The APMG Public-Private Partnership (PPP) Certification Guide

AN INNOVATION OF

ADB European Bank for Reconstruction and Development IDB WORLD BANK GROUP

FUNDED BY PPIAF Enabling Infrastructure Investment

The APMG PPP Certification Guide, referred to here as the PPP Guide, is the Book of Knowledge (BoK) detailing all relevant aspects of creating and implementing efficient, sustainable public-private partnerships (PPPs). It is intended for use by PPP professionals, governments, advisors, investors, and others with an interest in PPPs. The PPP Guide is part of the family of CP3P credentials that, once obtained, allow individuals to use the title "Certified PPP Professional," a designation created under the auspices of the APMG PPP Certification Program. The APMG PPP Certification Program, referred to here as the Certification Program, is a product of the Asian Development Bank (ADB), the European Bank for Reconstruction and Development (EBRD), the Inter-American Development Bank (IDB), the Islamic Development Bank (IsDB), and the World Bank Group (WBG) part-funded by the Public-Private Infrastructure Advisory Facility (PPIAF).

"The World Bank Group" refers to the legally separate organizations of the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), the International Finance Corporation (IFC), and the Multilateral Investment Guarantee Agency (MIGA). Public-Private Infrastructure Advisory Facility (PPIAF) is a multi-donor technical assistance facility legally administered by the International Bank for Reconstruction and Development (IBRD).

Chapter 4: Appraising PPP Projects

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Introduction

PPP projects demand a very sound preparation if they are to deliver timely, effective, and cost-efficient infrastructure. A significant part of this preparation is done in the Appraisal Phase. Appraising a PPP project means conducting a series of feasibility exercises that inform a decision to approve, cancel, or revisit the project before the structuring of the contract consumes scarce public resources.

This chapter presents good practices related to this important stage of the general PPP process cycle, and it highlights the extent to which an appropriate execution of the Appraising Stage can contribute to the delivery of Value for Money for taxpayers and users. See box 4.1.

BOX 4.1: Learning Objectives

The reader of this chapter will be able to:

- Understand the main activities required to detail the scope of the PPP project, design its technical requirements, and assess technical risks (section 4)
- Identify the main issues involved in estimating the costs of the private partner and adjusting them for risk, whenever appropriate (section 4)
- Understand the basic elements required to design a preliminary contract structure, especially in terms of revenue model, payment mechanism, and risk allocation (section 5)
- Comprehend the general tasks related to designing a financial model, from the government's perspective, including identifying inputs, understanding the outputs, and doing sensitivity analysis (section 6)
- Understand the basic techniques and good practices required to produce a series of feasibility assessments of the technical, commercial, economic, environmental, social, legal, and fiscal dimensions of the project — as well as to comprehend the main issues associated with the decision to procure the PPP project (sections 7 to 15)
- Comprehend the basic structure of alternative procurement routes and how they relate to the outcomes of the tender process (appendix A).

Appraising a project is a very complex task. Its effective contribution to the project success depends on an experienced team with the required multidisciplinary expertise. As presented in chapter 3.13, a project team should be fully engaged right from the start of the Appraisal Phase. Not all of the team will be engaged full time during the entire appraisal exercise, nor is it expected that all the resources will come from within the government. Regardless of the configuration, a project team should be in place and working in order to achieve a satisfactory conclusion to the project appraisal, covering the following four areas of expertise.

- Technical.
- Environmental.
- Economic/financial.
- Legal.

1 Where We are in the PPP Process

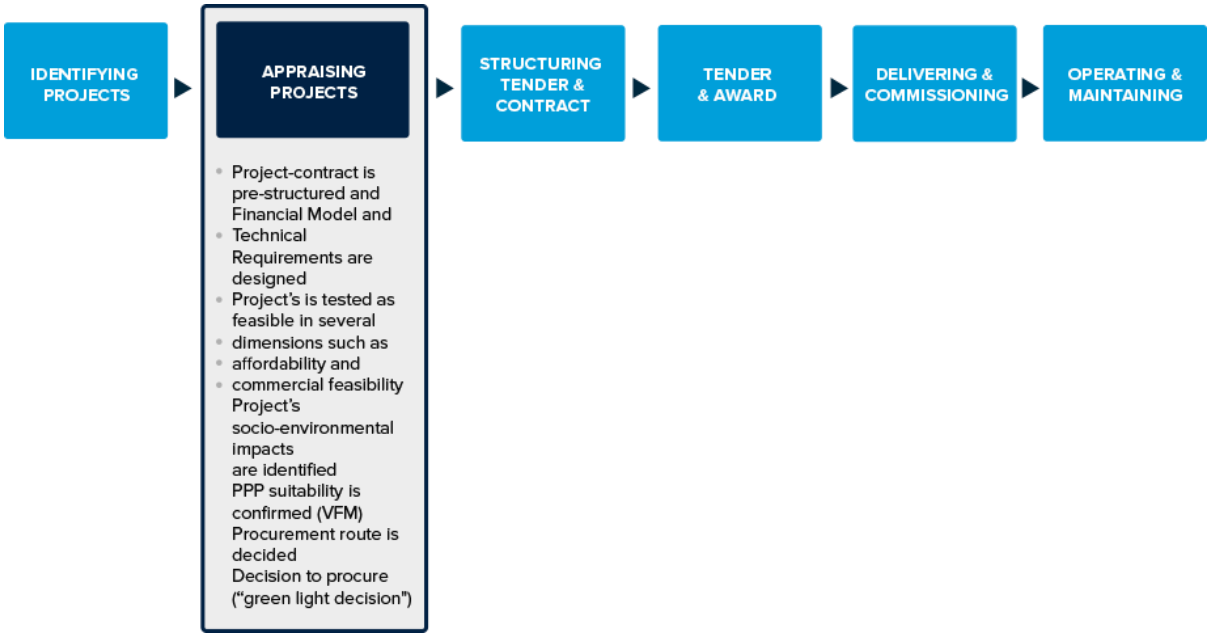
The Appraising or Appraisal Phase, presented in this chapter, begins once the project has been clearly identified, screened as a PPP, and preliminarily defined (in terms of the scope of the proposed contract). It should end with the green light decision to procure the project through a PPP or to reject the project as such.

The starting point is the selection of the project solution[1] and its satisfactory screening as a PPP candidate. By then, several analyses will have been concluded that should be considered as inputs to the appraising stage. Typically, the technical and financial aspects of the project scope will have been defined to some detailed degree during the Identification Phase. As a natural evolution of the contract scope, those aspects are developed in further detail during the Appraisal Phase and relevant information is developed for the Structuring Phase.

The work begins with a considerable amount of available information, and adds both descriptive and analytic capacity to the progressive effort of preparing the project.

This PPP Guide considers, as a default approach, the adoption of a formal green light decision to proceed or not to proceed with the project as a PPP at the end of the Appraisal Phase. It is one of the most important decisions the government makes during the PPP process because it commits the government to a process that requires a high level of resources, both internal and external, to further structure and draft the contract. In addition, it indicates to the relevant stakeholders the government's intention to take the project to financial close.

FIGURE 4.1: Where We are in the Process Cycle



[1] Depending on the degree of detail in the analysis, the works done in the Identification Phase may already include the "investment decision" (the approval of the project solution, irrespective of the procurement method, as a valuable project that is worth developing). However, the investment decision (which is highly dependent on cost-benefit analysis CBA) may also be made during this phase, in advance of the procurement decision (which is highly dependent on the Value for Money Assessment – see section 16).

Note: VfM= Value for Money.

In some countries, specifically for very complex projects, a considerable part of the appraising exercise is pushed further along in the PPP process. In some cases, it is not satisfactorily concluded until the final draft of the contract or the issuing of the Request for Proposals, and it is done concomitantly with the structuring work. In this case, the final approval might be taken without a thorough feasibility evaluation, or it will be made after the structuring has been completed. These approaches, however, can create complicated problems for the following reasons.

- The final decision might be taken too early, without a comprehensive understanding of issues that may cause the project to fail (see chapter 1). Thus, the main obstacles are not adequately anticipated and corrective action cannot be initiated on time. This often results in schedule delays and, because it frustrates expectations, creates political risks for the termination of the project; and
- The final decision might be taken too late, potentially generating the waste of precious public money on unfeasible projects. Even worse, a delayed decision might produce strong incentives for biased conclusions. Given that so much effort has been put in place during the structuring of the project, a conclusion that a project is unviable is usually unlikely, or unwanted by the public officials.

It is therefore a good practice to conclude the Appraisal Phase with a formal green light decision based on relevant information before moving on to structuring the contract and detailing the commercial terms of any particular transaction.

2 Objectives of this Phase

Appraising a project means answering a fundamental set of questions about the project.

- Is it sensible, from an economic perspective, to implement the project?
- Is it practical to procure the project as a PPP? How much will it cost? Is it affordable from the government's perspective?
- Is there adequate market interest and capability to deliver this project? and
- What are the main obstacles for the project's implementation (both the implementation of the technical solution and implementation of the preferred delivery method which may be a traditional delivery or delivery as a PPP)? Can they be overcome in a cost effective manner? How?

The answers to these fundamental questions are naturally progressive. As noted, several preliminary pieces of information will have been developed during the Identification Phase and are further developed during the appraisal. Several of the appraising exercises will also be further detailed during the structuring of the project and the drafting of the contract.

The analysis should be done to a very detailed level in order to establish a sound base for the potential recommendation of procuring the project as a PPP that can be defended against public opinion, courts of auditors, and others. This also allows for a strong evidence base of project data that is substantiated with a clear audit trail for

decision-makers to check the assumptions, evidence, and calculations leading to the recommendations.

The Appraisal Phase serves to filter out projects that do not meet the feasibility criteria, keeping them from being launched as PPPs and avoiding an expensive waste of resources or a failure to deliver the service. It should be noted that some projects can be feasible economically and technically but are not appropriate for the PPP process for a variety of other reasons (for example, no real Value for Money [VfM] achieved by using the private sector).

In some countries, the appraisal exercise must follow regulations and established criteria in the form of compulsory guidelines or even legal provisions. For example, in some cases the conclusions reached on the VfM analysis, demonstration of affordability, or debt impact (all done during the Appraisal Phase) must be formally documented in order for the final green light decision to meet legal standards. This makes the appraisal of PPP projects all the more relevant and indicates that its importance has been institutionally recognized in these countries.

During the analyses, many choices are made about significant financial and technical aspects of the project. These decisions, despite being revisited in the following stages of the PPP process, represent a central contribution to the structure of the transaction and are a very important step toward the final draft of the contract. In fact, the Appraisal Phase produces the first true body of contract and business conditions that guide the following phases of the PPP process. Those decisions should be embodied in relevant deliverables of the phase, such as the following.

- The technical requirements of the project, produced as a part of the technical feasibility exercise described below;
- The financial model, which organizes the financial assumptions and forecasts relevant financial information, used for the commercial feasibility exercise and for some other evaluations described below;
- The preliminary contract structure, which identifies and allocates risks as well as defining the essential aspects of the revenue regime and the payment mechanism, as described below; and
- A procurement strategy which represents the basis of the competitive selection process that will be refined during the Structuring Phase.

Thus, the project team will, at the end of the Appraisal Phase, have decided if the project should be procured as a PPP (the procurement decision). To do this, the project team must have:

- Confirmed that the project is worth procuring (the investment decision);
- Developed good indications that the project, implemented as a PPP, delivers Value for Money (VfM);
- Developed a reliable feasibility assessment (often referred to as the “business case”) that allows the government to make an informed and defendable decision to move forward (or to abort the project);
- Ensured that the project faces no definitive or blocking obstacles to its launch and if it faces major threats, a general plan of action will have been put in place to overcome those barriers; and

- Established the basics of the project contract structure that will be refined during the Structuring Phase.

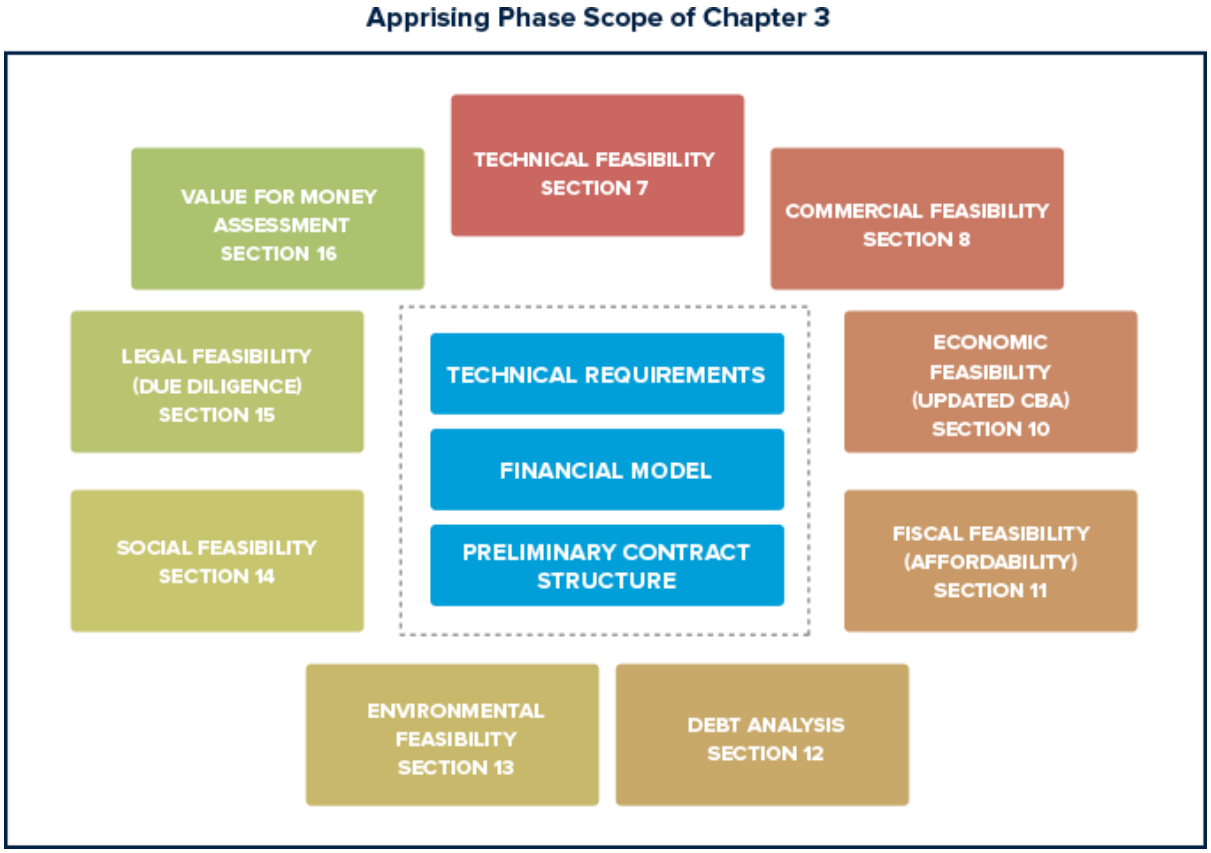
To meet this diverse set of objectives, the government must engage an experienced project team from the beginning of the Appraisal Phase. As chapter 3 explains, this team can be composed of government specialists but, often, also includes transaction advisers and/or industry experts. Whatever the composition of the project team, it is of utmost importance that all the expertise required for all the feasibility exercises are in place and committed during the Appraisal Phase.

Before detailing the content of each of the feasibility analyses, the following section presents an overview of the main groups of exercises that should be made and introduces the relationships between them.

3 Overview of the Appraisal Phase/Appraisal Process

The nature of the Appraisal Phase is intrinsically multidisciplinary. It consists of a series of intricate and interrelated exercises that detail the project, compare the project to a set of feasibility criteria, and prepare it for procurement (see figure 4.2).

FIGURE 4.2: Overview of the Appraisal Phase



Note: CBA= cost-benefit analysis.

The key elements of the project that are progressively detailed in the Appraisal Phase are the technical requirements (section 4.2), the project contract pre-structure (section 5), and the financial model (section 6).

These three dimensions, presented in the following sections, represent a comprehensive description of the project that will be tested in several feasibility assessments presented in the subsequent sections. To a large extent, these feasibility assessments are interactive and depend on the conclusions of each other. However, it is paramount to recognize that each of those exercises is relevant in its own right, and each should reach a positive conclusion if the project is to be recommended for procurement approval.

Throughout the chapter, the central contribution of the Appraisal Phase to the preparation of the project for procurement is highlighted. During this phase, the government identifies activities required to mitigate project risks and advance matters that are the responsibility of the government before the contract is tendered (for example, conducting geo-technical tests when geo-technical risk represents a serious uncertainty to the project outcome, securing site availability for a facility, obtaining preliminary environmental clearances, and so on). Although preparation activities continue during the next phase, they should be finalized within the timeline estimated in the procurement plan and before the tender is launched.

The Appraisal Phase has been repeatedly used in many countries that have developed sound PPP programs. Frequently, the inclusion of appraisal guidelines as a part of more general PPP guidelines is a factor that mitigates failures in appraisal, saves time and cost in handling the process, and provides the right signal to the market of a sound, reliable, and above all consistent approach to PPPs[2].

This international experience allows us to identify a set of principles and practices that have produced the most effective results. Good practices related to each of the feasibility exercises are presented in the following sections.

4 Detailing the Scope of the Contract, Designing the Technical Requirements and Assessing Costs

4.1 Developing the Scope of the Contract

As introduced in chapter 3.6, the Identification Phase will likely have provided a basic scope of the contract, describing what elements of the technical solution selected for the public need will be delivered by the private partner under the PPP contract.

[2] Some comprehensive discussions of country specific approaches to the Appraising Phase can be found in the following guidelines.
P3 Business Case Development Guide. PPP Canada, 2009.
Investment Lifecycle and High Value/High Risk Guidelines. Department of Treasury and Finance. State of Victoria, Australia. 2013.
National Treasury PPP Manual. Module 4: PPP Feasibility Study. South Africa. 2008.
Project Preparation/Feasibility Guidelines for PPP Projects. Ministry of Finance. Government of Pakistan. 2007.

However, in some projects, defining the scope of the contract is not a simple matter. There are projects that may be developed and managed under different contract scopes, reserving certain obligations or services to other parties or to the public sector.

For example, a hospital project may be conceived as a pure infrastructure project (developing and managing the physical facility), or it may include provision of the clinical services. When no clinical service is transferred to the private partner, a decision must be taken as to whether or not to include soft services (such as catering and cleaning) in addition to hard services (such as maintenance), or which soft services to include in the boundaries of the contract. For example, in British Columbia, Canada, the Abbotsford Hospital and Cancer Centre, one of the first PPP projects undertaken by the province, included a full suite of soft services (but not clinical services). However, all subsequent health care projects developed by the province have defined a much narrower scope for their contracts.

Another sector example is rail infrastructure. The features of the PPP contract (particularly the risk structure and the revenue regime) are significantly different when operation of the transport services is integrated with the management of infrastructure within the contract (for example, in many Light Rail Transit [LRT] and metro projects), compared to projects in which the private sector only provides infrastructure services without the actual operation of trains (typical in High Speed Rail [HSR] projects or any heavy long-distance rail systems open to competition).

Other examples of sectors and project types in which the scope of the PPP contract may vary significantly (such as water, rail, and roads) have been introduced in chapter 1.6.

Thus, the scope is a fundamental decision to delineate the boundaries and interfaces between the public and the private sectors. It also defines the general framework from which to outline the technical and performance requirements and the context to decide upon the revenue regime (see section 6.5), which will form the basis of the financial and risk structure of the PPP.

4.2 Designing the Technical Requirements

Technical requirements, together with other PPP structure parameters, lie at the heart of the contract. The technical requirements should provide enough technical details about the project so as to allow a precise definition of the design of the infrastructure (and the characteristics of the service) to be implemented, while avoiding being too prescriptive as explained below.

Through the technical requirements design process, costs are assessed, which are a key input for the commercial feasibility analysis explained further in this chapter.

The technical requirements are also a basic input to the other feasibility analyses, such as the environmental feasibility, economic feasibility, Value for Money assessment, and the affordability analysis.

Furthermore, a precisely designed set of technical requirements offers an essential body of data for bidders to assess the technical risks the private partner will be

exposed to, as well as to price the service, which effectively contributes to a more competitive tender.

It is a good practice for the design of the technical requirements to be preceded by the identification of benchmark projects which can be a precious source of historical data, as well as of significant lessons on the design of the infrastructure and details of service delivery. These benchmark projects can be either PPPs or traditionally procured infrastructure, but they need to be comparable in terms of complexity and risks and must address a similar scope of service to the PPP project under analysis.

For example, publicly-run railways might indicate important design features of cargo stations, and a previous PPP contract can provide relevant insight on the service requirements. It is good practice to try to identify benchmark projects in the same country and geographic region, if they are available. However, in some cases, projects try to address unmet needs or they innovate in their approach, in which case benchmark projects will not be available. In this case, the project team should research projects in other countries and geographical regions.

The project team must ensure that the technical requirements comply with applicable regulatory standards and policy directives for the respective sector. For example, the policy regulations of a particular country might dictate that the minimum size of a classroom is 1.5 square meters (m^2) per student, or that certain safety standards are necessary in a road such as the minimum radius of curves.

Some countries also limit the role that the private sector can play in certain PPPs. For example, some countries do not allow the private partner to deliver the correctional services in prison PPPs. These limitations must be clearly understood if they are to be incorporated in the technical description done as part of this feasibility exercise.

In practice, the exact content of the technical requirements depends upon the type of project, the type of contract, and the legal requirements of the jurisdiction. However, the technical requirements are typically composed of a project design and construction requirements, as well as the performance requirements, as explained below.

4.2.1 Project Design and Construction Requirements

The project design and construction requirements are one of the most important inputs to the feasibility analysis. Preparing these requirements is a very demanding task. It may be approached in different ways.

- Preparing a functional design;
- Preparing a reference design; and
- Preparing full design and construction prescriptions.

The most frequent approaches in PPP projects are the first two, as PPP projects focus on outputs so as to provide significant flexibility for the private partner, creating opportunities for innovation and incentives for efficient life cycle management of the asset.

Providing detailed construction specifications hinders innovation and might have an undesirable effect on risk transfer to the private sector because construction issues and operational problems arising from the design might require compensations from the government (the provider of the design). So a full design approach should only be considered when: (i) the project is regarded as simple or not significantly challenging or complex in technical terms; or (ii) the procuring authority has certainty of the optimal means and methods of meeting that need. When a fully detailed design is the chosen approach, it is usually not concluded during this phase because of the considerable engineering complexity, and it will likely require further detailing during the Structuring Phase.

Despite these variations, a minimum level of detail should always be developed at the Appraisal Phase because it allows several feasibility exercises to be based on sound estimates. Hence, it is good practice to detail the infrastructure design to the level required to produce the following information with precision.

- The identification of the key design requirements that will later be included in the PPP contract as the specification for construction of the infrastructure, including time requirements (time limit to construct and commission); and
- A reasonably precise estimate of cost data, as indicated below, to feed into the financial model.

4.2.2 Performance Requirements and Operations and Maintenance Specifications

As described above, the other relevant part of the design of the technical requirements is the performance requirements or operations and maintenance specifications.

A detailed description of the service requirements involves indicating the level of service, its beneficiaries (who it will serve), and the main aspects of the delivery of value for users. The service requirements should contain the following information.

- A very precise description of the scope and minimum characteristics of the content of the service to be delivered by the private sector. This should be in the form of a verifiable preliminary output specifications, as opposed to an input specifications;
- The outputs generated by the delivery of the service in terms of effective benefits for users and the wider community;
- The main responsibilities, related to the service to be delivered, retained in the public sector;
- The preliminary requirements for an effective performance evaluation system that will create adequate and effective incentives during the life of the contract;
- The minimum requirements for an infrastructure maintenance plan, noting the danger of prescribing the means and allowing space for innovation; and
- Specific requirements, whenever they are relevant, about the service hand-over to government at the end of contract.

4.2.3 Other Technical Assessment-Related Matters and Preparatory Activities

During the design of the technical requirements, a number of additional tasks must be done, which relate to the technical preparation of the project and influence the cost assessment of the project.

- Field surveys of the project site, which may include mapping, and topographical and geo-technical surveys;
- A thorough identification of all the land expropriation required, including the mapping of the areas, identification of the owners, and the estimation of the costs and time needed for the expropriation procedures;
- The assessment of potential resettlement issues;
- The assessment of any linked infrastructure requirements, such as availability of utility services or connecting roads to the project site;
- In some projects, it is also necessary to carry out an archeological and/or anthropological survey to map the potential archeological and/or anthropological findings;
- For linear transport infrastructure, the track or the layout should be identified and defined;
- For linear transport infrastructure, especially in urban or suburban areas, the location of utilities should be mapped and reallocation needs should be assessed; and
- For any project, an environmental assessment will be conducted. Due to the importance of this subject in terms of feasibility, this is explained specifically in section 13.

The ultimate responsibility for any of these matters may have to be included in the contract scope (generally with a clear risk assumption, that is, transferring the risk to the private partner or sharing and capping those risks). Some of these may be left out of the private partner's responsibilities, but even in that case the costs and uncertainty should be assessed so that the liabilities can be incorporated in the VfM analysis as well as in the affordability analysis.

4.3 Consideration of Risk in the Appraisal Process

Chapter 5.6 provides a comprehensive overview of risk issues and the risk management cycle in PPP projects. During the appraisal process, risk identification and risk assessment are key tasks that provide inputs for constructing the financial base case for feasibility, for VfM calculations, and for the initial consideration of risk allocation.

Risk identification (which is explained in detail in chapter 5.6.3) must be exhaustive during the Appraisal Phase, as a failure to thoroughly identify risks at this time may result in a flawed appraisal and subsequent project failure. It is therefore good practice to develop a comprehensive risk register during the Appraisal Phase.

