bank-lending activities even further as banks will be required to hold higher reserves. There is no shortage of private finance globally, but many infrastructure projects just do not offer an adequate risk-return profile – particularly greenfield projects.

Since the financing challenges depend on the asset's risk profile – which varies over its life cycle – the solutions are also invariably specific to the life-cycle stage of the project. To enhance the private sector's access to sufficient and adequately priced financing, governments and multilateral development bank support is essential. They should take measures in three broad areas: mitigating risks through guarantees, increasing investment opportunities and access to them, and unlocking financial markets.[81]

Mitigate risks by issuing guarantees and reduce perceived risks by providing objective information.

- Encourage multilateral development banks to develop more standardized solutions for the mitigation of political risk, for example, by accelerating the procedures and extending the scope of existing instruments such as partial risk guarantees and the political risk insurance provided by the Multilateral Investment Guarantee Agency (MIGA). Partial risk guarantees, for example, enabled the securing of debt finance by reducing the interest-rate spread from 5% to 2% and extending the available loan maturity from 5 years to 16 years in Vietnam.[82]
- Arrange country-specific guarantees against credit default, such as the Korea Infrastructure Credit Guarantee Fund (KICGF) or the Indonesia Infrastructure Guarantee Fund. Such guarantees can significantly decrease borrowing interest rates without drawing heavily on public-sector resources (as opposed to loans) by crowding-in private financiers such as insurance firms and pension funds that seek investments with a long-term asset-liability match.
- Mitigate risk associated with (re-) financing and interest rates as well as exchange rates and currency convertibility, either via government guarantees or by developing financial risk management products. For example, the Netherlands-based Currency Exchange Fund (TCX) and the multilateral development banks provide risk hedging for currencies and maturities not covered by commercial banks. And the Chilean government compensated concessionaires if the peso lost more than 10% of its value against a hard currency (and vice versa if the peso gained more than 10%). Another approach is to develop (re-)financing facilities to ensure concessionaire access to debt at reasonable and predictable rates: for example, the India Infrastructure Finance Company Limited (IIFCL) provides long-term debt for a maximum of 20% of project costs.
- Encourage private-sector solutions for credit enhancements as a way of reducing the loan risks. These solutions include bond insurance and letters of credit – or asset-pooling of different projects by financial intermediaries. An innovative approach is that of the debt fund Hadrian's Wall, which aims to revive the European infrastructure bond market after the demise of the monolines. The fund invests in subordinated debt tranches, with the aim of enhancing the below-investment-grade ratings of infrastructure projects to allow institutional investors access to these investment opportunities.
- Avoid misperceptions of the risk level by making more data available on infrastructure investments. For instance, collect and share investment-performance data and facilitate independent rating agencies. And strengthen the public-private dialogue and private-private dialogue so that investors' concerns are heard and heeded by the public sector and by private-sector consortium partners, such as construction firms.

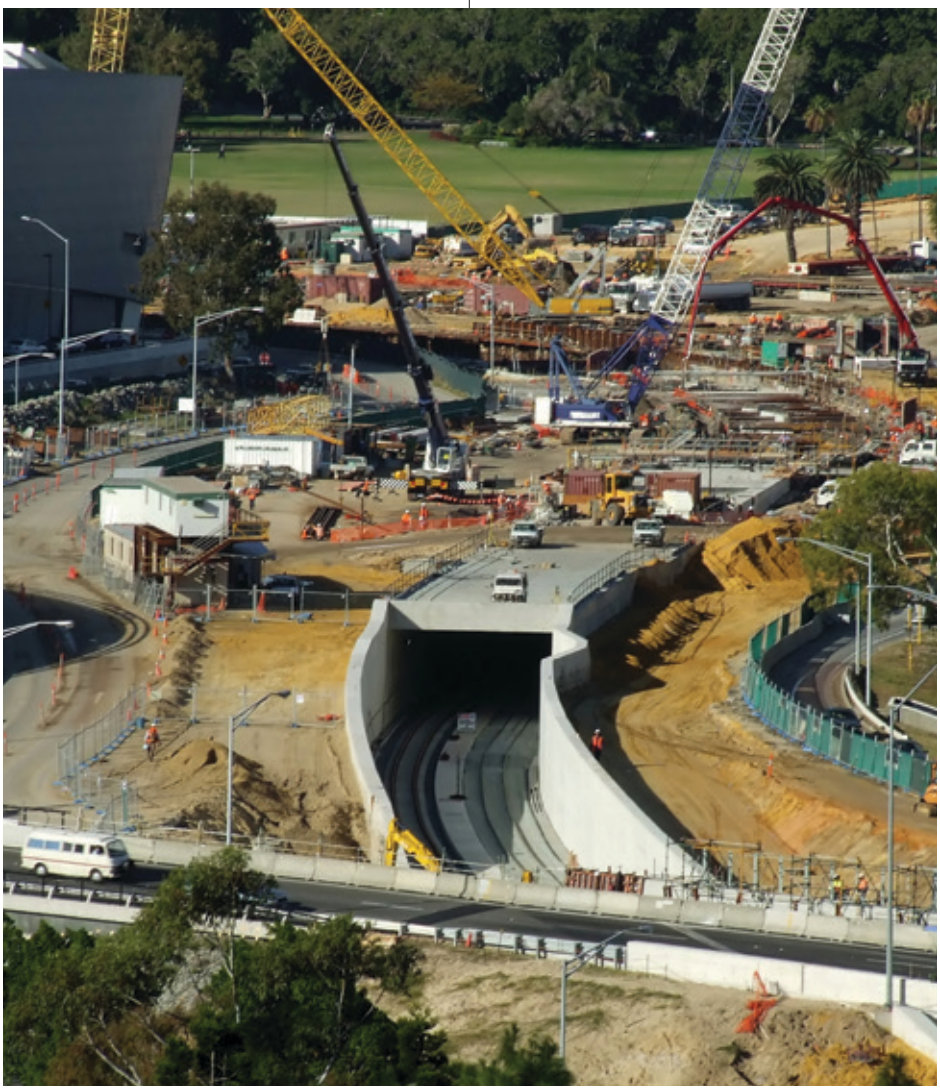
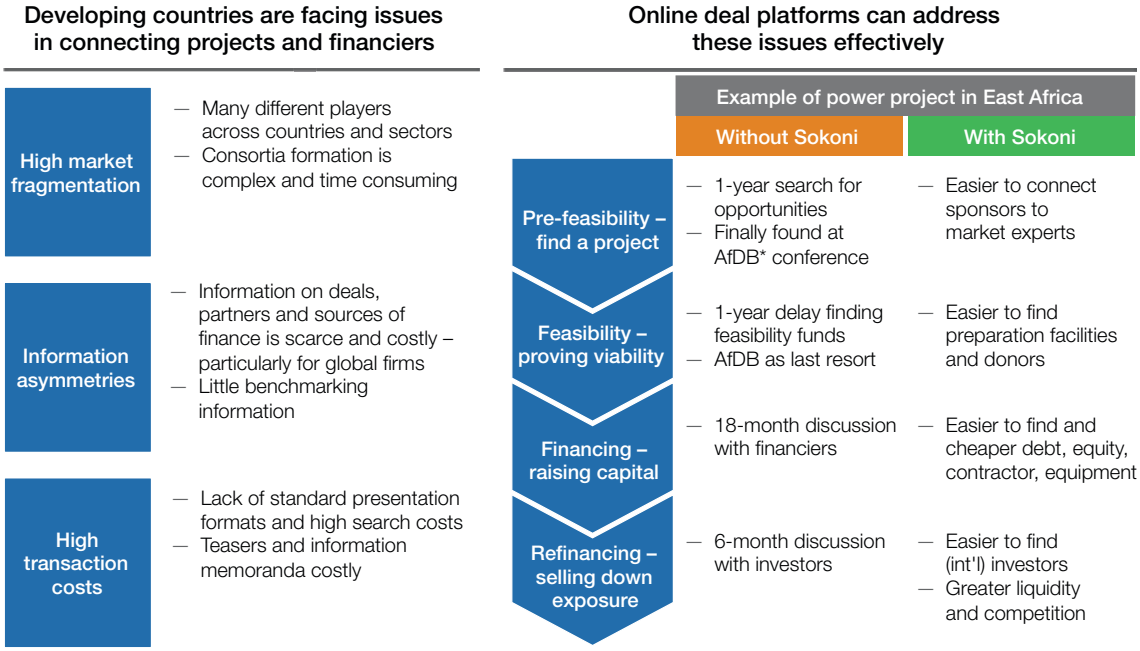


