



Global
Platform for
Sustainable
Cities



THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP



FEASIBILITY
STUDY

Municipal Public-Private Partnership Framework

04

TABLE OF CONTENTS

1.0	Introduction	02	2.0	Feasibility Study Requirements	03
1.1	Purpose of this Module	02	2.1	Demand Study	03
1.2	Determination of Scope and Depth of the Feasibility Study	02	2.2	Technical Study	04
1.3	Components of Feasibility Study	02	2.3	Compliance Assessment	06
			2.4	Financial Analysis	08
			2.5	Economic Assessment	09
			2.6	VFM Assessment	10
			2.7	Risk Analysis	12
			2.8	Key Commercial Terms of PPP Agreement	13
			2.9	Market Sounding	14
			2.10	Procurement and Implementation Plan	15
3.0	List of References	16			

1.0 Introduction

1.1 Purpose of this Module

The feasibility study constitutes the basis for the decision by the municipality for the project to proceed to procurement and implementation.

Given the importance of the assessment and detailed technical analysis required, feasibility

studies are generally implemented by a qualified external consultant hired by the municipality. The requirements described in this module can serve as a checklist for the verification by the municipality of the quality of the feasibility study report submitted by the consultant.

1.2 Determination of Scope and Depth of the Feasibility Study

The requirements described in this module are generic as they apply to all types and sizes of projects that may be implemented by a municipality. For each individual project, the municipality must adapt these requirements to the specific characteristics and context of the project being studied.

The required scope and depth of the feasibility study depends on the size and complexity of the project. For instance, the realization and subsequent operation of an urban tramway requires a much more extensive feasibility study

than a project consisting of the construction and maintenance of a standard school building. The scope of the feasibility study must allow the municipality to assess the project and meet relevant legal and regulatory requirements (including those of any potential financiers, such as international financial institutions).

A balance must be achieved between the complexity of the project and the cost of the feasibility study to achieve VFM.

1.3 Components of Feasibility Study

Feasibility studies typically address the following issues:

1. Demand study
2. Project configuration, that is, description of the various elements of the project and their respective sizes
3. Technical/engineering studies including conceptual engineering design and estimated capital expense and operations and maintenance cost
4. Project legal due diligence
5. Economic analysis
6. Financial analysis
7. PPP assessment
8. Environment impact assessment
9. Social safeguards assessment
10. Procurement and implementation plan.

These issues are discussed in the following sections.

2.0 Feasibility Study Requirements

2.1 Demand Study

The demand study is one of the most critical elements of the feasibility assessment. The demand study forecasts:

- User requirements and consequent service levels to be provided over the tenure of the project, for example, desired average speeds on roads or number of buses that a bus terminal can efficiently handle;
- Demand for project services, in numbers (volume); and
- Tariffs to be charged and the ability and willingness to pay by users.

The different elements of the demand study are interdependent, for example, the type and volume of services that can be delivered will depend on the amount that users are being charged (subject to affordability and willingness to pay).

2.1.1 User Requirements

The study needs to assess user needs in terms of:

- Type of services required (including options for different levels and type of services), for example, quantum of water required per household or commercial establishment or the number of hours of supply of piped water;
- Type of assets that are needed to deliver the services required;
- Service area that can/should be covered; and
- Required quality of services, for example, frequency and speed of bus service, quality of potable water supply, and reliability of service.

2.1.2 Demand Forecasts (Volume and Price)

The demand forecasts refer to the demand volume (initial volume and growth rate) and the price that users are willing to pay. The estimation of initial demand/volume of services is critical and the methodology used to estimate this needs to be robust and

provide a reasonable estimation (neither too optimistic nor too pessimistic) because project assets and consequently service levels to be provided would be determined based on this demand assessment (current and projected for the entire agreement period). Depending on the available information, the demand forecasts may be based on the following:

- **Extrapolation of existing demand volume and growth:** If the objective of the project is to provide additional capacity to serve existing demand, then the demand forecast can be based on an extrapolation of the observed growth of the existing demand.
- **Population size and growth rate:** If the service is targeted at a specific group or geographical area, then the demand forecast can be deduced from the size and growth rate of the population within that group or geographical area.
- **Reference projects:** If similar projects have recently been carried out or if similar services are offered in the country, then these may be used as a reference for estimating the demand volume and the price for the project. In that case, the demand study must explain how the demand data on the reference projects and services have been adjusted to account for the differences between the specific conditions and characteristics of the project and the reference projects or services.
- **User surveys:** If the project concerns a new service and no suitable reference projects can be found, then a representative survey of potential users must be conducted to estimate the demand volume and the price users are willing to pay.
- **Quantitative demand models:** For large projects, quantitative demand models can

be used (for instance, traffic models or water demand models). The development of demand models requires substantial time and resources, and is therefore only

sensible for projects of sufficiently high value (to preserve a balance between project value and feasibility study costs).