Risk assessment includes both quantitative assessment to develop risk-adjusted costs (see section 4.4 below) and qualitative assessment for the purposes of the preliminary risk allocation (see section 5.2 below).

4.4 Estimating Risk-Adjusted Costs

Estimated risk-adjusted costs are a central output of the design of the technical requirements, and this data is used to feed the financial model. Depending on the type of infrastructure, the nature of this data can change. However, the typical sets of cost estimates that should be produced at this stage are as follows.

- Capital costs and their distribution in time and
- Operational and maintenance costs during the lifetime of the project.

The costs projected should reflect, as far as possible, the projected costs of the private sector. In some cases this entails the recognition of efficiency gains compared to typical public sector costs. In other words, the private costs can be lower than the traditionally procured alternative. This might occur due to possible technical innovations that can be foreseen, or differences in regulatory requirements between the public and private sectors.

This adjustment can and should be done if there are strong reasons to believe efficiency gains are in fact justifiable. If this proves effective, then extreme care should be taken to avoid overly optimistic assumptions (optimism bias) that can lead to underestimation of the costs for the project.

There is also an unavoidable level of uncertainty in much of the financial data estimated during the design of the technical requirements. This could lead to severe misinterpretation of the results of the feasibility exercises that use this information. To account for this uncertainty, the costs need to incorporate risk allowances so as to reflect, as accurately as possible, the private sector's perspective on the project's financial description. This can be accomplished by adding an **expected risk value** on top of the estimates, which will be the fundamental input to the financial model, described below.

In most cases, the adjustment for risk generates the expected value of costs. That is different from the most likely cost or the best case costs because it adds an economic value of risks to the base line costs. The simple approach to this risk adjustment is to calculate the value to be added by multiplying the probability of a certain additional cost by its financial impact.

For example, if the capital expenditures (Capex) of year Y will be $1 million higher if a water pipe is found beneath a construction site, and, given prior constructions around the area, the probability that this will occur is 25 percent, the value of $250,000 should be added to the Capex of year Y. Conversely, if there is a 20 percent chance of a construction cost to be $500,000 less expensive due to better geo-technical characteristics, the cost should be reduced by $100,000. The final figures indicate the weighted average of the possible cost outcomes, considering each of its probabilities. Since the probabilities of each cost outcome are also uncertain, it is common to choose a few scenarios of costs which are later used to feed the sensitivities tool of the financial model (see section 6.9).

A much more sophisticated approach is the use of probabilistic analysis, typically based on Monte Carlo simulations. This approach estimates the impact of events building upon a great number (commonly tens of thousands) of iterations based on previously inputted probabilities. This produces a distribution function of the possible outcomes (as well as other statistical results such as percentiles). Since the reliability

of the conclusions depends on the accuracy of the assumed probabilities, it is good practice to only conduct probabilistic analysis when reliable information about the likelihood of events is available. When this is not the case, the simpler approach to risk should be chosen, as it is more intuitive, reduces complexity, and simplifies the interpretation and communication of the results.

Not all of the risks can be incorporated in this way. Technically speaking, only project specific risks should be addressed in the cost structure. The so-called systemic risks (for example, risks related to general economic conditions) cannot be diversified with "portfolio" strategies, and as such, can only be paid for by a general increase in the return of an asset. In other words, risks that relate to the general performance of economic assets should be reflected in a higher rate of return required by the investor, as will be presented in section 8.1.2.

It is important to note that the costs identified at this stage are a description of the costs and risks from the private sector's perspective. Later, as a part of the VfM exercise, an additional risk adjustment will be made to incorporate the possible cost overruns if the traditional procurement route was followed.

4.5 Outputs of Scoping the Contract and the Design of the Technical Requirements

The further detailing of the scope and the design of the technical requirements provides fundamental outputs for the Appraisal Phase and, indeed, for the whole of the PPP process, since it provides the technical description of the project used as a basis for other feasibility exercises. See box 4.2.

The scope definition and technical requirements are used, to the extent they are relevant, to specify the private partner's obligations in the contract, to design the instruments to assess performance, and to build the mechanisms to translate them into effective incentives (including the penalty scheme). Thus, the project design and the service specifications will be adapted to assume forms of contractual directives responsible for regulating many aspects of the relationship between the government and the private party.

It is important to recognize that the scope and technical requirements should be designed to meet the needs identified at the Screening Phase. In other words, over-specification — which may induce unrealistic service levels — should be avoided as it may increase the cost of service and hinder the affordability assessment, described later in this chapter.

Several aspects of the technical details reached at this stage, however, will not be included as binding directives in the contract. For instance, many aspects of infrastructure design can be left to the decision of the contracted private sector entity. In reality, many PPP contracts allow a relatively large discretion to the private partner as to technical solutions and operational procedures to be adopted during the execution of the PPP contract.

This is not to say that the technical details reached at this point are useless. On the contrary, they play a fundamental role in filling in the blanks, in that they represent the baseline assumptions for the construction of the base case (see section 6.9) that

will be used during the Commercial Feasibility Assessment and other financially related appraisal exercises.

Furthermore, a very important output of this phase is a clear estimate of the costs of construction and other related costs, adjusted for risk. This data represents some of the most important inputs to the financial model (section 6) and to all of the feasibility assessments.

BOX 4.2: Key Points on Project Scope, Technical Requirements, and Cost Assessment

The exercise of detailing the scope of the contract, designing the technical requirements, and assessing costs sets up the conditions to be met by the private sector for the asset and the service to be acceptable. In this process, it provides the following:

- The construction and design requirements that will be included in the contract.
- The performance requirements that will be included in the contract.
- Other information and technical details used as the base case for the project.
- An assessment of technical risks.
- Costs of construction and related costs, adjusted for risk when appropriate.

All the above information provides an essential description of the project from a technical perspective, and is used in the feasibility assessments during the Appraisal Phase.

5 Designing a Preliminary Structure of the PPP

One important aspect of the project, which needs to be preliminarily defined during appraisal, is the PPP contract structure, specifically in terms of the:

- Financial structure from the government perspective (revenue regime, contract term, and so on). See box. 4.3; and
- Risk allocation structure.

These aspects have complex interplays with several feasibility exercises, including the commercial feasibility assessment (section 8), the Value for Money analysis (section 16), and the affordability evaluation (section 11). Since the conclusions of these exercises depend on a preliminary PPP contract structure to achieve meaningful conclusions, this should be done to a fairly accurate degree.

BOX 4.3: Defining Financial Structure for the Purpose of this PPP Guide

From the perspective of the government, the term financial structure (or contract financial structure) refers to the definition of the means of public compensation or payments to be granted to the private partner in the contract and its conditions (including tenor, timing, indexation, and potential adjustments/deductions).

It also refers to other potential public party participation in the provision of financing

(guarantees and other credit enhancement measures, equity, or debt contributions). This includes the resulting profile of government payments in terms of net present value (NPV) and yearly public expenditure, or the profile of payments to be received from the private partner.

The structure of the PPP contract will be further detailed in chapter 5 (for example, the financial structure from the government's perspective is detailed in section 4.4). At this stage, however, a preliminary definition needs to be done in order to provide adequate input to many appraisal exercises such as the design of the financial model (section 6), the Affordability Assessment (section 11), and the Value for Money analysis (section 16).

5.1 Revenue Regime and Payment Mechanism

The revenue regime of PPPs refers to the source of revenues collected by the project company. This can be broadly divided into two major groups. The first is the user charges. The textbook examples are the tolls collected directly by the private partner in road concessions, or the fees paid to privately-operated metro trains. PPPs solely funded with user charges are known as user-pays PPPs.

The second group is the governmental payments during the contract (that is, service payments[3]), often used in PPPs for social infrastructure but also to reduce the need to charge users in economic infrastructure[4]. PPPs solely funded with public payments are known as government-pays PPPs.

User-pays PPPs are a popular revenue regime for governments due to the practically neutral budgetary impact of such projects. There is also a strong economic case for requiring users of infrastructure to pay the effective marginal cost of the infrastructure-based services that they use. This aligns incentives and avoids excessive use of infrastructure-based services, also reducing the common negative externalities of such use.

Some projects, based on the user-pays model can be regarded or estimated as being "over-feasible", in the sense that the revenue is sufficient not only to meet the costs of the project, but also to meet a fee to be paid by the private partner to the contracting authority. Imposing "concession fees" should be carefully considered, and there are other ways to capture the potential excess of profit – see chapter 5.8.

Conversely, the total revenues generated by user charges might be insufficient to achieve the required levels of revenue, especially if the demand is very sensitive to price changes and, thus, marginal increases in price will reduce the total revenue. In

[3] Note that the PPP Guide refers here to payments for service as a source of operational revenue for the private partner, rather than other kinds of public payments (for example, those including construction or grant payments).
[4] In reality, there are also revenues that escape this broad grouping like financial revenues (for example, interest on working capital) and commercial revenues (for example, selling advertising space on the walls of a metro station or promoting the commercial use of land as a part of a transportation project). However, they generally represent a small proportion of the total revenues of the project company.

this case, the government may choose to provide direct financial support to ensure commercial feasibility, as described in chapter 1. One of the most common types of support is the provision of direct government payments to the project company. **This is a mixed revenue regime.** The payments may be grants made during the Construction Phase (sometimes called co-financing) or complementary service payments made over the operational phase of the contract (a hybrid payment mechanism).

Another situation in which government payments are considered is a deliberate attempt to reduce the price paid by users for political reasons. There is a direct trade-off between the price charged to users and the government payments required to ensure the project is commercially feasible.

Government payments can also be the only source of revenue of the project company during the life of the contract. This is **the government-pays revenue regime**. It is typically used for social infrastructure, such as prisons, hospitals, and schools, but it can also be used for economic infrastructure such as roads without tolls. Government-pays PPPs are very common in sectors in which public policy indicates there should be service delivery without user charges.

Purely government-pays PPPs can also be used to allocate the demand risk to governments. The typical example is tolled roads in which the only revenue for the private partner comes from the government which, in turn, is responsible for collecting the tariffs. In this case, the total revenue of the project company does not change due to variations in demand, and the government obtains revenues that can be higher or lower than the payments made to the project company.

A choice needs to be made to define the revenue regime of the project contract. This decision should be made considering policy directives, as well as the results of several of the feasibility exercises during the Appraisal Phase (such as the legal due diligence, commercial feasibility, and affordability).

When projects include direct government payments, whether or not they are concurrent with user-paid revenues, their basic characteristics (such as the triggers, occurrence, and calculation) should be developed as part of the preliminary PPP structure. This is done in a payment mechanism.

The payment mechanism is detailed during the Structuring Phase. However, an outline of its key components must be assumed in the preliminary contract structure since it is key to an accurate financial model as well as to other assessments described below[5].

Generally speaking, the payment mechanism can assume triggers for the public payment based on different types of events such as the infrastructure availability, demand, or output.

[5] The EPEC's *The Guide to Guidance: How to Prepare, Procure and Deliver PPP Projects*, presents a useful summary, with examples, of payment mechanisms related to PPP projects, and refers to further guidance on the topic.

The governmental payments can also vary in time. In all cases, they only begin once the service is operational and are usually regular during the contract. In other cases, they can be designed in different profiles over time to meet bankability requirements (see section 1.8 below). In some countries, it is also possible to see co-financing approaches in government–pays PPPs (usually in the form of up-front grant payments – see chapter 1.7.3).

During appraisal, at the very least, the general assumption on specific triggers and timing of the repayments must be made. This, albeit revisited in later phases, is required not only to test commercial feasibility, as described in the following sections, but also to evaluate affordability, the impact of the project on public debt, and Value for Money.

5.2 Preliminary Risk Allocation

PPP contracts allocate risks between the government and the private partner. In fact, risk allocation is one of the most important tasks conducted during the whole of project preparation since it underlies most of the PPP's potential advantages, as presented in chapter 1.5.2.

During the structuring of the contract, as will be presented in section 4, most resources focus on promoting an effective risk allocation (section 4.5). Nevertheless, a generic proposed risk allocation scheme is a necessary task during appraisal. It permits the project team to undertake several tasks required for feasibility exercises, such as the risk adjustment of baseline costs and the estimation of the required return on equity, as a part of the commercial feasibility assessment and the adjustment to the Public Sector Comparator as a part of the VfM analysis.

To allocate a risk to a party means to decide which one of the contracting agents will suffer the positive or negative financial consequences of a variation of a value from its estimated base line. The general risk allocation principle states that the risks should be allocated to the party that is best able to manage them. This creates the appropriate incentives for risk management and provides economic efficiency in terms of reduced valuation or those risks. See box 4.4.

BOX 4.4: Examples of Risk Allocation

Example 1

The ground conditions in a tunneling project represent a considerable risk for the contractor because the conditions cannot be determined fully before tunneling operations actually begin. How such a risk is managed when it is encountered can have a significant impact on the costs of the project. The contractor is obviously in the best position to manage such risks and should therefore bear them.

Example 2

The risk that the level of demand for a facility is not forthcoming or declines is the

major risk in PPPs. In the case of a prison, the demand for the prison is very much influenced by legislation and therefore by the government's sentencing policy, by the sentencing policy of the courts, by the approach taken by parole boards, and by the Department of Corrections' prisoner management policies. Transferring demand risk to the contractor would therefore be an inefficient allocation of risk. Instead, the payment mechanism should be based on some combination of service performance, availability, and occupancy rates.

Source: Guidance for Public Private Partnerships in New Zealand. National Infrastructure Unit of the Treasury (2009).

Contracts allocate risks through several mechanisms. Some examples are as follows:

- The revenue regime and payment mechanism, which can define how and when compensations to the private partner can be triggered;
- Express contractual provisions, including explicit guarantees and compensation obligations, which adjust the risk allocation implicit in the project structure; and
- Provisions for financial re-equilibrium of contracts when certain events occur.

At this stage, however, there is no need to develop a detailed description of contractual instruments to allocate risks. It is sufficient to develop a risk allocation matrix in which all the identified risks are described and a preliminary allocation is proposed.

6 Developing the Financial Model

At the Appraisal Phase, the project must be accurately described in financial terms to allow for several feasibility exercises to produce meaningful results. For example, the following appraisal exercises in box 4.5 use some variation of the financial description of the project.

BOX 4.5: Different Financial Assessment Exercises

Assessment	**What is Assessed?**
Economic feasibility	All costs and benefits of the project to society.
Commercial feasibility	Private sector cash flows for the project under PPP delivery.
Fiscal feasibility /affordability	Public sector cash flows for the project under PPP delivery.
Impact on government debt and deficit	Impacts of the project as a PPP under the applicable public sector accounting regulations.
Value for Money (VfM)	Public sector (or user) cash flows for the project under PPP delivery in comparison to public sector

	(or user) cash flows for the project under traditional delivery.

The tool that allows the assessment of commercial feasibility is the financial model. It is a spreadsheet computer file (in Excel or other compatible format) that incorporates, for the duration of the contract, all the expected private sector investments, revenues, costs, taxes, as well as several analytical parameters such as the cost of loans, the cost of equity, insurance parameters, and the relative inflation rate[6].

As discussed later in the chapter, the financial model is a tool that, when sufficiently mature, presents a financial base case of the project[7] (see section6.9)[8] — that is, the financial characterization of the project over its lifetime, considering the assumptions and decisions made during the Appraisal Phase[9].

Despite being built by the project team during the Appraisal Phase, the financial model is meant to reflect the best available **information about the private partner's future financial situation.**[10] Thus, it primarily represents the financial description of the project company and the events and risks that determine its financial life cycle.

In reality, the model will serve many purposes during the PPP process[11] and will be adapted accordingly. However, at this stage, the model reflecting the financial life of the special purpose vehicle (SPV) serves a very fundamental need by assessing the feasibility of the project from several perspectives, as will be discussed further in the chapter.

The building of the financial model should begin with an assessment of existing financial data. At this stage, some financial evaluations would already have been

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[6] A detailed description of the uses of a Financial Model in PPP contracts can be found in Yescombe's book: *PPP: Principles of Policy and Finance* (2007), chapter 10.

[7] In some countries, the financial base case that is concluded by the Financial Model is called a "shadow bid", or the estimation of the financial calculations a private sector bidder would do before participating in the tender. The Financial Model, in the sense used in this document, plays a similar role since it represents the perspective of the project company. This has been defined as such to allow for several feasibility exercises to be conducted, such as the commercial feasibility exercise and the affordability assessment. The financial base case is sometimes described in a document called the Financial Plan, which translates the findings of the Financial Model into a descriptive document.

[8] The section 6.9 presents the issues related to uncertainties in the financial model including the uses a sensibility analysis and the construction of the base-case.

[9] The Financial Model will also be used during the life of the contract as a tool to support contract management. Duly updated to reflect the winning bidder's financial and cost structure, it is used mainly to evaluate the impact of risks and changes in the project contract and implement them, and it is usually annexed to the contract. However, more frequently, the authority´s Financial Model is substituted for this purpose by the one constructed by the successful bidder (duly audited).

[10] At the very bottom line of the model should be the estimated Free Cash Flow of the project company and the Free Cash Flow of the equity investor, upon which analytical tools are applied to reach several relevant conclusions, presented latter in this chapter.

11 Generally, the values are presented in sums of yearly periods. However, it is not uncommon to obtain more precise conclusions using periods of six months, three months, or even monthly periods during construction.

done, and information might be dispersed throughout the project paperwork. The likely sources of information already available are as follows.

- The CBA which can include financial data that may be used as the starting point of some financial values (see chapter 3.8), such as estimated potential revenue, total costs, taxes, and others;
- The costs estimated in the process of defining the technical requirements (see section 4.2 above), which should provide estimated values on investment, maintenance, and operations costs;
- The description of benchmark projects identified in the Technical Feasibility stage and the respective historic data available;
- If the infrastructure already exists, current data on demand, costs, and revenue; and
- Studies already conducted to assess the need for the project. For example, in transport projects there may be existing traffic and revenue studies.

The model deals with a diverse set of data, coming from different sources and yielding different results. While it is not the purpose of this chapter to teach details about financial modeling, the most relevant elements that should be considered in the model are described below.

- The financial model is designed, at this stage, to reflect the estimated financial situation of the project company during the life of the contract.
- This information will be later adjusted for other modeling purposes such as:
    - The estimation of the fiscal consequences of the contracts; and
    - The Public Sector Comparator.

6.1 The Macroeconomic Assumptions

A relevant group of data that should be put into the Model are the macroeconomic assumptions. General inflation, relative inflation, base interest rates, risk-free interest rates, and exchange rates are key elements for long-term estimates.

General inflation and relative inflation are the first group of assumptions. It is generally good practice to construct the model in nominal terms (that is, including projected inflation).

The model is sometimes designed in real terms, rather than nominal terms, that is, without the effect of general inflation in either costs or revenues. The rationality behind this decision is the following: if the contractually determined revenues and the total expenditures follow the exact same inflation, one can consider a free cash flow in the monetary units of today[12]. This technique appears to simplify the model where all the values are expressed in constant terms.

[12] The use of the Model in nominal or real terms also affects the analytical tools used to assess commercial feasibility such as the Internal Rate of Return and the Net Present Value (see section 8.1). This choice, along with the operation of the analytical tools, should thus be made by a technically experienced team to avoid misleading conclusions.

However, since relative variations of costs are very likely in the long term, and some items are not directly affected by inflation (for example, traditional debt repayments), this simplification distorts the conclusions. Therefore, when there are reasons to believe that costs will vary in relation to each other or the indexation of revenues can differ from the cost variations in time, the model should be designed in nominal terms (including projected inflation) to avoid significant distortions.

The risk-free interest rate (the interest rate at which the respective government issues debt for the relevant term) is also an important macroeconomic assumption. It can be used (together with a risk premium – see chapter 2.8.1) in estimating the minimum expected return required by equity investors. Some countries also use it as a discount rate for estimating the present value from the government's perspective (see chapter 3, section 3.8.1) in Value for Money (VfM) calculations and in the assessment of Fiscal Impacts. These uses will be detailed further throughout the chapter.

Exchange rates are particularly relevant when a source of foreign capital is considered and the borrowings can be in foreign currency. They are also relevant when a part of the expenditures is indexed to foreign currency (for example, when a relevant proportion of capital expenditures is spent with imported equipment).

All these variables should be estimated for the duration of the contract, with the best available information. Market data, when available, should be a preferred source (for example, hedge contracts for exchange rates, implied inflation from inflation-indexed bonds, and so on). Another possible source of projections is governmental agencies responsible for economic policy or macroeconomic consultancy companies.

When the results of the financial model are particularly sensitive to some of these variables, they should be included in the sensitivity analysis mentioned in section 8.4.

6.2 Inputting the Capital Expenditures

The initial capital expenditures (initial Capex) group represent the expenses incurred from the private consortium's preparation of its proposal until the commissioning of the asset. These expenses commonly occur before the project company obtains any revenue. The expenses are mostly obtained from the design of the technical requirements. Some typical items that should be included in the estimates of capital expenditures are listed below:

- **Construction costs**: This is the actual construction cost that is required to deliver the infrastructure, including the civil works, equipment required, and the associated supervision costs. Other concepts such as clearing site works may be included here. A very common configuration is for the project company to enter into Engineering, Procurement and Construction (EPC) contracts with one or more construction companies that segregate risks among private entities. These costs are likely to represent the vast majority of all investment done by the private party. Thus, extreme care and prudence (and even conservatism) should be taken when estimating the amount. As noted, the main source of data is the technical requirements that describe in detail the design and the construction costs associated with the project. This

information must be time bound. In other words, it is vital that the construction costs are allocated to the specific periods during the Construction Phase in which they will be incurred, and not only included in the initial period;

- **Design costs**: Typically, the private partner has to do considerable work detailing the infrastructure design before the construction. These costs should be estimated at this stage. In some projects, these costs may be embedded in construction costs as the construction contractor may be in charge of designing the project;
- **Bidding costs**: These refer to the work to prepare the proposal and qualification documents. These costs generally relate to internal staff, external advisers, the bid bond premium, and so on. They can be very considerable costs, depending on the complexity of the project. Bidding costs can be understood, in many respects, as an early upfront type of equity application in the project company;
- **Project company costs**: These costs refer to the staff directly employed by the project company, general costs of the SPV (for example, rent of office for headquarters, and so on), as well as, potentially, costs input to the SPV by the shareholders for managing support tasks;
- **Environmental compensation costs**: Depending on the nature of infrastructure implemented, these might represent a very significant proportion of the total Capex. The correct estimation of these costs depends, to a large extent, on the results of the Environmental Feasibility exercise. However, since it is common not to obtain the environmental approvals at the Appraisal Phase, the clear view of all environmental compensation initiatives might be only confidently estimated later on in the PPP process, when the financial model will be revisited. At this stage, the best possible estimate should be made to avoid jeopardizing the precision of the conclusion of the Commercial Feasibility exercise;
- **Insurance and guarantees**: Several insurances must be contracted in the early stages of project implementation. Generally, the Capex estimates should include the cost of insurances that cover physical damage during construction, loss of revenue due to delays in completion (advance loss of profit – ALOP), and third-party liabilities, as well as performance guarantees required by the PPP contract. Depending on the project and country, protection against variations on exchange rates can also be contracted. Thus, its costs need to be estimated;
- **Costs of obtaining licenses and permits**: A number of licenses and permits for construction and operations will be required. All costs and fees related to the licenses required by the private partner must be estimated and included as expenditures. This can include costs for building permits, environmental licenses, and others;
- **Costs associated with the financing**: In many cases, the private partner must pay interest during construction, which must be accounted for because it needs to be accommodated in the general financial structure of the project. Other costs during construction associated with the financial agreement are the debt arrangement fees, availability fees, and the costs of the lenders' advisers (see appendix A to chapter 6 for more details);
- **Utility reallocation and archaeological removals**: In some projects, the project company will incur significant costs due to the condition of the site on which the infrastructure is to be built. There may be utilities that must be

relocated (such as energy and water infrastructure) or special work that must be done to deal with archaeological findings. Those costs must be included in the financial model;

- **Expropriation and land acquisition costs**: In some projects, the cost of obtaining the land to implement the project is borne by the private sector. If so, this cost must be estimated; and
- **Taxes**: Taxes are essentially a country specific issue. Most relevant taxes will affect construction costs (for example, value-added tax – VAT) but these are paid/embedded within construction costs to be paid out to the construction contractor. Corporate taxes must also be modeled — mostly because they will create tax shields during the Construction Phase. Lastly, some projects will have specific taxes imposed on the contractual rights (for example, taxes related to the grant of the concession or lease rights that are usually paid upfront).

6.3 Inputting the Operating Costs and Reinvestments

The operating costs or operating expenditures (Opex) and reinvestments (infrastructure renewals or life-cycle costs) are commonly distributed throughout the entire duration of the contract. Most of those costs are outputs of the technical requirements, but they must be organized in terms of yearly sums[13], and their eventual variations through time should be incorporated.

Some typical items that should be included in the operational expenditure estimates are as follows.