Figure 37: Example of the benefits of an infrastructure-deal online platform: Sokoni, a market exchange platform for Africa

Deal platforms can increase market transparency and efficiency



* AfDB = African Development Bank

Source: *Technology Platform for African Infrastructure Projects*. 2011. Sokoni.

Note that both contractual parties should also consider risk-mitigation measures beyond financial instruments. Governments can make the asset cash flows more reliable and predictable through the PPP contract (see chapter 3), and ensure a dependable legal and institutional framework to reduce political and regulatory risk (see chapter 4.1). While investors often focus on contractual arrangements to mitigate political risks, they should also reduce the chances of political interference arising in the first place: they can do that through responsible service delivery, stakeholder engagement, and keeping adverse social and environmental impacts to a minimum.

Improve investment opportunities by developing the project pipeline, and enhance access to those opportunities by creating market platforms and facilitating financial intermediaries.

- Coordinate the various regions and government levels involved to get a full picture of the project pipeline, and share the information thus obtained. Infrastructure Australia is a good model here, collating and publicizing all upcoming investment projects. Once assured of the prospective pipeline, investors will more readily make the upfront investments in staff and know-how that are needed to participate in the infrastructure market.
- Create a dedicated platform for infrastructure deals to increase transparency and publicity; for example, the Sokoni database informs and connects sponsors of and potential investors in infrastructure projects in Africa, thereby helping to raise capital and increasing market efficiency.
- Promote new financial intermediaries for long-term investment to support risk redistribution and idiosyncratic risk diversification, as well as to overcome agency problems of fixed-life funds that do not match the infrastructure life cycle. This can also be enabled via new legislation. For example, master limited partnerships in the United States, which are used by many pipeline businesses, are customized to the infrastructure cash flow profile with high dividend disbursements as they allow for a tax-optimized treatment of cash yields.
- Encourage cooperation and joint investment among institutional investors to build the expertise and scale required to invest in the complex and heterogeneous infrastructure asset class. This collaboration will help to meet the investment requirements of large deals, and thus crowd in small and medium-sized investors. The United Kingdom, for example, is adopting the model of the Australian investment manager IFM, jointly owned by 30 Australian pension funds, which invests one-third of its funds in infrastructure assets. Such improved access to the infrastructure asset class will help to attract new investor types, and thus help to evolve infrastructure from a specialist asset class into a mainstream one.

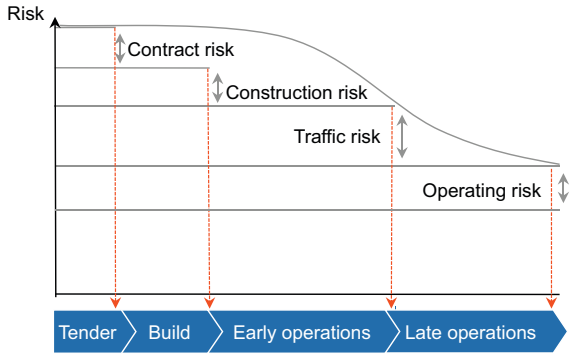
Unlock equity and debt markets to facilitate refinancing, and develop a broad spectrum of exit channels for each life-cycle phase of the project. For infrastructure ventures, the risks change markedly over the course of the project, with construction and demand risk being sequentially resolved over the years. Accordingly, the typical form and source of financing will change over time to match the risk appetite of each investor. For instance, a short-term bank loan may be used at the start of the project, while long-term bonds become viable after construction and demand ramp-up. Hence the need to develop a broad portfolio of exit channels (or takeout financing methods) for each life-cycle phase, including local equity and bond markets, institutional investors and banks – to enable greenfield developers to free up capital for new projects. Bringing innovative sources of finance to the market will also increase competition for assets among investors and will eventually drive down the costs of finance. For example, India has developed a diverse market for infrastructure financing, including commercial banks, infrastructure finance companies, insurance companies, private equity firms, developers and mutual funds. And Chile has been successful in channelling pension fund money into infrastructure by granting contractual and financial guarantees to projects so that they receive the minimum credit ratings required for this group of institutional investors.

Some of the recommended steps to broaden the financial markets are summarized in figure 38.

Figure 38: Approaches to diversifying exit and financing channels

Exit/financing channels for each project life-cycle stage are paramount

Risk exposure and the typical financiers change over the project life cycle



	Initial financing	(Re-)Financing or exit
Equity	— Sponsor equity — Private equity — Infrastructure funds with greenfield focus	— Pension funds — Infrastructure funds with brownfield focus — Insurance firms — Sovereign wealth funds — Initial public offering (IPO)
Debt	— Project finance — Bank loan, e.g. for construction	— Bond issue — Long-term loan by bank or pension fund

Examples of diversified financing/exit channels

Promote investment regulation aimed at lifting restrictions on local pension funds and insurance companies

India announced that life insurers will be allowed to invest in special purpose vehicles of private firms and in debt rated lower than AAA to boost infrastructure investment

Pension funds have started to provide debt directly to projects, e.g. for the N33 road widening PPP in the Netherlands where a Dutch pension fund committed to a refinancing facility with a 20-year tenor at a fixed rate

Encourage investments by (local) sovereign wealth funds

Khazanah Nasional of Malaysia expands its infrastructure portfolio from direct investments to also include funds

Develop local bond markets

The Asian Bond Market Initiative created new securitized debt instruments, established credit guarantees, a regional settlement system, and enhanced credit rating

Encourage local firms to participate in initial public offerings to increase stock market liquidity

Successful IPO of Phnom Penh Water Supply Authority

Creation of junior market on Jamaican Stock exchange with incentives for small firms

Reorganize and adjust regulation of banking system to make loans available and cheaper

— If necessary, open the sector to foreign competition

4.4 Private Sector Readiness: Local Industry Development and Trade Reforms

For PPPs to succeed, the private-sector partner must equally be capable of delivering on the value proposition. Unfortunately, many developing countries lack a competitive and capable local private sector that is able to deliver infrastructure efficiently and effectively on a whole life-cycle cost basis. Consider these examples:

- Limited competitiveness in the construction sector. For example, the Africa Infrastructure Country Diagnostic revealed that only half of the infrastructure projects analysed in sub-Saharan Africa attracted three or more bidders, and only half of those showed a bid spread that was tight enough to suggest that the tendering was competitive.[83]
- Low construction productivity. Productivity is particularly low in many developing countries – and it has been stagnating in many developed countries over the past decades.
- Limited access to skilled staff, building materials and equipment. In several countries in sub-Saharan Africa, cement prices are some 200% higher than in other countries, owing to supply bottlenecks – a problem exacerbated by high transportation costs.[84]

Although large contracts are often awarded to multinational corporations, a PPP programme should also aim for proper participation of local industry. That will not only benefit the local economy, but also increase the acceptance of PPPs by civil society. To create the requisite competitiveness and competence in its private sector, and help local industry get ready to deliver PPPs efficiently and effectively, governments would do well to take a systematic approach:

Develop and enable the local industries and workforce

- Help small- and medium-sized enterprises to participate in tenders (or to sub-contract) by making it easier for them to get information and to form consortiums. A model of facilitation in this regard is the East African Chamber of Commerce, Industry and Agriculture in the five countries of the East African Community (EAC): it raises businesses' awareness of PPP opportunities, strengthens public-private dialogue, and builds private-sector capacity (by providing training on responding to tenders, forming consortiums, negotiating "win-win" contracts, and sub-contracting).
- Cooperate with the private sector to enhance its access to staff and equipment. For instance, enhance the skills of the local workforce through vocational training institutes and a training fund that all firms pay into. Or set up equipment banks to overcome equipment shortages, and to avoid leaving equipment idle.
- Improve access to materials by increasing the efficiency of the goods market: liberalize licensing laws and reduce or abolish import tariffs as well as non-financial tariffs, such as incompatible technical standards.[85]
- Conduct legal and institutional reforms to enhance the ease of doing business in a country and that are conducive to a flourishing construction sector (for both PPPs and non-PPPs). Areas of reform may include construction permit processes, property rights, construction liability and indemnification frameworks, and repatriation of profits.
- Pursue an industrial policy that encourages the development of sufficiently large construction firms – that is, firms with integrated capabilities along the life cycle of an infrastructure project, including design, construction, operations and maintenance. But take care not to allow this policy to reduce competitiveness in the industry.
- Take a flexible approach to setting local content requirements (if setting any at all), so as not to jeopardize the efficiency and the quality of the project. In devising the procedure for shortlisting bidders, consider adding "soft" criteria such as technology transfer and traineeships for

local workers, but without prescribing fixed values/percentages. For example, the Victorian Industry Participation Policy in Australia applies soft local-content criteria in shortlisting bidders and in deciding between tied bidders, but keeps value for money as the primary selection criterion. After awarding the contract, it also ensures that performance and quality are tracked consistently and that additional costs are monitored.

Attract private-sector companies, both local and multinational. PPP projects by definition depend on close cooperation between the public and private sectors, yet in many countries, such cooperation is conspicuously lacking. To provide the information and foster the trust that are essential to attracting local and international private-sector companies to PPPs, the two sectors must engage in a continuous dialogue:

- Develop a prioritized and integrated infrastructure plan, with an indication of the potential financing option for each project. Publicize those projects widely and early, and formulate a continuous pipeline. That will enable the potential private partners to prepare for individual projects as well as to make long-term investments in developing capabilities and technologies (such investments will not achieve payback from just a single project).
- Approach local and international companies proactively, and enhance their access to and interest in project opportunities by inviting them to project-related road shows, conferences and industry briefings.
- Facilitate business associations that represent private-sector interests and that could be regarded as a coordinated voice of business in the policy process. Such organizations can also enhance the dialogue within the private sector (for instance, between investors and industrials), and thereby help to form consortiums and strategic alliances more effectively. A good example of how to facilitate such dialogue is provided by the public-private organization Infrastructure Partnerships Australia. It produces independent research, collects best practices and case studies, runs conferences and networking events, including a National Infrastructure Award, and drives public debate through policy taskforces on specific topics, including sustainability and taxation.

Unlock demand for infrastructure by enabling trade reforms. Sometimes a PPP project may be delayed or weakened unless certain market reforms are implemented in advance. If import duties are heavy and visa requirements cumbersome, for instance, then a cross-border highway project might lack bankability. Similarly, an airport project might not prove profitable if landing rights are difficult to obtain for non-incumbent airlines. If the project does go ahead and the reforms are introduced afterwards, that would have the unfortunate effect of giving the concessionaire undeserved windfall profits.

The needed trade reforms are particularly important for cross-border infrastructure assets such as airports, ports and highways. The solutions are inherently sector-specific: for a port, the key might be to reduce the administrative burden for cargo import/export border procedures, whereas for a cross-border highway, the key is to institute efficient one-stop border posts. The result of such reforms is often a boom in demand for infrastructure: the liberalization of the airline business, for instance, enabled low-cost carriers to flourish, and led to a more competitive market and a surge of passenger traffic at a range of airports across Asia, Europe and the United States. For further examples from other sectors, see figure 39.

Figure 39: Examples of enabling trade reforms

Enabling trade reforms underpin infrastructure demand and PPP viability

Examples

Sector		Within country reforms	Cross-country reforms
Air		**Low-cost carrier market entry** e.g. led to reduced prices and more competition in the US, Europe and Asia	**Simplified visa requirements & procedures** e.g. APEC* business travel card allows multi-visits with single visa for business travelers
Road		**Trucking liberalization** e.g. reduced transport costs in Zambia	**One-stop border posts** e.g. reduced transit times up to 50% in Uganda, Rwanda and Kenya
Rail		**Cargo rail liberalization** e.g. resulted in increase of quality and productivity in Russia	**Technical standardization** e.g. standardization of rail gauge and overhead electricity lines increase rail traffic
Ports		**Shipping liberalization** e.g. improved services and increased competition in the Philippines	**Customs declaration** e.g. streamlined and transparent requirements and procedures in Pakistan encouraged trade
Energy		**Unbundling of value chain** e.g. reduced prices and increased competition in UK energy market	**Cross-country power markets** e.g. West African Power Pool establishes common market for electricity across countries

* APEC = Asia-Pacific Economic Cooperation

Sources:
- *Trade Facilitation in the East African Community: Recent Developments and Potential Benefits*. July, 2012. Washington, DC: US International Trade Commission.
- "Liberalization and Deregulation in the Domestic Shipping Industry: Effects on Competition and Market Structure". In *Philippine Journal of Development*. 2003.
- *Reforming Customs Clearance in Pakistan*. April, 2010. Investment Climate series, No. 9. Washington DC: The World Bank.
- *The Impact of Regional Liberalization and Harmonization in Road Transport Services: A Focus on Zambia and Lessons for Landlocked Countries*. January, 2008. Washington DC: The World Bank.

4.5 Civil Society Readiness: Transparency and Anti-corruption

Corruption is endemic in many developing countries: public-sector salaries are low, and the laws are often unclear, complex and inadequately enforced. Large long-term infrastructure projects are particularly vulnerable, owing to their scale and duration and the presence of subsidies and natural monopolies. Estimates are that in developing countries, 10-30% of the total value of infrastructure projects is lost through corruption and non-transparency.[86] PPP programmes are no exception, and have been tainted by corruption and bribery. But the scourge of corruption extends beyond low-income countries: just ten years ago, PPP scandals erupted in both Chile and Denmark (the MOP-Gate and the Farum cases respectively).

