The APMG Public-Private Partnership (PPP) Certification Guide

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 3: Project Identification and PPP Screening

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1. Objectives of the Project Identification and Screening Phase: Where We are in the Project Cycle

The PPP process is composed of a number of phases: identifying the project and screening it as a PPP, appraising the project, structuring the procurement process and the contract, tender and award, and finally managing the contract.

This process requires a significant amount of time and resources. To ensure that those resources are well-spent, reduce the likelihood of failure, and guarantee the procurement process will run more efficiently, governments must carefully choose which projects are included in the PPP pipeline and developed to feasibility level.

An effective method to ensure that those resources are well spent is a two-step approach: preliminary analysis which is developed within the Screening Phase (this chapter of the PPP Guide) and full appraisal (chapter 4 of the PPP Guide). This will avoid the risk of unnecessarily consuming resources in the Appraisal Phase. See box 3.1.

BOX 3.1: Learning Objectives

This chapter covers the activities from project identification to approval of the project to be developed as a PPP, as well as readiness to initiate the next phase (Appraisal). This chapter will allow the reader to:

- Ensure a project has sufficient economic merit to proceed
- Avoid the risk of sinking resources into the analysis and structuring of a non-feasible PPP project
- Prepare and get ready for the next phase: Appraisal.

The process assumes that a public need to provide a service has already been identified. Thereafter, solutions for that need will have to be considered so as to select one, which will be screened as a PPP during the course of this phase, thereby converting the project cycle into a PPP project cycle[1].

This chapter then explains the process and the information required in order to pre-assess the project, and to screen it as a potential PPP — that is, to determine, on the basis of preliminary information, whether it is likely that a project will be

[1] In practice, a project will usually have already been selected and a technical solution identified, probably in the course of an infrastructure plan (for example, a transport infrastructure plan) or a specific program (for example, a health program). The project will then flow directly into the PPP screening stage. However, the flow of the process described in this PPP Guide includes the project identification in this phase; it highlights the importance of selecting the optimal technical solution to achieve PPP project success. The PPP option is just an option to procure the project, which will not convert a weak project (in economic and social terms) into a valuable or optimal solution. Rather, it is intended to protect and maximize the Value for Money of the project.

successfully implemented and will provide value as a PPP. It also identifies the main direct and indirect stakeholders and risks involved in the project, which may impact it positively or negatively and which must be considered in the next phase: Appraisal.

This chapter will present the main items to be covered in a screening report, a summary of the outcomes of this phase, and the needs for the next step.

The screening process is one step in a progressive analysis. This analysis can take much time to be developed. Governments commonly have unrealistic expectations of how quickly the process can be completed. Governments also have a tendency to take a long time to decide to do a PPP, and when this decision is taken there is often significant pressure to implement the project as fast as possible. This can lead to poor outcomes later on.

Trying to mitigate some of these pitfalls, the screening process is intended to guarantee the best allocation of public resources and to meet the needs of society. The effort that the public sector spends in this phase to identify the best project will provide benefits later, as changes made further along in the project cycle as a result of poor or inadequate work in this phase commonly cost more, not only in financial terms but also in time.

2. Overview of the Project Identification and Screening Phase

The starting point of this phase and of the full PPP process is the same starting point as for any procurement of public goods and services process: identification of the need.

There are some steps in the Screening Phase which includes: project identification (entry routes), scope and preliminary economic analysis of these projects and then the decision to move forward to the Appraisal Phase. This final step of prioritization is important to avoid wasting time on projects that will not go ahead guaranteeing that the Public Sector are not going to spend their limited recourses in failed projects (See figure 3.1).

If potential alternatives for the project (from a technical standpoint) are possible, a preferred technical solution must be selected to ensure that the choice best suits the identified needs that the public sector is seeking to address. See boxes 3.2 and 3.3. To fully understand those needs, it is necessary to identify the benefits created by satisfying them; for example, better access for users, a lower price of provided service or investment, and so on. Selection techniques are explained in section 2.5.

BOX 3.2: Example of Technical Alternatives

Imagine that you are running a project to reduce the time spent travelling between two important neighborhoods by implementing a river crossing. There are lots of

different ways of crossing that river. You might have a boat, a bridge, or a tunnel. Even in the bridge or tunnel alternatives you might use cars, buses, heavy rail, light rail, or even pedestrian access. You may or may not charge for the service of crossing. All of these alternatives have different costs, different qualities, and different impacts upon citizens. The impacts will not only be the financial impact on users, in the case of charging, but also the time saved by these alternatives such as the impact on the value of land or property, traffic impacts, environmental impacts, and many others.

If the government is running this project, it probably has a cost parameter in mind, a price beyond which it cannot go. Everything beyond that limit is unaffordable. Also, there is likely to be a minimum quality of service expected from the project, which will imply a minimum cost. Within these minimum and maximum cost limits, a range of technical alternatives may be possible.

The government must also consider different levels of quality offered by technical alternatives. Some alternatives may provide a level of quality far in excess of that required from day one (for example, a bridge with far greater road capacity than that required for the number of users). This may be an inefficient solution.

At the same time, the government cannot settle for a technical alternative that does not meet the quality requirements of users or other affected citizens.

Which alternative must be chosen? The one that best suits the identified needs of society.

BOX 3.3: The Risk of Proposing a Unique Solution

Technical specifications can also derail a project. A common danger is to focus primarily on how the project will be constructed (input-based specifications) rather than on the performance and capacity of the completed asset (output-based specifications). While focusing on input-based specifications provides comparability across different private-sector bids and ensures that public-sector design concerns will be taken into account, doing so limits the ability of the private sector to innovate and propose alternative, and potentially more cost-effective, solutions.

One of the objectives of a PPP is to open up the possibility that the private sector can devise innovative solutions. This potential benefit can be blocked if everything is determined before the tender even starts. When that happens, then the tender is often issued as "build a specific piece of infrastructure and operate it for 20 years" rather than "construct and operate a piece of infrastructure that will solve this problem for the next 20 years". The government must strike a balance between the need to define the technical aspects of the project to be able to cost and appraise it. Indeed, the government needs to avoid becoming locked into a single solution early on.

The next step after defining the technical solution is to clarify the technical scope, including a detailed description and requirements for the most important aspects of the project (technical outline of the project).

Subsequently, the economic sense and soundness of the project must be tested. If Cost-Benefit Analysis (CBA) is used as a selection technique, this will implicitly confirm (or not) the economic sense of the project. If another selection technique is used, CBA must still be performed on the selected technical solution. This will require the gathering of extensive information (see section 2.7) and the use of CBA according to well established practices (which ideally should be provided in the form of guidelines). The process of conducting a CBA is explained in section 2.8.

An economically sound or optimal project solution will be part of a plan (that is, a planned pipeline of projects) or it may be a stand-alone project candidate if there is no planning approach. It may also be a project that has been identified after the plan has been put together. The differences between plans and individual projects are discussed in section 2.3. Every project in the pipeline is a potential PPP candidate, regardless of whether there is a public finance alternative.

If the project appears to have the potential to be developed through a PPP process, the government must screen the project for PPP suitability to test whether the project makes sense as a PPP (see section 2.9). A preliminary financial analysis to pre-test affordability should also be done. This chapter considers that this is done at the same time as testing the PPP suitability of the project. Note that the PPP project scope will have to be defined (and it may differ significantly from the technical scope for the project) so as to remove some responsibilities and tasks from the PPP contract (see section 2.9).

When conducting the PPP suitability analysis, the government must assess the potential gap in information and any uncertainties, and thus the need for additional information. If the information currently available is insufficient or if the results and conclusions are not clear, then further studies will be necessary (see section 2.7). Although some information gaps may be handled during appraisal, these should be clearly described and any uncertainty assessed as part of the decision to move forward to appraisal.

Once the project has been properly identified and pre-defined, and if the suitability test is satisfactory and the information gaps and main uncertainties have been identified, as well as the key stakeholders, then a project management plan should be developed. This will need to include the development of a staffing plan and the identification of any potential needs for advisors to support the feasibility studies that will be needed for the appraisal. It should also include budget estimates and a funding plan for hiring any external expertise that may be needed (see section 2.13).

After that, or during the course of these tasks, all the information should be consistently recorded in a report (the screening report, see section 2.14) on the basis of which an important decision must be taken: whether to move forward to the Appraisal Phase.

FIGURE 3.1: Main Tasks of Identifying Projects and Preparatory Activities to Move Forward in the PPP Cycle

A full appraisal (of technical, environmental, socio-economic, and financial aspects) will take place in the next phase of the PPP cycle, which is described in chapter 4.

3. Identifying Needs: Entry Routes to the Pipeline (Up to Full Feasibility)

The first stage of project identification is the identification of a public need[2]. Projects are not an end in themselves. They are enablers for the government to meet its service delivery obligations. Hence, the government needs to understand what the problem is that it is trying to solve before it starts identifying possible projects. Possible problems might be a lack of transportation links within the country, or a low quality of health service. Having identified the problem, the government can then identify what is needed to solve that problem. For many needs, an infrastructure project is part of the solution.

There are two broad ways in which a government can respond to identified needs.

1. The government can respond to an individual need by identifying an individual project. The overall project may have one or more infrastructure components that should be tested for PPP suitability; and
2. The government can respond to a related group of needs by developing a comprehensive plan that identifies a range of proposed projects. The plan may be for a single sector or across a range of sectors, and it may be for a single geographical area or for the entire country. See box 3.4.

The list of identified projects, responding to individual needs or forming part of a plan, is called a pipeline. It is also important that the connectedness of projects is not overlooked. The effectiveness of one project might be increased significantly if another project is also undertaken. Awareness of such connections should be taken into consideration in a plan and should have an impact on how projects are evaluated.

[2] We are assuming that the need is already identified in a previous stage.

BOX 3.4: Example of a Plan – Master Plan for Acceleration and Expansion of Indonesia Economic Development 2011–2025

The plan should be based on a long-term agenda for economic development. It must factor in the strategic infrastructure investments that should be funded to make the economic vision achievable. The most effective master plans will have clear targets for improvement in all relevant sectors and will have been crafted with input from all the crucial constituencies, including citizens and business leaders.