- **Direct project company costs**: The costs of the project company, once the project enters into the Operations Phase, should be estimated and included in the Opex estimates;
- **Ordinary maintenance costs**: This refers to regular maintenance costs such as cleaning and routine interventions for the asset such as hydraulic and electric checkups, and so on;
- **Major or extraordinary maintenance (reinvestments and renewals)**: The Capex investments related to maintaining the asset in similar conditions throughout its lifetime (or the period of the contract), including life-cycle renewals such as comprehensive reinvestments to update the asset or re-establish its prior condition, or renovation of equipment due to technology obsolescence, and so on. It is common that a relevant part of these costs is pre-funded by means of the creation of reserve funds as a requirement of lenders or of the PPP contract;
- **Operation costs**: In addition to maintenance, in many (but not all) PPPs, the SPV will have some type of operational responsibility over the asset. This can be as small as watching to prevent unauthorized intervention on a water pipe

[13] Generally, the values are presented in sums of yearly periods, however it is not uncommon to obtain more precise conclusions using periods of three or six months.

region, and as large as the full operation of prisons. Often this function is subcontracted to another party (which may be a shareholder of the SPV), in which case the relevant cost is the price that would be payable under the subcontract. In some cases, there is also the need to meet monitoring standards required by the PPP contract such as hiring independent certifiers or incurring other oversight expenses. These activities all have costs that need to be fully recognized throughout the life of the contract;

- **Insurances and guarantees**: Once the asset is operational, several other types of insurances must be held to mitigate the risks involved in the project. There are also costs for taking out and maintaining contract guarantees, such as performance bonds. These costs are generally included in the Opex;
- **Communication costs**: These can be a relevant component, depending on the nature of project. They represent all the communications efforts, media campaigning, and other awareness raising initiatives to be conducted by the project company; and
- **Taxes**: Taxes are an outflow of resources from the project company. In many countries, PPPs, or infrastructure in general, are subject to specific tax regimes, including corporate tax and sometimes indirect taxes such as Value Added Tax or similar taxes that may affect both inputs and revenues. These should be recognized and an accurate estimate of taxes should be input into the financial model.

6.4 The Financial Structure of the Project Company

A considerable cost associated with the project is the cost of capital or the costs of obtaining the financial resources to implement the project. To correctly estimate these costs, the financial model must accommodate a fundamental problem in project finance[14]: where the required money for the initial investment will come from.

Depending on the existence and the type of financial support offered by the government, part of the capital needed by the project company might be met by viability gap funding or other forms of upfront payments made by governments (see section 6.5). However, PPPs almost always involve a great deal of private financing. In other words, the SPV is generally required to obtain a significant proportion of the resources needed to implement the asset.

Thus, to achieve a reasonable estimate of cash flow, equally reasonable assumptions about the financial structure are required.

The most usual structure is a mix of equity, or money from the shareholders of the Project Company, and debt in the form of bank loans. The loans are contracted directly by the project company, with or without collateral security offered by the

[14] Project finance is the most usual financing technique in PPP financing. It has been introduced in chapter 0, appendix A.

project company's shareholders[15]. Some of the relevant parameters required to correctly estimate the financial structure are as follows.

- **The level of leverage**: This refers to the percentage of the total capital required for the project that will be acquired through debt. Typically, most of the funds to finance the asset are in the form of debt. This is a very common strategy of shareholders because, typically, the project offers higher returns than the interest rates charged by banks[16]. So, all other things being equal, the higher the proportion of debt in the capital structure, the higher the relative return on equity (the positive leverage effect) and the higher the difference between the latter and the return of the project[17] (but the higher the exposure of the equity internal rate of return (IRR) to the volatility of the project returns);
- The level of leverage has, however, an upper limit imposed by lenders' requirements and, sometimes, limits imposed by the PPP contract. Similarly, as leverage is increased, there might be a marginal increase in the costs of debt as lenders are subject to more risks in the project. Eventually, increasing the debt proportion becomes impossible (or too expensive) and the interplay between the costs of loans and cost of equity reaches an optimum level;
- **The debt repayment term**: This is also a very important market condition that needs to be clearly estimated. All things being equal, the longer the debt term, the higher the overall amount of interest paid through the life of the loan, but the smaller the debt repayment is in each period. This latter effect can have very desirable impacts on the finance of the project (as more cash flow is free for shareholders), including positive effects on some the main covenants used to assess the bankability of the project (which will be explained later in this chapter);
- **The repayment profile**: This refers to the differences in proportion of debt paid in each period of time. The common profiles include a flat repayment schedule and a constant amortization repayment (with decreasing total debt service). The repayment profile can also be designed to meet the financer's covenants as explained in **Error! Reference source not found.**; and
- **The cost of debt**: The interest rates charged by the lender, consisting of an interest base rate and a margin typically determined from market benchmarks or recent projects, are a necessary assumption to be input into the financial model, together with other financing costs such as structuring, arranging and structuring fees, availability fees (during the drawdown period), and interest

[15] When more than one type of debt or debt provider is contracted, there is generally an order of priority or seniority of each debt type/provider, defining the sequence in which they will receive the repayments. The higher the debt is on this list, the less it is exposed to risk.

[16] A more detailed explanation of the typical financial structure and the role and benefits of debt (particularly under project finance schemes) can be found in chapter 0.7.1.

[17] From a theoretical mathematical point of view, the return of a project asset (r_A) is the sum of the return (or price) of the equity (r_E) and the return (or price) of the debt (r_D), duly weighted by the percentage that debt and equity represents in the financial structure (r_A is also the same as the *wacc*). Equity IRR (r_E) may be explained as a result of the leverage and the return of the project: $r_E = r_A + D/E\ (r_A - r_D)$, or Equity IRR = Project IRR + Debt/Equity x (Project IRR – Debt IRR). For further reading on leverage and financial strategy (from a general corporate finance standpoint) see, for example, *Principles of Corporate Finance (10th edition)* by Brealey, Mayers and Allen, published by McGraw-Hill Irvin, 2011.

rate hedging costs (which usually are embedded in the interest rate through an interest rate swap mechanism[18]).

The parameters mentioned above are determined, to a significant extent, by requirements imposed by the lenders, particularly the debt service cover ratio (see the discussion of commercial feasibility in section 8 below for more information on the debt service coverage ratio [DSCR] and other lenders' ratios).

In practice there are alternatives to commercial banks such as[19]:

- Obtaining loans provided by the government (or a State-Owned Enterprise);
- Issuing of project bonds;
- Obtaining finance from institutional debt providers like pension funds[20];
- Multilateral development bank financing;
- Export credit agency financing; and
- Others less frequent in PPPs such as supplier credits, lease finance, or Islamic finance.

Effort needs to be employed to approximate as accurately as possible the likely financial or capital structure of the Project Company with its specific parameters, such as repayment schedules and interest rates. This involves understanding the specific requirements of each of the capital providers, which varies significantly in different countries, and verifying if the project in hand meets those requirements. A cautious approach should be taken when considering unusual capital structures that may reduce the cost of capital. The assumptions should reflect realistic forecasts.

The capital structure of PPP projects might also incorporate other forms of governmental support to PPPs. As described in chapter 1, some governments provide specific support to the SPV in terms of public soft loans, or public equity contributions. If such support is prescribed, it should be considered in the financial model, subject to possible further detailing of the appropriate mechanism of support during the Structuring Phase.

6.5 Incorporating Revenues

The revenues represent all the inflows used by the Project Company to meet its costs.

The revenues from government payments, when they are included in the revenue regime, can be considered an output of the commercial feasibility exercise since they are determined by the affordability assessment (see section 8.3).

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[18] Commonly, the interest base rate will be fixed by an Interest Rate Swap (IRS) mechanism, with a portion of the interest rate remaining variable. Swaps and interest rate hedging are highly specialized financial matters that are beyond the scope of this PPP Guide. Additional reading may be found in *Project Financing: 7th Edition,* Peter K Nevitt and Frank J Fabozzi.

[19] See chapter 0 and appendix 5A for more information on sources of funds to finance the projects.

[20] The involvement of institutional investors in projects generally occurs through project bonds, but can take the form of other financial arrangement.

The revenues collected from user charges, however, should be estimated. The estimation of revenues from user charges generally involves a projection of demand throughout the length of the contract, the definition of a formula that indicates the elasticity of demand (how the demand is affected by price), and a choice of a price to be used as a reference in the model. In most contracts, the private partner cannot freely set the price during the operation of the contract, since the public authority usually regulates it during the contract (see chapter 5.4.). In other words, there is typically a price cap that effectively limits the choice of price that can be charged by the private partner.

Estimating demand can be a very difficult task, specifically in the implementation of non-existing assets (a new road that connects previously unconnected regions) and sectors highly sensitive to a specific economic activity (a railway mostly used to transport a single commodity). It is, in any case, a very technical activity that builds upon existing historic data and can generate very sophisticated econometric models that identify economic, demographic, and social drivers for demand and subsequently forecasts them in time.

Estimating demand elasticity to price is an even more challenging task. It depends on sound evaluations of users' willingness to pay. Very often, this depends upon field research to achieve meaningful conclusions.

It is therefore often necessary to conduct detailed traffic and revenue studies (also referred to as "demand studies") during the Appraisal Phase to estimate demand and demand elasticity, unless these studies have already been conducted (for example, as part of the cost-benefit analysis during project identification and screening).

Price setting is naturally the following activity. At this stage the price, for modeling purposes, is usually a flexible parameter, since the actual price to be charged will likely depend on contractual mechanisms and, possibly, it will be an outcome of the procurement process itself. The reference price can be set considering different criteria such as policy directives, financial sustainability, legal requirements, and so on.

In many projects, the key consideration is to set a price that will maximize revenues. Whatever the criteria used, the setting of price is a very important factor in the commercial feasibility assessment (discussed in section 8.2). Through the commercial feasibility assessment, the revenue generated at that price can be used to determine the floor for upfront payments or a ceiling for co-financing or any other public payment to meet commercial feasibility.

Some countries use the reference price set in the model, refined during the Structuring Phase, as the maximum possible bid (when the price is a bidding criteria) or the very price to be charged in the future (when other bidding criteria are considered). See details on the structuring the procurement process on chapter 5.

If the project will generate other third-party revenues or allow the private partner to develop collateral businesses (for example, service centers along a toll road), the revenue from these activities must also be estimated.

6.6 Accounting Issues

Building the financial model is essentially a financial exercise, that is, it does not primarily deal with accounting results. Its bottom line conclusion, the Equity Free Cash Flow, is a financial concept rather than an accounting concept. However, the financial model also needs to produce projected financial statements of the project company, consistent with applicable accounting policies, for the entire duration of the contract. These should include the yearly income statements and the balance sheet.

The first reason for this is that the model must project the amount of taxes to be paid by the project company. Taxes are not calculated on financial concepts such as the cash flow but rather on accounting concepts such as the net profit or the earnings before taxes[21].

Secondly, income statements and the balance sheet of the project company also provide the basis for estimating the project's impact on public debt (where appropriate, given the government's accounting policies and the nature of the project – see section 12) as well as offer the information used by banks to assess the bankability of the project (see 8.1.1).

A third reason is a need to assess the ability of the Project Company to effectively distribute dividends to its shareholders. In many countries, there are limits to cash distribution imposed by the loan agreements, the PPP contract itself, or regulatory requirements. In these cases, the limits are generally stated in accounting terms.

Accounting reports may have a further important regulatory function. Many countries run regulatory accounting schemes as a methodology to permanently assess the financial equilibrium of the contract and to evaluate, if necessary, the value of the compensation required in a specific event. Regulatory accounting consists of indicating appropriate accounting data to be intensively monitored during contract management, and its design needs to consider a sound estimate of accounting statements during the construction of the financial model.

6.7 Defining the Contract Term

An important parameter of the financial model is the contract term, since it directly affects several of its conclusions. This is typically a variable preliminarily defined during the design of the financial model and is confirmed or adjusted during the structuring of the project. Some of the issues that should be considered in setting the contract term, which are further developed in chapter 5, are as follows.

- Life-cycle management and effective risk transfer;
- Private financial structure optimization;
- Affordability;

[21] The main difference between the financial concept of cash flow and the accounting concept of net profit is the consideration, in the latter, of a theoretical reduction amount called depreciation of the physical asset or amortization of the financial asset. In practice, this is a reduction of the basis for calculating the project company's income tax due to the value invested in the early years of the contract.

- Commercial feasibility (especially in user-pays);
- Political pressure;
- Budget management;
- Rigidity;
- Flexibility to accommodate risk and uncertainty; and
- Relationships with other projects and other contracts.

Taking all these aspects under consideration should lead to a preliminary definition of contract duration. As with many aspects of the financial model, the duration of the contract can be continuously revisited during the Appraisal Phase as well as later on in the PPP cycle.

6.8 Cash Flow

Two important outputs of the financial model are the free cash flow of the project and the free cash flow of the investor (shareholder).

The free cash flow of the project, for each period, represents all the revenues less the expenses incurred, including capital and operational expenditures.

During the first years of the contract, while the asset is being constructed, the cash flow is usually negative. This is the reason that the project company must raise capital in the form of equity or from other sources. Once the project is operational and revenues begin to flow into the project company, all the operational expenses, taxes, and other outflows are paid and a cash amount is free to be used to service debt and, provided there is no obstacle[22], distribute dividends that repay the equity.

Conversely, the model needs to estimate the cash flow of equity, which is the inflow and outflow of resources from the investors' perspective. The cash flow of equity depicts only the amount of Capex that has been financed with money from shareholders (disregarding the values financed from loans or other form of debt). It also only considers the money effectively repaid to investors in the form of dividends or other equity repayments.

This allows the project team to solely identify the cash flow of equity, reflecting exclusively the shareholder's financial point of view about the project. The equity cash flow is an important output of the financial model as it is one of the central sources of information to assess the commercial feasibility, as discussed in the next section.

[22] Generally, these barriers can delay the distribution of dividends. They can be legal or regulatory issues or covenants in debt agreements.

6.9 Base Case, Sensitivities, and Scenarios

In the process of inputting data to the financial model, several assumptions would have been made, and the model must be sufficiently flexible to reveal the impact on the final cash flows of changes in those assumptions.

All the sensitivity drivers are typically concentrated in a summary sheet that communicates the main assumptions adopted and their effects on the bottom line cash flows. Some typical drivers identified are:

- Variation in construction costs;
- Delays in completion;
- Eventual peaks in operational costs, in any given year of the contract;
- Variations in the demand;
- Fluctuations of revenue due to performance deductions or other changes in drivers of commercial revenue;
- Changes in the debt conditions;
- Specific risks with impact in cost overruns or delays; and
- The most relevant macroeconomic assumptions such as exchange rate fluctuations.

These sensitivities, or cases, create a range of possible cash flows, depending on the chosen assumptions, and the most probable case should be identified. This is normally called the **base case**[23]. See box 4.6.

The base case is the model's expected case, determined by using the assumptions that the project team consider are most likely to occur. The financial results from the base case should be better than those from conservative scenarios, but worse than those from upside cases.

In order to create a representative base case that reflects a realistic scenario, all inputs and assumptions must be defined. Starting with this base case, other possible scenarios could be defined and analyzed. These scenarios may vary depending on the objectives that are sought – some scenarios[24] allow for the structuring of the PPP (for example, the nature of any government contribution, the payment mechanism, the contract term, and so on), other scenarios test or structure the level of risk (for instance, the demand level), and others are used to assess commercial feasibility.

BOX 4.6: Key Aspects of Sensitivities

Financial modeling is full of uncertainties. This is an inevitable consequence of the attempt to

[23] *The Feasibility Study Guideline for Public Private Partnership Projects*, by the University Transportation Center for Alabama (2010) presents examples of structuring different cases to test the commercial feasibility of PPP projects. *The Municipality of Rio PPP Guide: Screening, Appraisal and Auctioning of PPPs* (Volume 2, Section III) presents a practical approach to the design of cases.

[24] A "scenario" differs from a "sensitivity" in that the former represents a complete new or different "case" (different than the Base Case) with new values defined for one or more key variables duly backed up and supported by a specific analysis (for example, the "optimistic demand scenario"), while the latter only represents a switch in the value of one or more variables so as to observe the impact of that specific variable on the Financial Model key performance indicators (KPIs).

predict future events. The more the financial model is able to recognize this weakness, transforming uncertainties into variables within reasonable ranges, the more it will effectively translate the future reality.

Thus, a good financial model is not the one that produces one single, arguably precise number, but the one that identifies the main drivers and presents some reasonable ranges within which the model's conclusions still hold true. These ranges are known as sensitivities and they mainly aim to assess the robustness of the project business or financial plan to material changes in their key assumptions.

The financial model is a very interactive tool in the sense that the model's conclusions enable analysis that leads to a change in the assumptions. In turn, new conclusions are reached and another set of assumptions can be changed. Some of these interactions have been specifically mentioned above, but this is a very general and essential characteristic of the task of financial modeling: it is fundamentally circular!

It should be noted that the financial model will be used in some projects as a tool in bid evaluation, and also as a necessary support tool for managing the contract (while in this latter case this PPP Guide considers it more appropriate to use the private partner´s financial model)[25].

7 Assessing the Technical Feasibility

The technical requirements will naturally be designed with the aim of defining a feasible PPP project. However, the development of specific technical feasibility criteria can be useful to organize the information properly, increase overall transparency, and promote a stronger base for the recommendations provided at the end of the Appraisal Phase. Assessing technical feasibility can also highlight specific risks of the project that should be considered for the green light decision.

Specific viability criteria, appropriate for the type of infrastructure and the corresponding services, should be used. Those criteria should address, at least, the following issues.

- Does the infrastructure design meet the need specified during the Identification Phase?
- Are the engineering and architectural requirements of the project achievable? If so, are they achievable at a price comparable with similar infrastructure?
- Is the proposed technology (if a specific technology is being proposed, this may not always be the best approach as it may constrain innovation) proven or can the associated risks be properly managed or allocated?
- Does the technical description of the project avoid, as far as possible, significant geo-technical risks? Does it avoid other unbearable technical risks?
- Is there a complete assessment of geo-technical conditions (that showed the technical potential of the required construction on the site) that can affect the

[25] See "Financial model issues" in chapter 4.8.1.

project, in terms of costs and time? This is particularly relevant for transport infrastructure, but it should be an assessment for all greenfield projects.
- Is the scope of service viable from a regulatory perspective?
- Can the service be specified in terms of outputs? If so, can the service be measured adequately though performance indicators? and
- Can the main technological changes in the service delivery be satisfactorily estimated?

If the answer to all of the above questions is a confident yes, and no other exceptional technical issue was raised during this exercise, the project is technically feasible.

If the answer to some of the questions above is a confident no, the technical feasibility assessment should provide feedback to the technical requirements which should be appropriately changed, if possible, until a technically feasible project is obtained. If those changes are not possible, a recommendation for cancellation of the project should be considered.

It should be recognized that some projects do pose particular challenges for passing the technical feasibility assessment, specifically those that incorporate high levels of technical risks. The following characteristics highlight relevant technical risks associated with infrastructure initiatives.

- Initiatives with technological complexities, such as projects that will use novel technology not significantly tested, or that will adapt technology not fully operational in the same conditions as the project under analysis;
- Projects requiring difficult engineering innovations, such as works of art or complex transport structures (tunnels or bridges);
- Projects built in particularly uncertain geo-technical conditions with consequences for a major part of the project costs (that is, a tunnel project or a large sea bridge);
- Projects in areas with extraordinary natural risks in terms of weather or earthquakes; and
- Projects with other complexities and uncertainties concerning the reliability of costs and time of construction, such as unknown or very old utility locations.

When a project has any of these characteristics it is even more important to soundly evaluate the technical feasibility to assess, as far as possible, the risks associated with the construction and operation of the asset. In particular, the following precautions should be considered.

- Including industry experts in the project team;
- Conducting careful evaluations of benchmarks and precedent projects with comparable risks, associated with an investigation of market interest; and
- Including detailed information about the identified risks in the market sounding exercise, particularly searching for feedback of players in the construction industry or other relevant industries (for example, equipment suppliers) (see section 9).

Whenever relevant technical risks are identified, the best available resources should be spent in investigating further how uncertain they may be, and deciding if the risk is tolerable without extraordinary contingencies. In all cases, further tests and

investigations should be made so as to indicate to the potential bidders the parameters for their risk analysis.

This is important because relying on the future prospective bidders to do their own assessment often leads to an uncompetitive procurement process because uncertainties might push good quality bidders away, or create an uneven playing field between contenders. Thus, it is good practice to provide all bidders with a consistent risk assessment and detailed information on all outstanding technical risks identified.

Nevertheless, there may be projects in which technical risks cannot be adequately described or quantified. In this case, it may be appropriate to allocate the specific risk to the government as a part of the preliminary contract structure. This approach, however, should be taken with extreme caution[26] because it can disturb the incentives for performance, since the management of the technical risks becomes less relevant to the private sector. Ultimately, if the concerns cannot be effectively addressed in the contract structure, a case for a PPP project might be unsustainable. This could lead to a recommendation for cancellation of the project as a PPP.

8 Assessing Commercial Feasibility

From the financial perspective, a project or contract is considered to be feasible when the expected revenues (inflows) under a reasonable scenario are considered to be sufficient to cover all expected costs (outflows), that is, all operation and maintenance costs, financial costs (interests), taxes, payback of debts, and payback of the invested equity with a reasonable return. The purpose of the commercial feasibility exercise is different depending on the revenue regime assumed.

- In the case of the user-pays revenue regime, the analysis will be focused on evaluating the project's capability to raise funds (that is, the existence of a financial surplus after covering the current costs), the capability of such free cash flow to service debt and equity in order to fund the capital expenditure needs, and (if desired by the government) the ability of the SPV to pay a concession fee to the government;
- When the project is not financially self-sustainable, the exercise estimates the amount of public resources that will make the project commercially feasible. Different alternatives for government support should be considered, including direct government payments to the project company; and
- In projects that do not include user charges in the revenue mix, such government contributions are directly estimated.

[26] For a discussion about principles of risk allocation, see Chapter 1.

8.1 Measuring Commercial Feasibility

The commercial feasibility must be assessed from two different points of view: lenders (the debt providers) and investors (the equity providers).

8.1.1 The Lenders' Perspective (bankability)

The key aspect of the lenders' concerns is the capacity of the project company to repay its debt on the agreed schedule.

To measure this ability, lenders usually define some criteria to judge a project's bankability. Some of these criteria are the stability of project revenues, the ability of shareholders to provide collateral security (especially during the Construction Phase), and, particularly relevant to this section, the ratio between the cash resources generated by the project and the total amounts required to service debt. The most common ratios required by financial institutions are the following:

- **Debt Service Coverage Ratio (DSCR):** This ratio indicates the extent to which a project's operating profits cover debt service obligations in each year[27] during the life of the contract. This ratio helps potential lenders determine the credit risk associated with the project. A higher Debt Service Coverage Ratio means that there is more operating surplus to cover debt service payments, and therefore less risk for lenders. Investors and lenders will expect a higher ratio in sectors that are perceived as risky. Maintaining a particular DSCR may also be a stipulation in a loan or bond covenant, and a decrease could trigger either an increase in debt service payments or some other legal remedy. The lenders will also stipulate a "lock-up" value (below which the DSCR should not fall) and a "default" value (below which the project company is considered to be in default). If the project's DSCR falls below the lock-up value due to an insufficient cash flow, distributions to shareholders are prevented until adequate funds are available in order to allow the DSCR to return above the lock-up threshold. If default is reached, the lender can require its debt to be repaid or even take over control of the project (instead of the shareholders);
- **Loan Life Coverage Ratio (LLCR).** This ratio is commonly used in project finance. The ratio is defined as Net Present Value of Cash Flows Available for Debt Service (CFADS) divided by Outstanding Debt over the loan period. NPV (CFADS) is only measured up to the maturity of the debt. The ratio provides an estimate of the project's credit quality from the lenders' perspective; and
- **Project Life Coverage Ratio (PLCR).** The PLCR is the ratio of the Net Present Value of the Cash Flows Available for Debt Service (CFADS), available over the project's remaining life, to the outstanding debt balance in the period. This ratio is similar to the LLCR, but in the LLCR the CFADS is calculated over the scheduled life of the loan, whereas the Cash Flows for the PLCR are calculated over the "project's life".

[27] The period of analysis can be shorter than one year.

Despite of possible exercises that can be done in order to maximize the levels of debt in a project (see BOX 4.7), the ratios typically impose some type of cap for the amount of debt, given the capacity of the project to generate cash flow.

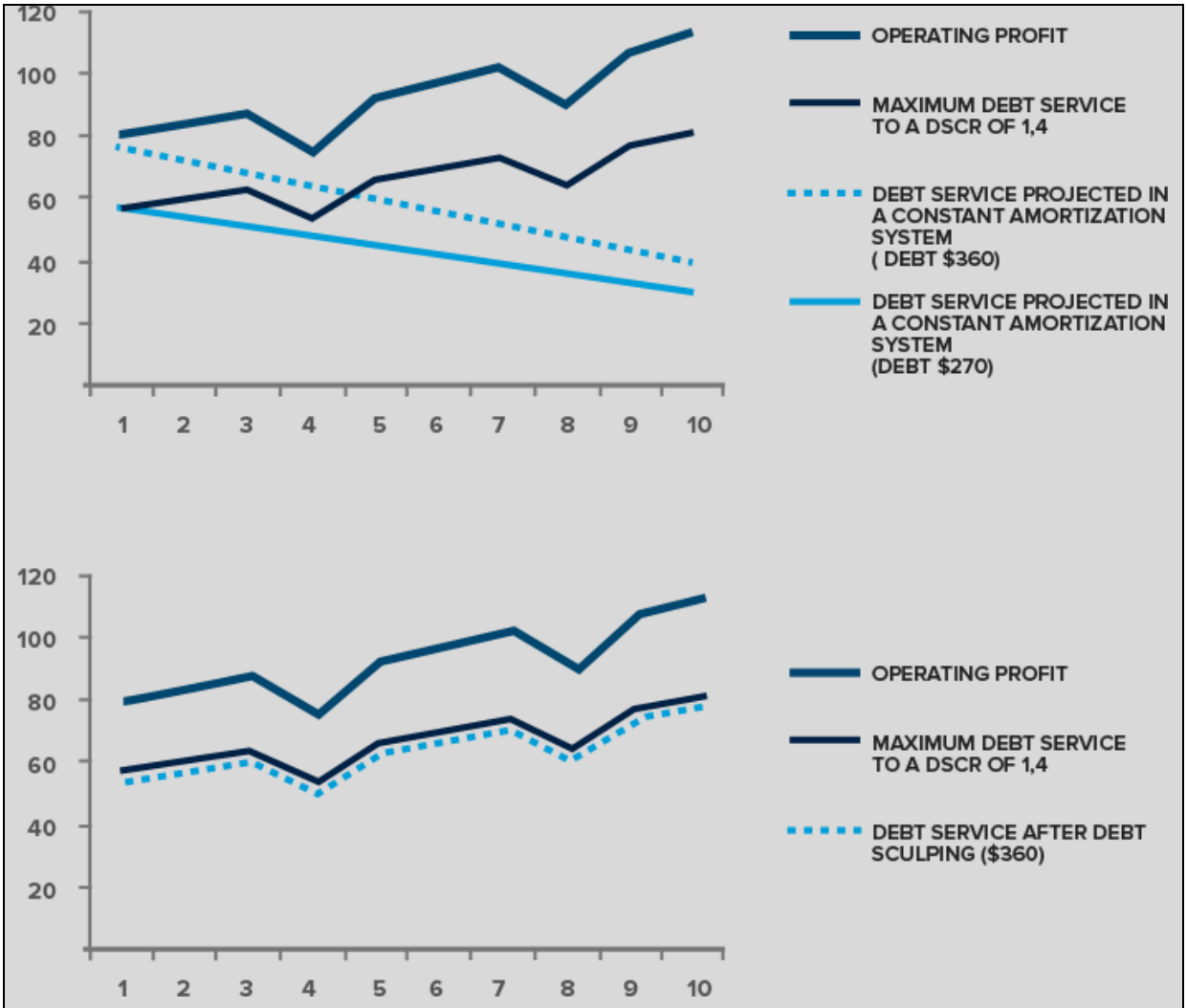
BOX 4.7: Debt Sculpting

A common technique of financial modeling is known as Debt Sculpting. It consists of shaping the outline of debt repayment schedules in order to optimize the ability of the SPV to contract debt without violating the covenants imposed by banks, especially the DSCR.

