

Government of Punjab
Planning & Development Department

**PROJECT PREPARATION GUIDELINES
FOR PUBLIC-PRIVATE PARTNERSHIPS
IN INFRASTRUCTURE**

October 2009

DEFINITIONS

Consultants	Individual consultants, or a consulting firm, or a financial institution, which will provide the services required for the preparation and transaction execution of a PPP project. Given the importance of the transaction execution phase in the life cycle of PPP projects, the consultants are frequently called transaction advisors, and the project development services are referred to as transaction advisory.
Environmental and social assessment	Process to determine the environmental and social impacts of a project in its area of influence, and to design mitigation measures.
Government Agency	Department, attached department, body corporate, autonomous body of the Government, local government or any organization or corporation owned or controlled by the Government.
PPP Steering Committee	High-level committee established by the Government and chaired by the Chief Secretary to promote, coordinate, approve and facilitate PPP projects.
Government Infrastructure	Government of Punjab. Both traditional infrastructure (transport networks, water supply, energy generation, etc.) and social infrastructure (education and health facilities, etc.).
Public-private partnership (PPP)	Partnership between the public sector represented by a Government Agency and a private party for the provision of an infrastructure facility and/or service with a clear allocation of risks between the two parties. The PPP modalities range from service contracts to management contracts to leases to concessions to build-operate-transfer contracts and their variants.
PPP agreement	Contractual arrangement between a Government Agency and a private party for financing, design, construction, operation and maintenance of a PPP project.
PPP project	Project implemented on a PPP basis in any of the eligible infrastructure sectors.
PPP Cell	Entity established in the Planning and Development Department to assist Government Agencies in preparing and executing high-quality PPP projects, and act as a PPP catalyst and advocate, knowledge manager, and policy and project advisor to the PPP Steering Committee.
Private party	Company, entity, firm, association, body of individuals, or a sole proprietor other than a Government Agency.
Project Development Facility	Pool of funds available for consulting services required for the preparation and transaction execution of PPP projects.
Project Inception Guidelines	Methodology for Government Agencies on how to identify, screen and register potential PPP projects, draft terms of reference and request for proposals for their preparation and transaction execution, and select consultants.
Project Preparation Guidelines	Methodology for Government Agencies on how to prepare a feasibility study for a PPP project and seek approval by the PPP Steering Committee.
Risk Management Unit	Entity established in the Finance Department to review requests for direct and/or contingent government support for PPP projects and ensure its fiscal sustainability.

Transaction Execution Guidelines	Methodology for Government Agencies on how to select the private party for undertaking a PPP project and seek approval by the PPP Steering Committee.
Value for money	Savings in net present value terms of undertaking the project in the PPP mode rather than through the traditional public procurement.
Viability Gap Funding	Funds provided by the Government in the form of a capital or operational subsidy to the private party to make financially viable a project that is constrained in charging cost recovery tariffs by affordability considerations.

ABBREVIATIONS

ADB	–	Asian Development Bank
BOO	–	build-own-operate
BOOT	–	build-own-operate-transfer
BOT	–	build- operate-transfer
FIRR	–	financial internal rate of return
IPDF	–	Infrastructure Project Development Facility
PDF	–	Project Development Facility
PPP	–	public-private partnership
VGF	–	viability gap funding

CONTENTS

	Page
I. INTRODUCTION	1
II. PROJECT LIFE CYCLE	2
III. APPLICABILITY OF THE GUIDELINES	4
A. PPP Modalities	4
B. Infrastructure Sectors	5
IV. IMPORTANCE OF PROJECT PREPARATION	5
V. NEEDS ANALYSIS	7
A. General	7
B. Sector Diagnostic	7
C. Commitment of the Government and Its Agency	8
D. Available Budget of the Government Agency	9
E. Capacity of the Government Agency	9
F. Demand-Supply Analysis	9
G. Specification of Project Outputs	10
H. Scope of the Project	11
VI. OPTIONS ANALYSIS	11
A. PPP Options	11
B. Choice of Technology	12
C. Choice of Location	13
VII. PROJECT DESIGN AND COST	13
A. Preliminary Design	13
B. Cost Estimates	14
VIII. ENVIRONMENTAL AND SOCIAL ASSESSMENT	15
A. Environmental Assessment	15
B. Social Impact Assessment	16
C. Land Acquisition and Resettlement Plans	17
D. Stakeholder Consultations	17
IX. FINANCIAL ANALYSIS	18
A. Financial Modeling	18
B. Sensitivity Analysis	20
C. Risk Assessment	20
D. Need for Government Support	22
E. Tariff Design	23
X. ECONOMIC ANALYSIS	24
A. Least-Cost Analysis	24
B. Economic Internal Rate of Return	24
C. Value for Money	25
XI. PROJECT MANAGEMENT PLAN	26
XII. DRAFT TENDER DOCUMENTS	27
XIII. PROJECT APPROVAL PROCEDURE	27
APPENDIXES	
1. Main Steps during the Project Life Cycle	31
2. Example of a Capital Cost Breakdown	32