Several countries have employed this systematic approach. The Indonesian government, for example, has developed a pipeline of infrastructure projects based on its Master Plan for Acceleration and Expansion of Indonesia Economic Development 2011–2025. The blueprint outlines how Indonesia will transform into an advanced economy over a period of 15 years, and it calls for developing six "economic corridors" — regions that focus on specific industries. Investment projects are then developed based on the type of infrastructure, such as roads or ports that would be needed to support those industries.

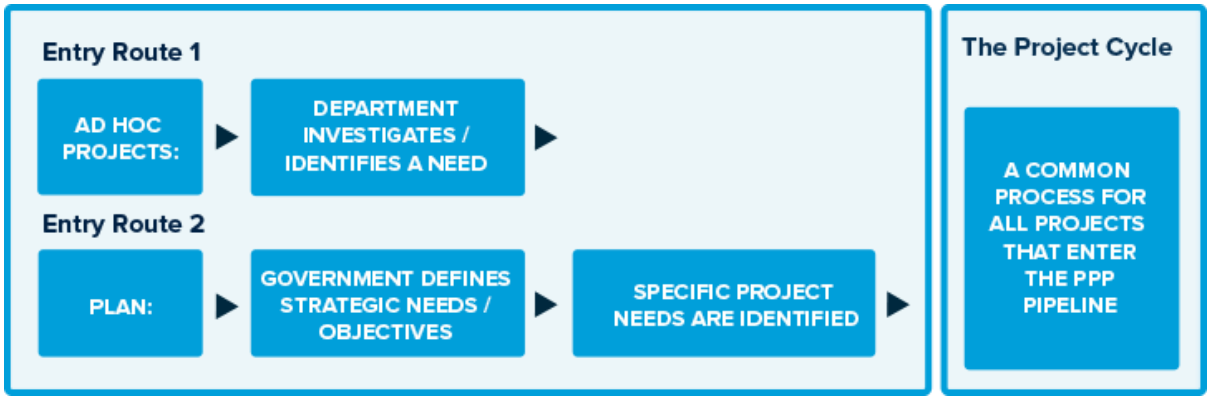
A pipeline is important to attract investors, because investors prefer to invest in a market that has a recognizable pipeline rather than a small number of isolated projects. A government's project pipeline should contain all of its major projects, regardless of procurement method. All other factors (for example, risk, return, and so on) being equal, the presence of a pipeline is attractive because it suggests a structured approach is being followed and that there is a genuine intention to invest in the future prosperity of a wider market segment rather than just an isolated project. Another good reason for having a pipeline is to enable an investor to see the potential to invest across a spread of projects in the same market segment, where they can also benefit from lessons learned and a similar contextual background. Moreover, a consistent approach to determining the appropriate procurement method will give the market the comfort that a sufficient number of PPPs are likely to be forthcoming, which in turn makes the market more attractive, attracting robust competition.

After identifying the project, it is necessary to clarify the scope and definition and any other related, specific information. This includes a description of the main aspects of the project and related matters such as the physical condition of the site. For further details see section 2.6.

A project's economic soundness and its alignment and consistency with the public sector's strategic objectives are paramount factors before deciding to move forward with a technical alternative. Any project selected should be tested for economic feasibility regardless of the procurement route/method (PPP or traditional). Therefore, another benefit of a plan is the fact that projects in the plan have usually already been selected on the basis of their economic feasibility.

FIGURE 3.2 summarizes the more informal way (ad hoc projects) and a more formal one (plan/program) as alternative entry routes to a project pipeline.

FIGURE 3.2: Entry Routes to the Pipeline



When a potential project comes from a plan, it will be moved directly to assessment, with the first task being a CBA analysis to confirm that the project solution selected (the project identified) has Value for Money to the society in socio-economic terms. A CBA might already have been done at the time of the definition of the project for inclusion in the plan. When this is the case, the CBA may need to be re-assessed depending on the level of confidence and work done at the time of the plan definition.

An alternative way to feed the pipeline, as described in chapter 2.6.6, is through unsolicited proposals. According to the Public-Private Infrastructure Advisory Facility (PPIAF) from the World Bank[3], there are various motivations for a government to pursue infrastructure projects through unsolicited proposals. Regardless of these motivations, an unsolicited proposal will have to fit with strategic objectives or respond to a clear need already identified by the public sector and have to be included in the project list or the plan. The challenge that unsolicited proposals bring is that they should not bypass the system. Instead, if the government wishes to consider unsolicited proposals, it should make them part of the system.

> *"(...) mechanisms have been developed to encourage unsolicited bids while also ensuring that competitive tendering is used when identifying the best investor. These mechanisms involve a careful review of such unsolicited proposals to ensure they are complete, viable, strategic, and desirable"* [4]

4. Project Prioritization

A government may face a situation in which there is no room in the budget (either the current budget or a future budget) to procure all potential projects/government-

[3] Public-Private Infrastructure Advisory Facility (PPIAF). *Unsolicited Proposals – An Exception to Public Initiation of Infrastructure PPPs: An Analysis of Global Trends and Lessons Learned* (2014)

[4] Hodges, J., Dellacha, G. *Unsolicited Infrastructure Proposal: How Some Countries Introduce Competition and Transparency* (2007), Public-Private Infrastructure Advisory Facility (PPIAF)

pays PPPs, regardless of whether all those projects respond to relevant needs of the society in an efficient way, creating public wealth, and generating strong net benefits. In this scenario of a restricted budget, a government may need to undertake a prioritization exercise to choose between different projects.

In addition to budget restrictions, there are also, for example, limits to society's ability and appetite to make user payments. An individual project with user payments may be, in itself, financially and economically viable. However, if there are a large number of new projects with significant user charges, this may have an unacceptable impact on people's cost of living or the cost of doing business in the region.

Project prioritization enables the government to choose the right alternatives when there are numerous economically and technically feasible projects to address the public needs. See box 3.5. The main objective is to ensure that public funds are well spent and produce the highest benefit for society — even if there is a restriction in the budget or in users' capacity to pay. Prioritization may require the government to abandon a project for the time being, or move it to later in the program.

Many jurisdictions use economic analysis to prioritize, that is, projects showing a higher economic Net Present Value (eNPV)[5] or higher economic Internal Rate of Return (eIRR) [6] will be prioritized. These and other techniques of prioritization are discussed in section 2.5.

BOX 3.5: Areas of Focus to Enable Governments to Perform Rigorous Evaluation of Projects

Governments need to invest in three areas to ensure that they can evaluate projects with the necessary rigor.

First, they should train the right people and develop the appropriate systems for conducting these evaluations. One approach is to create new units within a government that have the experience and tools to conduct these analyses. Initially, it may make sense to tap outside experts to lead the effort while training in-house staff along the way.

Second, governments must develop benchmark databases that collect cost information on both public and PPP infrastructure projects. This information, which should include not only the capital expenditures for developing a project but also

[5] eNPV is defined as the difference between the discounted investment expenditure and the discounted value of the social net benefits generated by the project during its lifetime. The social impact (benefits and costs) are calculated after taking into account externalities (such as economic, social, political, and environmental costs and benefits) not included in financial NPV calculation.

[6] eIRR is the project's internal rate of return produces a zero value for the eNPV.

the cost of operating the project over its life cycle, will drive the projected cost analysis of similar projects. One Asia-Pacific government developed a database of road construction projects for just this purpose.

And third, governments need to develop standardized methodologies for making these assessments and identify a source of common key assumptions, such as what the financing costs would look like under a public-sector approach versus a private-sector approach.

5. Option Analysis and Selection Techniques

There are multiple techniques for identifying the best technical solution for a project and hence which projects best meet public needs. This section will briefly introduce those techniques.

The government should have a policy of using a particular technique so that all projects are compared in a standard way. If projects are screened on a case-by-case basis using different techniques, the result would lead to invalid comparisons between different projects.

One of the usual techniques for project selection, as already introduced, is the CBA analysis. It compares different project technical solutions to test which shows highest Net Present Value (NPV) in economic terms or highest economic Internal Rate of Return (IRR). Note that CBA can be a selection technique and is also the most appropriate technique for the economic feasibility assessment.

The CBA technique is explained in depth in section 2.8 of this chapter.

Other analytical techniques that may assist in selecting/defining the project are Cost-Effectiveness Analysis and Multi-Criteria Analysis, which have the advantage of being less intensive in resources and less complex[7].

Cost-Effectiveness Analysis (CEA) is one of the major alternatives to Cost-Benefit Analysis. CEA relates the cost of an alternative to a measure of project objectives (or, in other words, to its key outcomes or benefits). For example, dollars per time saved on various public transportation systems.

Government projects often generate various types of benefits which must be weighted to achieve a common “denominator”. In Cost-Benefit Analysis, dollars are the denominator. Cost-Effectiveness Analysis provides an alternative technique

[7] For examples of these techniques, see Yates, B. T. (2009); Zopounidis, C. (1999); Zopounidis, C. and Pardalos, P. M. (2010), chapter 2.

whereby valuing in monetary terms is almost impossible. Kee and Cellini (2010)[8] summarized this ratio as:

$$Cost\ effectiveness\ Ratio\ = \frac{Total\ Cost}{Units\ of\ Effectiveness}$$

As the output is a non-valued ratio, the major difficulty with CEA is that it leaves a subjective judgment to the policymaker.

Multi-Criteria Analysis (MCA)[9] establishes preferences between options by reference to an explicit set of objectives that the decision-making body has identified, and for which it has established measurable criteria to assess the extent to which the objectives have been achieved[10]. The main objective of Multi-Criteria Analysis is to solve a decision problem. Often, conflicting multiple criteria must be taken into consideration[11]. The measurement need not be in monetary terms, but is often based on the quantitative analysis of a wide range of qualitative impact categories and criteria.

Multi-Criteria Analysis is often seen as[12]:

> *"(...) an 'alternative' to defining monetary values for all the major costs and benefits when this is impractical. However MCA must not be seen as a short cut, nor as an easier technique for inexperienced people to use."*

MCA introduces both quantitative and qualitative criteria in the evaluation of an alternative. In some cases, the quantitative criteria may be the result of qualitative factors (for example, poor organization in a hospital will affect its expenses and its results).

6. Technical Outline of the Selected Solution

The next step after defining the technical solution is to clarify the technical scope, including a detailed description and set of requirements for the most important aspects of the project (that is, a technical outline of the project).