Consider, for example, a project with an estimated operating profit as shown below. The project would generate a steadily growing operating profit of around 5 percent a year, except in the years 4 and 8 in which reduced revenue is expected due to assets being partially closed for renewal. The project company is seeking finance with a bank that requires a minimum DSCR of 1.4. This covenant would impose a maximum limit of yearly debt service payments.

The SPV is targeting a minimum of $360 in loans to be repaid in 10 years at a 10 percent interest rate a year. If the loan were repaid in the traditional constant amortization scheme[28], it would follow the outline below.

[28] In the example, a Traditional Constant Amortization Scheme is used to refer to a debt repayment outline in which the principal is repaid in linear amounts in each period. The interest incurred is then paid fully in each period. Since the debt balance is decreasing, the interest also decreases steadily through time. So the total debt repayment value also decreases.



In this case, the debt being targeted of $360 would not be viable since it violates the covenant of DSCR = 1.4 in years 1 through 4. In fact, only a debt of $270 or lower could effectively be contracted while respecting the covenant imposed by the bank and the Constant Amortization System.

However, the financial advisors can carry out Financial Sculpting by trying to increase the level of debt of the same project. Considering the same assumptions of interest rates of 10 percent a year and the same repayment term, this would lead to the following debt outline for the desired $360 of debt.

Debt Sculpting can allow a higher amount of debt to be raised in the same project, thus maximizing the commercial viability of the project (see section 8).

The effective thresholds depend on the market conditions of each country and sector. Thus, these should be approximated in order to assess the commercial feasibility of the base case from the lenders' perspective, which may be done with the support of the financial advisor and/or be based in recent and similar project precedents.

The fact that the project can incorporate the required level of debt, however, is not enough to classify it as commercially feasible. The capacity of the project to remunerate the equity investors is also paramount if the project is to attract bidders.

8.1.2 The Investors' Perspective

For an equity investor, a project must be both bankable and provide an acceptable return for the risk of the investment. The two most common techniques used to assess the commercial feasibility, from the investors' perspective, are the calculation of the Net Present Value, based on the discounted equity cash flow, and the internal rate of return of the equity cash flow. Both techniques are based on the assumption that, for a project to be considered commercially viable, the investment must provide a return over time for at least as much as an alternative and comparable investment[29].

[29] E. R. Yescombe's book *PPP: Principles of Policy and Finance* (2007) presents the private sector's perspective on PPP financial issues, including detailed analysis about several value drivers for investors. See chapters 7, 8 and 9.

The Net Present Value of the equity is the sum of the investor's future cash flow in today's values, and it can be demonstrated by the following formula:

$$NPV = \sum_{t=0}^{n} \frac{CFt}{(1+i)^t}$$

Where:

- NPV = the Net Present Value or the sum of the equity cash flow values in today's currency;
- CFt = the net equity cash flow value resulting from each period's revenues, expenses, debt service, and other parameters defined in the model;
- i = the discount rate or the cost of capital for equity investors over time;
- t = the number of the period in which the value is being discounted; and
- n = the total number of periods in the cash flow.

The NPV is a representation of the present value generated by the project **above the returns represented by the discount rate**. So, if the NPV is above zero, it means the project will generate value to investors above the required rate of return. For example, if an NPV discounted with an annual discount rate of 8 percent is above zero, the average yearly rate of return of the project is higher than 8 percent. Conversely, if the NPV is negative, the project offers a return on the investment lower than 8 percent. If the NPV equals zero, then the yearly average return on equity investment will be exactly the percentage used as the discount rate.

The most common use of NPV as an assessment of the Equity Cash Flow is to test if its value is positive, in which case the project is deemed viable from the investor's perspective, **as long as the discount rate used is the return on the capital required by the investor, as the minimum threshold**.

Another methodology, which is very similar in principle with the NPV calculations, is the Internal Rate of Return (IRR)[30]. Mathematically speaking, the IRR is the discount rate that makes the NPV of any given cash flow equal zero. In other words, the IRR is an output of the cash flow that indicates the return offered by the project on the invested amount, and it is the preferred technique by many financial advisors.

So, if the equity IRR of the equity cash flow is **higher than the required rate of return of the investors (sometimes called a hurdle rate),** a project is said to be commercially attractive. If the IRR is lower than the required return, the project is not viable.

[30] One of the problems with the use of the IRR is that its mathematical structure assumes the cash outflows are reinvested at the same rate as the calculated IRR. Since this might not be a reasonable assumption, an alternative method commonly used is the Modified IRR (MIRR). The MIRR function allows inputting the rate of reinvestment separately and thus calculating the effective return offered by the project. For a discussion on the limits of the IRR and the use of MIRR, see Yescombe's book *Public-Private Partnerships: Principles of Policy and Finance* (§4.4.2).

Both techniques demand the estimation of the rate of return required by investors as the minimum threshold below which the project is not commercially feasible.[31]

The estimation of an equity investor's required rate of return, or the cost of equity, is not a trivial task. In theory, some of the factors that affect the required rate of return for a specific project are as follows.

- The higher the project's specific risks that may affect the expected cash flow are, the higher the return on equity required by investors;
- The higher the systemic risks associated with specific sectors that can affect the cash flow or the regulatory stability of the contract are, the higher the return on equity required by investors;
- The higher the country risk perceived by the investor, the higher the return on equity required by investors;
- The higher the return obtained for investments with similar risk profiles, the higher the return on equity required by investors; and
- The more guarantees offered by the government that reduce the volatility of the cash flows, or limit the impact of political risk, the lower the return on equity required by investors.

To incorporate these trends in the model in order to estimate an appropriate rate of return requires specialized knowledge. A common way of setting the cost of equity, or the return on capital required, is to review the return levels requested by investors in previous projects similar to the one that is being analyzed (or at least other infrastructure projects in the country with similar risk levels). This information is usually unavailable to the public, so information from advisers can play an important role. In cases in which information on similar projects is not available, a small market test with potential project investors can be useful. Finally, if none of the previous alternatives are possible, the minimum return can be estimated through the use of the Capital Asset Pricing Model (see **Error! Reference source not found.**).

BOX 4.8: Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model studies the cost of equity of publically traded companies (also known as "listed" companies).

By analogy, the results obtained can be applied to other companies, even if they are not listed, since they have similar risks to those of listed firms.

According to this methodology, the cost of equity (K_e) can be estimated as the return on a riskless asset plus the "market risk premium" adjusted to reflect the volatility of the investment compared to the volatility of the market.

The general expression of this model is provided by the following equation:

[31] The Rate of Return required by investors is different, generally higher, than the cost of capital of the government or the rate used by government to compare different investment initiatives.

$$K_e = R_f + \beta x(R_m - R_f)$$

Where:

K_e = Cost of Equity

R_f = Return on a riskless asset

β = Volatility of the analyzed company in relation to the market

R_m = Market return

To estimate the return on a riskless asset, it is common to use the interest rate on public debt (using a debt issuance/bond with a term as close as possible to the contract period being analyzed).

Market returns can be obtained from the stock market's data on the returns of companies managing infrastructure similar to the project being analyzed.

The volatility coefficient (β) measures the variation of the company's performance with respect to changes in market performance. The beta is usually estimated by regressing the historical stock prices of companies that manage similar infrastructure in the market.

Source: The Municipality of Rio PPP guide: Screening, Appraisal and Auctioning of PPPs (Volume 2, Section III)

An IRR equal to or higher than the required equity rate of return, or an NPV equal to or greater than zero, represent the most commonly used financial indicators to evaluate the quality of a cash flow from the investor's perspective. There are other aspects, however, that can be relevant decision drivers for investors analyzing a project's cash flow.

- The project IRR, considering the return of the **Project** Cash Flow as opposed to the Equity Cash Flow. This can be an important indicator of the quality of the cash flow of the project as a whole, and thus is a determinant of the enterprise value (this can be used to estimate the market value of the stock of the Project Company in case an exit strategy is considered by investors);
- The nominal or discounted payback period which represents the period required before the accumulated cash flow equals zero, respectively, in nominal or discounted terms. Generally, the longer the payback period, the higher the risks perceived by investors; and
- The absolute size of the investment. This variable can be a key decision driver because it might rule out several equity providers, even in the case where a very attractive IRR is provided by the project. Some investors might not be able to provide the required amount of equity subscription because it is too large, while others might have a policy not to invest if the equity required is below a minimum threshold.

Taken together, the estimation of these financial indicators, as well as the analysis of bankability, allow the project team to observe the project from the private sector's perspective, which is an essential exercise in order to guarantee that a commercially feasible project will eventually be launched to the market.

8.2 Assessing Commercial Feasibility in User-Pays PPPs

In user-pays PPPs, the exercise of commercial feasibility examines the capacity of the project to generate enough cash resources to meet its expenses. The exercise might consider several scenarios for the prices charged to users (if this is possible) or a given price that cannot be altered due to regulatory or legal standards. In either case, there are three possible outcomes.

The first is that the project revenue is expected to be sufficient to meet the commercial feasibility criteria discussed in the previous subsection, in which case the project is considered feasible.

Second, it is possible that the project is expected to be able to generate inflows much higher than those required for the project to be commercially feasible (that is, the project might be "over-feasible"). In this case, the government might consider reducing the reference price accordingly (if possible), or stipulating payments to be made by the private party to the procuring authority in order to balance the project's financial equation.

Finally, the expected revenue may not be sufficient to verify that the project is feasible from a commercial perspective. This may be because the prospective demand is not enough even at the tariff that maximizes the revenue. For instance, in transportation, there is generally a maximum possible level of revenue after which an increase in price does not augment the total revenue because the elasticity of the demand is higher than one. Hence, the reduction in usage outweighs the increase in revenue from the remaining users. Or it may be because the user paid revenues can also be capped for policy reasons that stipulate desirable maximum prices, or by regulatory regimes that determine specific price ranges.

In these latter circumstances, the options open to governments are to cancel the project, revise the scope, adjust the technical requirements (that is, by reducing the responsibilities of the private sector or decreasing the size or capacity of the infrastructure), or provide government support, typically in the form of direct government payments to the project company (see viability gap funding in chapter 1 box 6).

8.3 Assessing Commercial Feasibility in Government-Pays PPPs

When government payments are considered in the revenue regime, the commercial feasibility exercise aims to define the amount of government financial support required to meet investors' and lenders' needs.

This produces a direct forecast of revenues to feed the financial model and the basic fiscal commitment structure that will be tested in the affordability exercise (section 11).

In structuring the proposed government payments, the project team should consider the characteristics required to satisfy the indicators of commercial feasibility. For example, it might be necessary to consider different indexation regimes for the payments to improve cover ratio requirements.

Such measures, however, need to be considered with caution so as not to spoil the Value for Money assessments (section 16).

8.4 Outputs of the Commercial Feasibility Assessment

The commercial feasibility analysis provides a number of outputs:

- For user-pays PPPs, it provides the following:
  - An assessment of the capacity of the project to attract investors and lenders, from a financial perspective;
  - An estimate of the government payments (grant financing or supplementary service payments) required if the project is not otherwise feasible;
  - An estimate of the potential payments to the procuring authority if the project is “over-feasible”, or other parameters to take advantage of the “over-feasibility” such as a reduction in the contract term or a reduction in the user charges; and
  - Information that can be used to assess a range of financial structuring matters such as whether potential payments to the procuring authority should be required up-front or deferred.
- For government funded PPPs, the feasibility assessment:
  - Indicates the level of financial support, such as service payments and grants, required to obtain a commercially attractive and bankable project; and
  - Provides information that can be used to assess a range of financial structuring matters, such as whether the government payments should be on an availability or volume basis.

All the conclusions reached with the commercial feasibility exercise, however, are inevitably biased by the perspective of the modelers and the limitations of the model’s underlying assumptions for the following reasons:

- The assessment must be assessed against a range of sensitivities to key assumptions; and
- Many countries promote a structured dialogue with the private sector at the Appraisal Phase. This market sounding aims at testing the assumptions adopted and the conclusions reached during the Appraisal Phase. Some common practices for consulting the market are discussed in the next section.

9 Market Sounding

The project team should ensure that the commercial feasibility exercise captures the potential investor's perspective of the project. The assumptions made, and the base case they generate, will be completely ineffective if the project team fails to understand the private sector's value drivers and the main financial and operational constraints companies might face during the provision of the infrastructure and services.

For this reason, many governments encourage a series of soft market tests or ***market soundings*** during the Appraisal Phase. In essence, their purpose is to test the project viability in the sense of ensuring that it will attract bidders and thus reach satisfactory closure. At the same time, market sounding also helps to communicate the status of the project to the private sector, thus allowing interested companies to start preparing for the future tender.

Also in this process, valuable feedback can be obtained that may have important effects on the financial model, the technical requirements, and the preliminary contract structure.

9.1 How to Conduct the Market Sounding

An effective market sounding exercise provides an opportunity for a structured dialogue between the private and the public sectors at early stages of the PPP process. This not only tests the viability of the project's details, but it also obtains precious feedback on how aspects of the project should be defined to ensure private sector participation and foster competition.

The key aspects of the generic process for market sounding relevant to its success are as follows.

When to conduct the market sounding? There is an optimum moment for market soundings. This cannot be too early during appraisal, when the project description is too broad to provide any effective description of the government's intentions in terms of size, capacity, and project scope. Conducting market sounding too early makes the government sound imprecise and the relevant questions will not yet have been identified and therefore cannot be asked.

The sounding also cannot happen too late, when the project definition is too detailed, as it leaves little room for effective private sector feedback. This makes the private sector lose confidence about its ability to effectively influence the process. The basic rule is that the fundamental aspects that describe the project (in terms of the technical requirements, financial model, and preliminary contract structure) should be advanced before the sounding starts, but they still need to be flexible enough to accommodate the feedback received. A good estimate is that the middle of the Appraisal Phase meets these criteria. The market sounding exercise can be repeated during the Structuring Phase, especially when changes in the structure have taken place or when a refined contract needs to be tested with relevant market players.

Who to sound out? The government needs dialogue with experienced providers of the infrastructure and services. This enables the government to collect expert opinions on market conditions, technical aspects of the project, and the allocation of risks. Experienced providers might not exist in particular countries, especially if the project is a first in its sector. A good practice in this case is to search, as far as possible, for international providers that can offer international expertise in a particular type of project. New entrants should also be heard, especially to search for ways to eliminate unintended barriers to a competitive procurement.

Besides the prime targets (industry players that are prospective bidders), a second group of companies are lenders (especially commercial banks) which can offer finance for the project. They might provide relevant insights about the drivers for commercial feasibility as well as the general market conditions for a specific sector. The government should also consider including international financing agencies and multilateral development banks in the market sounding exercise, diversifying the perspective on bankability offered by the consulted companies. It is good practice to keep an updated list of potential providers and banks and their stated or historic interest by sector and project size.

How to conduct a market sounding? The market testing may take a number of forms, such as meetings with individual companies, general/industry meetings, or written communication. The information may be provided through a presentation, a project information memorandum or even, at a more advanced stage, by publishing the draft contract for comment (when market sounding is produced during structuring).

It is good practice to produce a formal project information memorandum (also known as a Project Note or project summary) as the first step for sounding the market. This document should describe the project details that have been defined up until that moment and clearly point to the still uncertain aspects of the initiative. A very transparent approach should be considered, and the project obstacles identified should be clearly stated. Hiding weak spots only amplifies the problems for later stages when legal issues might arise due to the proximity to the Procurement Phase.

There are several possible ways to approach the private sector once the project information memorandum is prepared. In any of these approaches, it is very important to encourage formal contributions by the companies, so as to obtain structured opinions on the matters that arise. Examples of common practice are as follows:

- The project information memorandum can be posted online and a request for written comments can be made to all the companies identified as relevant. A project open-day (also referred as “industry meetings[32]”) should be organized in which companies (prospective bidders but also lenders and advisors) are encouraged to visit a data room and watch presentations made by the project team and provide feedback;
- One-to-one meetings can take place. These typically produce effective results. In this case, the project information memorandum and accompanying

[32] When industry meetings are held outside of the host country, they are also known as “road shows”.

material should be the main guideline for the presentation. Detailed documentation should be produced during the meetings; and
- Running polls or delivering a questionnaire to ask the interested parties about the most relevant points for the authority, but without discouraging them from raising other potential points from their own perspective.

What issues should be sounded? There is no precise good practice as to the aspects of the project that should be tested through engagement with the private sector. It depends on the type of project and sector. The relevant rule is to test all the significantly uncertain aspects of the project. Good practice is to include all points in the project information memorandum, emphasizing the aspects to which government is seeking feedback. Some common points are as follows:

- The scope of the project, in terms of infrastructure design and the preliminary output specification;
- The main technical risks identified that might affect the ability of potential bidders to deliver the infrastructure and the services;
- Expected Capex and operational expenditures (Opex);
- The payment mechanism and other revenue schemes envisaged;
- The general aspects or risk allocation already defined;
- Financial assumptions such as the debt conditions and cost, and the tax and accounting assumptions;
- Proposed timetable for the period from procurement to the commencement of services; and
- Proposed contract structure, including risk allocation.

Farquharson and others, in their book *How to Engage with the Private Sector in Public-Private Partnerships in Emerging Markets*, indicate a list of practical tips for successful market sounding. This is reproduced below in box 4.9.

BOX 4.9: Top 10 Tips for a Successful Market Sounding Exercise	
1. ✓	Ensure that the market sounding exercise is in line with any relevant procurement rules.
2. ✓	Prepare thoroughly for any interface with the market to get the most out of the exercise, and give the best account of the public authority to the world at large.
3. ✓	Consider market sounding exercises at an early stage in the project, and consider the procurement appraisal process before formulating the procurement plans in detail.
4. ✓	Invest time in preparing the background documentation. Be clear about the issues to be discussed with the market (for example, information on proposed risk allocation, compensation, and structure) to ensure that the market has something to respond to. Formulate and word questions carefully, avoiding jargon.
5. ✓	Be clear about the process to be used to select organizations to help with the market sounding exercise, such as selecting organizations to interview or inviting organizations to make written submissions.
6. ✓	Consider the use of a one-on-one format with the selected organizations; be sensitive to the fact that they might not be at ease with a process that involves simultaneous discussion with two or more potential competitors, but reassure all parties that no one is being singled out for special treatment in any subsequent procurement.
7. ✓	Involve more than one individual on the side of the public authority. Be consistent about what you say to respondents, and ensure that meetings are documented; make use of market information and feedback, which is the ultimate purpose of the market sounding exercise.
8. ✕	Do not waste time receiving sales pitches; the point of the exercise is to find out what the market thinks of the proposal so far. Equally, avoid being seduced into shaping the project to suit a particular proposal.
9. ✕	Do not restrict the scope of the market sounding in any way; aim for a broad selection of the market such as inviting both operators/construction-related firms and funders, if appropriate. Keep an open mind, focusing on outcomes rather than on one particular means of achieving them.
10. ✕	Do not use procurement language such as “bidders” or otherwise give the impression that the market sounding is a procurement opportunity; this stage only seeks to gather information and encourage respondents to be at ease providing critical feedback rather than to feel that they need to be accommodating as potential bidders.

Source: Farquharson and others (2011), How to Engage with the Private Sector in Public-Private Partnerships in Emerging Markets

A few strategic issues need to be considered during the whole process of market sounding.

First, the project team should ensure that there is no confusion about the role of market sounding. The companies invited should understand that they are not bidding or providing any formal expression of interest. Furthermore, the participation in the process, whichever approach is chosen by the government, should not offer any advantage in the subsequent procurement process, and it must not provide the participants with any information that disrupts a level playing field for future bidders. This should be equally communicated to the companies participating, as well as those not participating in the market sounding process.

The second relevant strategic issue is the need to filter the private sector's recommendations for biases. It is only natural to assume that the comments and feedback provided meet the interest of the private companies issuing them. The project team needs to consider this reality when interpreting the feedback. It is important to highlight that the objective of the market sounding is to allow a broadly competitive procurement and not to adapt the project specifications to one specific bidder's demands. In the same context, general feedback that suggests unbalanced risk allocation on the government can create difficulties for positive conclusions in the affordability assessment, as well as for the Value for Money evaluations discussed below. Thus, the feedback obtained must be carefully considered in order to avoid manipulation of the project structure by the individual companies or the market in general.

Finally, the team responsible for the sounding must have expertise, be knowledgeable about the project, and be respected by the market they are trying to sound. This is why governments commonly use external advisers, experienced in the project's industry, to help conduct effective market sounding.

If these three strategic issues are taken into consideration, the market sounding is an indispensable tool in the effort to develop a project capable of providing effective VfM for users and taxpayers.

However, the risks associated with lack of transparency and governance need to be mitigated.

9.1.1 Transparency and Governance[33]

When considering the need to sound the market, the project team needs to bear in mind that the proximity of the project team to potential bidders might give rise to suspicions of corrupt behavior.

In fact, extreme care should be taken in order to guarantee the highest level of transparency during the market sounding exercise. This means the use of some or all of the following initiatives.

[33] Regarding transparency and disclosure of information in PPP contracts, see World Bank report *Disclosure of Project and Contract Information in Public-Private Partnerships*.

- Documenting all the meetings, decisions, and procedures;
- Providing access for the public to all documents shared or produced, including a specific web page where interested parties may offer their comments and suggestions (provided that they are previously identified as professionals or participants in the industry);
- Leaving a clear audit trail of all the feedback provided by the private sector;
- Inviting audit institutions to participate in the process, including in the meetings with the private sector; and
- Recording the meetings with individual companies on video, for the exclusive use of audit Institutions.

In some cases, where corruption is a relevant issue in the infrastructure market, good practice may be to avoid conducting any meetings with individual companies, and to only conduct the market sounding exercise using the other approaches mentioned above.

9.2 Output of the Market Sounding

The market sounding exercise's fundamental output is a general alignment between the government and the private sector during the Appraisal Phase. This can anticipate issues that reduce the market interest in the project, which otherwise would only be explicit during the more formal Procurement Phase, and it significantly reduces the risks of non-competitive procurement processes.

The market sounding also provides effective and structured feedback that inputs data into the technical requirements and the financial model, creating an opportunity to improve the project description from a financial and technical perspective.

10 Confirming Economic Feasibility: Refining the Cost-Benefit Analysis

As has been presented in chapter 3, the Cost-Benefit Analysis (CBA) should have been conducted at the Identification Phase. In this case, it will have relied on preliminary data. As the Appraisal Phase matures, several aspects of the project, relevant for a more precise economic evaluation of the project, are detailed. These aspects must be incorporated into the previously developed CBA, and its results must be revisited. A minimum of the following aspects must be input into the CBA, during the Appraisal Phase.

- The detailed description of the project scope in terms of infrastructure design and services that can help to refine the identification of the service users and other stakeholders whose socio-economic costs and benefits should be considered;
- The "willingness to pay" evaluations, eventually done as part of the estimation of demand, allowing a clearer projection of economic benefits;
- The technical specifications, providing a much more precise estimate of the whole-life costs of the project; and
- The risk assessments, providing adjustments to the economic data.

All of this information must be entered into the cost-benefit analysis originally conducted in the Identification Phase. Its conclusions are an essential part of the final appraisal report and should be considered an important driver to the final green light decision.

It should be recognized that some countries only conclude a full CBA at the Appraisal Phase. In this case, the exercise described in chapter 3 will be conducted with the more accurate data produced during the Appraisal Phase.

11 Assessing Fiscal Feasibility (Affordability)

As discussed in chapter 2 (section 1.8), many PPP projects produce some sort of long-term fiscal consequences. These can be in the form of direct liabilities (when the project is partially or fully funded by the government) or contingent liabilities (when risks are allocated to the government either explicitly in the contract, in the debt agreements, or by the legal framework).

Affordability of the project (from the government perspective[34]) means its ability to be accommodated within the government's current and future budget constraints. This analysis is key to an informed green light decision at the end of the Appraisal Phase.

11.1 The Process of Analyzing Fiscal Feasibility (affordability)

The first step in performing the fiscal feasibility exercise is to identify the liabilities assumed by government, at least on a yearly basis, for the entire duration of the contract.