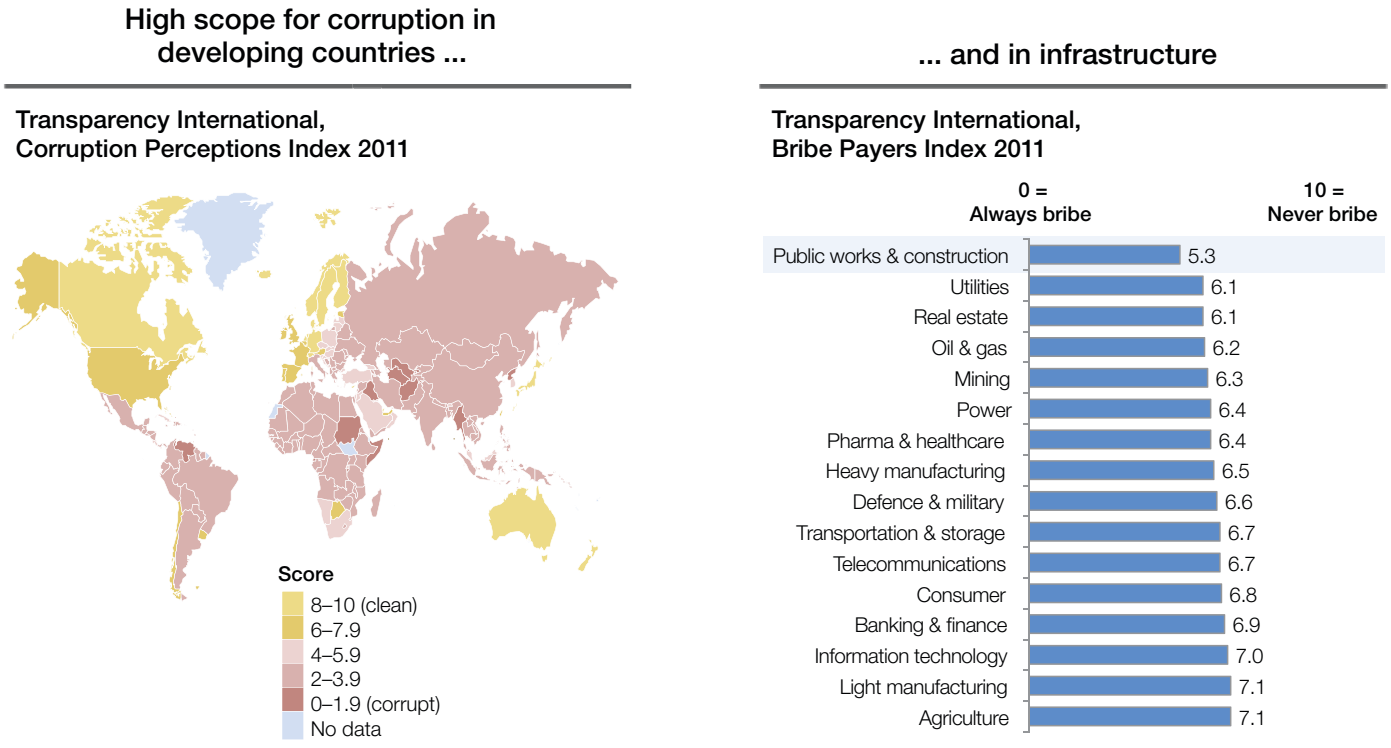
The consequences of corruption run deep: wasted tax money, a less efficient market with lower productivity and investment, weaker public services at higher prices, an uneven playing field for companies, and a weaker overall economy. To combat the problem, governments have various measures available: reducing public-sector receptiveness to corruption, discouraging companies from corrupt practices, and taking coordinated multistakeholder actions against corruption.[87]

Reduce public-sector receptiveness to corruption by taking demand-side measures. The broad strategy should involve transparent procedures, tight supervision, and high-level reforms. Some of the specific measures that would help to address the problem are:

- Develop and implement well-defined and predictable procurement processes. The United Kingdom's Private Finance Initiative (PFI) is a model worth considering, as it precisely defines procurement stages, requirements and deadlines, as well as providing a transparent decision-making and bid-evaluation framework. Take care, however, not to make the bureaucratic burden so complex and costly as to discourage smaller companies from bidding.
- Publicize tenders widely and well in advance of deadlines, perhaps making use of an e-procurement portal or website. For example, the Mexican government website Compranet, which all federal agencies have to use, provides the essential details, including the calls for bids, terms, notes, results and contracts. Users can track how much the government is spending on individual goods and services, which agencies are procuring, and which corporations have submitted and won bids.
- Announce awards promptly and openly. For example, projects in the Philippines have used Twitter to announce winning bidders swiftly, and in Bolivia, concessionaire selections have been given live coverage on television.

Figure 40: Prevalence of corruption

Corruption is endemic both in developing countries and in infrastructure



Sources:
- *Transparency International Corruption Perceptions Index 2011*. December, 2011. Transparency International.
- *Transparency International Bribe Payers Index 2011*. November, 2011. Transparency International.

- Disclose as much project information as possible to enable monitoring by the media, civil society and competitors. Some limits on disclosure might be necessary, however, to protect commercial intellectual property rights or national security.
- Consider means to enhance accountability and transparency, not only for the concessionaire selection but also during project implementation, for example, by periodically publishing progress, quality and cost reports.
- Introduce various governance mechanisms and audits to detect conflicts of interest, monitor compliance and deter corruption. Some models to consider are: job rotation for civil servants, as in South Korea; a national audit office, such as the one in the United Kingdom, to retrospectively assess a PPP's value for money; and a checks-and-balances system, as in Chile, where the Ministry of Finance oversees and limits the concession powers of the Ministry of Public Works.
- Lead by example, and get public servants to commit to ethical standards. For instance, the Minister of Public Works in El Salvador drove changes in contract transparency and ethics, and thereby reduced the number of contracts challenged by lawsuits from 80% to zero between 2001 and 2012. Benin introduced a "code of ethics", requiring officials to sign a commitment to abstain from corruption.
- At the legislative and policy level, introduce various reforms, such as clearer tax laws and civil- service reforms.

Discourage companies from involvement in corrupt practices by taking supply-side measures. By adopting various measures, governments can stop companies from taking the initiative in proposing a bribe or securing a contract in any other improper way.

- Institute and enforce better standards for corporate reporting, accounting and auditing.
- Adopt effective sanctioning techniques. A good model here is the US Foreign Corrupt Practices Act, which penalizes companies that bribe officials in foreign countries.
- Arrange integrity pacts between the government and all bidders to abstain from bribery and disclose all quotes. These undertakings can be enforced via penalties, including the loss of the contract and blacklisting for future projects.

- At a project level, implement specific anti-corruption mechanisms. For example, in Colombia, a water and sanitation project took several deliberate precautions, such as: channelling the loan funds through a commercial fiduciary account directly to contractors; involving central government ministries in overseeing local-government practices; disclosing contract-award information on a project website; and enabling complaint procedures for citizens.

Take coordinated action against corruption by facilitating joint initiatives by the public and private sectors. Since all stakeholders (except the culprits themselves, of course) will benefit from a reduction in corruption, coordinated multistakeholder initiatives might prove popular and effective.