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[8] Cellini, S.R., Kee, J. E. Cost - Effectiveness and Cost - Benefit Analysis. In *Handbook of Practical Program Evaluation*, Third Edition (2010), pages 493- 530.

[9] Often called multiple criteria decision making (MCDM) by the American School and multi-criteria decision aid (MCDA) by the European School.

[10] Department for Communities and Local Government: London (2009). *Multi-Criteria Analysis: A Manual*.

[11] Zopounidis, C. Multi-criteria Decision Aid in Financial Management. In *European Journal of Operational Research 119* (1999) pages 404-415.

[12] Department for Communities and Local Government: London (2009). *Multi-Criteria Analysis: A Manual*.

This step includes a description of the project that covers aspects such as the sector, technical outline, and physical conditions (for example, distance for transport, surface for buildings, and so on), site, geographical area, affected/benefited population, and so on.

Each project should be described with sufficient certainty to enable the government to answer the questions set out in section 2.9 (screening for PPP potential).

Good scoping will clarify the information needed to continue the pre-assessment. For a robust result of this phase, having enough good quality information is crucial.

Additional time and effort may be required to adequately define the PPP project scope if, at the outset, one or more of the following factors are prevalent:

- Lack of a clear specification of what is required;
- Novelty or lack of experience of this particular activity; and
- Complexity in terms of the number of influencing factors and associated inter-dependencies.

7. Information Requirements/Data Checklist

Most projects have constraints and dependencies that must be clarified before beginning the full appraisal, such as land availability and environmental studies. The main purpose of these considerations is to identify potential difficulties or obstacles that will have to be considered during the project's full appraisal (both in terms of results and of time). The information requirements discussed in this section represent potential obstacles and apply to any project, regardless of whether it is a PPP or not.

If there are many uncertainties regarding constraints and dependencies in aspects of the project, they will need to be listed to support the screening process, since this is a factor (time and readiness) that may influence the decision about moving forward. Such issues include: (i) land availability; (ii) relevant construction risks, such as a dependence on geo-technical conditions; (iii) technology requirements (need to use new or untested technology); (iv) significant site risks including lack of information (for example, utilities, hazardous materials, and so on); (v) important environmental concerns; (vi) access to other permits (such as those to be issued by other governments); and (vii) general concerns about the availability of information for the project's appraisal, and so on.

In addition, a list of legal and regulatory issues that need to be further tested in the full appraisal should be included in the screening report to inform the next phase of the project. The information collection should consolidate the information and data required to be analyzed. It should also provide a description of any information or data weaknesses, recommending, if necessary, further analysis or research to correct these weaknesses.

Information requirements

The information and data required to properly assess CBA analysis, economic feasibility, and later on screen the suitability of a project as a PPP (to finally determine whether it should proceed to appraisal) includes the following.

- Name and position of the proponent (person in charge/department within the Public Sector) (*);
- Project description: Sector, technical features (surface for buildings; kilometers for transport), and so on (*). At this stage, the project description is preliminary and subject to change;
- Cost estimate (Capital expenditures – CAPEX): Composition of the cost estimate for CAPEX (*). As at this stage, the Capex estimation is preliminary and subject to change. To avoid creating unrealistic expectations about project costs, some governments consider it important to guard against public release of this cost estimate;
- Construction term considered;
- Affected area/population (*);
- Operation and maintenance (O&M) cost estimates (including life-cycle/refurbishment costs that will be incurred during the possible term of a PPP contract);
- Consideration of whether, and to what extent, user fees can be charged for the project;
- Revenue estimates (if it is a revenue-making project). This may require studies of demand for the infrastructure, such as traffic forecasts – see box 3.6 for a discussion of the challenges associated with traffic forecasting;
- Timetable objectives: Desired procurement dates (*);
- Considerations regarding the need for public support/contributions and estimates of the necessary contributions, if any;
- Explanation/justification about the project's suitability in relation to the public sector's general policies / strategic plan (*);
- Description of the need being fulfilled by the project. Main economic impact factors and socio-economic benefits of the project (*);
- Options and suitability of the proposed solution. Are there other technical options? Have these options been considered? If not, explain why;
- Description of potential interest from private investors/promoters and potential appetite and suitability of the private sector (availability of private skills for such a project). This description should include potential sources of finance; likely sources of bidders, including whether local firms will be interested in or capable of bidding alone (or as part of a consortium), and whether regional or global firms will be interested;

- Similar precedents (both successful precedents and unsuccessful precedents[13]);
- Site/land availability, if relevant (*);
- Environmental considerations: Describe environmental requirements/ difficulties if significant;
- Status and readiness: Describe studies that have already been carried out or that are in process, if applicable; and
- Other relevant information in relation to suitability, economic soundness, project readiness, risk of failure in project delivery/implementation, and so on.

(*) Means minimum information to be provided by the promoting department.

Note that this list is a summary and does not include all the information that may be necessary to properly pre-assess the project and screen the suitability of the project as a PPP, or to determine whether it should proceed to appraisal.

BOX 3.6: Forecast for Traffic

A 2005 analysis of 104 toll-road projects by Standard & Poor's[14] found that, on average, forecasts for traffic exceeded actual first year traffic by 20 to 30 percent. When demand is overestimated, projects may fail to deliver the expected revenues. It is nearly impossible to obtain either bank or private financing for a project that does not include solid demand forecasts with sensitivity analyses on key risks (such as a rise in raw-material costs or changes in levels of demand).

Overestimation of demand is also of concern to governments, even if the project is successfully financed, as it can result in unworthy projects proceeding and, if there is government financial support for the project, significant fiscal risks for government.

Some of the basic information can be collected directly from the project management team. Data related to estimates of Capex, operational expenditures (Opex), and O&M costs (as well as similar precedents, and so on) can be collected in a variety of

[13] Successful precedents indicate that a project of this type is possible. Unsuccessful precedents help the public entity to understand what the key risks and challenges are in a project of this type.

[14] Bain, R., Polakovic, L.: *Traffic Forecasting Risk Study 2005: Through Ramp-Up and Beyond*. Standard & Poor's, London (2005)

different ways. It may be possible to directly estimate the costs of delivering the project scope. But even in this case, it is important to compare these costs to market parameters for similar projects. A data base of comparator projects[15] can greatly assist the project team to assess the reasonableness of these estimates.

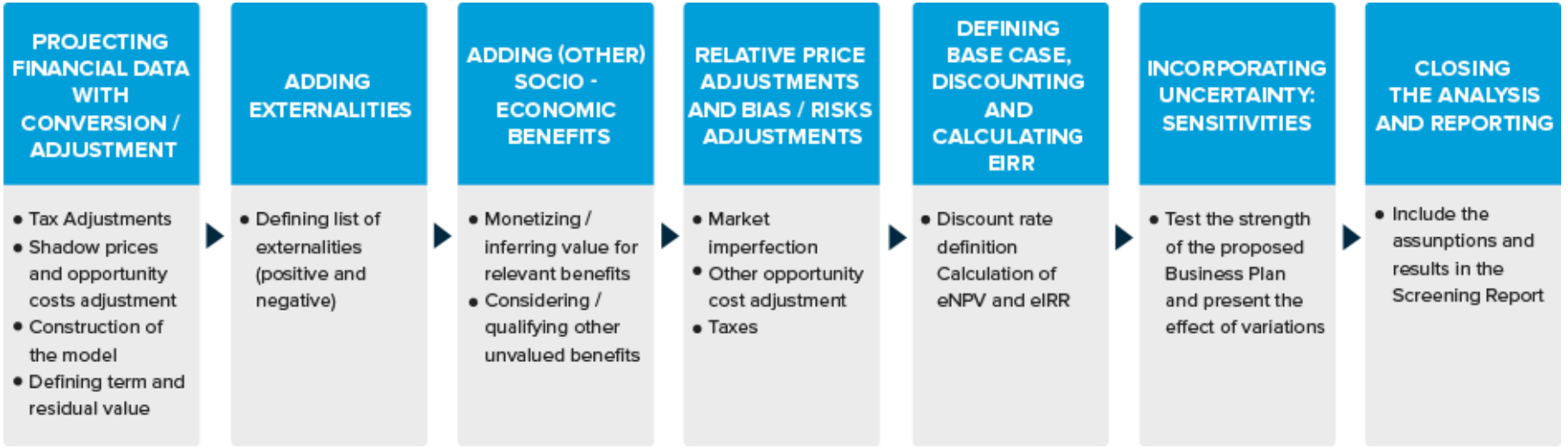
8. Economic Soundness. Introduction to Cost-Benefit Analysis

This section introduces[16] the concepts of Cost-Benefit Analysis and economic analysis.

[15] An example of this worldwide information can be found in the United Kingdom website https://www.gov.uk/government/publications/private-finance-initiative-projects-2014-summary-data

[16] This PPP Guide is not a manual for project appraisal and readers should refer to specific texts on CBA for detailed guidance. For instance, for further details see *The Green Book: Appraisal and Evaluation in Central Government* – HM Treasury from the United Kingdom.

FIGURE 3.3: Sequence of the CBA Analysis



Note: CBA= cost-benefit analysis; eIRR= economic Internal Rate of Return; eNPV= economic Net Present Value.

The most refined form of economic analysis is the Cost-Benefit Analysis methodology. It assesses the social cost-benefit equation, in which the benefits for society have to be higher than the costs to the public for the project to be worthy of proceeding. It is an exercise that aims to include all relevant costs and benefits. This is done with a long-term perspective, projecting both costs and benefits through the analysis period. The period considered has to be in line with the useful economic life of the infrastructure asset.

CBA may be used to identify an option (from several technical solutions for the same need) when there are several options or alternatives under discussion. If the best technical option has already been identified, CBA may be used simply to confirm the investment decision. In this scenario, CBA is still comparing options: the "project" and the "doing nothing option".

Regardless of the route or alternative selected for its procurement and financing, public infrastructure is always a "public investment" subject to the public domain. Therefore, especially when the project/investment is not commercially feasible and requires the use of public resources (no matter whether under a traditional public procurement entirely funded by public funds or under a PPP scheme), there is a clear need to demonstrate that the public funds or public contributions are well spent, that is, that they will produce net benefits for society.