I. INTRODUCTION

1. The Government of Punjab (the Government) is committed to sustainable economic growth and inclusive social development. Global experience has shown that there is a close relationship between these objectives and infrastructure development. The correlation works in both ways – investments in infrastructure are a major driver for economic growth, and economic growth requires well functioning infrastructure facilities and services. If infrastructure investments are not kept at a sufficient level, economic growth becomes constrained by power shortages, traffic congestion, high transport costs, and other infrastructure bottlenecks. As to the impact on social development, it is the low-income groups who are most affected by an inadequate access to and poor quality of infrastructure services.

2. The Government has therefore decided to significantly increase infrastructure investments and has made provisions in the provincial budget to this effect. The Government is also the beneficiary of financial assistance for infrastructure projects from multilateral and bilateral development partners. In addition to projects funded by its budget and development loans, the Government is committed to engaging the private sector in the provision of infrastructure. The preferred mode is public-private partnerships (PPPs) where the private and public sectors enter into mutually beneficial contractual agreements for the provision of public infrastructure services.

3. To provide an enabling framework for private sector participation in infrastructure development, the Government has adopted a PPP law,¹ issued a PPP policy,² and prepared detailed guidelines for the main phases in the life cycle of PPP projects.³ The Guidelines presented herein are related to the second phase, namely, project preparation.

4. Lack of viable projects to offer to private investors has been pointed out in a number of countries as one of the major constraints in promoting PPPs. Once a pipeline of infrastructure projects that are potentially suitable for implementation in the PPP mode has been established, it is necessary to adequately prepare each of them for implementation by carrying out a feasibility study. International experience shows that adequate project preparation is essential for the success of a PPP project.

5. As the line departments and local governments in Punjab lack experience with PPPs, there is a need for support and capacity building, as well as for a relatively simple methodology and procedures they could follow. To provide the necessary support, the Government has established a PPP Cell in the Planning and Development Department, which is being staffed by technical, financial, and legal experts. All line departments and local governments, which want to implement PPP projects in their sector and/or geographical area of responsibility, can seek support from the PPP Cell in project identification, screening, preparation and transaction execution. While the first phase of project identification and screening can be undertaken by the line departments and local governments with in-house human resources and support from the PPP Cell, assistance by consultants is needed for the subsequent phases.

¹ *Punjab Public-Private Partnership for Infrastructure Ordinance 2009.*

² *Policy for Public-Private Partnerships in Infrastructure*, approved by the Provincial Cabinet of Punjab on 19 August 2009, through Notification SO (CAB-II)1-6/2009, Services and General Administration Department (Cabinet Wing), Government of the Punjab.

³ *Project Inception Guidelines for Public-Private Partnerships in Infrastructure; Project Preparation Guidelines for Public-Private Partnerships in Infrastructure; and Transaction Execution Guidelines for Public-Private Partnerships in Infrastructure*; all issued by ... on ...

6. The Guidelines first provide an overview of the life cycle of PPP projects, list the PPP modalities and infrastructure sectors covered, and explain why adequate project preparation is important. Thereafter, they outline a practice-oriented methodology for feasibility studies, and describe the various steps, tasks and processes required in their preparation.

7. The Guidelines apply to all types of infrastructure projects, which a Government Agency in the public sector may plan for development and implementation, and which are potentially viable under the PPP mode. Projects, which the private sector can do on its own without any need for government support and involvement, or those which can be privatized, are not covered by these Guidelines. The Guidelines will not apply retrospectively to PPP projects already implemented or under development.

8. Given the wide range of PPP modalities as well as of infrastructure sectors in which the Government wishes to promote PPP development, the Guidelines provide only a general guidance that reflects international best practice. The content and scope of each feasibility study should be adapted to the particular characteristics of the given sector and the most suitable PPP modality. As more experience is gained with PPP projects in Punjab, development of detailed sector-specific project preparation guidelines will be considered.

9. The Guidelines are based on, and further expand, the federal-level *Project Preparation/Feasibility Guidelines for PPP Projects* issued by the Infrastructure Project Development Facility (IPDF) under the Ministry of Finance in Islamabad in July 2008. In addition, the *Public-Private Partnership Handbook* published by the Asian Development Bank (ADB) in 2008 has proved to be helpful.