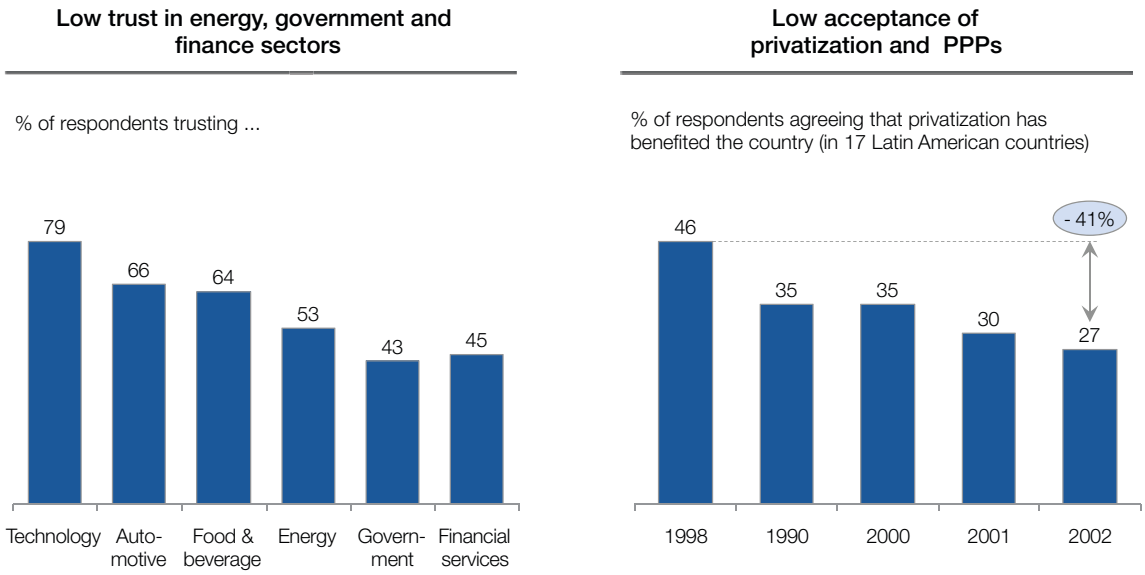
The joint efforts of government and business representatives, along with individual activists or pressure groups, could serve to mobilize the media, educate the public on the effects of corruption, and expose the culprits. Here are three examples that could have a significant impact. First, the Construction Sector Transparency Initiative (CoST), with eight member countries including Ethiopia, Guatemala, Vietnam and Zambia, establishes multistakeholder platforms to communicate, interpret, validate and monitor information related to large construction projects. One of the early success stories includes a rural road project in Southern Ethiopia where the partnership negotiated a reduction of 11.5% of the total construction cost by monitoring and comparing tender prices.[88] Second, the World Bank's Open Contracting Initiative aims to set global principles for capacity building and impact measurement of transparency and intends to improve country-level practices by enhancing disclosure and supporting citizen engagement for effective monitoring. Third, voluntary multistakeholder anti-corruption initiatives, such as the World Economic Forum's Partnership Against Corruption Initiative (PACI), can improve the way that stakeholders work together, influence public policy, and monitor the compliance of partner organizations.

4.6 Civil Society Readiness: Communication, Information and Participation

Without the support of the general public, PPP programmes will fail, or at least struggle. The basis for the public's initial opposition is that, in many countries, civil society shows low levels of trust in the construction, finance and infrastructure sectors, and low acceptance of privatization of assets or services that are widely regarded as public goods. And the reason for that, in turn, is partly a lack of information and a sense of exclusion: insufficient effort goes into communicating the value proposition and inspiring public participation. An opinion poll in Mozambique, for example, revealed a widespread public belief that privatized enterprises are sold to foreigners, whereas in fact 92% of private capital was national.[89]

Figure 41: Public acceptance of PPP programmes

Civil society acceptance of Public-Private Partnership programmes is often low



Sources:
- 2012 *Edelman Trust Barometer*. January, 2012. Edelman Insights.
- *Strategic Communication for Privatization, PPP and Private Participation in Infrastructure Projects*. March, 2008. Washington DC: The World Bank.

Besides conducting stakeholder engagement for a specific project, PPP promoters can pursue the following actions to overcome public resistance to a broader PPP programme: communicating the PPP value proposition, requiring the publication of project information, enabling public participation, and stressing the private sector's role in responsible service delivery.

Proactively communicate the PPP value proposition and its relevance for society.

- Highlight the positive experiences from previous infrastructure privatizations, particularly those where user charges are accepted, such as telecommunications. Make clear that someone has to pay for infrastructure: every cent that is not taken from user charges has to come from taxes.
- Portray the PPP programme with care, listing not just the economic advantages, but also the long-term environmental and social benefits, including job creation and the reduction of congestion – factors that people can easily relate to. In Ghana, for example, the water-sector PPP programme deftly communicated the benefits of increasing coverage such that support for the project exceeded 80% of the population, and street marches took place to press for speedier completion.[90]
- Structure the PPP programme carefully so that it starts with smaller, simpler and less controversial projects that stand a better chance of rapid acceptance. Leverage those positive examples when launching an information campaign.

Require the publication of candid project information.

- Maximize the disclosure of relevant information – how the projects were selected, why the PPP option provides value for money, and how the procurement process is executed fairly.
- Make environmental and social-impact assessments mandatory, and make their results available to the public. Facilitate or even commission scrutiny by independent third parties – review panels, auditors, academic institutions, think tanks and NGOs – and again circulate the findings.
- Set operating practice standards and protocols – specify what is required and expected from the private-sector party, for instance, with regard to labour, environment and community involvement.
- Set rigorous reporting requirements for operators, such as the requirement for regular reporting of quality metrics by UK water companies.
- Liaise with the media. In Tanzania, for example, the PPP programme has an open-door policy with journalists, allowing them easy access to information.

Enable participation in decision-making.

- Establish standard processes and guidelines for stakeholder engagement on PPP projects.
- Consult and involve the public on the likely impacts of the project. For the Ghana water PPP, for example, the promoters conducted user surveys and stakeholder workshops.

Stress the private sector's role in responsible service delivery and shaping the public PPP perception.

- Formulate a code of conduct for private-sector partners. It should include service quality and environmental and social standards, as well as requirements for public communication and consultation. A good basis for this code of conduct is the set of OECD Principles for Private Sector Participation in Infrastructure.
- Motivate the concessionaires to comply with these principles and to participate in contracts in good faith. Refer to the principles when evaluating companies participating in the tender, and include the threat of penalties, such as revoking the concession or blacklisting the company from future projects.

5 The Way Forward

PPPs are already playing a significant role in infrastructure delivery in various developed and developing countries. Given the vast infrastructure needs and constrained public financing, PPPs are bound to play a still greater part in the future and represent a promising way forward for many infrastructure projects.

Three broad themes will shape the future of infrastructure PPPs in any country: developing a comprehensive PPP strategy and standardized framework, based on a multistakeholder programme review against best practices; realizing the value of a strategic PPP programme (rather than a project-by-project approach) in the context of the national infrastructure plan; and keeping expectations flexible and realistic by also looking beyond PPPs.