2.2 Technical Study

The technical study consists of:

- Development of project configuration, based on the demand forecast;
- Definition of project specifications and service levels;
- Assessment of suitability of project site;
- Analysis of technical options to meet user needs; and
- Estimation of the capital, maintenance, and operating costs during the lifetime of the project.

2.2.1 Definition of Project Output Performance Specifications and Service Levels

Project configuration needs to be developed based on the demand assessment discussed earlier.

Output specifications for each element of the project need to be developed. The output specifications comprise minimum performance standards of the project services, for example, for a parking lot, a performance standard could specify that a car should be able to be parked within three minutes of entering the parking lot or a car should be able to exit a parking lot within two minutes of starting the car engine. In some specific cases, the municipality may want to specify certain project assets. Minimum specifications of project assets are developed for specific assets, for example, if a particular architectural characteristic is desired, for that specific part of the facility an input specification is required. The municipality may want to specify life cycle of particular assets (to manage the cost of replacement parts and maintenance over time), the use of particular materials where this is necessary for climactic or similar reasons, or specific technology where the project will need to interface with other municipal facilities (for example, if the project involves telecommunications equipment that must interface with the municipality's network).

The specifications should be expressed in measurable terms, so that their compliance can be verified. This is critical to determine if the PSP is delivering on the project specifications or not.

For each service, a service level agreement (SLA) is established, specifying:

- Availability and quality requirements;
- Performance indicators to measure compliance with availability and quality requirements; and
- Monitoring systems for measuring the performance indicators.

2.2.2 Site Assessment

The project site/alignment is defined and is shown on maps.

Compliance of the site with relevant national, provincial, and district spatial plans is assessed.

- Geotechnical surveys are undertaken to determine the suitability of the underground characteristics of the land for the proposed project.
- The need for land preparation and improvement (for example, levelling, demolition of existing structures, and move of utility lines) is determined. The connections to transport (road, rail, airport, seaport, and so on) and utility networks (electricity, water, gas, and so on) are assessed and improvement needs are determined. The need for coordination with other government entities for approvals and the execution of such complementary works is determined. The requirements for the use of existing government assets (for example, land, existing infrastructure, and government equipment) are identified as well as any legal limitations on their use.

The outputs of the above assessments are used to determine the land development component of the total project cost.

2.2.3 Analysis of Technical Options

Technical options are developed for meeting the identified user needs, the output specification and are based on the characteristics of the project site. A technical option is defined by a description of technologies, methodologies, and construction practices to be

implemented. The set of considered technical options spans the range of possible choices with respect to project site, capacity, quality, technology, and implementation schedule. Where relevant, the following types of options should be explored:

- **Do nothing option:** Consequences of a continuation of business as usual.

- **Non-asset option:** Option to improve the service delivery that does not require investments in assets.
- **Improvement option:** Option to improve the service delivery by improving existing assets.
- **New asset option:** Option that involves investments in new assets to meet the identified service needs.

Common Pitfall in Project Definition

A common pitfall in project definition is premature focus on a single technical solution; this is reflected in a project-oriented instead of a user-oriented problem definition. In other words, the project need is defined in terms of an assumed technical input (for instance, there is a need for a new two-lane bypass) instead of in terms of providing an output solution to resolve the deficiencies of the existing infrastructure to meet current and expected user demand (for instance, the existing road experiences substantial congestion, and the traffic volume is expected to increase further). Only after defining the project need can possible options to address the problem be explored. The solution in this case might not be a new bypass but rather a different management scheme for intersections, better road maintenance to improve availability or widening of feeder roads to address the underlying causes of congestion.

The options are assessed on a cost-benefit basis to identify the option that provides the best VFM for the municipality. These options are assessed by the municipality, with the assistance of the consultant, and a preferred option is chosen. Based on the preferred technical option, a preliminary technical design of the project is developed.

In general, the technical design and analysis in the feasibility study must be as detailed (but not more) as is necessary for:

- Demonstrating the technical feasibility of the project;
- Estimating the project costs (so at least preliminary designs to estimate the bill of quantities is required to enable an estimation of construction costs);
- Providing the required information for the project due diligence (see below); and
- Providing bidders enough detail to deliver consistent and comparable bids.