There are two types of commitments that must be fully acknowledged in this identification: the direct liabilities and the contingent liabilities. To estimate contingent liabilities is a complex matter that may be approached by various methods which have been explained in chapter 2.

The exercise to assess the ability to accommodate the project within the long-term budget may be done from three different perspectives. Each includes specific tests to be conducted by the project team and will be presented below.

- Comparing the cash flow of commitments to the government's total projected tax revenues;
- Comparing the cash flow of commitments to the contracting agency/sector projected budget appropriations; and
- Assessing the compliance with eventual overall budgetary limits and constraints.

[34] Not to be confused with "user affordability" which assesses whether required tariffs are viable for the target users in a "user-pays" project. This would have been addressed earlier in the appraisal.

The first exercise is a financial comparison between the contract liabilities and the total projected tax revenue per year of the contracting government. Typically, it demands a projection of tax revenues for the duration of the PPP contract. Some financial reports by the government might contemplate a medium-term projection (three to four years). A reasonable simplifying technique is to assume the growth rate of the subsequent revenues equal to the gross domestic product (GDP) growth rate. This comparison reveals the relative commitment of the total estimated tax revenues, and outputs a yearly percentage value.

The second exercise is a comparison between the commitments assumed and the fiscal budget assigned per year to the contracting or paying agency. This comparison should clearly indicate the availability of budgetary space to accommodate the direct liabilities, as well as the provisions required to address the contingent commitments.

Some countries have commitment-based budget systems (or obligations-based appropriations) in which the budget incorporates, at the moment of congressional approval, all the expenses to meet a specific program independently from its duration. In this case, the sum total amount of direct liabilities, and the value of the most likely case of contingent liabilities, should fit within the approved budget. Much more common, however, are the cash-based or accrual-based budget systems, in which yearly sums are projected and need to be incorporated in the agency expenditures of that year, either from an accrual or a cash perspective.

Most countries only consolidate medium-term budget systems of a three or four year time horizon. These do not effectively capture the commitments in PPPs because not only are there later long-term liabilities, but they also generally commence after the asset is built. This can happen many years after the appraising exercise is done. Thus, the valid budget available during the appraising exercise needs to be adapted in order to allow a meaningful affordability analysis. This generally demands an estimate of the agency or sector's budget for the period of the PPP contract. A common reference is the projected growth rate of GDP applied over the last budget value available in the medium-term budgetary framework[35].

Again, the exercise outputs a percentage value comparing the liabilities with the agency's estimated budget for each year during the contract's life. There is also no threshold that is internationally recognized as good practice because the capital expenses of agencies vary significantly, and sectors might have a higher or lower propensity to invest. Traditionally procured infrastructure projects can consume budgetary space similarly to PPP projects, especially in accrual-based budgets, but also in cash-based budgets when debt is repaid from the agency's own budget. Thus, the total commitment with infrastructure policy or with unmanageable budget appropriations should be considered when a recommendation for the final approval is produced as a part of the appraisal exercise.

The third affordability perspective is to identify specific regulatory limitations. Many countries create caps or limits for PPP liabilities. The United Kingdom, for

[35] A thorough discussion about the difficulties associated with budgeting for PPP commitments can be found in the following paper: *Budgeting and Reporting for Public-Private Partnerships,* International Transport Forum (2013).

example, created several limits of liabilities depending on the contracting agency. Several Central American countries impose limits to commitments as a percentage of their projected GDP. Those caps, ultimately, aim at providing objective measures of fiscal feasibility and attempt to limit fiscal exposure to PPP commitments. However relevant they are, they cannot replace a comprehensive analysis of affordability because they tend to focus on a formal and one-sided dimension of the problem. Brazil, for instance, sets a limit under which sub-national government contracted PPP commitments are not to exceed 5 percent of the total yearly tax revenues during the projected period of ten years. However, it only captures direct liabilities, and no cap or limit is officially imposed for contingent commitments.

In summary, the main tests of affordability that need to be conducted are listed in box 4.10.[36]

BOX 4.10: Typical Affordability Tests

- Yearly comparison of the base case liabilities cash flow (direct + most likely contingent) against total tax revenues.
- Yearly comparison of liabilities cash flow with projected agency's budget.
- Compliance with regulatory limitations.

An effective affordability assessment must address all the issues mentioned above in order to promote a recommendation that prevents excessive fiscal exposure to risk and long-term expenditures with attendant undesirable effects on governmental finances.

11.2 The Output of the Fiscal Feasibility Analysis

The fiscal feasibility analysis provides two essential outputs.

- First, it estimates the fiscal effect of the project in terms of direct and contingent exposures on the public budget. It also projects those effects from different perspectives, providing a comprehensive assessment of governmental liabilities. This is a central piece of information on its own for an informed green light decision at the end of the Appraisal Phase; and
- Second, the exercise generates a thorough due diligence, attesting to the compliance of the project with the regulatory aspects specific to each jurisdiction that limit PPP expenditures.

[36] *The Operational Note: Implementing a Framework for Managing Fiscal Commitments from Public-Private Partnerships*, World Bank Group (2013) presents the use of some fiscal feasibility tests and discusses experiences of healthy public financial management regarding PPPs.

The results of the affordability exercise can have a strong influence on several other feasibility assessments, specifically on the commercial feasibility as it can limit, in cases of government-pays PPPs, the amount of government payments considered. In this case, the contract structure, financial model, or the technical requirements might be revisited in order to redefine the project so that it is simultaneously commercially feasible and affordable.

Several countries have also introduced different regulations to assess the overall impact of PPP projects on long-term payment sustainability. These regulations typically define if and how PPPs should be considered in the total debt stock of a country. This issue will be discussed in the following section.

12 Analysis of Impact on Government Deficits and Debt

Chapter 2 (section 1.8.5) presented the rationale for establishing a framework to account for the liabilities and the assets resulting from PPP contracts. In fact, many countries develop specific rules that determine how they should account for and report their financial commitments.

Analyzing the impact of a PPP on the government deficit and debt is thus highly dependent on the rules established according to accounting practices. Such practices indicate whether the PPP asset should or should not be recorded as a public asset in national accounts, and therefore whether the related liabilities should or should not be recognized and recorded as a public debt.

Government-pays PPPs create governmental commitments very similar to direct debt services. The long-term payments to the private partner may be very similar to loan repayment cash flows as seen from the government's perspective, which are typical of traditionally-procured infrastructure projects. Also, most of the PPP assets in many countries are considered as publicly-owned assets from a legal standpoint. In any case, regardless of the legal framework, there is no doubt that they are significantly controlled by the government (directly or indirectly thorough the contract provisions).

Therefore, there is often a strong case for treating the assets implemented under PPP contracts as public investment for the purpose of accounting treatment, and if the asset is recognized in the government's accounts it is appropriate that a corresponding liability is also recognized. This would create a gross debt entry on the government's balance sheet that needs to be incorporated into the overall debt control framework of each country.

The result may be very relevant for the investment decision, especially when the specific country is suffering debt restrictions or the level of public debt is close to or over the relevant government debt ceiling. This may require that the project not be developed, regardless of VfM considerations, if the result of the assessment is that the asset should be recorded in national accounts. Conversely, not recognizing PPPs in governmental accounts may create a bias in favor of PPPs as a mechanism to circumvent deficit and/or debt restrictions; this results in assets being developed as PPPs even for projects in which the PPP alternative is less efficient than traditional procurement.

The impact of PPP contracts on public debt depends on the country-specific regulations on public accounts. There are two major international standards that are commonly used around the world, which will be explained below. Some countries, however, adopt their own regulations and in some cases do not consider any impact of PPP assets on their governmental books.

The two common international standards are as follows.

- International Public Sector Accounting Standard (IPSAS) 32 or similar account approaches. Under this standard, when the public party controls the asset it will be regarded as a public asset for accounting purposes. Usually, all government-pays PPPs and some user-pays PPPs will be consolidated in the national accounts; and
- European System of Accounts (ESA)95/ESA2010 statistical treatment or similar regulations. Under this standard, when the majority of risks are born by the public partner, the asset will be regarded as a public asset with the corresponding recording of public liabilities. Usually, a user-pays PPP would not be regarded as a public asset (when more than 50 percent of the revenue comes from users) and a government-pays PPP may or may not be registered, depending mostly on risk allocation.

12.1 International Public Sector Accounting Standards (IPSAS) Number 32

IPSAS 32 deals specifically with service concession agreements, focusing on their governmental accounting consequences. The guideline presents a very comprehensive approach that includes most of the contracts defined as PPPs for the purpose of the PPP Guide. In fact, IPSAS 32 describes service concession agreements as long-term contracts between a government and a private party whereby:

- The operator uses a public asset (such as a prison, airport, or water pipe) to provide a public service for a specified period of time on behalf of the government; and
- The operator is compensated for its services over the period of the service concession arrangement.

Both government-pays and user-pays PPP contracts are covered by IPSAS 32. Furthermore, IPSAS 32 states that all contracts with the following characteristics should have consequences for the governmental balance sheet in terms of gross debt.

- The government controls or regulates what services the operator must provide with the asset, to whom it must provide them, and at what price; and
- The government also controls any significant residual interest in the asset at the end of the arrangement term.

Most PPPs meet these criteria, which is why, under IPSAS 32, most PPPs are expected to have an impact on the aggregate public debt.

Independently of the approach taken to decide about debt impact, the effect of contracts on aggregate fiscal indicators, such as debt, will vary during different stages of project implementation.

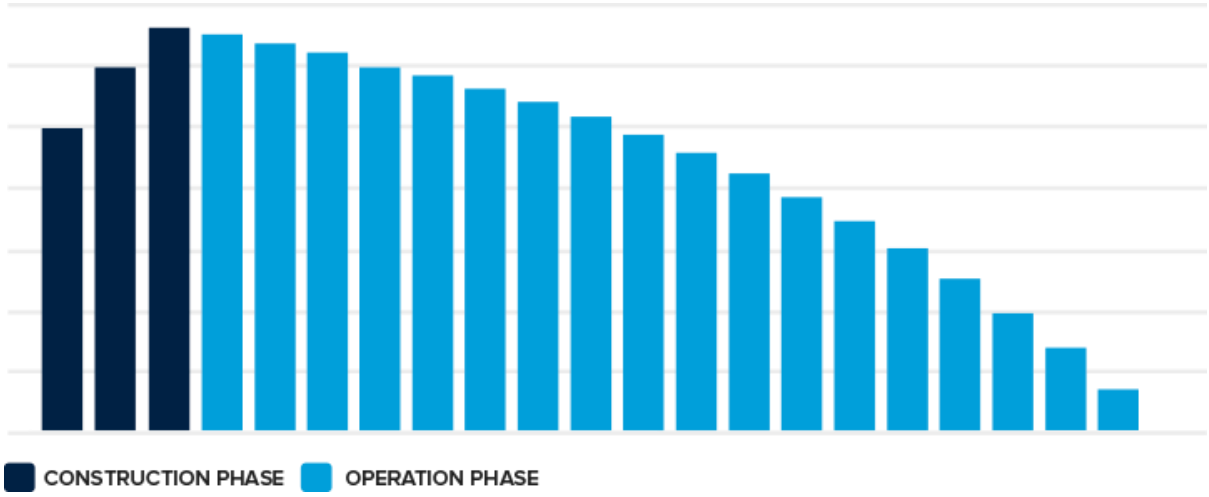
Accounting treatment varies significantly in many counties. However, IPSAS 32 also outlines the contract's effect on aggregate public debt, provided the criteria for registering the debt are met.

After the financial close of the PPP contract, while the construction is underway, the government should include the construction costs in the public balance sheet. The non-financial asset is also included, increasing the gross debt, but creating a null net balance sheet effect. Once the asset is operational, the debt is reduced (debt amortization) by an amount equivalent to the value of each government payment that relates to the asset repayment (excluding interest and service costs).The value of the non-financial asset is also reduced based on its expected life (asset depreciation). When the asset is handed over at the end of the contract, there should be no debt remaining and the residual value of the non-financial asset should continue to be depreciated accordingly.

For user-pays PPPs, the general outline of governmental debt under IPSAS 32 is very similar. However, the amortization of the debt is based on the flow of the tariff revenues used for repayment of principal.

In general terms, the marginal effect of a PPP contract on the gross debt would have the stylized outline described in 4. 3: if a steady stream of governmental payments or user-paid revenue is projected.

FIGURE 4. 3: Stylized Outline of a PPP Project's Additional Impact on Gross Debt of the Government/Contracting Authority for the Duration of the Contract



12.2 Eurostat standards: ESA2010

The European System of Integrated Economic Accounts (ESA 2010) set up the regulations on how the EU member states prepare national accounts and produce comparable and homogeneous fiscal statistical information. ESA 2010 is the most recent version – until recently the standards applied have been those provided in ESA95.

The *Manual on Government Deficit and Debt* [37] provides further explanations through more specific rules on the classification of the assets (and corresponding liabilities) as to whether they should be included in the national or government balance sheet or not. The document stipulates several tests to evaluate the required accounting treatment of each PPP deal[38].

First, there is a clear distinction between user-pays PPPs and government-pays PPPs under ESA principles: user-pays PPPs (generally referred as concessions as per national accounting principles in the EU) are generally treated as out of the government balance sheet. ESA rules define a concession as a Design, Build, Finance, Operate and Maintain (DBFOM) contract where more than 50 percent of the revenues are user-payments.

The focus of ESA regulations is government-pays PPPs which are any PPP type of transaction where more than 50 percent of revenues comes from the public budget.

[37] *Manual on Government Deficit and Debt* – implementation of ESA 2010 Eurostat 2014.
[38] A summarized description of the principles of ESA 95 and comments on other standards can be found in *Eurostat Treatment of Public Private Partnerships*.

The contract will be assessed so as to classify the asset as public or private following risk-reward principles[39].

Three risks (or group of risks) are defined for this purpose. They are construction, availability, and demand risks.

For a PPP asset to be regarded as private and not recorded as a public asset together with a corresponding public liability, the contract should transfer to the private party the construction risk and either the availability or volume risk. This test does not imply a full risk allocation, but it is necessary that "most of the risk" is transferred. Whereas no guideline provides a precise definition of when the majority of the risk has been transferred, in general terms it may be said that some risk retention by the public partner may be compatible with a private asset consideration, when those retained risks are clearly of an extraordinary nature (for example, force majeure).

To explain the full methodology to be followed, so as to decide where to classify the asset (within or off the government balance sheet), is beyond the scope of this PPP Guide. However, for the sake of a general vision, the following are situations that generally require a classification of the asset in the government accounts.

- For any project where more than 50 percent of the financing is public finance (that is, grant financing even if it is deferred as long as those deferred construction payments are irrevocable and not conditional on performance);
- For government-pays projects based on volume, where variations in demand do not impose a material financial impact on the project company and/or where there is a floor limit or a minimum guaranteed level of payments that cover a substantial part of the financial package regardless the actual level of demand;
- For government-pays projects based on availability, where the failure to meet performance requirements does not impose a material financial impact in the project company and/or where there is a floor limit or a minimum guaranteed level of payments that covers a substantial part of the financial package regardless of the actual level of performance; and
- Where the PPP is a government-pays PPP, and the PPP project company is public (that is, the project is an institutional PPP as described as chapter 1), and it is not constituted as an independent company with its own set of accounts and its own management materially independent of the government.

[39] European PPP Expertise Center (EPEC) *Risk Distribution and Balance Sheet Treatment: Practical Guide* (2011) provides a checklist for assessing the accounting treatment or reflection of the PPP asset in national accounts. This guide refers to ESA 95, but in general terms its principles are in substance valid for ESA2010.

12.3 Country Specific Regulation on Account Treatment of PPP Assets

Despite an international movement toward a standardization of accounting practices in governments around the world, there is still a great deal of divergence regarding accepted principles.

The impact of PPPs on accounting reports can therefore vary greatly. When neither of the two international standards are incorporated, there might be specific rules to be considered, in which case this feasibility exercise needs to be adapted accordingly.

It is also possible that no specific regulation on the accounting treatment of PPP contracts exists, and the generally accepted principles do not address PPP (or PPP-like) contracts. In this latter case, the assessment of the project's impact on public debt for accounting purposes is unnecessary.

12.4 The Outputs of Debt Impact Analysis

The output of the process of analyzing the impact of the project on the public debt involves the addition of the marginal impact of the project in terms of expenditure with the existing projection of national expenses, plus the marginal related impact in terms of debt in the national accounts.

This will be then checked against the deficit ceiling and/or debt ceiling that may be in effect in the respective country, which may in turn imply that the PPP may or may not be procured.

13 Assessing Environmental Feasibility[40]

Infrastructure projects will often have significant environmental impacts arising from construction and operation, which can be both positive and negative. The impacts may also include follow-on effects beyond the immediate project area, as well as beyond the people directly associated with the project (secondary impacts).

These impacts (including secondary impacts), and the corresponding formal process of approvals (which varies enormously from country to country), are a common source of delays in PPP projects.

The mitigation strategies for environmental risks imposed by approving agencies are also a significant component of project costs that can reduce the expected return on investment or impact directly on the governmental liabilities, depending on the risk allocation regime.

[40] Environmental and socio-economic issues are also frequently considered together, under the concept of Environmental and Social Impact Assessment (ESIA). The fact that this PPP Guide explains these two areas of assessment separately does not mean that a joint assessment approach is not equally appropriate.

Thus, an effective evaluation of the environmental issues and a structured recommendation about the project's environmental feasibility is a very important output of the Appraisal Phase. Readers should also note that the Equator Principles[41] may be more rigorous than national requirements in some countries, and the compliance of the former will be required by many lenders and all multilateral development banks (MDBs).

The main purpose of a comprehensive assessment of environmental issues in the Appraisal Phase is to ensure that environmental considerations are explicitly addressed and incorporated into the green light decision, and that there are no unmanageable environmental obstacles ahead of the project. This allows anticipating, avoiding, minimizing, or offsetting the adverse significant bio-physical effects of the infrastructure. It is also very relevant that all the measures required for the environmental approvals be taken to prevent unnecessary delays in the project schedule.

Recently, some debt providers and other financial institutions (such as multilateral development banks) have acquired environmental concerns of their own, requiring projects they finance or support to meet environmental standards that can be different from the mitigation strategies imposed by the formal approval process[42]. If it is expected that bidders will want or need to rely on financing from a particular financial institution, or class of financial institutions, it is good practice to understand those institutions' environmental requirements and include them in the appraisal process to ensure the project is eligible for finance from that particular source.

13.1 The Process of Assessing Environmental Feasibility

The project team, typically with specialized consultants, must address a fundamental question during the environmental feasibility analysis: is there any specific aspect of the project that makes environmental approvals impossible or the costs to obtain them prohibitive?[43]

To approach the question adequately, four steps are necessary. They allow an effective assessment of the environmental aspects of a PPP project.

The first step is the identification of all legal and regulatory aspects relevant for obtaining the environmental approvals. It requires an analysis of the institutional environment of the country where the approvals will be conducted. Responsibility for approval may rest with a supra-national agency (for example, the European Union), with a centralized agency of national government, or with a sub-national government, and the process may include several levels of approval.

[41] The Equator Principles is a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects. The can be found at .http://www.equator-principles.com/

[42] Some of these concerns are expressed in the *Equator Principles* (http://www.equator-principles.com)

[43] In some countries, the process of Environmental Impact Analysis is integrated with the Social Impact Analysis (presented in section 14).

Effectively, each country imposes its own environmental regulations and determines standards to be met by infrastructure projects as well as defining processes for obtaining approvals, including the definition of compensation measures. At this stage, the project team needs to produce a thorough and detailed evaluation of those regulations, specifically searching for the following.

- What are the stages for environmental approval?
- What is the level of detail required in each of those phases?
- What is the content of the environmental assessment needed for the approvals?
- What are the sector-specific requirements? and
- How long will the process take, given the size and sector of the project?

Once the environmental regulations regarding the specific sector of the project are fully mapped, good practice suggests the design of an environmental requirements log that will serve as a guide for the project's environmental due diligence.

The second step is a thorough due diligence effort to identify, describe, and as far as possible, quantify the environmental impacts of the project. Several countries call this exercise an Environmental Impact Assessment (EIA).

The EIA should be a formal report that addresses the project's environmental impact from a comprehensive perspective. It also needs to address the issues identified in the environmental log. Its content depends significantly on the sector and specific characteristics of the project. However, it generally includes the following.

- A full description of the area to be influenced by the project in order to characterize the main environmental fragilities before the construction of the infrastructure. This should include both the physical (land, water, and so on), and biological (flora, fauna, and so on) characteristics of the area;
- An analysis of the project's environmental impact on the area previously described (including direct and secondary impacts), immediate or long-term effects, and temporary or permanent consequences. These effects, depending on the nature of infrastructure, may involve greenhouse gas emissions, fauna disruption, waterway interventions, wastewater disposal, and so on;
- An identification of the consequences of the construction of the asset in terms of its main inputs, such as material consumption, water usage, and energy sources; and
- A full description of the physical and biological aspects of the area after the construction and operation of the infrastructure.

The third step is the definition of a strategy to mitigate the specific effects. There should be a focus on the most significant environmental effects, and mechanisms should be identified to minimize them. These could include feedback of the technical requirements to alter aspects of the design (of the infrastructure or output specification) when such changes can significantly reduce the environmental costs. For example, small changes in road design can be enough to avoid a valuable headwater region, dramatically reducing the corresponding environmental impacts.

This mitigation strategy should also focus on measures to compensate for inevitable environmental consequences, such as tree replanting in the face of deforestation.

The aim here is not to neutralize environmental impacts, but specifically to mitigate unintended consequences given the regulatory requirements that will need to be considered for the final environmental approvals.

The fourth step is to obtain, wherever possible, the environmental permits and final approvals needed for construction of the infrastructure. It should be recognized that in many cases it will not be possible to obtain the final environmental approvals during the Appraisal Phase because the level of information demanded by the environmental authorities might only be available in later phases of the PPP process, specifically for large projects. Also, in some countries, the costs to obtain the full studies and file for environmental approvals are exceptionally high, particularly in environmentally complex projects. In these cases, the permits should not be initiated before the green light decision to procure the project is taken at the end of the Appraisal Phase.

Thus, in most large infrastructure projects, the environmental feasibility assessment concluded in the Appraisal Phase is not going to provide the level of detailed environmental investigation required to obtain full approval.

It has to be noted that it is good practice to obtain the environmental permits, at least in a preliminary or “provisional” mode, before launching the project. In fact, the higher the certainty about environmental approvals before the procurement phase, the less risky and more effective the procurement process will be.

Independently, the official approval (at this stage), the analysis of the regulatory framework, and the assessment of the project’s environmental impact should be able to provide the answer to the following questions.

- What are the total costs for environmental licensing in terms of future investigations?
- What are the costs of compensation measures? and
- What is the estimated time to obtain full environmental licensing?

The answers to these questions are a key result of this exercise, and they largely contribute to the quality of the information considered at the final green light decision at the end of the Appraisal Phase.

13.2 Outputs of the Environmental Feasibility Analysis

The environmental feasibility analysis needs to provide a sound recommendation about the environmental viability of the project, that is, if it can obtain the necessary approvals and, if so, at a reasonable cost.

This exercise also allows for a reduced environmental footprint of the project, offering input to the design of the technical requirements, greatly contributing to the sustainability of the initiative.

In some cases, for simpler and smaller projects, the environmental assessment at this stage produces a full and definitive environmental approval. This is unlikely to happen in larger, more complex projects. In the latter case, a precise roadmap for obtaining the approval should be produced.

Lastly, the environmental feasibility offers a very important set of inputs, both for the financial model and the technical requirements.

14 Assessing Social Feasibility

An appraisal exercise intimately connected with the evaluation of environmental feasibility is the assessment of the project's impact on the lives of people that live and work in the project's area of influence.

The social impact analysis (or social feasibility assessment) can be a very important part of the general appraisal of PPP projects, since many infrastructure initiatives cause severe adverse impacts on communities surrounding the site on which they are implemented.

Social impact analysis is an exercise aimed at identifying and analyzing such impacts in order to understand the scale and reach of the project's social impacts. It also ensures that these impacts are mitigated, to the extent possible, and fully considered in the green light decision.

Social impact analysis greatly reduces the overall risks of the project, as it helps to reduce resistance, strengthens general support, and allows for a more comprehensive understanding of the costs and benefits of the project.

However, social impact analysis can be expensive and time consuming, so the full analysis process cannot be justified for all projects. At a minimum, all projects demand a review of project data at the Appraisal Phase, so as to identify if material social impacts exist. If they do, a full social impact analysis should be conducted.

14.1 The Scope of Social Impact Analysis

The social impact analysis can address a very broad set of issues related to changes in the social, economic, and cultural condition in which the surrounding community live and work. Specific types of social issues and possible impacts associated with a project can vary considerably depending on the nature of the project, its size and location.

In other words, different projects may have a very different list of social issues. For example, a school project in a remote rural area may have a much narrower set of social impacts than a greenfield toll road that crosses several communities. In all cases, experienced professionals should use their technical judgment to determine which issues should be subject to inquiry. The following list is a minimum set of socials issues, which should be addressed as a part of the social feasibility exercise.

- Will the project produce any population or demographic movement, such as the change in size of the communities affected by the project?
- Will the project significantly alter the economic structure of the local economy or generate any significant change in relative prices, such as land value? What kind of social impacts can these economic changes produce?
- Will there be a significant change in the general access that the communities have to natural resources, such as drinking water and energy?