CBA is the relationship between the value of resources used by a project, and the value of resources produced by the project. Value is measured in the same units, usually monetary, for both costs and benefits.[17]

Focused on government decisions, Kee (2005)[18] defines Cost-Benefit Analysis as:

> *"Cost benefit analysis is an applied economic technique that attempts to assess a government program or project by determining whether societal welfare has or will increase (in the aggregate more people are better off) because of the program or project. At its greatest degree of usefulness, Cost-Benefit Analysis can provide information on the full costs of a program or project and weigh those costs against the dollar value of the benefits. The analyst can then calculate the net benefits (or costs) of the program or project, examine the ratio of benefits to costs, determine the rate of return on the government's original investment, and compare the program's benefits and costs with those of other programs or proposed alternatives."*

Box 3.7 defines some key concepts of importance in Cost-Benefit Analysis.

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[17] Yates, B. T. (2009). *Cost-inclusive Evaluation: A Banquet of Approaches for Including Costs, Benefits, and Cost–effectiveness and Cost–benefit Analyses in your Next Evaluation*. In *Evaluation and Program Planning 32* (2009) 52–54.

[18] Kee, J.E. (2005). *Cost Benefit Analysis*. In *Encyclopedia of Social Measurement, Volume 1*, pages 537-544.

BOX 3.7: CBA Primer[19]

- Willingness to Pay: Perceived value of the benefits to users of the infrastructure.
- Financially Viable Projects: Revenues exceed the costs of the project.
- Economically Viable Projects: Benefits that society derives from the project are greater than the costs to society.
- Viability Gap: Difference between revenues and costs of the project (for projects in which costs exceed revenues).

When considering benefits in the Cost–Benefit analysis, benefits have to be considered in the broad sense of the term: direct or indirect, internal and external (that is, external are those that affect or benefit third parties beyond the population to which the project is addressed in a first instance). In order to estimate direct benefits, the first step would be to research whether there is available market data regarding the specific benefit.

In cases in which benefits appear as cost savings, the quantification of a benefit is implicit in the cost estimate of the alternatives under analysis (for example, the project will lead to lower congestion levels or will increase mobility, the project will substitute an old facility and generate environmental savings by means of lowering pollution, and so on).

When valuing project costs and benefits, a quantification problem can arise. Most of the costs are direct costs (such as the cost of the investment itself, the public works), but the project may have other indirect costs and benefits as well as positive and negative "externalities[20]" (such as environmental effects, damage to a certain population, such as commercial business affected by the works or the site of the project, and so on). Box 3.8 sets out the impact of some common externalities.

[19] Guzman, A; Estrázulas, F. *Full Speed Ahead: Economic Cost-Benefit Analyses Pave the Way for Decision-Making*. In *Handshake*, the International Finance Corporation's (IFC's) quarterly journal of public-private partnership. Issue #7 – October 2012.

[20] Externalities refers to situations when the effect of production or consumption of goods and services imposes costs or benefits on others which are not reflected in the prices charged for the goods and services being provided.

BOX 3.8: Impact of Externalities[21]

Externalities, which will be positive where they provide a benefit and negative where there is a cost, may include:

- Economic development, for example, increases in land values and general economic activity
- Effects on safety or public health, for example, reductions in accident deaths once a new road has been built
- Environmental impact, for example, increases or decreases in noise or air pollution.

Costs should reflect the best alternative use of the goods (opportunity cost[22]) to the extent to which it is possible.

- Although market prices are the best way to reflect the opportunity cost, in some circumstances they may not do so accurately (distortions in the specific market for the good or service due to monopolies or other market imperfections).
- There is a need to discount the effect of taxes in the prices/costs, as they are part of the nominal value of the cost (in terms of cash flows), but do not imply a cost in terms of society (but in fact are a revenue for the government).

Dealing with benefits is especially challenging since all benefits have to be quantified. Benefits often relate to the "opportunity cost" concept. Time savings are a clear example (in the field of transportation projects).

Determining the unit of analysis and its monetary value is not an easy exercise for many intangible variables (such as quality of life, security of a neighborhood). One alternative to determine its monetary value is to assess the highest price an individual is willing to agree to pay for a good or a service. As described by Breidert (2005)[23]:

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[21] Yescombe, E. R. 2007. *Public–Private Partnerships: Principles of Policy and Finance*. Published by Elsevier Ltd.

[22] Opportunity cost is a concept used in economics to describe the trade-off between different choices, or the cost associated with making one choice over another. The opportunity cost of using a resource in a certain way is the value of the next best alternative use that is forgone. For example, the opportunity cost of investing in building a school could be the forgone value of investing in the next most valuable infrastructure project (or any other use of the expenditure) and the benefits associated with these (e.g. building a road, hospital, etc.). HM Treasury. 2014. Supporting public service transformation: cost benefit analysis guidance for local partnerships.

[23] Breidert, C. 2005. Estimation of Willingness-to-Pay. Gabler Edition Wissenschaft.

"How much a person is willing to pay depends on the perceived economic value and on the utility of the good. These two values determine whether the price a person is willing to accept is the reservation price or the maximum price. If a person believes that there is no alternative offering, the highest amount of money he or she is willingness to pay equals the utility of the good and is the reservation price. If a person perceives an alternative offering with an economic value below utility, the highest price he or she would accept equals the economic value of the product and is the maximum price."

Where it is difficult to determine the monetary value of a benefit, it can be useful to consider values from studies in other countries, although care is necessary in interpreting these as the value (for example, willingness to pay) in one country may be different from another.

If it is decided not to quantify a specific benefit, the benefit should be treated qualitatively and considered or included in the analysis in addition to the quantitative results. In this case, even when it is not possible to express all of the benefits or costs in quantitative terms, it is possible to reveal important aspects for decision-makers.

In socio-economic terms, it may be said that there is a need to demonstrate that a project's social and economic benefits are higher than its costs. The first act is to demonstrate social and economic benefits in quantitative terms. When this is not possible, it may be handled through a qualitative analysis, describing the main advantages and the value added by the project to the society in terms of relevant magnitudes, defined in accordance with the authority's strategic plan and global strategic objectives.

Table 3.1, taken from Kee (2005), provides a framework for Cost-Benefit Analysis with examples and generally accepted approaches to valuation of the benefits and costs.

TABLE 3.1: Cost-Benefit Framework

Benefits		Illustration of Benefit Cost	Valuation approaches
	Direct: Tangible	Goods and services Increased production or profits/lifetime earnings Time saved	Fair market value or willingness to pay Increased productivity/earnings After-tax wage rate

	Direct: Intangible	Lives saved Healthier citizens Quality of life Aesthetics	Lifetime earnings (if valued) (Implicit or contingent valuation using survey data or other techniques)
	Indirect: Tangible	Cost savings Spillover impacts to third parties Multiplier effects	Difference between before and after action Estimated impact or mitigation of impact Additional indirect jobs created by proposal
	Indirect: Intangible	Preservation of community Increased self-esteem	
Costs			
	Direct: Tangible	Personnel Materials and supplies Rentals (facilities/equipment) Capital purchases Land Volunteers	Wages and benefits Current expenses Fair market rents Depreciation plus interest on un-depreciated part or annualized cost of depreciation and interest Next best use or market value times interest rate Market or leisure value
	Direct: Intangible	Fear of harm	

	Indirect: Tangible	General overhead Spillover costs to third parties Environmental damage Compliance/client costs	Standard allocation formula or activity-based costing Estimation of impact or mitigation cost Resources required of others (money, time, and so on)
	Indirect: Intangible	Loss of aesthetics	Surveys of valuation

Once the direct costs are duly adjusted and the externalities (external costs and benefits) are identified and quantified, a number of additional adjustments should be made before the results of the analysis are calculated and presented;

- Adjustment for inflation: it is advisable to construct projections in real terms, since a correction for cost projections should be done for those cost items that are considered likely not to follow the general Consumer Price Index (CPI). This is usually considered as corrections in relative price changes; and
- Adjustment for risk and uncertainty (section 2.8.2).

8.1. Performance Indicators

The main performance indicators in economic-analysis are the economic Net Present Value and the economic Internal Rate of Return (eNPV and eIRR, respectively). Mathematically speaking, the eNPV consists of the projected costs and benefits, duly discounted using a suitable discount rate, and the eIRR is the value of the discount rate that makes the NPV equal to zero. Generally speaking, the eNPV should be positive, thereby indicating that the project generates or is capable of producing higher benefits than costs, after allowing for differences in the timing of the costs being incurred and the benefits being received.

The selection of the discount rate to be used is a key issue for a proper CBA, so that the eNPV is properly calculated in terms of opportunity costs. See box 3.9. There is no universal consensus on the determination of this discount rate, which leaves too much room for 'ad hoc' interpretation and application (and which opens the door for manipulation of the data)[24]. The difficulty of finding an 'acceptable' discount rate

[24] For further details see: Grimsey, D., Lewis, M. (2004). Discount Debates: Rates, Risk, Uncertainty and Value for Money. In PPPs in Public Infrastructure Bulletin Vol.1 Issue 3 Article 2; Grout, P. (2002). Public and Private Sector Discount Rates in Public-Private Partnerships. In CMPO session of the Royal Economic Society Conference 2002 (University of Warwick). Shugart, C. (2006). Quantitative methods for the preparation, Appraisal, and management of Private Participation in

should be taken into consideration in interpreting the outputs of the CBA. It may be appropriate to conduct sensitivity analysis using a range of different discount rates.

Due to the difficulty in determining the appropriate discount rate, particularly if this is done for every individual project, some governments identify and publish a standard rate to be used and, in some cases, also publish the appropriate range for sensitivity analysis. For example, in Australia a standard practice is to use a 7 percent real discount rate as the base case, and to conduct sensitivity tests using 4 percent and 10 percent real discount rates[25]. Where a standard rate is published, the government may change it from time to time, and the most up to date rate should always be used.

As CBA evaluates the economic merit of a project regardless of how it is delivered, the fact that the project might become a PPP does not affect the discount rate used.