As a result, the required level of detail of the technical analysis depends on the complexity of the project. For instance a large-scale transport infrastructure project will require a more extensive technical study than a straightforward building project.

If similar projects have been carried out

recently in the country or elsewhere in similar circumstances as the project, then these reference projects may be used as evidence of the technical feasibility of the project. The technical analysis should demonstrate the relevance of the chosen reference projects, and account for any (limited) differences between the reference projects and the present project (that is, must demonstrate that these differences do not have a significant impact on the technical assessment). If no suitable reference projects exist, then the technical feasibility must be demonstrated by project-specific analysis.

2.2.4 Cost Estimates

Cost estimates of all relevant technical options should be provided, and should include all relevant project costs:

- Design and construction;
- Land acquisition and improvement;
- Measures to mitigate social and environmental impacts;
- Operation, maintenance, and replacement during the lifetime of the project;
- Taxes;
- Overheads;
- Project development costs or costs incurred before commencement of construction;

- Interest during construction (which is typically capitalized and added on to the total project cost);
- Contingencies based on project risks and uncertainties;
- Inflation during the construction period.

The costs are based on market prices for inputs (materials, labor, services, and so on) at the time of the preparation of the feasibility study and according to good industry practice.

The cost estimates should consider specific characteristics of the project, such as remote location, difficult site conditions, and local availability of inputs (human resources, raw materials, support services, and so on). Assumptions should be documented (with reference to sources) and motivated, with calculations clearly explained. Also, if a similar project has been implemented in the region, a comparative cost analysis should be done and then the differences, if any, should be explained.

Common Pitfalls in Cost Estimation

- Costing methods are not explained or are not based on a reliable methodology.
- Unit prices are undocumented so their relevance and correctness cannot be ascertained.
- Cost margins for contingencies are excluded or their basis is unclear.
- Assessment and quantification of construction cost risks are not provided or are not sufficiently specific to the project, possibly resulting in a large underestimation of costs.

2.3 Compliance Assessment

Compliance comprises assessment of

- Compliance of the project with all relevant laws and regulations;
- Identification of regulatory approvals and permits that must be obtained to implement the project (either by the municipality, or by the prospective private partner);
- Any required environmental impact assessment (EIA) and establishment of an EMP to address any environmental impacts (prevention, mitigation, and compensation);
- Any required social impact assessment and establishment of a plan to address social impacts (resettlement, compensation for loss of livelihood, and so on).

2.3.1 Compliance with Laws and Regulations

Legal due diligence must establish that the municipal government has the legal authority to conclude a PPP agreement for the project, and that the proposed project complies with all relevant laws and regulations (general laws and applicable sector laws). The legal analysis identifies potential legal and regulatory obstacles to the project, and proposes measures to address these obstacles. Legal compliance includes the following¹:

- Administrative law (in particular the legal authority of the private partner in the PPP to perform the required public services,

and the legal basis for the transfer of the usage rights of public assets to the private partner);

- Corporate law (including structuring of project vehicles and governance issues associated with asset and land ownership and any transfer of Government ownership in corporate vehicles);
- Investment law (including mechanisms available for investors to fund project assets and recuperate returns on such investments);
- Competition law (including competitive processes associated with the allocation of project opportunities and the transfer of public assets to private investors);
- Environmental law;
- Spatial plans and zoning regulations;
- Land acquisition and resettlement regulations;
- Safety regulations;
- Sector regulations (including allocation of operating licenses and compliance with tariff policies).

2.3.2 Environmental Impact Assessment

Potentially significant environmental impacts of the project are identified and described, in particular through the lens of local environmental regulations, requirements of potential investors and financiers

¹ For further discussion of legal issues arising from PPP projects, see: Delmon, Jeffrey. 2016. *Private Sector Investment in Infrastructure: Project Finance, PPP Projects and PPP Frameworks*. Third Edition. Wolters Kluwer. Delmon, Jeffrey, and Victoria Rigby Delmon. 2013. *International Project Finance And PPPs. A Legal Guide To Key Growth Markets 2013*. Kluwer Law International

(including international financial institution environmental safeguards²), and global good practices³ in PPP and the sector. The environmental requirements are determined, and compliance is assessed. Often the feasibility study will include environmental assessments and mitigation plans in accordance with these requirements.

Any consequences for the technical design of the project should be included in the technical study. A plan and time schedule for obtaining any required permits should be provided. The feasibility study should include an outline environmental impact mitigation and compensation plan, including the likely cost of implementing such plan.