- Does the local community have effective governance mechanisms to deal with the long-term effects of the project in areas such as land use regulation, negotiations over business transactions, and other such issues?
- Will the project increase or decrease the demand for public goods or services, such as education or health?
- Are there groups (indigenous groups, women, ethnic minorities, and so on) who will be differentially impacted by the project?
- Will the project interfere with the local labor market during or after construction?
- Does the background of project staff (for example, urban, educated, skilled, foreign language-speaking, expatriates, different customs, and so on) differ significantly from local communities and provide potential for misunderstanding and conflict? and
- Will an influx of newcomers seeking opportunities associated with the project disrupt traditional social structures and create undesirable effects, such as crime, violence, disease, or conflict due to religious and ethnic rivalries?

The answer to these questions can help to determine the extent of the impact, as well as any unmanageable social obstacles ahead of the project. This allows for the anticipation of any adverse significant social effects of the infrastructure and for avoiding, minimizing, or offsetting them. See box 4.11 for the six principles of social impact assessment.

BOX 4.11: The Six Principles of the Social Impact Assessment (SIA)

Principle 1: Achieve extensive understanding of local and regional populations and settings to be affected by the proposed action, program, or policy.

Principle 2: Focus on the key elements of the human environment related to the proposed action, program, or policy.

Principle 3: The Social Impact Assessment is based upon sound and replicable scientific research concepts and methods. The SIA process subscribes to the ethic that good science (scholarship) will lead to informed and better decisions.

Principle 4: Provide quality information for use in decision-making. The 'good science' ethic requires the collection of quality data representative of all issues and perspectives, as well as clearly-presented, holistic and transparent analyses of information and alternatives.

Principle 5: Ensure that any environmental justice issues are fully described and analyzed. SIA practitioners must identify the disadvantaged, at risk, and minority populations (for instance, by race, national origin, gender, disability, and religion) affected by the proposed action, program, or policy and incorporate information about these populations into the Social Impact Assessment descriptions and analyses.

Principle 6: Undertake project, program, or policy monitoring and evaluation, and propose mitigation measures if needed. Use of the research design and databases established for the assessment of impacts should provide the basis for monitoring and evaluating the actual impacts of the chosen alternative (project).

Source: Principles and Guidelines for Social Impact Assessment in the USA, The Inter-organizational Committee

14.2 The Process of Analyzing Social Impacts

The process of analyzing social impacts is regulated in many countries as part of the appraisal of infrastructure projects. The project team must therefore follow any applicable legal or regulatory rules. Several jurisdictions name the process of evaluating the social feasibility as a social impact assessment, sometimes integrated with the Environmental Impact Assessments, and sometimes separated as an independent evaluation.

As with the Environmental Impact Assessment, especially for large projects, it might not be possible to conclude all of the social impact assessment during the Appraisal Phase. However, it is very important that this exercise is significantly advanced before the green light decision is made, so the approval can be made with a reasonably clear view of the social impacts and all the possible mitigation strategies.

Whether integrated or not, the exercise typically includes the following steps[44].

The first step is a thorough identification of the people residing and/or working within a project's area of influence, including the mapping of the communities and their social, economic, and cultural connection with the site in which the project will be implemented. This first step also includes the listing of the social issues to be considered (the list of questions presented in section 14.1 should be considered the minimum).

The second step is the establishment of a social baseline that indicates the status of the issues to be considered before the implementation of the project. All the issues identified in the first step should be incorporated in a social description of the communities affected. See box 4.12.

[44] One example of a similar process can be found in the *Infrastructure Framework of the Australian State of Queensland,* (2011).

BOX 4.12: The Methods of Obtaining Data for the Social Baseline

Secondary data

Baseline studies normally begin with a review of secondary data. Secondary sources typically involve a desktop study using a number of sources: official data (such as topographic and thematic maps, censuses, and other government records), research reports, historical texts, and other available documentation on demographic trends and the history of the people and the area. The use of secondary sources is a good starting point; however, in any instance where significant social, economic, or cultural issues are likely to be a factor, the use of secondary material alone is insufficient. Field surveys must be undertaken to fully establish an appropriate social baseline and to update information that may no longer be current.

Public consultation

Public consultation is a process for managing two-way communication between the procuring authority and the public with the goal of improving decision-making and promoting understanding through the active engagement of individuals, groups, and organizations who have a stake in the project and its outcomes. Public consultation plays a critical role in raising awareness of a project's impacts and gaining agreement on management and technical approaches in order to maximize benefits and reduce negative consequences. For the procuring authority, consulting affected parties early and frequently throughout the development process makes good business sense, and in many cases it can lead to reduced financial risks and delays, a positive public image, and enhanced social benefits to local communities. Experience has shown that the process of engaging stakeholders as a means to build relationships is often as important as the analysis derived from that engagement.

Participatory techniques and stakeholder analysis

Participatory techniques, such as Participatory Rural Appraisal (PRA) and participatory land use planning, can be especially helpful at the initial scoping and planning stages. PRA techniques are a good means of establishing a constructive basis for dialogue with the community. This is good for the early identification of issues and for providing a basis for the joint formulation of mitigation or other development measures. Participatory methods can expose key issues for follow up during the baseline survey. PRA facilitates baseline researchers' awareness of local knowledge and perceptions, and it helps to adapt questionnaires to make them relevant to local people. It also emphasizes local participation in planning and feedback. Some examples of PRA tools include semi-structured interviews, participatory mapping, Venn diagrams, oral and life histories, and livelihood analysis.

Qualitative methods

Qualitative methods have to do with people's perceptions, that is, how they view

themselves and the world around them. Qualitative interview techniques are used to provide insight into community social institutions and organizations, including local arrangements for decision-making and leadership. Qualitative surveys can be used to obtain descriptive information on topics such as household livelihood options, social differentiation, ethnic minorities, lines of solidarity and conflict, the role of women, key resource issues, local perceptions about the project, and more. They also serve to enhance and verify quantitative data.

Quantitative methods

Quantitative surveys serve to establish baseline measures for key social parameters that can be used later as indicators to measure social impacts. Quantitative methods are commonly used to generate data on: household assets; income streams and livelihood survival strategies; vulnerable individuals and households; the role of women and children in the division of labor; the degree of economic dependency on land and local resources; household composition and demography; health and educational characteristics; skills of the labor force, and so on.

Source: Adapted from IFC's Good Practice Note: Addressing the Social Dimensions of Private Sector Projects, 2003.

The third step is to estimate the impacts of the project in the communities identified within the area of influence. This is done by projecting the existing baseline into the future with and without the PPP project, and comparing the issues that were identified as relevant for the specific project. Good practice suggests the need to classify each identified impact in terms of its relative importance, considering the number of people affected and the reach of the damage produced. This will allow for ordering, or prioritizing, the impacts in terms of their relative social significance.

Some projects generate particularly obvious adverse social impacts, which require the investigation of issues with extreme care. This is the case, for example, in projects that require land expropriation and forced relocation, especially of large communities and those that interfere with indigenous communities and their heritage sites. In these cases, the scope of the social impact analysis needs to highlight all the costs that these communities endure through a comprehensive approach.

The fourth step in the development of the SIA is the identification of the mitigation strategies for the adverse impacts identified in the previous steps. This leads to a social action plan, as a part of SIA. See box 4.13.

BOX 4.13: The Sequencing Strategy to Social Actions

The IFC's *Good Practice Note on Addressing the Social Dimensions of Private Sector Projects* (2003) proposes a sequencing strategy to identify the action to be

considered in the social action plan.

"The first step in the sequence gives priority to impact avoidance. Social impacts can often be avoided by 'at source' changes, such as the selection of an alternative site for the project or the modification of the design. The second step focuses on the reduction or minimization of impacts that cannot be avoided. The reduction of impacts is achieved through the implementation of customized measures, such as soundproofing houses within the noise footprint of an airport, regulation of construction traffic, use of dust suppression techniques, minimization of land requirements, etc. During the third step in the sequence, where adverse impacts are unavoidable, people affected by the project must receive adequate compensation (including covering replacement costs and livelihood restoration where appropriate)."

The plan should indicate the strategy recommended and a basic estimation of costs to implement it, as well as its distribution in time.

14.3 The Output of the Social Impact Assessment

The social impact assessment should identify the impacts of the project in the community and classify them in terms of significance. It also provides recommendations for actions that can avoid, minimize, or compensate the adverse social impacts of the project.

The process of conducting the assessment also promotes consultations that play an important role in creating legitimacy of the project among the communities in which it directly engages.

The assessment indicates mitigation actions, some of which can be implemented in the Appraisal Phase itself, resulting in changes in the technical requirements, project design, or other aspects of the project. In other cases, it can recommend actions to be taken by the private sector, in which case a cost estimate should be produced to be considered as an input in the financial model.

Finally, the social impact assessment indicates the total adverse social consequences that cannot be mitigated, and presents them as a relevant consideration in the green light decision to procure the project.

15 Assessing Legal Feasibility

The project team have to make a thorough analysis of the legal issues surrounding the project, across several dimensions. A detailed legal due diligence should be done to ensure that all foreseeable legal requirements, which have not or will not be dealt with in other appraisal exercises, are met for the development of the project.

The main objectives of the legal feasibility analysis are as follows.

- To ensure that the project is legally doable;

- To facilitate risk management, indicating the risks and obstacles that need to be addressed within the technical analyses, the financial model and/or the Value for Money analysis; and
- To avoid, to the extent possible, major problems in the project's development and implementation, specifying the requirements that need to be considered at subsequent stages of the PPP process.

15.1 The Process of Analyzing Legal Feasibility and Conducting Legal Due Diligence

The due diligence process should ensure that the project is procured in accordance with current legal requirements, both in domestic and international terms, and that key aspects of the project have been analyzed from a legal perspective. In order to assess the legal feasibility of the project, legal due diligence should include at least three important steps, as described below.

The first task is an **analysis of the applicable legal framework**. This includes the identification and analysis of pertinent laws and regulations that may affect the project. Some of the legal and regulatory aspects that need to be reviewed are listed below.

- The enabling PPP legislation, especially looking for particular requirements imposed on projects, such as minimum capital value and maximum contractual duration;
- The public procurement law which may be partially applicable, especially in search of general contractual and procurement guidelines;
- Legislation referring to foreign investment, property, and labor issues;
- Legislation related to land use planning and environmental laws;
- Sector specific legislation, for example, corrections legislation may regulate whether a prison PPP can be operated by the private sector;
- Legal aspects of dispute resolution and intellectual property, among others;
- Legislation relating to the granting of ownership/control of public assets or of responsibility for the delivery of public services to third parties; and
- Legal treatment of revenue sources associated with the concession.

These reviews need to provide, firstly, a comprehensive list of requirements applied to the project that feed other feasibility exercises, such as the technical requirements and the commercial feasibility analysis. Secondly they should indicate, whenever appropriate, the need for any change in law or regulation and, should it be the case, identify the process through which this change can be enacted and assess the time and resources needed to promote the change.

The second task is the **assessment of the legal readiness of the procuring authority.** Although this particular issue may have already been checked, it is important to review at this stage whether the promoting authority and other institutions involved have the legal authority to launch the project or proceed with the approval as needed. The legal empowerment issues also apply, in some countries, to the formal responsibility for the appraisal exercises. As described in chapter 2.18, some countries require official feasibility exercises to be conducted. In this case, there can be requirements about which governmental bodies should be included and

how. Therefore, the legal due diligence must clearly conclude which authorities should be involved and to what extent in each case.

The third task is an **in-depth legal analysis of the main project issues**. Large infrastructure projects often have particularities with significant legal implications. It is thus very important during appraisal to assess the adherence of several aspects of the project to the general legal framework. Particular attention should be given to the legal feasibility of:

- The financial aspects of the project;
- Issues considered relevant to commercial viability, including the bankability of the project;
- The use of land and existing assets;
- Potential alternative ownership claims on the land (common in countries with complex or undocumented systems of property ownership);
- Rights of other users (for example, a state oil company that owns pipes buried under the land, a road route crossing under electricity transmission wires, and so on);
- Employment issues; and
- Tax and accounting issues considered in the financial model.

Box 4.14 table presents examples of specific issues from these categories.

BOX 4.14: Examples of Specific Project Issues to be Considered during Legal Due Diligence

Category	**Example of Legal Issues**
Financial aspects	• Legal feasibility of the selected type of public support or guarantees where needed. • Approval process for public support and authorities involved. • Legal restrictions and limitations for charging private sector end-users if applicable. • Legal ability to develop collateral businesses (advertising, retail, leisure, and so on).
Commercial feasibility	• Possibility of granting step-in rights to lenders. • Possibility of taking security over assets, current and future income streams, bank accounts, shares, and insurance policies under the current law. • Possibility of being named on insurance policies as lender and beneficiary.
Land and property assets issues	• Type of rights that can be assigned to the private sector. • The country specific issues surrounding land availability (which can take the form of *right of way* or *clearance* for transportation projects and/or site ownership for facilities). • Rules regarding ownership of assets. • Responsibility for relocating people living in the right of

	way.
Foreign investment and currency exchange	• Restrictions on foreign direct investment (FDI) and currency exchange controls. • Limitations on repatriation of dividends and capital invested. • Limitations on foreign staff. • (Conversely) benefits for foreign investors.
Employment issues	• Consequences for public sector employees if existing assets are to be taken over by the private sector.
Taxation and accountancy	• Regime applicable to the project. • Regime applicable to imports (when significant equipment is included in project Capex). • Provision of tax exemptions and potential specific tax benefits for FDI. • Other questions to be considered in the financial model.
Environmental issues	• Are specific environmental clearances required by law for the particular site or project type, or are there exemptions that are applicable to the site/project?

One important assessment required during the analysis of the main issues is the legal classification of the land and any existing assets. Even if the assets are already held by the procuring authority, they may not be ready to be transferred to the concessionaire. In some countries, there is a requirement for a change in the type of use of the asset, from “public use” to “disposable use”. Other countries require legal authorization to transfer the control of public assets to the private sector. In any case, the availability of the land or asset needs to be fully acknowledged and the issues surrounding it identified.

15.2 Outputs of the Legal Feasibility and Conducting Legal Due Diligence

The main output of the legal feasibility analysis should be a detailed recommendation for the approval of the project based upon:

- The existence of legal obstacles for the future development of the project; or
- In case any obstacle exists, the strategy to be followed to overcome it as well as the estimation of time and resources necessary to do it.

16 Value for Money (VfM) Assessment

The procurement of a PPP project represents Value for Money when — compared to a public sector procurement option — it delivers higher net economic benefits to society, taking into consideration the whole-life costs of the project.

The purpose of a Value for Money assessment is to indicate if a project would be more efficiently implemented under a PPP scheme or under some other procurement method[45], from the perspective of the procuring authority and considering the broader interests of society.

It should be noted that the VfM assessment assumes that a conventional procurement option is possible. As described in other parts of this PPP Guide (for example, chapter 1.5.1), there may be accounting restrictions that impede a publicly financed development of the project (but which may not impede the PPP route, depending on the accounting and reporting standards applied in the country). Alternatively, the government may simply not have the funds or the access at reasonable conditions to finance the project through a conventional procurement. In this sense and in these circumstances, the requirement for conducting a VfM exercise may be exempted by the respective policy framework. But in such cases and contexts, it is equally important (or even more important) to develop a meaningful economic analysis that demonstrates strong economic and social fundamentals of the project, as well as the rest of the appraisal exercises including the affordability of the PPP project.

16.1 The Timing of the VfM Exercise

The assessment of the Value for Money of the project can be revisited in the Structuring Phase. Until then, the risk allocation mechanisms may still be altered with potential consequences for the VfM conclusions.

However, it is good practice to produce a confident evaluation of VfM during the Appraisal Phase, since it might indicate the practical impossibility for the project to deliver VfM, in which case a recommendation that the project not proceed as a PPP should be issued before reaching the Structuring Phase. The government will then need to consider whether it is possible and appropriate to proceed with traditional procurement of the project using public finance.

It is also convenient to review the VfM exercise when the project has been awarded in order to check the decision that was made at the Structuring Phase. Since risk transfer has already been fully determined in the contract and prices have already been set, the exercise can be developed with real data, at least for the chosen

[45] A discussion of international approaches to VfM can be found in a report by the World Bank Group: *Value-for-Money Analysis- Practices and Challenges: How Governments Choose When to Use PPP to Deliver Public Infrastructure and Services*. A detailed review of methodologies used in sub-national governments of the United States can be found in the paper *Feasibility Study Guideline for Public Private Partnership Projects*, University Transportation Center for Alabama (2010).

procurement route. At that moment, the Value for Money exercise can be used as a test for checking whether the risk transfer has been properly developed and whether it can provide some lessons for future projects.

Other ex-post evaluations can be carried out, for instance, in cases in which the contract has been significantly modified for whatever reason, or if a contract extension is being analyzed.

Developing the Value for Money exercise is thus a progressive effort and could be done in at least four different stages of the PPP process, as explained in box 4.15.

BOX 4.15: VfM alongside the PPP Process		
Phase	**Scope (source of data)**	**Purpose**
Appraisal	VfM using available data.	Indicative for the green light decision.
Structuring	VfM may be revisited if necessary (for example, if there has been a material change in the contract structure).	Decision to issue Request for Proposals (RFP).
Following contract award	Full VfM, considering final contract after procurement.	Feedback for future projects.
Contract management	Full VfM, considering contract amendments and reviewed risk allocation.	Guidelines for conducting negotiation with the private sector.

16.2 Assessing Value for Money

The VfM analysis compares the relative merits of PPP procurement against one or more other procurement routes, usually traditional public finance. This can be done using quantitative analysis, qualitative analysis, or both. Some frameworks focus on quantitative analysis, requiring a comparison of the cost of the PPP against the cost of traditional delivery, which is represented by a Public Sector Comparator (PSC) cost model. Other frameworks rely on qualitative analysis or on a combination of the two approaches.

The analysis begins with the selection of the procurement routes to be compared. The standard exercise involves comparing the PPP project with the traditional procurement, in which the government designs, finances, builds the asset and operates the project either, directly or through singular contracts.[46]

[46] Many countries call this traditional procurement route Design-Bid-Build.

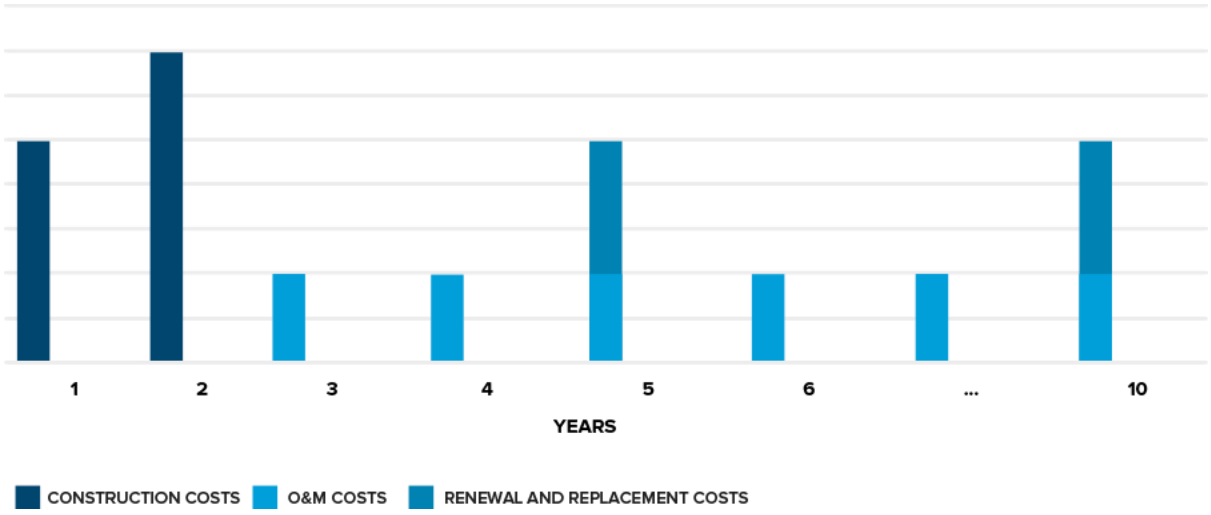
The common methods of quantitative and qualitative VfM analysis are described below.

16.2.1 Quantitative VfM Analysis

The first step for conducting a quantitative VfM assessment is to produce a raw PSC. This refers to the estimate of the whole-life or baseline costs of the project from the government's perspective, if the project were to be implemented through a traditional procurement route and taking into account any revenues that would be received by government in this circumstance. A frequent assumption is that these costs and revenues should reflect the achievement of the same results expected by the private sector under the PPP contract. The PSC is usually developed by documenting the costs and revenues in a spreadsheet model from the government's perspective.

The most common source of this data is the base case produced as a part of the commercial feasibility exercise. The base line costs are likely to have the following outline in most PPP projects (figure 4.4).

FIGURE 4. 4: Example of the Baseline Project Costs



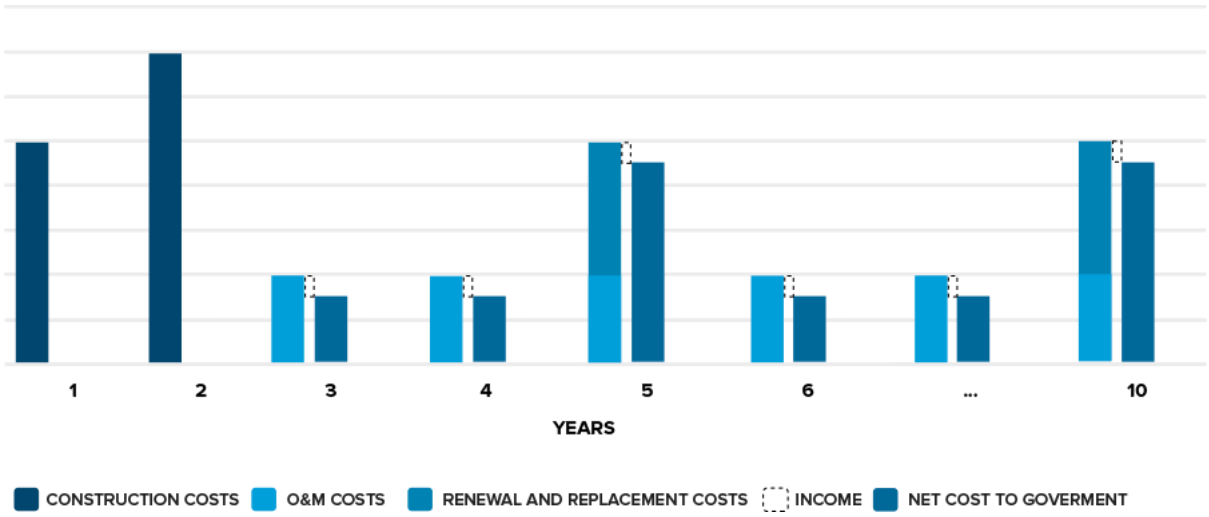
Note: O&M= operation and maintenance.

It is important that all the efficiency gains generated by the private sector involvement, which may have been considered in the base line costs as a part of the commercial feasibility exercise (see section 8), are excluded at this point because, in most cases, the PSC reflects direct delivery by the government.

It is important to note that the PSC will be further used as a benchmark against which the PPP fiscal costs will be measured, in search of efficiency gains due to optimum risk transfer. Therefore, all non-fiscal revenues (such as user-paid revenues) considered in the PPP option should be included in the PSC calculations because the raw **PSC reflects the net fiscal impact of the project (costs less revenues).**

If, however, there are reasons to believe the revenues generated by a traditionally procured project are different (generally smaller), the values included in the PSC calculations should reflect this adjustment, representing the potential revenue generated by the traditionally procured project. One example is when the private sector can access additional revenues by property development or advertising, which cannot be easily done by governments. In this case, the PSC should not include the costs or revenues associated with property development or advertising, even though these costs and revenues are included in the financial model of the project company. Figure 4.5 illustrates this deduction from the original base line costs.

FIGURE 4. 5: Example of the Net Baseline Project Costs (total costs deducting project's revenues)



Note: O&M= operation and maintenance.

The second step for conducting a quantitative VfM analysis is to turn the raw PSC into an adjusted PSC to permit a fair comparison. The adjusted PSC typically involves changing the costs so they incorporate the risks that the government retains in the traditional procurement (and would be transferred to the private partner under a PPP model). Other adjustments to PSC include allowing for the difference in socio-economic benefits and neutralizing any cost differences which do not reflect true efficiency differences.

The risk adjustment is justified because the two cash flows need to reflect, as far as possible, identical risk profiles from the government's perspective. For example, if the construction risk is transferred to the private partner under the proposed PPP scheme, the PSC needs to reflect the risks related to bearing the construction risk, and the economic consequences of possible construction cost overruns should be added to the PSC.

Note that from the perspective of the private sector, the baseline costs will already incorporate, to some extent, an evaluation of risks. Therefore, the adjustment for risk

of the PSC should be concerned with potential cost variations associated with the traditional procurement route on top of the risks already considered as a part of the commercial feasibility exercise.

The probability of cost overruns can be estimated based on historical data on previous public construction contracts, operation and maintenance (O&M) contracts, and renewal and replacement contracts. Also, on occasions when no such data is available, the experience of technical teams can help to value such cost overruns (this is generally a percentage of deviation over the baseline project costs). All the assumptions and data sources should be extensively documented to create an audit trail.

Highly experienced project teams may use more sophisticated processes to estimate such costs overruns through probabilistic analysis, such as Monte Carlo Simulations[47].

Naturally, this exercise depends on the proposed risk allocation scheme as a part of the preliminary contract structure because only the risks transferred to private parties in the PPP alternative should be used in the PSC adjustment[48].

Another adjustment that is sometimes made to the PSC to "level the playing field" is the incorporation of **differences in social and economic benefits** of the two procurement routes. In fact, the comparison between the two procuring alternatives generally assumes that the "project outcomes" in both alternatives are the same, which would make such an adjustment unnecessary. However, the choice of procurement route may alter the socio-economic consequences of the project. The most common example is project delays[49]. Under the PPP alternative, delays in construction might be less likely. Thus, the socio-economic cost of delays in construction (under traditional delivery) should be incorporated in the PSC so as to introduce an important advantage of the PPP model. In this case, a socio-economic cost of the absence of service (in monetary terms), during probable delays, needs to be added and the additional cost associated with this risk augments the PSC. See figure 4.6.