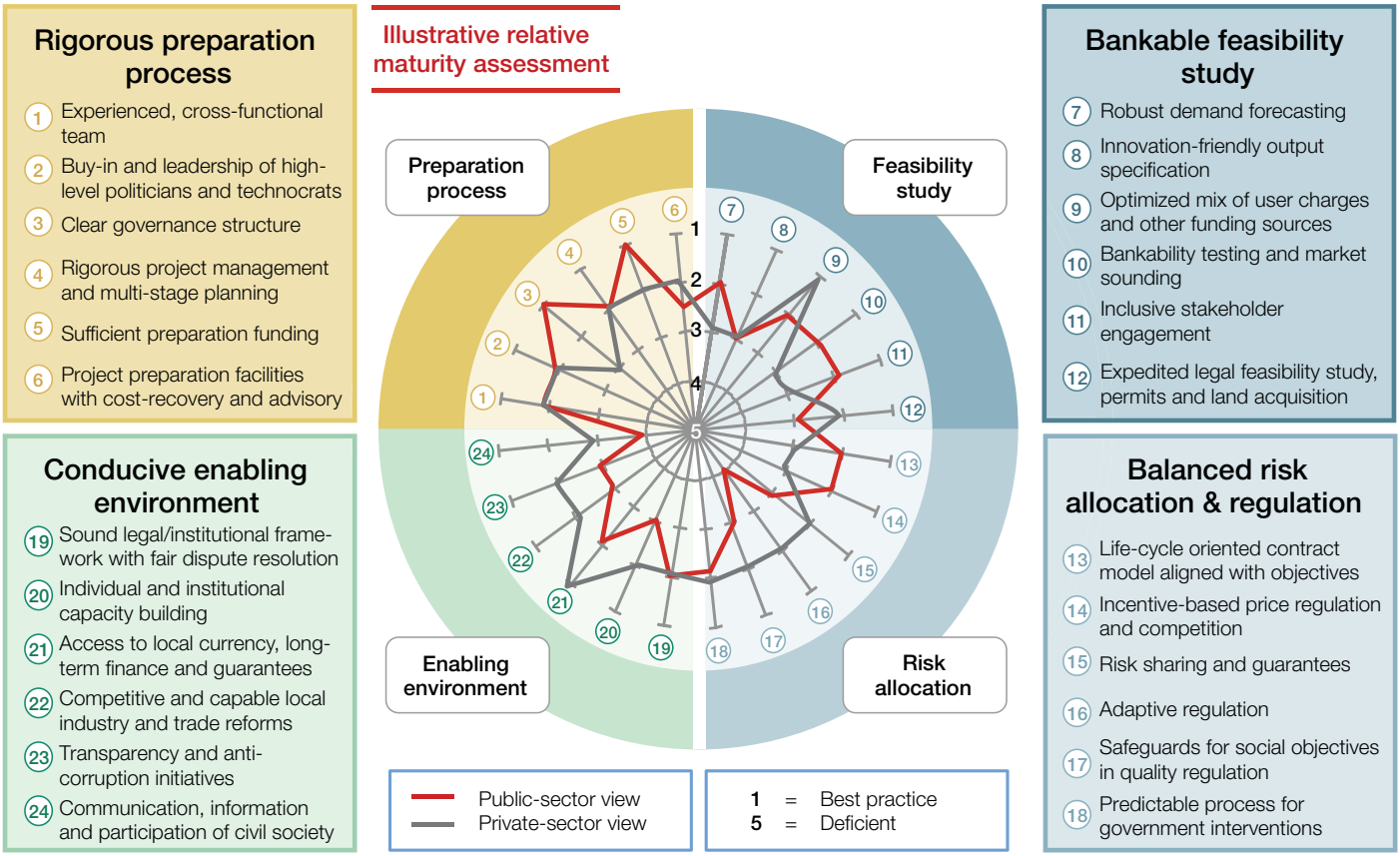
Conducting a review of the PPP programme and standardizing the approach

Governments can maximize the potential of PPPs by conducting a high-level review of their entire PPP strategy and framework – using the set of past, present and prospective PPPs. This review should cover all critical success factors described in this report (or use other benchmark frameworks such as InfraScope or the United Nations Economic Commission for Europe (UNECE) PPP Readiness Assessment), and use the best-practice checklist to identify those factors where the current approach is least effective and where change is required (not all best practices are equally relevant for successful PPPs in a given country context).

Such a review should draw on multistakeholder discussions; the participants should include various ministries, the PPP unit, contractors and financiers as well as local infrastructure experts and user representatives. The programme's challenges and performance can be assessed on the basis of each group's perceptions and experience, and where possible it can be supplemented by KPIs (such as delays in land acquisition, demand-forecast deviations, corruption statistics, and the number of PPP-certified public-sector staff). For the potential output of such a review, see the PPP Preparation Maturity Assessment Tool in figure 42. For each country (and even each sector), the relative importance of the 24 best practices may vary according to the maturity level of the current policies and processes. For example, in a poll conducted at a session of the World Economic Forum on India 2012, the participants identified the most critical success factors in the Indian context as government capacity and the legal and institutional framework, followed by completed permits and land acquisition, robust demand forecasting, steady political leadership, secured project preparation funding, and a balanced risk allocation. This prioritization of critical success factors may also prove valid and useful for many other countries.

Figure 42: PPP Preparation Maturity Assessment Tool

Governments need to evaluate and benchmark their PPP programme in multistakeholder discussions



Guided by the review, the planners should proceed to develop an optimal and customized strategy and framework, following joint stakeholder action plans. Most countries cannot expect to achieve excellence quickly along all the listed best-practice dimensions; they should recognize that some best practices will be more important initially than others, depending on the specific context. The prioritized review will oblige governments to focus their attention on the most pressing issues and to devise appropriate and context-specific solutions. Obviously, governments should aim to fulfil as many critical success factors as possible. The more that are present, the lower the perceived risk of investors will be and the lower their demanded financial returns will be; and that should lead to enhanced value for money for the public sector. Note that several critical success factors – particularly those relating to the preparation process, the feasibility study, and to some extent the enabling environment – are also applicable to and important for non-PPP procurement modes, and countries may benefit from leveraging those experiences for the PPP preparation process.

Once the transition towards best practices has been initiated, government should aim to standardize and "commodify" the overall PPP approach. They should establish a gateway process, such as the one used in the UK: after each substantial milestone in the preparation process, the organizers discuss the main results, review them against best-practice standards, and then, if satisfied, give approval to proceed. In order to raise standards consistently throughout the PPP programme and across sectors, consider simplifying and speeding up the preparation and procurement process by adopting various standardized features and procedures: institutionalize project-preparation facilities, financial-guarantee and financing facilities, and viability-gap funding mechanisms; specify clear standards, responsibilities and timelines for land acquisition; create documents such as model concession contracts or model terms, rules for user charges, and manuals of technical specifications; standardize process documents such as Terms of Reference for appointment of advisors, RfQ/RfP documents, guidelines and data repositories for demand forecasting, and a PPP-preparation guidebook. All such efforts to standardize the PPP approach would make the overall process for private-sector participants more predictable, and increase the likelihood of project conversion based on consistent public sector support.