Environmental Impact Assessment and Environmental Management and Monitoring Plan

The feasibility study may have to include a full EIA and an Environmental Management and Monitoring Plan (EMMP), both prepared in compliance with relevant legal or institutional requirements. If a screening of environmental impacts and an outline environmental management plan are sufficient in the feasibility study stage, then the full EIA and EMMP (if required) must be prepared by the private partner after the award of the PPP contract. Of course, the private partner may price this risk of incremental costs to address any environmental issues or at the extreme, inability to implement the project due to environmental impact issues.

2.3.3 Social Impact Assessment

The social impacts of the project should be identified and assessed, including:

- Identification of affected communities and parties;
- Engagement with the communities to share project information and obtain feedback/guidance from the communities, including project services, affordability of user fees, technology to be used, and site location; and
- Identification of communities affected by any land acquisition and population resettlement and the parties that will be eligible for compensation.

The feasibility study should include a description of the community engagement process implemented, the information gathered during the process, and how

the community engagement will be implemented during project procurement and implementation to ensure robust feedback loops (to ensure the project benefits from close collaboration with the community, information sharing, and early conflict management). The plan will include any compensation and mitigation of negative social impact of the project. The costs for the implementation of this plan should be estimated over time.

An outline land acquisition and resettlement plan (LARP) should be included in the study. The land acquisition costs (preparation of land acquisition plan and price paid to current owners) and the resettlement costs (cost of compensations and resettlement measures) should be estimated.

² See, for example, the International Finance Corporation Performance Standards, www.ifc.org.

³ See, for example, the Equator Principles, www.equatorprinciples.org.

Land Acquisition and Resettlement Plan (LARP)

In the feasibility study, an outline land acquisition and resettlement plan is usually sufficient (and also necessary for assessing the feasibility of the project). However, in most cases the municipality will have to prepare and implement a full LARP complying with relevant regulations before the award of the contract, or at the latest before the commencement of works. PPP projects in which the municipality has not resolved land acquisition and resettlement issues before the commencement of the project often run into problems (delays, resulting in compensation claims by the private contractor).

2.4 Financial Analysis

The financial analysis comprises assessment of the financial health of the project from the viewpoint of the prospective PSP, the user, and the municipality.

2.4.1 Costs and Revenues

Project cash flows (over the duration of the PPP agreement) include the revenues earned from different aspects of the project (from users, the municipality, and commercial activities). These revenues are matched to project costs— such as debt service, maintenance and operating expenses—taxes, insurance, handback value at the end of the PPP agreement (if any), and return on investment. These cash flows will be mapped out in a financial model for the project.

The estimates and forecasts of expenses and revenues must be clearly documented and explained. The sources of data must be indicated, assumptions and calculations must be explained. Assumptions on macroeconomic variables (exchange rates and inflation) should be based on data and forecasts of authoritative institutions.

The financial internal rate of return (FIRR) is the stream of net project cash flows of the project (revenues less expenses). The weighted average cost of capital (WACC) measures the cost of capital (debt and equity), weighted by their proportion and cost. The assumptions are clearly documented and based on published market data (return of listed firms in the appropriate sector) or findings from market consultations. The project is financially feasible if the FIRR exceeds the WACC.

If the FIRR is less than the WACC (for example, if the affordable user fee is too low), the project in its current form is unlikely to generate any significant interest from PSP investors. Therefore, the municipality needs to look for other sources of revenue such as land value capture (see Module 16: Harnessing Land Value Capture) or other sources of commercial revenues linked to the project (see Module 17: Capturing Commercial Value). For example, where a public car parking facility cannot charge sufficiently high parking fees to make it 'financially feasible', the feasibility study should explore using excess space in the facility for commercial activities, for example, renting space for retail

facilities or for office space (of course when such revenue-generating activities are examined, the municipality needs to ensure that the commercial activities do not take away from project services, for example, investing in additional car parking to support the additional retail space created). The feasibility should also consider reducing the scope of investment, if there are dispensable investments that might make the project more feasible (for example, smaller capacity or less expensive technology). Finally, the feasibility study should explore different opportunities for public contributions (for example, capital contributions from the municipality during the construction phase to offset the cost of construction or during the operations phase to augment the project revenues stream).

A sensitivity analysis should be carried out to assess the effect of certain project risks on the financial feasibility of the project.

The usual sensitivity tests include:

- Increase of construction costs (usually around 20 percent);
- Increase of operating costs (usually around 10%);
- Lower demand (typically decreasing revenues by say 10 percent); and
- Delay of project completion or operation.