BOX 3.9: Usual Approaches to Discount Rate

- Use the opportunity cost of capital. Since the analysis is dealing with public assets, the discount rate could be the public debt interest rate (at the longest term available). Inflation has to be removed in order to establish the rate in real terms.
- Use an approximation of the Social Time Preference Rate (STPR), which is defined as "the value that society attaches to present, as opposed to future, consumption". This approach is advised or prescribed in a number of countries such as the United Kingdom (UK).
- Use the estimate or the targeted rate of future growth of the economy (gross domestic product – GDP) in real terms. This would imply that only those projects from which an increase in the society's welfare (at least equal to the economy's expected or targeted growth rate) is expected will be developed, which means that all projects will at least help the GDP grow as forecast.

A proper analysis should avoid: (i) rejecting projects that generate a strong value for society; and (ii) approving an inadequate project and using public resources that generate a significant net opportunity cost for society.

In some instances though, the eNPV may not be the most appropriate indicator, since it does not consider the volume of resources employed. In cases in which alternatives have significant differences in terms of resource consumption, the eIRR ratio may be more appropriate for the selection. In these circumstances, it is prudent

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Infrastructure (PPI) projects in Sub-Saharan Africa. Prepared for the New Partnership for Africa's Development (NEPAD) Secretariat Funded by PPIAF.

[25] Infrastructure Australia (2013), Reform and Investment Framework Templates for Use by Proponents: Templates for Stage 7 Solution evaluation (Transport infrastructure), page 7.

to consider the results based on both eNPV and eIRR, as well as any qualitative analysis.

The main data for economic projections must be adjusted as described below.

8.2. Conversion of Financial Data (financial cash flows) into Economic Flows: Opportunity Costs, Shadow Prices and Tax Adjustments

In general terms, cost and revenue cash flows need to be adjusted in order to reflect the real value or cost for society. The current market prices for many costs (but also revenues) usually reflect the real costs for the society as they appropriately provide opportunity costs. However, some cost estimations may not reflect an appropriate cost for society, since they may be biased for several reasons or because a market simply does not exist for them (externalities). When this occurs, it may be necessary to make some adjustments. See box 3.10 and figure 3.3.

Market Imperfections

A particular item's current market price may not reflect its real price when the specific market has imperfections, especially when it is a regulated market or item (currencies, oil, energy, and other commodities, as well as labor and others). When this occurs, the concept of "shadow prices" should be introduced. These shadow prices shall be estimated and used instead of the market price being included in the financial analysis. The 'shadow prices' is an attempt to value a benefit or a cost where no competitive or explicit market price exists.

As an example, one of the most typical adjustments relates to the labor costs (wages).

- In the context of a high unemployment level, the salary is usually above the real price of the item (due to legal regulations on minimum salary). Therefore, an adjustment decreasing the value of this item must be made; and
- In a context of high employment, wages tend to reflect the real market price of the labor factor (so no adjustment has to be made).

Another example, especially relevant for emerging and developing economies (EMDEs), would be as follows;

- Electricity prices are often below economic levels. A commercial NPV of an energy efficiency project would tend to reject good projects because the energy savings measured at official tariffs will be depressed; valuing energy

savings at the economic cost of electricity would give the correct CBA outcome.

Other opportunity cost adjustments

There may be some costs that are not a direct cash cost of the project, but should be considered within the socio-economic analysis. The most typical example is public land or public properties. When there is no cost for the land or the site, or a building or other asset is being provided by a public entity for the project, its cost should be included in the analysis — valuing the land at its market price so as to reflect the opportunity cost for the authority. However, in cases in which there is no alternative use for the asset, the cost is deemed to be zero since it is a sunk cost. The 'sunk cost' is Investments previously made in a program or project—such as original research and development costs that cannot be recouped—compared to ongoing costs.

Taxes

The price of an item (in cash terms) generally includes taxes that are in fact public revenue. Therefore, the tax effect has to be removed from the calculations; for example, corporate taxes, value-added tax (VAT) (not only for costs, but also for revenues) and other taxes, and social charges within labor costs — as they transfer price payments to individuals.

There may be some indirect taxes and subsidies that could be used as corrections for externalities, for example, taxes on energy to discourage negative environmental externalities. In these cases, including the tax may be justified, while also adding an adjustment for the externality in order to avoid double counting.

Another case of tax adjustment is related to imported products where the effect of the respective duty should be removed.

BOX 3.10: Example of Adjustments and Conversion for Different Factors

An appraiser is analyzing an urban transportation project in Brazil.

The project is a light rail transit (LRT) system and the technical team has provided the cost estimates for both CAPEX (Reals- R$135 million) and O&M costs (R$20 million per year). Economists have determined the following adjustments:

- Adjust the price of certain equipment that must be imported, and for which a specific duty is charged. This equipment represents 30 percent of the investment in systems and the duty imposed is equal to 10 percent of the final price, representing an adjustment of R$ 500,000.
- Adjust labor costs to shadow prices. An adjustment factor of 0.8 has been considered for construction costs and 0.9 for O&M costs (considering that weighted average salaries are overvalued taking into account the unemployment rate).

  Labor costs represent 25 percent of the CAPEX (R$ 33.75 million) and 50 percent of O&M costs (R$ 8 million). Therefore, an adjustment of R$ 5.9 million and R$ 800,000, respectively, should be applied.

	Costs Estimates (cash flows tax adjusted)	Adjustment	Cost estimates (socio-economic adjusted)
a) Civil works	$ 100 million	75%*1+25%*0.8	$ 95.00 Million
b)Systems (energy, signaling and communications)	$ 20 million	(75%*1+25%*0.8) + (70%*1+30%*0.9) - 1	$ 19.00 Million
c) Rolling stock	$ 15 million	75%*1+25%*0.8	$ 14.25 Million
Total CAPEX (a+b+c)	$ 135 million	94.6%	$127.65 Million
O&M projected costs	$ 20 million / year	50%*1+50%*0.9	$ 19.00 Million

8.3. Incorporating Risk and Uncertainty into the Analysis

The risks that are inherent to a project have to be considered and included in the appraisal. This must be done through proper adjustments and/or showing the ranges of values for certain sensitivities/future movements or the deviations on critical factors and variables. For this purpose, risks have to be quantitatively evaluated, incorporating the "expected values" of the risks into the results of the analysis or evaluation. The expected value of a risk is the product of the likelihood of the risk occurring by the size or amount of the outcome (in monetized terms); this should be done for all relevant or "critical" risks whose likelihood and outcome can be reasonably estimated.

Chapter 4 provides further information on assessing costs and adjusting them considering risk and uncertainty (from a financial perspective). See section 3.4 and section 3.6). Also, *The Green Book* by HM Treasury in the UK provides detailed information on this subject[26].

9. Scoping the PPP Project and its Challenges

Scoping the PPP project means defining the work that must be done by the future private partner to deliver the project objectives. Potentially some portions of the project scope (technically speaking) may be refined and removed from the PPP project (for example, if the project selected is a bus rapid transit system, the future PPP may include the bus way, bus stops and depots but exclude the vehicles).

Consequently with the refined technical outline (accommodated to match the PPP scope), the project scoping includes the definition of the scope of the service and/or the scope of the business to be handled by the private (for example, it may or may not include tariff collection).

This should be expressed as a service standard defining what will be done, to what quality levels, and by whom.

The following questions about a project[27] may assist governments in resolving uncertainty as to the PPP scope.

- Who are the parties ultimately involved?
- What do the parties want to achieve?
- What is it that each party is interested in?
- Which way (how) is each party's work to be done?

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[26] *The Green Book* by HM Treasury, Annex 4 Risk and Uncertainty.

[27] Chapman C.B., Ward SC. *Managing Project Risk and Uncertainty: A Constructively Simple Approach to Decision Making*. Chichester, UK: John Wiley & Sons Ltd.; 2003.

- What resources are required? and
- When does it have to be done?

Box 3.11 sets out how these questions were answered for an example project, Liverpool Direct.

BOX 3.11: Liverpool Direct[28]	
In 2001, the **Liverpool City Council**, faced with under-investment in information technology infrastructure and with a badly integrated multitude of systems, entered into an **11 year strategic partnership** with British Telecommunications worth **£300 million**.	Who are the parties ultimately involved? When does it have to be done? What resources are required?
The City Council was looking to **change the quality of the services provided to citizens through the use of better information technology**. Outdated technology, siloed information, and inefficient paper-based processes were among the problems it faced as one of the United Kingdom's (then) worst-performing local authorities. Apart from better systems and technology, a significant amount of change management with the attendant labor issues would also be involved.	What do the parties want to achieve?
The City Council was determined to move away from the traditional models of client and contractor adversarial behavior, as well as costly and bureaucratic contract monitoring arrangements. At the same time, it was looking for significant new investment combined with flexibility to meet the evolving needs of users. The services identified included **call centers, customer contact centers, and payroll and human resource administration. A soft market testing process was then used to confirm that such a package was likely to generate interest from suppliers with relevant experience.**	What is it that each party is interested in? How is each party's work to be done?
The pre-qualification process focused on the **experience, expertise, and financial capacity of bidders, and output specifications were developed for each part of the service**. Four bidders were short listed.	What is it that each party is interested in?

[28] Adapted from *How to Engage with the Private Sector in Public-Private Partnerships in Emerging Markets.* Farquharson, E.; de Mästle, C. T., Yescombe, E.R. The International Bank for Reconstruction and Development/The World Bank (2011).

The partnership involved a 20 percent equity share and the involvement of the City Council through the board in the service delivery vehicle. This enabled the City Council to be involved in strategic decisions and keep a close eye on delivery costs. Service levels and the timetables for enhanced service delivery were then agreed for each service component. The City Council was not liable for the losses of the joint venture. The project demonstrated high levels of performance, even higher than those contractually committed to, resulting in significant reductions in the costs of service delivery.	

Robust project PPP scoping delivers benefits related to uncertainty reduction, including[29]:

- More accurate risk calculations (through more open communications between project parties);
- Reduced control costs (through, for example, faster and more effective contracting);
- More effective teams (through improved confidence); and
- Improved planning (through more honest specifications and estimates).

Many projects fail due to poor scoping in the early phases[30].

> *"Many projects start with good ideas, huge investments, and great efforts. However, most of them do not achieve much success. A major contribution to unsuccessful projects is the lack of understanding for defining project and product scope at the start of the project. A properly defined and managed scope leads to delivering a quality product, in agreed cost and within specified schedules to the stake-holders."*

[29] Hartman, F. *Smart Trust: A Foundation for More Effective Project Management*, in *Proceedings of 15th IPMA World Congress on Project Management*, London, 22–25 May 2000, London, IPMA, 2000.