Although this is not a very common adjustment, some countries have lately focused on differences in socio-economic benefits as a key aspect in VfM assessments. France, for example, has considered the higher benefit associated with expected earlier completion of a PPP project in the VfM analysis, in part to offset the implications of faster capital expenditures. This benefit has been approximated by using the total project cost as a proxy for project benefits and calculating the value of bringing forward that benefit by x years at the social discount rate.

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[47] This approach estimates the impact of events building upon a great number (commonly tens of thousands) of iterations based on previously inputted probabilities. This produces a distribution function of the possible outcomes (as well as other statistical results such as percentiles).

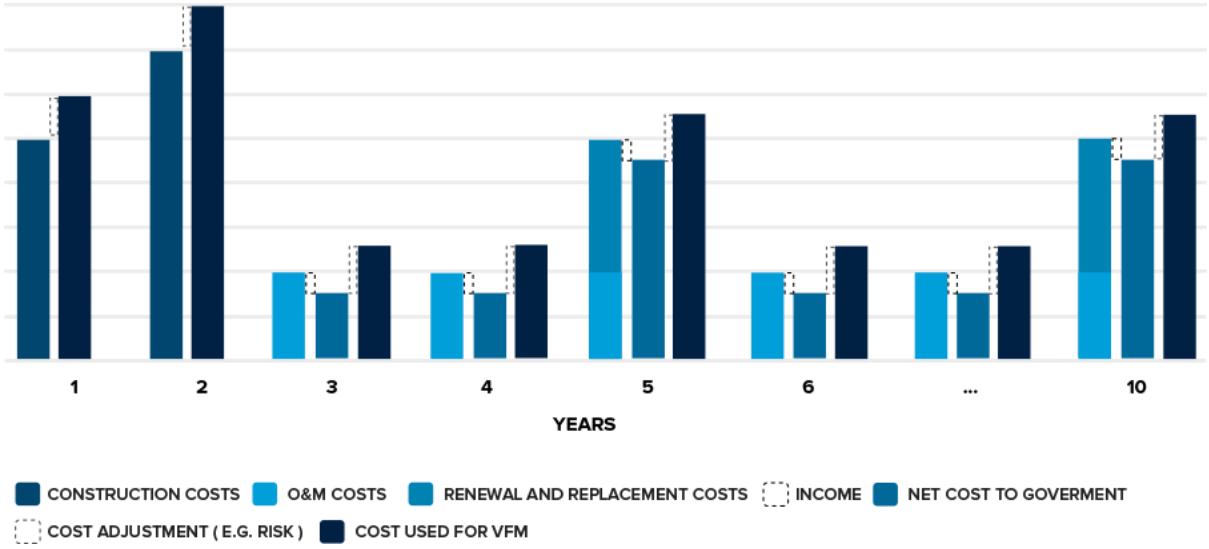
[48] Given the comparative nature of the VfM exercise, the risks allocated to the government in the PPP project do not need to be considered in the PSC because the risks would have to be considered in both competitive alternatives, and so disregarding them in both solutions is a simpler methodology.

[49] Construction delays may also have direct financial impacts to be considered in the VfM, such as a difference in tariff collection or an increase in construction costs.

Another example of socio-economic differences being incorporated into the VfM analysis can be found in New Zealand's PPP program. The country's *Guidance for Public Private Partnerships* states that dollar values should be assigned for the following differences between PPPs and traditional procurement, as far as possible.

- Greater user benefits; and
- Greater community benefits, that is, for the benefit of the surrounding community.

FIGURE 4. 6: Example of the PSC Project Costs (including cost adjustments)



Note: O&M= operation and maintenance; VfM= Value for Money.

A third type of adjustment is normally referred to as **"competitive neutrality adjustment**". Some countries adjust the PSC to neutralize the cost advantages of the implementation of a project by a public body that are only apparent, and do not reflect effective efficiency gains. The most common adjustment is the addition to the PSC of a tax effect, simulating the same tax regime of the private partner in a traditionally procured project or reducing the fiscal impact of PPPs to deduce the tax effects.

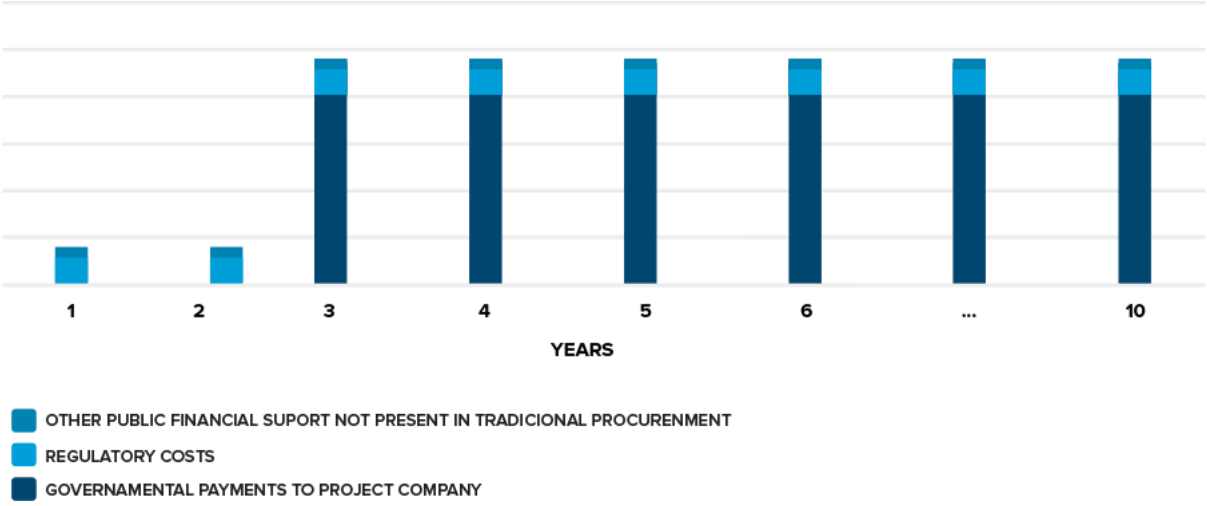
Once the adjusted PSC is produced, **the third step** of the quantitative VfM analysis is to estimate the costs of the PPP project. This data is mostly an output of the commercial feasibility assessment and has been estimated for the affordability exercise. Since the non-fiscal revenues have been deducted from the PSC estimates, the cost to be considered in the analysis is the estimated cost for the government, regardless of the payment from users.

As has been described in section 6.5, the governmental payments can assume different triggers and profiles over time, depending on the payment mechanism designed. However, a common payment structure produces constant availability payments throughout the contract once the project is operational. See figure 4.7.

The fiscal impacts considered at the estimation of the costs of the PPP alternative should also be adjusted for the cost to the government of project management and transaction implementation. This should be included, since the regulatory costs may differ between a PPP and traditional public procurement. So the cost regarding agencies' extra staff required or independent construction certifiers need to be added to PPP costs whenever they are exclusively related to the PPP alternative.

A further adjustment that needs to be taken into consideration relates to other types of public financial suport that are eventually considered. Loans by a state-owned enterprise (SOE) that subsidizes interest rates that would only be possible through the PPP alternative, for example, might represent an indirect cost to taxpayers that must be considered to produce a fair analysis.

FIGURE 4. 7: Example of Governmental Payments to PPP's



After obtaining two different cost options, the VfM analysis can now move to **the fourth step**, which is to achieve a comparable value from two cost structures with different time profiles. The correct methodology to apply is the comparison of the Net Present Value of each alternative, applying a discount rate to the projected alternative costs.[50]

As is the case with the discount rate for Cost-Benefit Analysis, introduced in chapter 3, the discount rate to be used in VfM analysis has been developed differently around the world. Several approaches are used in different countries, with the most common cases listed below;

- Use of the opportunity cost of government funds (or the government risk-free borrowing rate) for both the PPP and the PSC cost structure. The justification is that the decision for a PPP or traditional procurement is a governmental

[50] The main issues surrounding the discount rate have been introduced in chapter 2 in the context of Cost-Benefit Analysis (CBA). The rate of discount selected or the method used to calculate it in economic appraisal (cost-benefit) should not necessarily be consistent with the one applied in VfM, as CBA is conducted for different purposes and considers different cash flows from different perspectives.

investment decision and, as such, its "cost of money" is the parameter used to choose the optimum time schedule for payments;

- Use of a particular rate for each project corresponding to the degree of project risk; this is done on the grounds that the cost of capital or discount rate is specific to each project and is a function of the project's risks. The justification is that the payments of each specific project are subject to different risk profiles (from the perspective of the paying authority). So, different projects might demand a different assessment of the preferred payment structure or implementation strategy (PPP or traditional procurement); and
- Use of the social time preference rate as the standard real discount rate for both the PPP and the PSC. Social time preference is defined as the value that society assigns to present, as opposed to future, consumption[51]. The justification is that the risk-free borrowing rate of countries is used as a macroeconomic regulation mechanism. The choice between different payment schedules should be made considering the society's preference for present consumption, instead of the project or government borrowing rate[52].

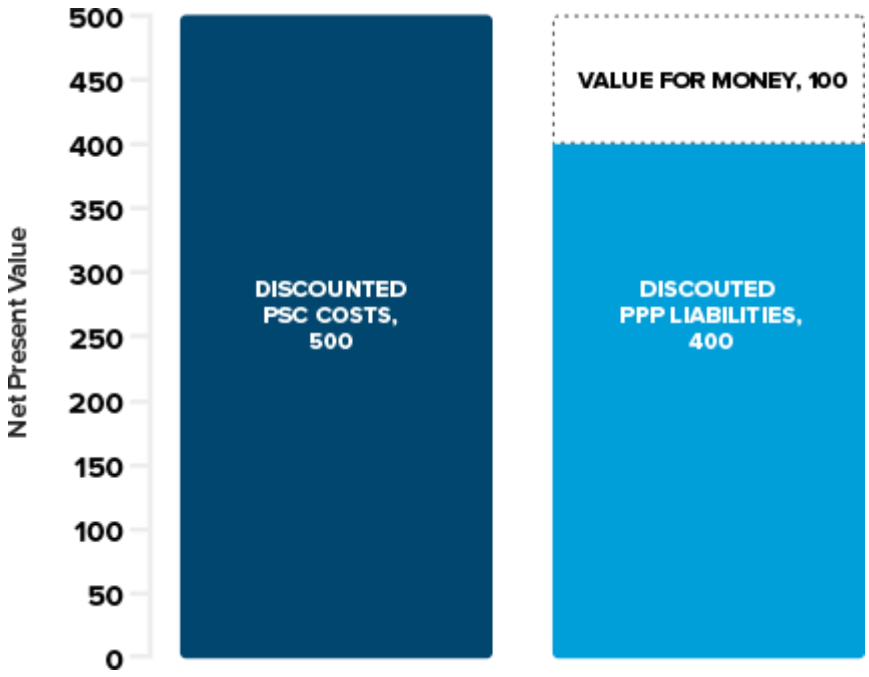
Since the discount rate directly affects the conclusion of the VfM assessment, its choice should be made carefully and be clearly justified. A consistent methodology should be used, rather than making inconsistent decisions for different projects[53].

Once the PSC and PPP cost alternatives have each been reduced to one Net Present Value, the **fifth step** is to indicate which one represents the best alternative to implement the project. The PPP is said to offer a better Value for Money when the costs are lower than the PSC, as indicated in figure 4.8 and the following equation:

[51] As stated in the *Green Book: Appraisal and Evaluation in Central Government*, the discount rate, in real terms, used in the UK is 3.5 percent.

[52] A broader discussion of different country approaches to the discount rate can be found in *Value-for-Money Analysis Practices and Challenges: How Governments Choose When to Use PPP to Deliver Public Infrastructure and Services*. World Bank Group, Public-Private Infrastructure Advisory Facility (PPIAF), 2013.

FIGURE 4. 8: Simplified Value for Money Example



Note: PSC= public sector comparator.

The calculation formula can be simplified as follows:

$$VfM = \sum_{t=0}^{n} \frac{YC_t + ARC_t}{(1+r)^t} - \sum_{t=0}^{n} \frac{CC_t + OM_t + RR_t + ACO_t + ACN_t + ASE_t}{(1+r)^t}$$

Where:

VfM = Value for Money

YC_t = Yearly cost of the PPP scheme in year t (for instance, availability payments)

ARCt = Adjustment for regulatory costs

r = Discount rate

CC_t = Construction costs (including overruns) of the PSC in year t

OM_t = Operation and maintenance costs of the PSC in year t

RR_t = Renewal and replacement costs of the PSC in year t

AR_t = Adjustments for risk in year t

ACN_t = Adjustments for competitive neutrality in year t

ASE_t =Adjustments for differences in socio-economic consequences of the project in year t

Finally, in order to test the robustness of the Value for Money exercise as well as the Value for Money's level of sensitivity to some of the assumptions considered, a sensitivity analysis should be made.

The assumptions to be modified in the sensitivity analysis may be related to PSC cost projections, cost overruns, income generated, the discount rate used in NPV

calculations, and so on. The variation levels must be reasonable, in accordance with the experience of the analysts.

It should be noted that, typically, the quantitative VfM assessment is very much based on unproven assumptions. Not only the valuation of risks and cost estimates, but also the adjustments made to PSC and the discount rate, are estimates with a considerable level of inaccuracy. This is why its conclusions should be read for reference only; they need to be accompanied by sensitivity analysis and the numerical recommendation should always be followed by a qualitative analysis. In other words:

- A positive Value for Money (VfM) does not necessarily imply that a PPP route should be used; qualitative factors should be considered in the decision as well; and
- A negative Value for Money (VfM) does not mean that a PPP route is worse than traditional procurement. Sensitivities of important inputs should be developed in order to test the robustness of the results.

Under these circumstances, the use of the VfM methodology as a scientific pass or fail test is highly criticized, which is why some countries choose not to use it altogether.

However, taken as a reference only, the tool is very useful to indicate the capacity of the PPP mechanism to increase efficiency in infrastructure delivery.

16.2.2 Qualitative VfM Analysis

Qualitative VfM assessment checks whether the general concept of the project fits the model of private sector investment. One issue that might be considered is the expertise the private sector might be able to contribute to the specific project. It is also relevant to investigate the effectiveness of mechanisms to reduce information asymmetry between the government and the private sector.

Non-financial benefits of PPPs should also be taken into account and presented in the qualitative analysis.

According to the European PPP Expertise Center (EPEC)[54], “the incentives which are specific to PPP projects are specifically intended to deliver greater non-financial benefits than conventional procurements. Ignoring this issue could lead to an unwarranted bias against PPPs”.

In this sense, the EPEC points out that: “PPP may provide the private sector with broader opportunities to apply innovation at all levels of project delivery. These incentives, if effectively harnessed, can provide non-financial benefits through three key mechanisms:

[54] The European PPP Expertise Center (EPEC) is a joint initiative of the European Investment Bank (EIB), the European Commission and European Union Member States and Candidate Countries, created to strengthen the capacity of its public sector members to enter into Public Private Partnership (PPP) transactions.

- Accelerated delivery (delivering services earlier);
- Enhanced delivery (delivering services to a higher standard); and
- Wider social impacts (greater benefits to society as a whole)."

In fact, some of these non-financial benefits might have been incorporated in the adjustments of the PSC mentioned above, and as such must not be "double counted". Nevertheless, in case these factors are not quantified, they should be discussed in depth in the qualitative assessment.

All problems associated with involving a private sector player into the specific PPP contract should also be highlighted in the qualitative assessment, followed by the proposed strategy to mitigate them. These can be problems associated with the following.

- Lack of policy flexibility in the future due to the long-term contractual relationship, which is particularly relevant for dynamic policy sectors;
- Specific difficulties in monitoring private sector performance due to the technical limitations of the procuring agency and/or the nature of the service itself; and
- The role of specific assets in the delivery of wider policy objectives and the potential difficulty to associate performance indicators with them.

Different countries have different approaches as to which type of criteria are used in a qualitative analysis. However, it is absolutely necessary that this assessment investigates the main quantified risks and issues, and tries to indicate potential problems that can be created if including the private sector as a service provider in the particular project.

Qualitative VfM analysis has the advantage over quantitative analysis of not relying on sometimes uncertain numerical assumptions. See box 4.16. However, qualitative analysis is inevitably subjective. Thus, the qualitative conclusions should, to the extent possible, be viewed alongside the quantitative analysis for a thorough comprehension of the advantages of the PPP contract over the traditional forms of procurement.

Box 4.16: Approaches to Qualitative VfM

- The **United Kingdom (UK) Treasury** has defined criteria for assessing suitability, and unsuitability, for a Private Finance Initiative (PFI) — the UK's PPP model. Suitability criteria include the long-term, predictable need for the service, the ability to allocate risk effectively (including through performance-related payments and ensuring sufficient private capital at risk), the likely ability of the private sector party to manage risk and take responsibility for delivery, the presence of stable and adequate policy and institutions, and a competitive bidding market. "Unsuitability" criteria include projects that are either too small or too complicated, sectors where needs are likely to change or there is a risk of obsolescence (for example, PFI projects are no longer used in the information and communications technology [ICT] sector in the UK), or where the contracting authority is inadequately skilled to manage a PPP.

- In **France**, “preliminary analysis” of a PPP includes checking against several criteria under three categories: PPP relevance (for example, appropriateness of an integrated, whole-of-life approach to managing a project), commercial attractiveness, and the potential for optimal risk allocation.
- In the **Commonwealth of Virginia, United States (US),** assessment of a potential PPP at a “high level” and detailed screening stages also considers proposed road projects against specific criteria to determine if the project is delivered under the Public-Private Transportation Act (PPTA), that is, as a PPP. These criteria include whether a project is sufficiently complex to benefit from private sector innovation, whether a PPP can achieve appropriate risk transfer, and the degree of stakeholder support. The extent to which a project can generate revenues from tolls is also taken into consideration when assessing possible PPP structures.

Source: Value-for-Money Analysis – Practices and Challenges: How Governments Choose When to Use PPP to Deliver Public Infrastructure and Services. World Bank Group, PPIF, 2013, p. 21.

16.3 Outputs of the Value for Money Analysis

The Value for Money analysis indicates how the PPP alternative compares to traditionally procured infrastructure, not only in terms of the associated fiscal costs but also in terms of the net economic benefit of the project. The assessment also incorporates qualitative aspects of this comparison, addressing issues not quantifiable.

17 The Procurement Strategy

The procurement strategy determines how the private sector partner will be selected, and it focuses on developing an approach to procurement that helps obtain the best VfM. So, when actual alternatives are legally feasible, the project team should search for a strategy capable of creating the correct incentives for all the players involved.

Many details of the procurement route are designed in the Structuring Phase (chapter 5.7 and 5.8. develops the process of structuring and designing request for quotation [RFQs] and RFPs), but the general procurement strategy should be chosen, at least preliminarily, during the Appraisal Phase. The various procurement routes available are summarized in a table in appendix A to this chapter. Essentially, two relevant issues need to be dealt with.

- The approach to qualifications, including:
  - the moment when the request for qualifications is issued, in advance of or at the same time as the RFP; and
  - whether to pre-select (short list) or only apply pass/fail qualification criteria.

- The approach to request for proposals, including:
    - the timing of the finalization and issue of the RFP and contract — whether before or after a period of dialogue and interaction; and
    - the approach to bid submittal and evaluation — whether negotiations are allowed.

Generally the main types of procurement routes that can be chosen to incorporate those issues are the following.

- Open tender or one-stage tender process;
- Open tender with pass/fail pre-qualification (or two-stage open tender);
- Restricted procedure (short listing with one bid);
- Negotiated process (short listing with negotiations); and
- Dialogue or interaction process.

Appendix 1 presents all these processes and the way they deal with the most relevant issues in procurement routes.

18 Formal Requirements Regarding the Appraisal of PPPs and the Conditions Established by the Framework for the Green Light Decisions

Chapter 2 (section 1.7.5) introduced some of the key points generally considered as decision drivers for governmental departments responsible for making the procurement decision. These decision drivers are often translated into national PPP frameworks. As introduced in chapter 1, having policy guidelines in place (binding or indicative) is extraordinarily helpful to diminish failure risks and gain time, efficiency and reliability in the PPP process.

In other words, many countries have formal requirements that must be satisfied in order to demonstrate that the project has been properly appraised before committing further resources to structuring the PPP deal, or launching it into the market.

The Brazilian PPP law, for example, institutes a series of reports that need to be prepared and upon which a green light decision to procure the project is based. This includes five main items.

- The demonstration of the advantages of the PPP over traditional procurement; this could be a quantitative or qualitative VfM;
- Affordability Analysis, indicating the long-term compliance of the project's liabilities with the medium-term budgetary framework;
- The impact of the project in fiscal aggregate, such as gross debt;
- The results of a structured market test done through a public consultation of the project's draft documentation; and
- Environmental approvals or, at least, environmental evaluation describing the main issues regarding the tasks to obtain the appropriate permits.

At the federal level, all of these items should be structured in an appraisal report submitted for the approval of a PPP council (composed of the representative of the

ministry of planning, the ministry of finance and the president's cabinet) who is entitled to make the green light decision to procure a project.

The Australian state of Victoria also has an extensive policy regarding the assessments that need to be conducted before a final procurement decision is reached. In Victoria, agencies seeking approval to implement a PPP project need to develop a full business case that addresses several aspects of the project. One of them is "solution deliverability". In summary, the full business case needs to demonstrate the following aspects of a project, among other issues.

- Its commercial feasibility;
- Its technical feasibility (details of the recommended solution);
- Its financial feasibility, including bankability;
- The market's interest, through market sounding; and
- The affordability or identification of adequate funding sources.

Similarly with the Brazilian case, this phase, named 'prove' in the policy guidelines of Victoria, creates a formal stage of assessment of the project that precedes the final procurement approval.

A comparable policy directive is used in Canada. Sub-national governments or agencies interested in applying for financial support from the PPP Canada National Fund need to produce and submit a robust PPP business case in support of their funding application. Thus, a final decision about the project, when partially funded by the national fund, relies upon several feasibility exercises.

According to the *P3 Business Case Development Guide*, the feasibility studies as part of the business case

> "should assess the degree to which various features of the project are either sustainable or achieve the objectives desired by the project sponsor. In doing so, they should incorporate, wherever appropriate, consideration of project costs, project revenues, alternative revenue sources, alternative technical solutions, the legal environment in which the project is being implemented, emissions from the project, and other relevant information".

In South Africa, Treasury Regulation 16 creates a formal Treasury approval of PPP projects based upon a feasibility report (Treasury Approval I). This approval allows the project to move to the next stage of drafting the contract and tender documents. According to the policy directives, the feasibility report needs to include the following, among other aspects.

- Legal aspects such as use rights and regulatory matters;
- Socio-economic evaluation;
- Technical definition of project;
- Discussion about costs (direct and indirect) and assumptions made about cost estimates;
- Discussion about revenues (if relevant) and assumptions made about revenue estimates;
- Discussion about all model assumptions made in the construction of the model, including inflation rate, discount rate, depreciation, and budgets;
- Payment mechanism;

- Statement of affordability; and
- Statement of Value for Money.

These examples reveal that many countries recognize the relevance of a robust and comprehensive Appraisal Phase to allow for effective approval decisions for the project.

It should, therefore, be recognized that specific countries might have particular regulatory requirements for the content or form of the appraisal assessment. These requirements must be fully considered and the appraisal exercises need to be adapted accordingly.

19 Planning Ahead

The next phases of the PPP process can be as demanding and challenging as the Appraisal Phase. They are multidisciplinary and profoundly interactive, and the natural interests surrounding large infrastructure projects tend to create a difficult decision environment. Thus, as the Appraisal Phase ends and the project enters the Structuring Phase, there must be sound planning for the future challenges of the project.

The importance of proper project management planning and governance has been introduced in chapter 3 (section 2.10). Ideally, a project management plan has been preliminarily designed at the end of Screening Phase, and a project governance strategy has been set out before appraisal started so as to manage the Appraisal Phase.

At the end of appraisal, the management plan has to be updated and/or expanded to prepare for the governance and management of subsequent phases. This includes matters to be revisited or prepared for the first time such as the following:

Updating the time schedule. At this stage the project plan, developed earlier in the PPP process, must be revisited. Specifically, the project schedule must be rechecked for inconsistencies. Much of the information provided during the appraisal contributes to a more precise time schedule (for example, the estimate of a timeline for environmental approvals and legal due diligence). This information should be used to produce a more realistic project schedule which should also include all the foreseeable stages of the procurement process.

It is important to adopt a realistic approach and avoid the optimism bias with respect to project timelines. This allows the decision-maker to consider the time factor as a driver for the green light decision, which marks the end of the Appraisal Phase.

Reviewing the resources available. The Structuring Phase is likely to demand a highly experienced team working in a multidisciplinary context with a complex and large infrastructure project. This demands considerable resources, either from within or outside the government. The identification of the expertise required (legal, environmental, technical, financial, and so on) is then a fundamental activity. It should be kept in mind, as the need for expertise is mapped, that the Structuring Phase will lead the project all the way to the start of the procurement process. Thus, failures due to a lack of expertise in the Structuring Phase can cause undesirable

delays which can in turn cause the project to fail to deliver the best VfM or to fail altogether.

If the proper expertise cannot be found inside the government, the engagement of transaction advisers and industry experts is highly recommended and the preparation for hiring advisers should begin as early as possible. The engagement of experienced advisers during the Structuring Phase is commonly used even in the most experienced governmental teams. External advisers can help to introduce innovative solutions for the contract structure and can offer industry specific knowledge of the contract and procurement rules.