The PPP value proposition is achievable in many countries – not only in developed ones – provided that the right steps are taken. Some lower-income countries can already boast a remarkably mature enabling environment. According to figures from the Economist Intelligence Unit, India's PPP framework is on a par with Japan's, for example. And some projects have succeeded even without an adequate enabling environment, such as the concession for Phnom Penh airport in 1995. In fact, many emerging and developing countries – even without a mature, PPP programme – are often attractive to infrastructure investors, given the potential returns from such high economic growth and the enormous infrastructure needs. Unsurprisingly, several of these countries – such as Turkey, Colombia, South Africa and Indonesia – are expected to join some developed and BRIC countries (notably, Brazil and India) in becoming major PPP markets, if they can convince institutional investors that their PPPs are rock-solid and underpinned by a long-term strategy and public-sector commitment.

To facilitate action towards a comprehensive PPP strategy and programme, three factors must be taken into account:

1. Strong political commitment, with a clear vision that encompasses the social, economic and environmental benefits
2. An action plan, addressing the four key requirements for PPP success:
   - Pipeline of bankable projects originated and prioritized from the

national infrastructure plan and by rigorous value-for-money testing;
- Preparation of individual projects with robust feasibility studies and a balanced risk allocation;
- Process for transparent procurement and rigorous project execution and contract monitoring;
- Policy changes to create a conducive enabling environment, including institutional and legislative reforms to enhance public- and private-sector readiness;

3. A robust communication strategy to overcome resistance – whether from within ministries or from the public.

Approaching PPPs as a long-term programme instead of as a series of independent projects

Countries would benefit by taking a methodical and staged approach, involving a planned sequence of PPPs, to benefit from experience, progressively incorporate lessons learned, and signal to the private sector that a continuous pipeline is worth the upfront investments in due diligence. For example, the Australian PPP programme has evolved from an initial focus on economic infrastructure assets, such as roads and airports, to social infrastructure assets, such as hospitals and public transport. Countries may consider the following measures:

- Derive the PPP pipeline from the integrated infrastructure country plan and focus on projects with high social and economic benefits and those that provide value for money.
- Select the most promising sectors first. These are infrastructure assets with the following characteristics: a gradual pace of change and contractible, stable service outputs (such as social-infrastructure projects), stand-alone instead of network facilities (such as a water-treatment plant vs a water-distribution network), and few externalities and little need for regulation (such as ports).
- Identify the most appropriate and financially attractive assets – and do not use PPPs to outsource bad projects. Initially, prioritize mid-sized assets and transactions (to avoid disproportionate transaction costs on the one hand, and projects that are too big for the market's capabilities on the other hand), as well as assets with lower technical complexity, with fewer stakeholder controversies and with an adequate scope of works (such as social infrastructure assets that involve the facility itself rather than the service provision). Favour projects with less inherent risk exposure, such as brownfield expansion and rehabilitation projects and those with limited risk transfer (such as management contracts). For instance, Djibouti first organized a brownfield concession for the existing port, and only then contracted for a greenfield terminal as a PPP.
- Start with central government PPPs, rather than with state or municipal PPPs (which typically have fewer competences available).

Governments should also take a long-term view and concentrate on building trusted long-lasting partnerships with the private sector. For example, they should aim to achieve best value for money for the complete PPP programme rather than just for each individual project. To build a positive track-record and gain investor's confidence, they should ensure that initial projects are well prepared and bankable – even if that means surrendering some value-for-money. If initial projects fail, confidence in the country's PPP model will weaken, and the concessionaires will demand higher risk premiums for subsequent projects. Governments also need to modify the PPP policy and programme as lessons are learned through audits and evaluations, feedback from PPP units, and discussions with the private sector.

Another way of promoting PPPs is by creating links between different projects within the scope of the national infrastructure plan. For example, Senegal launched an "Integrated Infrastructure Projects Approach" to develop four new infrastructure assets: an airport, a container terminal, a power plant and a toll road. That programme explicitly considered the interdependencies between the individual projects, as illustrated in figure 43.

Figure 43: Example of an integrated PPP programme: Integrated Infrastructure Projects Approach, Senegal

A well-planned PPP programme can have a catalytic economic effect

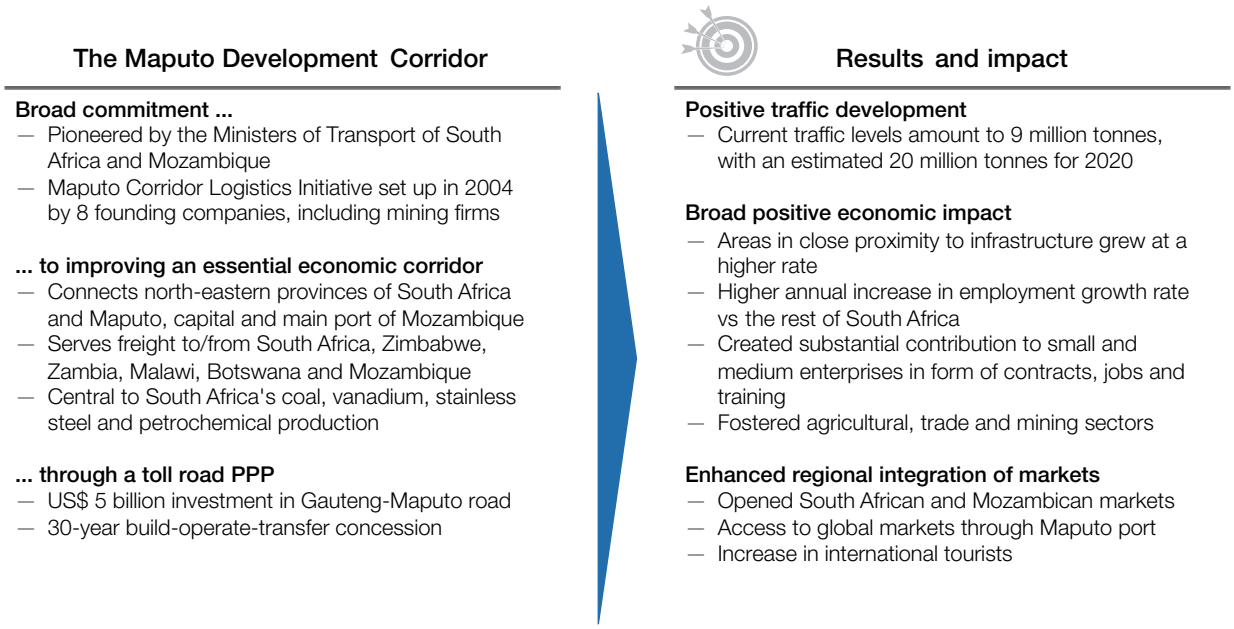
Source: *Infrastructure Financing & PPP.* June, 2012. African Development Bank Group.

Mining (or oil and gas) activities can also provide opportunities to stimulate complementary infrastructure development: mining operations require considerable infrastructure assets from "pit-to-port", including power, water, rail, roads and ports. Mining's demand for these assets can be used to underpin the viability of some PPPs.