[30] Mirzaa, M. N., Pourzolfagharb, Z., and Shahnazaric, M. *Significance of Scope in Project Success*. In *Procedia Technology 9* (2013) pages 722 – 729.

A definitive decision on the contract scope is sometimes postponed to appraisal phase. Chapter 4 (section 1.4.1) provides some examples of how scoping is relevant and may vary significantly in some sectors.

10. Testing PPP Suitability and Affordability

To avoid the risk of sinking resources into the analysis and structuring of a non-feasible PPP project, the government must determine whether the project makes sense as a PPP, provided that it has been satisfactorily tested as economically sound or sensible (under the CBA as explained).

This issue can be determined by answering the following questions;

- Are there any significant risks or uncertainties within the project that are not manageable by a private partner? Is there a risk of non-availability of the land/right of way and land acquisition cost overrun?
- Can the project be accommodated within the legal framework as a PPP? Have all relevant laws been taken into consideration?
- Is the project's size big enough to justify the implicit costs of the transaction (to justify structuring and managing a complex tender)? Is it not too big for the market? Is it too large for local construction companies to take on, or so costly that it could not be successfully financed?
- Would there be investor market appetite? Are there competitors interested in the bid process? Are there precedent transactions that were already developed as PPPs for this type of project in the country/region/similar countries?
- Does it make sense to bundle construction and operations and/or maintenance in a single contract? and
- Are the output requirements clearly identifiable?

Another important question is affordability: if the project is developed as a PPP, can the public sector afford the necessary payments (Capex and Opex)? In this case, there are several issues that need to be considered, depending on the circumstances. See figure 3.4.

1. Can the project be funded in the sense that the required user charges and/or long-term call on the government budget are affordable? This question has to be considered before screening for PPP potential;

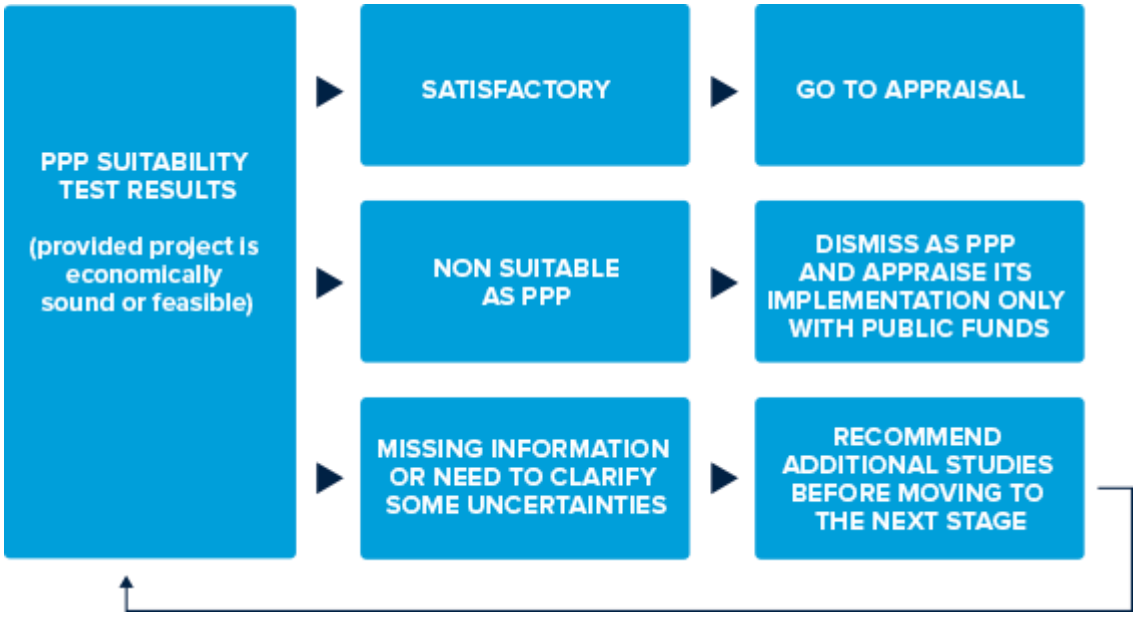
2. If the answer to question 1 is "No", traditional delivery is not possible but the project can still be screened for PPP potential, in which case there is an additional question that must be answered: "Are innovative structures available that can make the project affordable if delivered as a PPP?" For example, a PPP may give synergistic commercial development opportunities to the private sector that reduces the need for user charges or budget funding;

3. Assuming the project is affordable in the long term, the final question is a cash flow question for the government in the short term. It should be considered in the context of both traditional delivery and PPP delivery. The question is: “Are there constraints on government financing (for example, borrowing restrictions) such that, even though the project is affordable in the long term, the government cannot finance its investment in the project in the short term?” If the answer is “yes”, then we finally come to the issue of whether a PPP can be structured to overcome that issue.

The result of the suitability test may be one of the following;

- The project appears to be sound as a PPP and can move on to the next stage;
- The project is not suitable as a PPP. Appraising the project for traditional procurement methods is recommended if a public budget is available; and
- The project is missing relevant information, or there is a need to clarify some uncertainties. In this case, the appraiser has to state the project’s weaknesses and recommend a further analysis by the procuring authority.

FIGURE 3.4: Screening Decision-Making Process



Screening ensures that the project is better prepared for procurement, that uncertainties are identified, and that the necessary resources and schedules are duly accommodated for a more reliable procurement process. If the screening has been satisfactorily conducted, the government will avoid the risk of unnecessarily consuming resources by continuing the process, thus benefitting from the stage-by-stage approach. The procuring authority/PPP unit may then enter the next phase of the PPP process cycle: the full appraisal.

However, before the definitive decision of moving forward within the PPP cycle is taken, it is desirable to develop an initial project management plan, as well as design a governance strategy for the project process (see section 2.11 and following sections).

11. Project Management Plan and Project Governance Considerations

Before confirming the decision to move to the next stage (appraisal), a list of tasks to be carried out and a schedule should be developed. This will:

- Serve as the basis for the Request for Proposals for external advisors, if needed; and
- Assist the government, in the Appraisal Phase by identifying any consequences or risks associated with the proposed schedule.

The analysis will also consider the time estimate for carrying out all those activities, and an action plan which clearly describes all permits, environmental approvals, and other precedent conditions (for example, land availability), as well as relevant aspects to be tested in legal due diligence.

Such a plan must indicate target dates, estimated intermediate dates, and the duration of the next phase of the PPP process. It should also include a list of tasks, results, and deadlines for each task and approvals/sign-offs needed.

Also relevant for the decision to move forward to appraisal is a first draft of the overall work program for the whole process through to the awarding of a PPP contract, including an overall timetable. In this schedule, the procuring authority has to take into consideration steps described in chapter 2 including (but not limited to) appointing advisers, risk analysis and Value for Money (VfM), legal and environmental due diligence, market testing, drafting the RFP and contract, approvals and authorizations, launching, qualification and classification, evaluation and awarding, and contract execution.

Although it is challenging to estimate such an extensive timetable, it can be an important variable to be taken into account in the decision to go ahead with the project. Analysis of the timetables for previous, similar PPP projects, delivered under similar processes, is a good starting point for development of this timetable. It also helps to manage government expectations by providing evidence of the time required to achieve an outcome.

This analysis will enable the government to include the project in a PPP pipeline with an estimated schedule.

Stakeholder management and communication are also paramount factors for success in delivering a PPP project to the market. These aspects of the project governance are also introduced in section 2.12 below.

It is important here to stress that early engagement with the decision-makers responsible for the different approvals (social, environmental, economic, and finance clearance), in terms of their feedback on time estimates, is a key factor in the success of the approval process (especially in terms of timing).

Also, the needs and resources required in order to implement a project must be clarified at the end of the Screening Phase. The availability of a project team to act as project office must be confirmed. The need for external capabilities should be clearly identified and the costs of such services estimated so as to provide a budget estimate.

Note that the project team/advisory team may be hired at once (a team integrated by technical, legal, and financial experts) or in separate approaches to the market for each set of skills. This is further explained below.

As with any project, these plans should be developed as part of the procuring authority's application of good practice project management principles (such as those in the Project Management Body of Knowledge (PMBOK)[31] or the PRINCE2 framework developed by the UK government[32]). See also box 3.12.

BOX 3.12: Key Elements of the Project Management Planning and Governance Strategy

- Define a detailed work program for the next phase (appraisal) as well as a preliminarily covering the Structuring Phase and Tender Phase.
- Sort out weaknesses of information and other threats, determine risks to the project, and plan the strategy to handle them in the next stages.
- Include a stakeholder analysis and communication plan for internal and external audiences, including the public (see section 2.11).
- Define capabilities needed and a staffing plan to create a sound project team able to manage all pre-tender work and subsequent activities. (see section 2.12).

[31] PMBOK Guides and Standards, See http://www.pmi.org/PMBOK-Guide-and-Standards.aspx.

[32] PRINCE2 Framework - See https://www.axelos.com/best-practice-solutions/prince2.aspx.

12. Identifying Stakeholders and Developing the Communication Strategy: Ensuring Government Support and Managing the Stakeholders

The interaction between stakeholders, or the parties involved, has an important role in the project cycle. The main goal is not just to communicate about PPPs. Communication with stakeholders is an essential element of all projects, whether through a PPP or traditional procurement process.

The government should identify the critical stakeholder groups (see section below) early in the project process. Communication with stakeholders is essential to facilitate their understanding of the process, to gain social, business and political support for the project, to attract potential investors, and to reduce risks for the project.

One of the most important steps in the effective management of key stakeholders is to map their needs, concerns, worries, and interests. This process is vital to a project's success because it provides project managers with the ability to transmit (communicate) the appropriate information which addresses their need(s) to each stakeholder.

However, research has convincingly shown that governments need to do more than just communicate with stakeholders: in many countries, citizens expect active involvement in projects and to have an active say in the process. Governments should strive toward maximum accountability and transparency by organizing occasions for critical reflection (such as academic conferences, citizens' summits, and so on) to enlarge public support. See box 3.13.