Assessing sensitivities will help the municipality identify key project risks that may need to be mitigated. Potential investors will run similar assessments, and so the municipality will want to know what issues potential investors are likely to identify. The municipality will want to address those key risks in advance to make the project more attractive to potential bidders. For some risks, the municipality may be willing to provide a guarantee to protect the PSP from the risk, or some part thereof. For example, if the sensitivity assessment identifies the availability of cement as a key project risk, the municipality may want to identify a ready source of cement before going to bid or it may be willing to provide a guarantee to compensate the PSP if the price of cement exceeds a maximum price at the critical time during construction.

2.4.2 Affordability for the End-User

The demand analysis necessarily includes an assessment of the affordability of project

services for users (households, drivers, passengers, and so on). This is typically done through direct surveys with potential users of the service to be provided or estimated by looking at what potential users are spending on alternative services, and so on. However, the municipality may be concerned with ensuring services to certain parts of the population are particularly affordable, or even less expensive, for example, the municipality may want to provide relatively less expensive services for the poorest, for certain businesses or industry that are important to economic growth, or other key constituencies. Such cross-subsidization is possible through the tariff regime that the municipality will determine before bidding out the project.

2.4.3 Affordability for the Government

The feasibility study will also need to assess the affordability of any contributions, liabilities, or commitments to be imposed on the municipality (or other government

entity). These contributions or commitments by the municipality may be required in case the project on its own is not financially attractive to potential PSPs or the perception of specific risks, for example demand of users for the service, may be too high and therefore may require a guarantee (a contingent liability) from the municipality or other mitigation measures. This affordability measure must include contingent liabilities, for example, the affordability of guarantees provided by the municipality over project revenues or payments to be made in the event of termination. The municipality needs to be certain that such costs will be affordable if and when they arise.

With the help of the financial model, a projection is made of the fiscal impact of the PPP project over its lifetime. The fiscal impact is compared with the municipality's current and future budget constraints.

2.5 Economic Assessment

The economic assessment comprises estimation of the full costs and benefits (financial as well as non-financial) of the project to society as a whole. This helps the municipality determine whether the project is desirable or not from the viewpoint of the society as a whole.

The economic assessment can be carried out by means of a Social Cost Benefit Analysis (SCBA).⁴ SCBA is a methodology developed for evaluating the costs and benefits of investment projects from the viewpoint of the society as a whole. The preparation of a SCBA is a technical, data- and time-intensive exercise. For small projects, the cost of undertaking a SCBA would often be disproportional to the value of the project. In those cases a more simple economic assessment is recommended.

2.5.1 Economic Costs

The feasibility study will provide an assessment of the economic costs of the project, including public contributions to the project in the form of:

- Construction or acquisition of the assets (for example, where the municipality pays for part of the construction cost, including value of land contributed or licensed to the project);
- Mitigating and compensating measures (for example, government guarantees or

indemnities for project risks);

- Loss of the present function of the land that will be occupied by the project (this may include lost municipal revenues that are now captured by the project or land acquisition costs);
- Maintenance and operating costs (for example, where the municipality pays an availability fee for part or all of the cost of project operation); and
- Other costs that are caused by the project.

Important costs for which no reliable quantitative estimates can be made (for lack of data or calculation models) should be described in qualitative terms, so that they can be considered by the decision maker.

2.5.2 Benefits

Calculation of the benefits of the project include:

- The cost savings realized by the municipality, the users of the project, and/or the community;
- New economic opportunities created by the project;
- Improved quality of life achieved through the additionality of the project; and
- New revenues, including taxes and fees, generated by or because of the project.

⁴ For a complete discussion of an SCBA, please see www.worldbank.org.

These benefits are assessed compared to the 'do nothing' alternative.

The estimates should be clearly documented and explained. The sources of data should be indicated, assumptions motivated, and calculations explained. Important benefits for which no reliable quantitative estimates can be made (for lack of data) are described in qualitative terms, so they can be considered by the decision maker.

2.5.3 Assessment of Economic Feasibility

The net present value of the stream of costs and benefits during the lifetime of the project is calculated (economic net present value or ENPV). Future costs and benefits are converted into their present value using the social discount rate.⁵ If there are important costs and benefits that have not

been quantified (because the required data and calculation methods are not available), then these should be considered in addition to the ENPV in the judgement on the preferred alternative.