One success story here is the Maputo Development Corridor (MDC), a PPP toll-road system linking South African mines and other industries, such as agriculture, to the Mozambican port Maputo, and boosting economic productivity and growth (see figure 44).[91]

Figure 44: Example of linking infrastructure planning to mining activities

Integrating mining and infrastructure planning can boost regional economies



Sources: - Driver, Amanda and João Gabriel de Barros. *The impact of the Maputo Development Corridor on freight flows: An initial investigation*. 2000. Development Policy Research Unit in Cape Town and the Centre for Strategic and International Studies in Maputo. - Maputo Corridor Logistics Initiative official website. http://www.mcli.co.za/index.htm. - Campbell, Maléne, Johan Maritz, Dries (AC) Hauptfleisch. *The impact of the Maputo Development Corridor on wealth creation within the region it serves*. University of the Free State and the Council of Scientific and Industrial Research, Built Environment. - Söderbaum, Fredrik. *Institutional Aspects of the Maputo Development Corridor.* April, 2001. Development Policy Research Unit, University of Cape Town. - Roodt, Monty J. "The impact of regional integration initiatives and investment in a southern African cross border region: The Maputo Development Corridor". *African Sociological Review* 12, 1, 2008, pp. 90-104.

The MDC also provides a good case study of cross-country cooperation within PPP programmes. Such projects, spanning two or more countries, should be given particularly favourable consideration, as they tend to produce the largest economic and social benefits by furthering regional integration and enabling international trade. However, these regional projects – when implemented under traditional forms of procurement, and even more so when implemented as PPPs – have their particular challenges and risks: the countries involved require compatible (or even common) institutional, legal and regulatory frameworks, compatible technical specifications and standards, and coordinated project preparation and execution backed by political interests.

Taking a broader perspective, beyond PPPs
The infrastructure needs of almost every country are so vast and varied that no single silver-bullet solution is available to cover all aspects. PPPs have an important place, and in the right circumstances they can provide better value for money than alternative procurement and delivery modes. But PPPs do not always deliver the best value for money. Other contracting modes are sometimes more appropriate for certain sectors, assets and countries. To guide future project-delivery decisions, sound empirical evidence is needed. Thus greater efforts should be made to collect the performance data of different contracting modes in a systematic and internationally comparable way.

But even where PPPs are contra-indicated, they can still influence infrastructure projects. PPP best practices – in project management, technology choices, and so on – have inspired improvements in traditional procurement. And there is further potential to improve traditional procurement, particularly by mainstreaming life-cycle orientation and output/outcome-specifications into standard contracting. In addition, the PPP experience fosters public discussion on the efficiency and effectiveness of alternative delivery modes, and reveals which aspects of traditional public projects need to improve. And the competition between different financing and delivery modes spurs better analysis of the relative advantages (and drawbacks) of each approach when evaluating specific projects.

Beyond contractual PPPs, there are looser public-private collaborations that can help to improve infrastructure. One example is the Business Working Group of international business leaders, organized by the World Economic Forum: it provides coordinated private-sector input into ways of accelerating some of the projects in the Programme for Infrastructure Development in Africa Priority Action Plan (PIDA-PAP). The private sector can serve in many other ways to support the public sector in prioritizing and delivering infrastructure – in project origination, for instance, or in joint initiatives to train the workforce.

A far-sighted integrated PPP programme – in conjunction with other policies that foster effective infrastructure project prioritization, efficient delivery and productive use of assets – could contribute invaluably to closing the infrastructure gap, thereby easing a particularly pressing concern in many developed and developing countries. By adopting policies based on the practices laid out in this report, countries would advance their competitiveness and speed up their broader socio-economic development, to the benefit of all stakeholders.

Overview of Further PPP Guidance

- *Attracting Investors to African Public-Private Partnerships: A Project Preparation Guide*. 2009. World Bank Group and Infrastructure Consortium for Africa.
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Abbreviations

AfDB	African Development Bank
APEC	Asia-Pacific Economic Cooperation
APPPI	Asia Public/Private Partnership Institute
BOT	build-operate-transfer
BRIC	Brazil, Russia, India, China
capex	capital expenditure
CCTV	closed-circuit television
CoST	Construction Sector Transparency Initiative
DB	design-build
DBD	design-bid-build
DBFO	design-build-finance-operate
DBO	design-build-operate
EAC	East African Community
EGL	Energie des Grands Lacs
EPC	engineering, procurement and construction
EPEC	European PPP Expertise Centre
GDP	gross domestic product
HOT	high-occupancy/toll (referring to highway traffic lanes)
ICT	information and communications technology
IFC	International Finance Corporation
IFM	Industry Funds Management
IIFC	Infrastructure Investment Facilitation Center
IIFCL	India Infrastructure Finance Company Limited
IIPDF	India Infrastructure Project Development Fund
IMF	International Monetary Fund
IPPF	Infrastructure Project Preparation Facility
IPO	initial public offering
IRR	internal rate of return
KICGF	Korea Infrastructure Credit Guarantee Fund
KPI	key performance indicator
LPVR	least present value of revenues
MDC	Maputo Development Corridor
MIGA	Multilateral Investment Guarantee Agency
MoE	Ministry of Energy
MoF	Ministry of Finance
MoP	Ministry of Planning
MoT	Ministry of Transport
NEPAD	The New Partnership for Africa's Development
NGO	non-governmental organization
OECD	Organisation for Economic Co-operation and Development
PACI	Partnership Against Corruption Initiative
PDF	project development fund/facility
PICI	Presidential Infrastructure Champion Initiative
PIDA	Programme for Infrastructure Development in Africa
PIDA-PAP	Programme for Infrastructure Development in Africa Priority Action Plan
PFI	Private Finance Initiative (UK)
PIMAC	Public and Private Infrastructure Management Center
PMO	project management office
PPF	project preparation fund/facility
PPIAF	Public-Private Infrastructure Advisory Facility
PPP	Public-Private Partnership
RfP	request for proposal
RfQ	request for qualification
SAIDI	system average interruption duration index
SAIFI	system average interruption frequency index
SME	small and medium-sized enterprises
SPV	special purpose vehicle
TCX	The Currency Exchange Fund
UNECE	United Nations Economic Commission for Europe
UMPP	ultra mega power plant

Endnotes

[1] The infrastructure gap is calculated from infrastructure spending data taken from the IHS Global Insight Construction Database and infrastructure-needs data from the OECD report *Infrastructure to 2030*. See the introduction for details.

[2] This planning fallacy is a characteristic not just of PPP projects, but of all infrastructure projects.

[3] While *funding* refers to the money provided by the ultimate payers (either the government or the users) for the infrastructure asset during the course of its life cycle, *financing* refers to the money raised upfront, for the capital investment, from financiers (who receive a return on their investment during the life cycle).

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[40] Optimism bias is the psychological basis for forecasting inaccuracy. It consists of the common cognitive predisposition to judge future events in a more positive light than is warranted by actual experience. In contrast, strategic misrepresentation refers to the tendency of forecasters to deliberately and strategically overestimate benefits and underestimate costs in order to increase the likelihood of approval for their project when there are political or organizational pressures and a lack of incentive alignment. (Source: Flyvbjerg, Bent. "Curbing Optimism Bias and Strategic Misrepresentation in Planning: Reference Class Forecasting in Practice". *European Planning Studies*, 16:1, pp. 3-21. 2008.)

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[44] See also figure 2 "Hierarchy of Quick Infrastructure Wins" in *Strategic Infrastructure: Steps to Prioritize and Deliver Infrastructure Effectively and Efficiently*. September, 2012. Geneva: World Economic Forum.

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[48] Note that the PPP model is first and foremost a project-delivery model that aggregates risk across the life cycle and leverages private finance. This does not necessarily imply non-traditional funding mechanisms such as user charges or ancillary revenue sources. For example, availability-based concessions rely mainly on public budget funding.

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