BOX 3.1: The Relevance of Stakeholder Engagement and Proper Communication[33]

Some projects can lead to externalities (as discussed in section 2.8). These externalities may impact the environment or a particular population group — for example, nearby house owners are affected by the construction of a prison or a sanitary landfill. Such groups may be sufficiently opposed that they take action and can delay or even halt a project. For example, a new water filtration plant proposed in Canada was cancelled after public protests, a South African toll road was delayed, and a public parking project was interrupted in Brazil.

Stakeholder engagement is becoming more important than ever, as businesses are under close scrutiny by the media and regulators, and opposition is easily aroused and coordinated via social media. Note the converse, however: stakeholders can be eager promoters of infrastructure projects, and governments should look to

[33] Adapted from World Economic Forum. 2013. *Strategic Infrastructure - Steps to Prepare and Accelerate Public-Private Partnerships*.

generate and take advantage of such momentum.

When a government takes the initiative in communicating with stakeholders by providing information and inviting feedback before formal opposition develops, the probability of success increases considerably. For example, the sponsors of the Alandur Sewerage Project in India ensured early involvement of the public through surveys and citizens' committees coupled with targeted outreach explaining the project costs, benefits, and tariffs. As a result, the project proceeded smoothly, with citizens agreeing to pay a one-time connection fee, and thereby contributing 29 percent of the financing.

Another example of the benefits of communication with the public regarding a sensitive project is the Timarpur-Okhla Integrated Solid Waste Management Project in India. The project required incineration of waste and raised questions about air pollution. Five public hearings were organized to address substantial doubts held by the public regarding the project. This education process ensured that the public appreciated the benefits of the project.

Furthermore the relationship with stakeholders is not a static process. Throughout the project's life cycle, this relationship will involve several types of audiences, channels, and practical actions for both the establishment and maintenance of relationships. Early in the process, in the Identification Phase of the project, the audiences, communication channels, and actions to be considered are relatively few. As the process moves forward through the Structuring and Tender Phases, the number of stakeholders increases and the need to use a greater number of channels, actions, and information in order to assist these stakeholders' increases as well.

12.1. Who are the Stakeholders?

It is common to think of stakeholders as an external audience. The external audience is composed of all the stakeholders interested in the project, outside the internal scope of the government and of bidders in the procurement process. This audience includes banks, investment funds, government and multilateral funders, public service users, society in general, and the press. Other government agencies —such as a municipality or state government and the federal government, the courts of auditors and state monitoring agencies, regulatory agencies, legislators, party leaders, associations, labor unions, and non-governmental organizations (NGOs) — are also part of this group of stakeholders. All of them require different communication approaches.

The internal audience also has a huge importance for projects. They are meant to be "first among equals" in the governance of the sector involved, rather than an interest simply to be satisfied. This audience is very heterogeneous and its composition depends on the government's decisions in relation to which areas and what professionals should be involved in the projects conducted by the procuring authority.

In general, this audience is composed of all the public sector's officers and employees which are linked, directly or indirectly, to the project cycle and who will monitor or interface with the project at every stage, from the design to the implementation of the work. This internal audience is the one that will also relate, to some extent, to the wide variety of components within the external audience.

Stakeholder identification and management is important in all projects, but in PPPs it may also be necessary to communicate with stakeholders about the fact that the project is a PPP and the implications this may have. See table 3.2. In some cases, the key stakeholders might neither know nor care that the project is a PPP, but communication with them and gaining their support can be vital to a project's success. In other cases, delivery of the project as a PPP may be a cause of considerable concern for some external stakeholders.

Lack of communication or poor communication can feed false rumors and concerns which, although unsubstantiated, may undermine the success of a project. It is necessary to bring information to the forefront and properly evaluate and transmit it to each of the stakeholders covering both the project aspects and the PPP aspects.

To ensure that all stakeholders receive equal information and that no party who might later bid for the project has been unintentionally provided with an unfair competitive advantage, the communication must be carefully coordinated and conducted with transparency.

TABLE 3.2 : The Role of Communication in the Screening and Appraisal Phases of the Project

Communication **(aspects to be considered)**	**Identification/Screening**
Internal audience	• PPP Unit. • Municipal/state/federal departments and other public entities linked to PPP Projects. • Government legal staff. • Consultants hired by the public sector that need to share strategic information about the PPP initiative.
External audience	• Potential investors. • Service users. • Affected groups.
Communication focus	• Scope of the project. • Objectives.

	• Benefits.

Important benefits of good stakeholder identification and communication are:

- Prevention of delays in project implementation;
- Evidence is provided of government commitment to the project;
- Evidence is provided of process credibility;
- Stakeholders' contributions can be considered in the project's design;
- Support of stakeholders is more likely; and
- The government can effectively provide information in response to queries.

12.2. Communication Strategy

During the Screening Phase, but not only then, successful PPP projects often make a specific effort to communicate the results of the various steps of the PPP process, as well as the decisions made during the phase, to the general public and to those specific groups with a particular interest in the project.

This communication strategy is commonly considered to be very important in order to promote engagement and soften eventual opposition to the project.

Thus, a communication plan describing the general strategy to be adopted should be designed at an early stage of the screening exercise, and it should be implemented by a dedicated and experienced team. The communication plan should include the following information.

- The identification of all the interest groups to which communication should be directed;
- An explanation of the main concepts to be communicated, drawing from the basic elements of the project such is its outcomes, the need it tries to meet, and the people it tries to serve;
- The identification of the media used to reach the groups identified;
- The main characteristics of the communication pieces, preferably specific to each group identified;
- The identification of the people inside the project team who should be considered as the prime source of information for the general public; and
- The description of a basic strategy for maintaining good relationships with the press.

The successful implementation of the communication plan can immensely reduce the political risks which large infrastructure projects are subject to, and thus attract the overall stakeholder support necessary for an effective procurement later on in the PPP process.

13. Assessing Capabilities and Needs, and Hiring Advisors

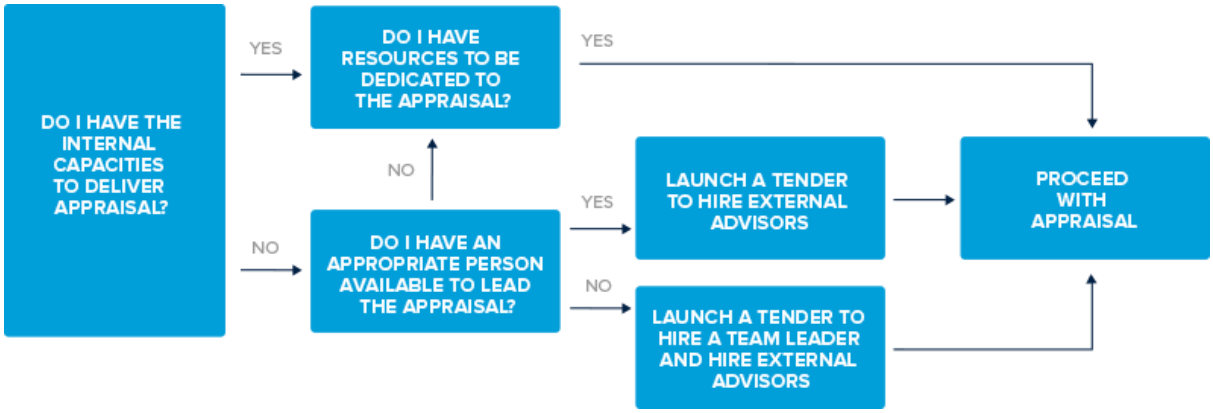
As explained, if a project is identified as the appropriate solution to a need and the results of the PPP suitability test are positive, before moving ahead within the project cycle, a “project team” should be defined, which will carry out the next phases: the Appraisal and potentially the Structuring (see section 2.13.3).

This should be done, at least in outline, during the screening (since costs for advisors or an inability to conduct the necessary studies during appraisal may lead to a decision not to move ahead with the project as a PPP). However, a detailed staffing plan and the process of hiring advisors will be developed after the decision is made to move forward.

This section includes guidelines and recommendations regarding the creation of this “project team”. See figure 3.5. In order to move forward, the procuring authority must assess the capabilities required for the creation of a project team:

- What capabilities are needed?
- Are there sufficient internal capacities within the procuring authority to perform the full appraisal?
    - If the answer is yes, are there internal capabilities to be dedicated to the appraisal — will this project affect other potential user-paid or government-paid PPPs with greater economic and financial sense?
    - If the answer is no, are there enough resources available, or at least one person, to lead the appraisal?
    - Which consultants should be hired, and for what tasks? This requires the development of terms of reference for advisors. How should they be hired? Should there be separate contracts for each discipline, or only one multidisciplinary team? and
    - What will the cost be (time and fees of third parties acting as advisors) to properly analyze and procure the project?

FIGURE 3.5: Assessing Capabilities and Needs



Even if it is hiring advisors to support the development of the studies, the public sector will need to appoint a representative to act as project leader.

It is important that the public sector, through the project leader, has the expertise to manage its advisors and the stakeholder processes professionally. Poor management of these aspects is a common cause of project failure.

The project leader should have the following roles and capabilities:

- Coordinate all studies from the different fields of expertise;
- Control and oversee the results of the studies;
- Handle the coordination between the project's team of advisors (external) and the procuring authority (when the appraisal is led by a PPP unit); and
- Manage the decision-making process of the public sector with a view to obtaining such decisions in a reasonable timeframe.

13.1. Capabilities Needed to Develop the Appraisal Studies

The capabilities necessary for an appraisal process can be divided into five main groups.

- Technical:
  - In charge of the project's design, with expertise in the type of infrastructure that is the subject of the contract; and
  - Expertise in the technical aspects of the services involved.
- Environmental:
  - In charge of environmental impacts; should provide relevant expertise/ experience in environmental analysis.
- Economic:
  - Expertise in economic appraisal, preferably in the same sector/ infrastructure or service type.
- Financial:
  - Expertise in financial analysis in the field of user-paid or government-paid PPPs, preferably in the same sector/infrastructure or service type and also knowledge of financing similar PPP projects (when the government needs to develop a bankable structure); and
  - Expertise in contract risk structuring and payment mechanisms, preferably in the same sector/infrastructure or service type.
- Legal:
  - Expertise in public law/ administrative framework; and
  - Experience in drafting PPP contracts. Although the drafting of the PPP contract will not occur until a later phase (see chapter 5), knowledge of PPP contracts will be necessary to enable a proper assessment of the existing legal framework. For a PPP covering existing operations, the legal due diligence will need to look at existing contracts, legal actions, loan contracts, and so on.