A sensitivity analysis is carried out to assess the effect of (a) uncertainty about important assumptions in the calculation of costs and benefits and (b) project risks on the economic feasibility of the project. The usual sensitivity tests include

- Increase of costs (usually by around 20 percent);
- Low demand scenario; and
- Any important project risks that have been identified in the feasibility study (for instance, delay of the project implementation due to permit problems).

2.6 VFM Assessment

The feasibility study should assess whether the proposed PPP model offers a better price/performance than other methods for implementation of the project. This is done based on the above analysis, compared against an honest and realistic assessment of the relative merits of other solutions,

including public procurement by the municipality. The assessment is performed with a structured list of questions (see table 1). (Note: This assessment is difficult to achieve as relevant data on the relative efficiency of public procurement and other processes may not be available.)

Table 1: Qualitative VFM Assessment

	Driver	Questions	Low	Medium	High
A	Benefits of PPP				
A1	Output-based contracting	Is there scope for innovation in either the design of the solution or in the provision of the services?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A2	Efficient risk allocation	Is there scope for significant risk transfer to the private partner (in accordance with the principle of efficient risk allocation)? Can the payment mechanism and contract terms incentivize good risk management by the private contractor?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A3	Private outsourcing	Does the private sector have significant cost advantages in comparison with the municipality in the delivery of the project services (owing to greater efficiency, economies of scale, greater experience/expertise, and so on)? Could the private sector achieve better commercial utilization of the assets underpinning the project, resulting in higher revenues?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A4	Life cycle optimization	Does the project offer the potential to achieve efficiency gains from life cycle optimization? Is it possible to integrate the design, build, and operation elements of the project?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

⁵ See Fay, Marianne, Stephane Hallegate, Aart Kraay, and Adrien Vogt-Schilb. 2016. *Discounting Costs and Benefits in Economic Analysis of World Bank Projects*, which suggests that the determination of the social discount rate should be grounded in welfare theory: future benefits and costs should be valued at their marginal contribution to welfare, which will be lower the higher is growth and the wealthier are future project beneficiaries.

	Driver	Questions	Low	Medium	High
A5	Performance-based payments	<p>Can the outcomes or outputs of the investment program be described in contractual terms, which would be objective and measurable?</p> <p>Would incentives for service delivery be enhanced through a performance payment mechanism as proposed in the PPP?</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A6	Private financing	<p>Is financing by the private sector necessary to undertake the project?</p> <p>Are sufficient public funds available, such that the project cannot be undertaken unless private financing steps in?</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D Feasibility of PPP					
D1	Output specifications	<p>Is it possible to describe the services in clear, objective output- and result-based terms (and not in terms of inputs), which can be objectively measured and included in a long-term contract?</p> <p>Can the quality of the service be objectively measured and assessed?</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D2	Operational flexibility of contracting authority	<p>What is the likelihood of large changes in service needs during the life of the PPP contract that would require a change of the contract?</p> <p>Will the PPP arrangement give the municipality sufficient operational flexibility to respond to future needs?</p> <p>If the services performed under the PPP arrangement interfere with other services or other projects not covered by the PPP contract, are these interfaces manageable?</p> <p>If the PPP arrangement necessitates the transfer of public sector staff to the private partner, will it be possible to accomplish this transfer without major problems or resistance?</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D3	Contracting authority capacity	<p>Does the municipal government have sufficient human and financial resources to prepare and tender the PPP project?</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D4	Absence of policy and regulatory barriers	<p>There are no legal or regulatory obstacles to the PPP. The provision of services under a PPP arrangement is compatible with the safeguarding of public interests (for instance, with respect to legal requirements for environmental sustainability, workers' safety, fair competition, and so on).</p> <p>The provision of the services under a PPP arrangement is compatible with other policy goals (for instance, with respect to land use, income distribution, economic development, and so on)?</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D5	Absence of large and uncontrollable risks	<p>There are no significant risks that are largely outside the control of the private partner and that may make private finance unfeasible or expensive.</p> <p>Examples are traffic risk (especially for greenfield projects and if macroeconomic conditions are highly uncertain), large uncertainties about the costs of meeting requirements imposed by environmental regulations, the use of unproven technology, and difficult terrain conditions.</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Driver		Questions	Low	Medium	High
D6	Private sector capacity and interest	Is there evidence that the private sector is technically and financially capable of implementing the project? Is there likely to be a sufficiently large number of bidders interested in the project to ensure effective competition?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Is there evidence that financiers are willing to provide funds for investing in this type of project?			
VFM	Overall assessment	Given the answers to the questions above, are there enough indications that the proposed PPP arrangement yields VFM?			