As explained in chapter 3, the team involved in the Appraisal Phase can be engaged further in the structuring or a team could be hired on a standalone basis just for the appraisal. In the case of the former, the incentives to continue to work on the project after the Appraisal Phase should not interfere with impartiality of the recommendation for the green light decision at the end of the Appraisal Phase. In other words, if the project team is to be kept the same, governance mechanisms should be in place to avoid over-optimistic assumptions.

Whatever the composition of the project team that will conduct the Structuring Phase, at its inception the project team must be fully engaged, and advisers hired as needed.

Enlisting government support and identifying responsibilities. Up until the Appraisal Phase, there might be a mixed involvement of several governmental agencies in the project. As the structuring begins, there is a need to clarify roles (such as the contracting agency, the quality assurance body, the auditing institution, and so on), in case it has not already happened. There is also the need to specify, as clearly as possible, the decision-making roles such as the body (or group of bodies) responsible for the green light decision, as well as for the approvals of the final drafts of the documents and other strategic aspects of the project. The operational or decision-making roles of each governmental body might be defined in the institutional environment of a specific country, such as the PPP law or policy documents. In this case, extreme care should be taken to enlist government support of the agencies prescribed in the law or policy.

When the institutional environment does not provide the final list of bodies to be involved, it is best to aggregate the main stakeholders (especially the agencies with agenda enforcement capabilities or those bodies in a position to enforce their preferences) so as to incorporate their concerns, as far as possible, into the project governance structure.

In any case, a governance framework must be developed for the project, clearly articulating the roles and detailing the decision-making mechanisms. Good practice suggests that a formal guideline of who decides what and how, can be a very important tool for reducing waste of precious resources during the project preparation, especially when those issues are not dealt with in the regulatory framework. Even when aspects of this governance structure are defined in the PPP framework, there is usually space to detail aspects at the project level. In any case, a proposed governance structure to guide decision and processes during structuring should be recommended at the end of the Appraisal Phase.

Other stakeholder identification and communication strategy. As presented in chapter 3 (section 2.11), the identification and management of stakeholders is essential to the success of PPP projects. At the end of the Appraisal Phase, the mapping of stakeholders as well as their concerns and interests needs to be updated because the environment might have changed and the groups affected by decisions during appraisal need to be incorporated. This exercise will also lead to the definition of communication strategies that indicate the types of audiences targeted and the channels to be used in order to establish or maintain relationships. These relationships will promote the project and contribute to a successful development of the Structuring Phase.

20 Appraisal Report

The report must present the assumptions, discussions, and conclusions of the whole feasibility exercise presented in this chapter. Therefore, a typical table of contents for the appraisal report will include the following:

- Executive summary of the conclusions;
- Need and options analysis, policy objectives, and general considerations. This should describe the needs identified during the Identification Phase and indicate the appropriate policy directives to solve them;
- Governance considerations. This could include the description of the agencies involved and their responsibilities in the Appraisal Phase;
- The technical requirements. This could include the definition of the infrastructure, services, outputs location, target user group, technologies to be employed, and so on;
- The commercial feasibility analysis. This should present the main assumptions of the financial model and introduce the results of the commercial feasibility assessment;
- The market sounding conclusions. This should present the procedures chosen to contact the market and extensively present any feedback obtained and conclusions reached, including the decisions about eventual changes in the project;
- Economic analysis. This should be a summary of the CBA developed during the Identification Phase, highlighting the changes made with the revised data.
- Affordability. This should present the total estimated commitments in all scenarios and objectively introduce the results of the fiscal feasibility tests;
- Impact on gross debt. This should indicate the impact on the governmental balance sheet and demonstrate if this impact interferes in the debt limit thresholds;
- Environmental assessments and planned impact mitigations. This item should present the extensive results of the Environmental Impact Assessment and indicate if the project obtained the environmental approvals or, at least, what the required next steps to do so would be;
- Social Feasibility Analysis. This item should include the social impact assessment, including the social action plan;
- Legal due diligence. This should present all the legal issues identified and produce objective recommendations about eventual measures required to overcome legal obstacles;

- VfM assessment. This should indicate the level of accuracy obtained in the VfM estimations, and it should highlight the main drivers that add value to the project in quantitative and qualitative terms;
- The procurement strategy. This should indicate the route chosen and its main characteristics;
- Legal and regulatory requirements. This should list all the legal and regulatory requirements eventually in place for the Appraisal Phase and indicate, in the appraisal report, what information or analysis meets the appropriate requirements;
- Project plan and recommended next steps. This should present the revisited time schedule and the recommended aspects related to governance and operational roles in the next phase; and
- Conclusion. This should have a clear and objective recommendation for the decision-makers about the continuation or cancellation of the project.

The appraisal report should be an evidence-based document. It should reflect as accurately as possible all the work conducted during the Appraisal Phase. High levels of technical data are not necessary, nor is technical jargon, in the main body. Important technical data can be included as an appendix, such as costs, risk management, and technical information to support the feasibility of the project.

It is important that it is written in a style that provides a clear, objective, and direct recommendation for the decision-making authority, as it is the main tool for allowing the project to move on to the next phase of preparation.

21 Obtaining the Final Approvals

The appraisal exercise, reflected in the appraisal report, should recommend one of the following four decisions to be made by the governmental body charged with making the final green light decision or procurement decision.

- The project should be procured as a PPP;
- The project creates economic value but should not be procured as a PPP, in which case the traditional procurement route could be assessed;
- The project should not be procured at all; and
- More information is required to make an effective recommendation.

Sometimes more than one public body is involved in the approval process, and authorization may relate to a particular appraisal exercise, depending on the institutional framework of the respective country (see the example in BOX 4.17:). Common approval processes in PPPs are discussed in further detail in chapter 2.7.5.

BOX 4.17: The Case of Chile: An Example of a Decision Framework
In Chile, a set of feasibility exercises are required for the final approval. In the country, three different players are involved in the green light decision: the Ministry of Finance, the Attorney General, and the Social Development Ministry. Each of

these bodies requires specific sets of assessments to approve the procurement.	
Assessment	**Approving Body**
Fiscal impacts of direct liabilities	Ministry of Finance
Contingent liabilities estimation	Ministry of Finance
Quantitative Value for Money evaluation	Ministry of Finance
Detailed economic assessment	Social Development Ministry
Legal due diligence	Attorney General

22 Getting Ready for the Next Phase: Check List

At the end of the Appraisal Phase, a considerable amount of the technical work required for a thorough preparation of a PPP project will have been done. In fact, this work sets the stage for the structuring of the project and, indeed, for several aspects of the procurement process and contract management.

It is therefore paramount to conclude the appraisal exercise having made considerable progress toward the preparation of final project documentation as well as other conditions that are necessary for the procurement. Failure to meet certain standards at the end of the Appraisal Phase might lead to a decision based on insufficient information, or to an inadequate starting point for the structuring exercise. The following points need to be fully addressed at the end of the Appraisal Phase:

- The technical requirements are described, in terms of infrastructure design and service specification, to the level of detail needed to accurately estimate Capex and Opex;
- The relevant technical risks, including geo-technical risks, are clearly identified and thoroughly analyzed;
- The project is considered technically feasible, considering the technological assumptions and any outstanding risks associated with the technical requirements of the projects;
- A financial model is functional, allowing for sensitivity analysis of the main technical and financial assumptions;
- A base case is described by the financial model, and the equity free cash flow is clearly estimated;
- The project is considered commercially feasible, in the sense that it meets the financial criteria of an appropriate project and equity cash flow;
- A preliminary structure of the project is designed indicating a proposed risk allocation and payment mechanism;
- The project has been submitted to the relevant market players through a structured sounding exercise, and all the issues identified were dealt with;
- The updated financial data has been put into the Cost-Benefit Analysis, and the project is considered to produce positive net benefits to society;
- The eventual financial support to be provided by the government is considered affordable (from the perspective of budgetary appropriations and public financial management);

- The impact of the project on the government balance sheet can be accommodated;
- No outstanding environmental risk has been identified and/or such risks have been dealt with;
- The final environmental permit is obtained or the process of obtaining it is clearly mapped out;
- The social impacts of the project are assessed and mitigation strategies are designed and priced;
- A thorough legal due diligence has identified all the relevant legal issues regarding the project and the requirements of the decision-making process.
- The Value for Money analysis indicates, as far as possible, that the project, procured through a PPP, can be efficiently delivered;
- All the regulatory directives of the particular country that must be met for a final approval to procure a project have been considered as a part of the investigations and actions of the Appraisal Phase;
- A comprehensive plan for the next phases of the PPP process is in place, including the procurement method proposed;
- An appraisal report is finalized containing the conclusions of the appraising exercises;
- All the approvals, which are mandatory at the Appraisal Phase, have been obtained and others, required for the procurement process, have been identified as well as their main issues; and
- A multidisciplinary and experienced team is engaged to begin the Structuring Phase.

23 Summary of Outcomes of this Phase

As the interplay between the several feasibility assessments evolves, including the legal due diligence and the social and environmental assessments, the government will be able to ensure that the project can be done. It will understand what the main obstacles ahead are, and, whenever relevant, what the main actions to overcome them are. Thus, the Appraisal Phase provides a central **contribution to the preparation of the PPP project.**

The Appraisal Phase also allows for a deeper understanding of the costs and benefits of the project as well as its broader consequences. This enables the government to decide if the project is worth implementing, considering its economic, fiscal, environmental, and social consequences, among other impacts it can yield. This represent an **investment decision** that is made, or confirmed, during appraisal.

In fact, as the several analyses interact with each other, the Value for Money assessment verifies if the PPP route is the most appropriate delivery model. The commercial feasibility and affordability assessments demonstrate that the project can be effectively implemented, attracting investors and promoting a responsible use of fiscal resources. This is a **procurement decision** which indicates if the PPP alternative makes sense.

During the appraisal process, the procuring authority will have developed its procurement strategy, defined the future project team, and developed communications plans. If the project is approved, the government is now ready to

move on to final structuring; this is when the project team will need to operate the financial model, translate the technical requirements into contractual obligations, and refine the contract pre-structure, among several other exercises.

During structuring, the tender process will be set out in detail and, more importantly, the value that the project adds to all stakeholders will be incorporated into the documents that will regulate the relationship between the public and the private partner for the duration of the contract.

References

Name of Document	Authors/Editors and Year	Description	htpp link (when available)
PPP Reference Guide V2.0	World Bank Group (2013).	This is a comprehensive description of the PPP process.	http://documents.worldbank.org/curated/en/2014/01/20182310/public-private-partnerships-reference-guide-version-20
PPP: Principles of Policy and Finance	E. R. Yescombe (2007).	The book presents the private sector's perspective on PPP financial issues, including detailed analysis about several value drivers for investors (chapters 7, 8 and 9).	
PPP: Principles of Policy and Finance	E. R. Yescombe (2007).	The book has a detailed description of how to structure financial models, with a focus on PPP deals (chapter 10).	
Feasibility Study Guideline for Public Private Partnership Projects	University Transportation Centre for Alabama (2010).	The report presents a discussion of scenario analysis to test the commercial feasibility of projects, with practical and numerical examples (item 6.3).	http://www.si.umd.edu/Publication/2.%20Feasibility%20Study%20Guideline%20for%20Public%20Private%20Partnership%20Projects_Final%20report.pdf
P3 Business Case Development Guide	PPP Canada.	The report provides a very comprehensive, country-specific approach to the Appraisal Phase.	https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CB0QFjAAahUKEwiAzpCgjY7JAhWHh5AKHVjVDMg&url=http%3A%2F%2Fwww.p3canada.ca%2Fen%2Fabout-p3s%2Fp3-resource-library%2Fp3-business-case-development-

			guide%2F&usg=AFQjCNF8df1IMthGzuAYIwFDeKKVkXvuyA&sig2=nBoMrCxLMsNg3OpqbB-Oxw
Budgeting and Reporting for Public-Private Partnerships	International Transport Forum (2013).	The paper presents recommendations for adequate public financial management of PPP contracts.	http://www.internationaltransportforum.org/jtrc/DiscussionPapers/DP201307.pdf
Risk Distribution and Balance Sheet Treatment: Practical Guide	European PPP Expertise Center (EPEC) (2011).	The paper presents a summary of the approach adopted in the European System of Accounts (ESA)95 for accounting treatment of PPP contracts.	http://www.eib.org/epec/resources/epec-risk-distribution-and-balance-sheet-treatment.pdf
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The Municipality of Rio PPP guide: Screening, Appraisal and Auctioning of PPPs (Volume 2, Section III)	The Municipality of Rio (2012)	The guidelines indicate the process of PPP projects in the city of Rio de Janeiro, in Brazil, defining formal requirement for projects in the appraisal phase.	
How to Engage with the Private Sector in Public-Private Partnerships in	Farquharson and others, (2011)	The book presents a comprehensive view of issues and challenges for the development of PPP programs and projects in Emerging Markets. Chapter 6 addresses several issues of the appraisal	http://elibrary.worldbank.org/doi/abs/10.1596/978-0-8213-7863-2

Emerging Markets,		phase.	
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Appendix A to Chapter 4: Procurement Procedures: Different Approaches to Tender Process

1. Introduction to tender approaches

The procurement procedure is the process that will be followed by the government to assign the contract, and it will generally be referred to in this APMG PPP Guide as the 'tender process'.

As in any public procurement, the usual process should be a competitive process[55], in other words, there will be a tender to gather competitive bids to select an awardee among a number of candidates. The tender process should follow a published set of rules or guidelines described in the procurement framework (either in the form of policies or laws). Guidelines and standard procedures are important to smooth the process and present a consolidated approach to the market.

The ultimate design of the process will be determined (within the potential boundaries of the PPP framework) by a number of factors, such as the strategic significance of the asset, the potential time constraints for the tender period, the extent and nature of competition identified during the market testing, the complexity of the project or the requirements, the cost of the bid process, and so on.

There is a relatively long list of tender process approaches worldwide, but many of them contain the same basic features with small variations. Table 4A.1 at the end of this section describes the main types of tender processes being applied in different countries.

The process will be designed around a number of key features:

- **The approach to qualifications**: The timing of the issue of the Request for Qualifications (RFQ) (in advance, or not, of issuing the Request for Proposal (RFP)) and whether to pre-select (short list) candidates or only apply pass/fail criteria;
- **The approach to the RFP**: The timing of the finalization and issue of the RFP and the contract (whether after a period of dialogue and interaction, or allowing for no interactions and dialogue but only minor clarifications); and
- **The approach to bid submittal and evaluation**: Whether negotiations and iterative proposals are allowed.

[55] Direct awarding or direct negotiations might be appropriate only in very few circumstances. Most of the reasons commonly used to justify negotiating directly are considered spurious (World Bank Group Reference Guide, version 2.0, 2014, WBRG). Also, another route for procurement involves unsolicited proposals which may be closer to direct negotiations, or it may include competitive tension by tendering the project proposed by the private initiator. Unsolicited (or 'privately initiated projects') are discussed in chapter 2.

These features are introduced before presenting and explaining the main tender process types in Table 4A.1. Defining criteria and structuring the tender process is discussed in detail in chapter 4.

Another key aspect influencing the selection process is the evaluation criteria (sole price or other financial criteria versus combined financial and technical or other qualitative criteria). This is not addressed in this piece, as any approach may be used in any type of process from those described below.

23.1.1 Qualification Approach

The first differentiating factor when explaining different procurement procedures is how and when to define qualifications. A qualification is a sub-process or stage within the tender process by which the capabilities and capacity of the prospective bidders are assessed so as to ensure that the selected company or consortium is competent enough to deliver the project and service from both a financial and technical perspective.

This stage may be handled in advance of the invitation to propose, or it may occur after the bid is submitted (for example, qualifications are submitted together with the bid proposal). In the latter case, the RFP document includes the RFQ, that is, the requirements for the submittal of evidence of qualifications and the rules to be applied to qualify the candidates. These are called 'one-stage tender processes'.

When the decision is to first request qualifications in order to assess them in advance of issuing the RFP, the aim is to qualify candidates according to minimum criteria (pass/fail approach) or to select a maximum number of candidates. It is usually defined in the Request for Qualifications. This PPP Guide considers the former case as 'pre-qualification' and the latter as 'short listing'. The short listing of proposals is always applied by an 'interactive or dialogued process' and some 'negotiated procedures'. These are regarded as 'two-stage tender processes'.

23.1.2 Approach to RFP

The RFP is the document that establishes the rules for the submission of proposals and for their evaluation in order to select the awardee. The contract is typically an annex to the RFP.

As explained, the RFQ is integrated with the RFP in one-stage tender processes. The bidders submit the proposal together with their qualifications. Typically, each bidder will only submit one proposal which will usually be regarded as final and not negotiated in this tender approach.

However, in two-stage processes, the RFP will be issued after qualification submittal and evaluation. If there has been a short listing, the RFP will only be provided to those qualified bidders that have been short listed. This is particularly common in negotiated and most interactive procedures.

The contract issued with the RFP may be in a finalized form, or it may be subject or open to significant changes, considering the suggestions of the short-listed bidders during dialogue or interaction.

23.1.3 Approach to Bid Submission

Bidders may be requested to submit only one bid, (typically, this is the case in open tender processes), or consecutive/iterative bids depending on the design of the dialogue or interactive process. Furthermore, the process may allow for negotiation (negotiated process and some dialogue type of process) with a limited number of preferred bidders (final candidates to awardee) or with one preferred bidder.

2. Main Types of PPP Tender Processes

23.1.4 Open Tender or One-stage Tender Process

In this form of open tender, the RFP is published at the same time as the contract, and launching implies the invitation to propose, with the tender open for bidding to any potential bidder. The proposal requirements also include the qualification requirements. It may be structured as one single document (less desirable) or as two separate documents (the RFP and the contract).

Open tender is the most common (and in some jurisdictions the only) method for procurement in many Latin American countries. This approach is also used in the Philippines for some projects.

This form of open tender is also called the 'one-stage tender process' by some practitioners and guides.

This process could, theoretically, allow for several/iterative bids and negotiations, but this is not commonly the case.

23.1.5 Open Tender with Pass/Fail Pre-qualification (or two-stage open tender)

It may be considered a variant of the former type of process (one-stage tender). The only difference is the timing of the issuance of documents, separating the RFQ and the RFP.

Therefore, there is an initial stage in which potential bidders are invited to pre-qualify (under an open basis) before the issuance of the RFP and contract (which will be directed to those bidders that have prequalified), but there is no short listing.

Issuance of the RFP implies invitation to propose, and usually there is only one round of bidding with no negotiations.

This is common in a number of Latin America countries, for example, in Mexico.

23.1.6 Restricted Procedure (short listing with one bid)

As with an open tender with pre-qualification, there is an initial stage in which potential bidders are invited to submit qualifications. Qualifying bidders (those that meet the pass/fail criteria) are ranked on the strength of their qualification

responses, and a limited number of the highest ranking bidders are then short listed.

This short list of bidders will be invited to submit their bids, and they will be evaluated on the basis of their bids before the awarding decision is made.

This is a method used in a number of regions and countries, such as the European Union (EU) and India.

23.1.7 Negotiated Process (short listing with negotiations)

Following a short listing, bidders are invited to submit their bids, and negotiations are open to all of the short-listed bidders or with a limited number of candidates.

Bids are usually iterative, with either more than one bid submitted by each proponent during the bid process before calling for the final offer, although only the final bid may be evaluated. Negotiations may then be established with the preferred bidder. Alternatively, stage bids are evaluated so as to narrow the number of bidders.

This sub-type of process, quite common in some jurisdictions, is referred as the ***Negotiated Process with Best and Final Offer (BAFO)***. Similar to processes with a two-stage tender and a dialogue/interaction phase, the short-listed bidders (candidates) will present and discuss technical solutions during the course of the interaction. However, in a negotiated procedure this will be in the form of a binding technical proposal with a binding price. Two candidates are selected from the bid evaluation process (usually on the basis of pass/fail for the technical proposal and lowest bid for the price). After negotiations, the two selected candidates will submit new offers, their BAFO, on the basis of the risk allocation and technical terms that have been developed with the two candidates in parallel. The selection criteria to define the preferred bidder will normally only be price.

The negotiated process may be considered a variant of the former type, that is, a restricted procedure, because any negotiated process is usually a restricted process.

23.1.8 Dialogue or Interaction Process

In some countries, short listing is accompanied by a dialogue or interactive structured process. First, the RFQ is issued, with the intention to pre-select a short list of qualified bidders. Including basic business terms and project structure is customary. Then, dialogue or interaction takes place in conjunction with the RFP process. For example:

- In the EU, after short listing the bidders, the RFP is published. It includes a draft contract for dialogue or negotiation purposes. After such dialogue, a definitive contractual framework is issued and bidders are invited to offer on the basis of this framework; and

- In Australia and New Zealand, the RFP and contract are issued. The government then conducts interactive workshops with bidders as they develop their bids.

The EU's process focuses on dialogue in relation to defining the final terms of the RFP and the contract. This results in changes to those documents to accommodate bidders' feedback. In Australia and New Zealand, the dialogue focuses on the development of the bidders' proposals and their interpretation of the RFP, ensuring that their bids address the RFP requirements. Hence the process in Australia and New Zealand influences the bids rather than the RFP. This generally does not result in major changes to the terms of the RFP and the contract.

Under the EU approach, it is not common to allow for negotiations. However, the procuring authority will usually request clarifications on the bid submitted. Under the Australian/New Zealand approach it is usual practice to have a final negotiation phase (with one or more bidders) after the initial evaluation of bids.

In the strict sense, only one final bid is submitted, but some processes (particularly in the EU) will consider consecutive bids, usually non-binding.

TABLE 4A.1: Main Types of Tender Process

Type and features	Qualification approach – Submission of Qualifications (SoQ)	Qualification approach – short listing	Time for closing and issuing Request for Proposal (RFP) and contract	Negotiations versus interaction or dialogue	Bidding and selection approach – submission of proposals	Country examples
Open tender or one-stage tender process	The SoQ are called and submitted together with proposals. Request for Qualifications (RFQ) and RFP are integrated in one document.	No short listing.	The RFQ and RPF are integrated and closed together. Issuance of tender package at one time.	Negotiations and dialogue are not permitted after the tender is launched. Request by the bidders for clarifications is allowed, and responses are public during the bid phase.	Only one bid and one straight-forward decision on awardee, with no negotiations.	Most countries in Latin America and Spain. Quite common in the EU vis-a-vis competitive dialogue.
Open tender with pass/fail pre-qualification (or two-stage open tender)	The RFQ is issued in advance of the RFP to qualifying bidders, under pass/fail criteria.	No short listing.	The RFP is closed after the SoQ are received. The contract may be refined during the RFQ phase.	Not allowed, but clarifications request and response during the bid phase are permitted.	Only one bid and one straightforward decision on awardee, with no negotiations.	Columbia, India, Mexico, and some other countries in Latin America for some projects.

Type and features	Qualification approach – Submission of Qualifications (SoQ)	Qualification approach – short listing	Time for closing and issuing Request for Proposal (RFP) and contract	Negotiations versus interaction or dialogue	Bidding and selection approach – submission of proposals	Country examples
Restricted procedure (short listing with one bid)	As in pre-qualification, the RFQ is issued in advance of the invitation to propose to qualifying bidders.	The essential feature of this type: qualifying bidders are short listed (selection of a maximum number of bidders).	As in open tender with pre-qualification.	Not allowed, but clarifications are usual as in the former types.	One only bid and one straightforward decision on awardee, with no negotiations as in former types.	Considered an option under the EU regulations, but less commonly used than the former types.
Negotiated process (short listing with negotiations, or best and final offer – BAFO)	The SoQ is issued and assessed in advance, as in the restricted procedure.	Short listing as in the restricted procedure.	The RFP is commonly closed at the same time as the RFQ. The fundamental characteristics of the selection process and contract should be defined and explained in the RFQ.	Negotiations permitted by definition.	Consecutive or sequential bids are frequently used, commonly under a BAFO process.	Considered in the EU by legislation. More marginal, yet traditional, method of procurement in the EU.

Type and features	Qualification approach – Submission of Qualifications (SoQ)	Qualification approach – short listing	Time for closing and issuing Request for Proposal (RFP) and contract	Negotiations versus interaction or dialogue	Bidding and selection approach – submission of proposals	Country examples
Dialogue process	The SoQ is issued and assessed in advance, as in the restricted procedure.	Short listing as in the restricted procedure.	The RFP may be refined during the RFQ phase, for example in the EU, or it may be also close at the same time as the RFQ. Fundamental characteristics of the selection process and contract should be defined and explained in the RFQ.	Negotiations are usually not permitted (EU), but the contract and some aspects of the RFP may be discussed and refined during the dialogue or interactive process.	The dialogue method typically considers only one bid after dialoguing, refining the contract, and some aspects of the RFP.	An option regulated by legislation in the Arab Republic of Egypt. Regulated option by the EU legislation for specific types of projects meeting some features, mainly related to complexity. Used in some states in the United States (US).

Type and features	Qualification approach – Submission of Qualifications (SoQ)	Qualification approach – short listing	Time for closing and issuing Request for Proposal (RFP) and contract	Negotiations versus interaction or dialogue	Bidding and selection approach – submission of proposals	Country examples
Interaction process	The SoQ is issued and assessed in advance as in the restricted procedure.	Short listing as in the restricted procedure.	The fundamental characteristics of the selection process and the contract should be defined and explained in the RFQ. The RFP is typically finalized following the completion of the short-listing process.	The RFP and contract are discussed during the interactive process and may be refined or clarified by the government, if necessary. Final negotiations are usually conducted with one or more bidders after the initial evaluation of bids.	Following the issue of the RFP and contract, bidders refine their proposals through interactive workshops with the government. Bidders then submit a single complete proposal.	This is the standard approach used in Australia and New Zealand.

References

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