13.2. Request for Advisors

The importance of advisors in PPPs has been emphasized by Jangun and Marques (2006): [34]

> *"As governments transition from their role of monopoly provider of infrastructure services to setting the framework for private provision of infrastructure services, independent "third party" advisory assistance is essential to making these public-private partnerships successful."*

Moreover, as reinforced by the European PPP Expertise Centre[35], if the public sector does not frequently develop PPP projects, it is unlikely to have the required range of competencies available in-house. In addition, the required skills need to be regularly refreshed to capitalize on recent experience, developments in market standards, and innovations.

An indirect and positive effect of hiring external support is the opportunity for skills transfer and/or the development of skills within the public sector over time, thereby building the government's own internal capability.

If advisors are considered necessary, describe the capabilities needed in order to carry out the full appraisal and justify the need for third party advisors. It is essential to hire advisors who have previous PPP contract experience as well as general infrastructure experience; this means they will have a clear understanding of current market conditions. When planning to engage advisors, the public sector should:

- Describe the scope of such advisory help (different roles/expertise) and the person, or persons, to act as team leader(s); and
- Suggest a budget for hiring such advisors[36]. See box 3.14.

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[34] Jagun, J.; Marques de Sa, I. (2006). *The Role and Importance of Independent Advisors in PPP Transactions*. In IP3's Public-Private Partnership Information Series.

[35] European PPP Expertise Centre. (2014). *Role and Use of Advisers in Preparing and Implementing PPP Projects*.

[36] The usual source to fund the advisory contracts is the budget. However, the authority should consider the possibility of asking for support from Multilateral Development Banks (MDB) to fund the studies. Another recent trend for funding the preparation and structuring of PPP projects is the creation of a "development fund" (in which MDBs may also participate). This fund is a revolving fund that provides resources for appraisal and structuring, which will be paid back by applying a fee to the successful proposer.

13.3. Timing and Scope of the Advisory Contracts

The procurement and selection of advisors may be done as a group, that is, selecting a consortium of firms under a single advisory contract to cover all the areas of work, or under separate procurement and contracts.

There are pros and cons to both of these options. A single integrated team will ensure the cohesion and coordination of all the tasks and work, while separating the procurement will help to select the best/optimum firm or advisor for each specific area of work — although this route will demand/consume more time and resources from the government.

Several considerations may be useful to decide the best approach for each project.

- Time constraints may make it more advisable to appoint only one team under one single contract. A single team is likely to be better coordinated and could be more efficient (as much of the process management will be the responsibility of the lead adviser) and is already prepared to work together from the outset;
- When technical advice and work is very important or very intense (for example, when the approach of the authority to project design and requirements is to deliver a detailed project), it may be reasonable to separate that task to ensure that the best technical solution is designed and the selection of technical experts is not influenced by the procurement of PPP advisors;
- A number of authorities only select a separate technical team. A joint financial and legal advisory team is selected in a separate contract, as these two areas are more clearly linked and overlap in some tasks; and
- There will always be some things that a third party adviser cannot do, such as approving advisers' invoices on behalf of the procuring authority. The procuring authority must always have staff to perform these functions.

Another consideration is the duration of the engagement: whether to enter into one contract to cover all the processes through to contract execution, or to appoint advisors only for the Appraisal Phase and decide later on the selection of advisors to support the structuring and design of the contract and tender process (including potentially supporting the Tender Phase).

In general terms, it is often more appropriate that the advisors involved in appraisal ultimately structure the project contract and define the final contract and tender solution because PPP preparation through to structuring and tendering is a progressive process.

However, if there are no relevant time constraints (especially if the project is not yet a clear and immediate policy decision) or if there are doubts as whether it is suitable to be a PPP, it may be sensible to limit the advisory contract or contracts to the Appraisal Phase. This has the added advantage of preventing potential conflicts of interest that might arise if advisers during the Appraisal Phase are also contracted for

the later phases and hence recommend a tender process that offers the best outcome for them (for example, that will provide them with the most work and profit).

Another solution to deal with potential uncertainty regarding the result of the appraisal and the decision to procure is for the tender and contract for the advisory role(s) to provide an option for the procuring authority to retain the advisors for the next stage (structuring and drafting the contract and tender package). In addition, some flexibility as to the ability of the advisory firms to change team members should be included in the contract.

Consideration must be given to the advisor's technical capability and experience of working on similar projects in addition to price. International experience is a must, especially in countries in the early stages of PPP development, but this has to be enriched with adequate local knowledge.

BOX 3.14: Ways to Obtain and/or Fund the Studies

The costs of project preparation should not be underestimated (see Farquharson, de Mästle, and Yescombe 2011).

Development Finance Institutions (DFIs) and donor organizations have established facilities in many regions to support the payment of costs of project preparation including the hiring of advisors.

A revolving project development fund established and managed by the government is another approach to mobilize resources for project development. In this case, there is also the possibility of it being done with donor support. The winning bidders refinance their costs at contract signing, recycling funds back to other public authorities.

14. Screening Report

It is good practice to complete a report containing at least the following sections before entering the full appraisal process and, specifically, before committing staff and/or hiring advisors.

1. Executive summary and recommendations;
2. Project description: Outline of technical solution.
3. Needs/benefits of the project and suitability of the solution proposed;
4. PPP suitability: Justification for the use of a PPP process;
5. Affordability: Economic and financial pre-analysis;
6. Legal and regulatory issues;
7. Readiness of the project and its status, including stakeholder identification;
8. Information availability; and
9. Outline of the project management plan.

Appendix A to this chapter sets out an example of an outline for a screening report.

15. Outcomes of this Phase

There are three possible outcomes of the project analysis in this phase: move on to the next stage (the project appears to be economically sound and is a suitable PPP candidate); it is not suitable to be a PPP; or since some relevant information is missing, or there is a need to clarify some constraints or dependencies, further analysis should be undertaken.

The key outputs from the process are:

- Outline of technical solution;
- Economic and financial pre-analysis (which might be a full analysis depending on the available information, so as to include the decision to invest);
- Screening report or justification of PPP choice; and
- utline of project management plan (work program and schedule for the pre-tender work, team structure, stakeholder identification, and other project governance strategy matters).

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Appendix A to Chapter 3: Screening Report Example of Outline

I. Executive Summary and Recommendation

This item will include the final conclusion concerning the project's adequacy as well as a description of the appropriateness of moving forward to the next stage (full appraisal). Alternatively, in the case of insufficient available information, a list of further investigations and reports should be clearly stated and recommended.

II. Project Description

This item includes a description of the project that should cover aspects such as the sector, technical/physical conditions (for example, distance involved for transport, type of surface for buildings, and so on), site, geographical area, affected/benefited population, and so on.

III. Need/Benefits of the Project and Suitability of the Proposed Solution. Economic Feasibility.

The following aspects and questions should be covered.

- Description of the need that the project helps address;
- The contribution of the project to the government's general goals and policy;
- Description of how optimal the proposed solution is when there are various technical alternatives/solutions for the need, or a description of the reasons for making that assessment if it is the case;
- Description of benefits, including some objective indicators of benefits (demand in transport, number of homes served with water supply, and so on);
- Description of any relevant indirect costs; and
- If a cost-benefit analysis (CBA) and/or multi-criteria analysis has been conducted, this should be clearly stated. If such analyses were not conducted and are considered relevant, this should be advised in this report and/or in the "readiness" section.

IV. PPP Suitability

The following questions should be included.

- Brief description of the PPP, that is, the basic concept of who would be assigned to which functions, what the payment mechanism would look like, and so on;
- Affordability: Can the project be self-financed under a user-paid PPP model or is there a need for public contributions?

- Does the project have any significant risks or uncertainties that are not manageable by a partner? If this is the case, does it make sense for the public sector to assume those risks?
- Can the project be accommodated within the “legal” framework?
- Is the project large enough to justify the implicit transaction costs?
- Would there be investor market appetite for the project? Does the private sector have the necessary capabilities to face these challenges?
- Does the investment make sense for a single operator to assume the responsibilities and risk (unitary project)? and
- Are the stakeholders and their interests well surveyed and understood?

V. Affordability

This should include the following aspects.

- The estimated capital expenditures (Capex) and operational expenditures (Opex);
- The estimated revenues, if applicable;
- If it is necessary to allocate public resources, are they enough to afford the compensations/contributions?
- Are there any cost savings/redundancies? and
- Are any proposed user fees affordable by users? Are any government payments, or support, affordable by the government?

VI. Project Readiness and Status

It is not necessary to describe these aspects in depth since many of them may be solved through the Appraisal or Structuring and Construction Phases. It is important to highlight any aspects that imply significant challenges or which may significantly postpone the project’s delivery (as identified in the preliminary risk assessment).

In any case, all relevant legal issues should be included in a “legal due diligence” report to be developed in the full Appraisal Phase unless due diligence is to be carried out before the full appraisal is recommended.

Examples of uncertainty regarding constraints and dependencies include (this is not an exhaustive list):

- Land availability;
- Level of demand (mainly in greenfield projects);
- Environmental permits;
- Other permits;
- Availability of information for the project’s appraisal;
- Political interference;
- Stakeholder negative aspects (if applicable); and

- Other legal or regulatory uncertainties.

VII. Sufficient Information

- The report should briefly describe the information and data analyzed;
- If information is insufficient or results and conclusions are not clear, a description of any information and data weakness should be provided. This should include recommendations, if necessary, for further analysis or corrections by the promoting department as well as expert insight or further research and time for the public sector to finish the screening; and
- Whether the documents and supporting information are satisfactory and the conclusions are positive with respect to the screening test.

VIII. Next Steps: Project Management Plan

In the case of recommending moving forward to the next stage (appraisal), a list of tasks to be carried out and a schedule that provides an estimated timetable should be put forward. Internal capabilities for further developing the project should be analyzed in order to design the project team and set up the governance strategy. Section 0 describes this analysis.

If approval is given to move forward with the appraisal, the first step will be to select advisors or to establish the project team and the project governance.