2.7 Risk Analysis

The feasibility study should provide a risk matrix, which identifies all key risks relevant to the project and contains the following information about each risk:

- Name of risk;
- Description of risk;
- Consequence in case the risk occurs (qualitative description);
- Indication of the probability of occurrence (low/moderate/high);
- Indication of the likely impact on costs or revenues (low/moderate/high);
- Grade of risk (scored 1–10): product of probability and consequence;
- Proposed allocation: explains how the risk will be allocated among public, private, or shared;
- Proposed management and mitigation measures (at least for the high-grade risks): describes what mitigation might be available, for example, additional investment, technology, methodologies, and insurance;
- Additional remarks (if any).

For instance, demand risk would mean the risk that the projected numbers of users do not use the service, for example, the actual users are 10 percent lower than the projected numbers.

The risk matrix would identify the probability of this risk occurring, and also if such an event actually takes place, what would be the impact of that risk on the project and finally who bears the adverse impact of this event.

The information for the risk matrix is collected from the other parts of the feasibility study (in particular the technical analysis, the analysis of user demand, and the project due diligence). To complete the information, a risk workshop may be held with key experts of the municipal government and the consultants preparing the feasibility study. The risk workshop brings together parties with different skill sets and expertise to debate risks and their management. The workshop reviews the risks and their characterization described earlier.

Data permitting, the high-grade risks should be quantified. A minimal quantification includes:

- Probability of occurrence of risk; and
- Damage, costs, or revenue loss in case a risk occurs.

This quantifies the expected loss and the maximum loss due to the risk.

Common Pitfall in Risk Assessment

- Often no sensitivity analysis is carried out to acquire a more complete picture of the plausible range of cost and revenue forecasts.
- Risks are often allocated according to a generic, standardized allocation matrix not considering the project-specific characteristics of the risk factors.
- Insufficient attention is given to risk experiences in real projects, and to the perception of investors and lenders about risks and guarantees and their impact on the willingness of lenders to finance the project.

2.8 Key Commercial Terms of PPP Agreement

The feasibility study defines the key commercial principles of the PPP agreement, as a preparation for the procurement and contracting stage. The

key commercial terms will constitute the basis for the drafting of the PPP agreement between the municipal government and the contractor.

Table 2: Key Commercial Terms

Section of PPP Agreement ⁶	Description
Parties to the agreement (front page)	Identifying the parties to the contract, including the municipality and the PSP, and any other relevant party (for instance, if the central government is providing guarantees or fiscal support, it may also be a party to the contract). The municipality may want the PSP to establish an SPV for the project, in which case the SPV will sign the PPP agreement.
Duration of the contract (Section 3.1)	The period for which the contract would be in force. This period should be only as long as necessary, but long enough to allow the PSP to cover all project costs, debt repayment, and a reasonable return on equity.
Responsibilities of the parties (Section 3.2) (Sections 4 and 5) (Sections 9 and 10) (Section 12)	The responsibilities of both the parties must be defined in detail, and preferably divided into the following phases of the contract: <ul style="list-style-type: none"> • After contract is signed, but before financial closure is achieved and the contract construction has started (conditions precedent); • During construction; • During operations; • At expiry/termination.
Rights of the PSP (Section 4.2)	The rights of the PSP in terms of access to the site, use of existing assets, making structural changes in existing assets, and so on, depending on the nature and content of the project.
Project assets and ownerships	Who owns the existing assets? Who owns the new assets being created? How will the decision to enhance capacity and add assets within the contract period be made? Who is responsible for this decision? How is the required investment to be determined and who will make this incremental investment? When will the ownership of the project assets transfer?
Payment terms (Section 6)	Who will pay to whom? How much shall be paid? When will the payments be made? Who is responsible for determining the tariff? How often and when would tariffs be increased and by how much?
Performance management framework (Schedules 2, 3, and 6)	Output standards. Framework for measuring actual performance against output standards. Consequence of actual performance falling short of output standards.
Dispute management framework (Section 26)	What happens when there is a dispute? How will the dispute get resolved?
Force majeure events and consequences (Section 19)	What are force majeure events for the project? Compensation/relief in case of force majeure?
Material government action (Section 20)	What are material government actions (MAGA) for the project? Compensation/relief in case of MAGA?

⁶ The section numbers refer to the Sample Municipal PPP Agreement (Module 8).

Change in law (Section 21)	What are changes in law for the project? Compensation/relief in case of change in law?
Other municipality risks	Which other risks are assumed by the municipality? What is the compensation in case of a contracting authority risk occurring?
Termination and consequences (Section 18)	Who can terminate the contract and why? What happens when one of the parties terminates the contract?
Jurisdictional issues (Section 25)	Entity that will have jurisdiction on matters related to the contract (expert, mediation, arbitration, or courts)
Liabilities (Section 15)	Liabilities of each party, including liabilities to third parties

2.9 Market Sounding

The market sounding assesses the degree of interest in the project from potential investors and lenders by means of interviews and surveys. A market sounding is essential to ensure a successful competitive tendering of the project. If similar projects have recently been carried out in a PPP in the country or elsewhere, these may be used as evidence of the market interest. It may be assumed that the proposed project will attract the same types of and similar number of bidders. The market analysis must demonstrate that any (limited) differences in circumstances between the reference projects and the proposed PPP project will not have a major impact on market interest. If no suitable reference projects exist, then the market interest must be ascertained by conducting project-specific market consultations of prospective bidders and of financial institutions (national and international where relevant, that is, in the case of large projects with sufficiently high-funding requirements to be attractive for foreign lenders, or projects in sectors that are known to be of interest to foreign bidders).

In the market consultations, the views of prospective investors on the feasibility and the risks of the project and on the need for government support or guarantees are collected and assessed, as well as the views of financial institutions on their willingness to finance the project and on the potential amount of loans that may be granted to the project. The feedback from the market sounding is used in several parts of the feasibility study, especially in the financial analysis (market conditions for the financing, such as required rates of return and other financial ratios) and in the VFM analysis (optimal structuring of PPP arrangement, without deal breakers that would discourage bidders or result in high bid prices). The evidence collected in the above assessments must show a sufficient degree of market interest to ensure a competitive bidding process. If not, strategies must be developed to ensure market interest for the project.

Common Pitfall in Market Sounding

- The market consultation is too superficial and often does not go much beyond the observation of a few indications that the market is interested to invest in the project.
- Lack of preparation (collection of background information) and lack of detail in the formulation of questions, so that the data collection has a low payoff.
- Lack of assessment of the market's view on the revenue potential of the project and on the proposed business model.
- Lack of assessment of the market's confidence in the capability and reliability of the municipality, and of the market's willingness to conclude contracts with the municipality.
- Lack of an assessment of the market's risk perception and preferred risk allocation.

2.10 Procurement and Implementation Plan

The implementation and procurement plan sets out the main actions (with indicative timing) that need to be undertaken by the municipality and by other relevant government agencies to procure and implement the project. The plan must demonstrate that the municipality has the required human and budgetary resources to procure the project and to fulfill its obligations under the PPP agreement (or has a plan to secure these resources).

The procurement and implementation plan must at least include the following:

- Indicative schedule of all actions that the municipality must perform before the commissioning date, such as:
 - o Advertising the project to potential bidders (such as the organization of an investor's conference);
 - o Implementing the various phases of the procurement procedure (pre-qualification, submission and evaluation of bids, negotiation with preferred bidder, contract close, financial close, and so on);
 - o Acquiring the required right of way;
 - o Auditing existing assets in which rights will be transferred to the PSP;
 - o Preparing applications for government support; and
 - o Obtaining required permits and approvals.
- Identification of actions that need to be taken by other government entities to enable the implementation and exploitation of the project, including a plan of actions to obtain the required cooperation from these government entities.
- Outline of procurement strategy:
 - o Selection of procurement method (open or restricted, competitive dialogue, and so on);
 - o Preferred profile of prospective bidder;
 - o Initial view on selection and award criteria—the financial bid parameter to be used in the bid is a critical output that the feasibility study should determine based on the financial model.

3.0

List of References

Delmon, Jeffrey, and Victoria Rigby Delmon. 2013. *International Project Finance And PPPs. A Legal Guide To Key Growth Markets 2013*. Kluwer Law International.

Delmon, Jeffrey. 2016. *Private Sector Investment in Infrastructure: Project Finance, PPP Projects and PPP Frameworks*. Third Edition. Wolters Kluwer.

Equator Principles . n.d. "Equator Principles". Accessed October 03, 2019. <https://equator-principles.com/>.

Fay, Marianne, Stephane Hallegate, Aart Kraay, and Adrien Vogt-Schilb. 2016. *Discounting Costs and Benefits in Economic Analysis of World Bank Projects*.

International Finance Corporation. n.d. "Finance Corporation Performance Standards". Accessed October 03, 2019. www.ifc.org.