II. PROJECT LIFE CYCLE

10. The following four main phases can be distinguished in the overall life cycle of PPP projects:

- (i) Project inception (identification and screening);
- (ii) Project preparation (feasibility study);
- (iii) Transaction execution (selection of the private party); and
- (iv) Construction, operation and transfer (development, delivery and exit).

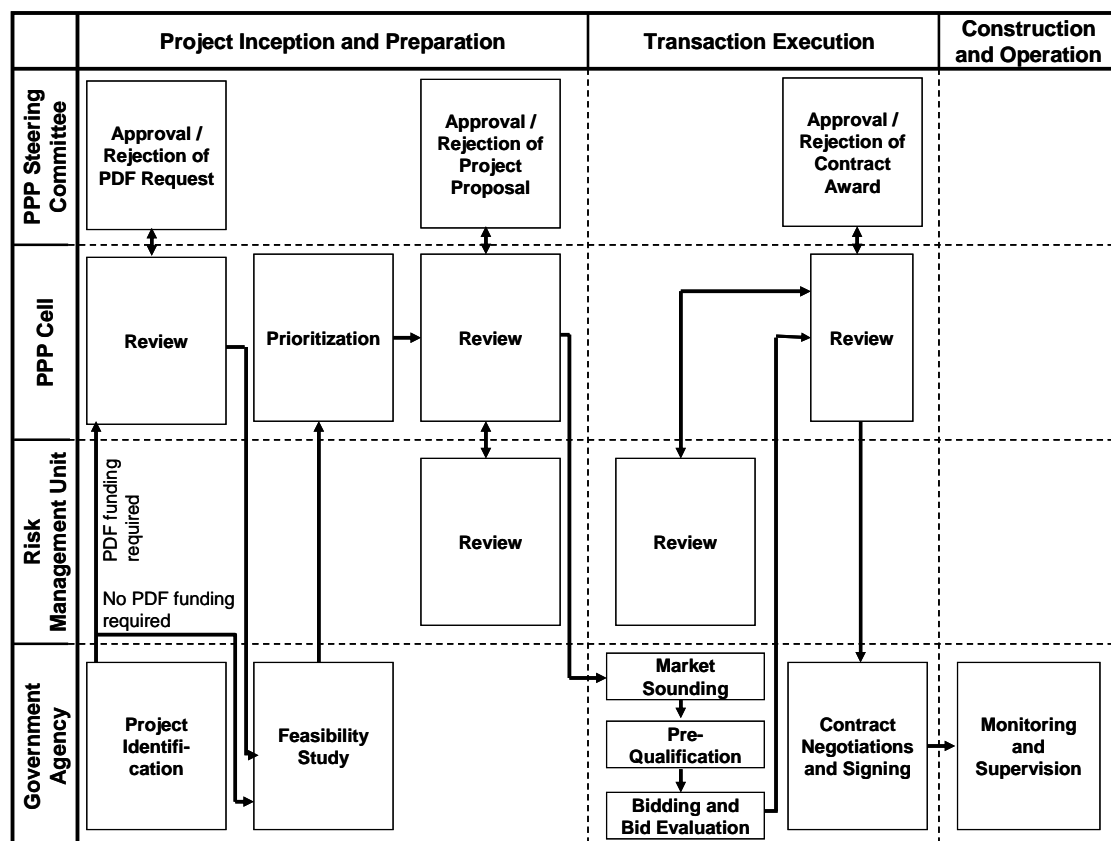
A flow chart of the main activities during these phases is shown in Figure 1. The principal steps are listed in Appendix 1.

11. During the inception phase, the Government Agency will identify and conceptualize a potential PPP project from its master plan and other planning documents. This phase will include an initial needs and options analysis to determine the best solution for developing the given infrastructure facility and/or providing the necessary infrastructure service, as well as an initial viability analysis. To help prepare the PPP project and select the private party, the Government Agency will recruit consultants. Prior to doing so, it will decide whether to fund their cost from its own budget or the Project Development Facility (PDF).⁴ In the latter case, the

⁴ As the costs of consultants are significant and cannot always be funded by the annual budgetary allocations, the Government has established the PDF as a part of the overall enabling PPP framework. The PDF, which will be

Government Agency will submit a request for PDF funding through the PPP Cell to the PPP Steering Committee. The project inception phase will end with the recruitment of the consultants who will provide support to the Government Agency during the next two phases.

Figure 1: Flow Chart of Project-Related Activities



PDF = Project Development Facility; PPP = public-private partnership.

12. In the second phase, the Government Agency will manage preparation of the PPP project by the consultants. The preparation will consist of a feasibility study, including an initial environmental examination, environmental impact assessment (if required), risk assessment, assessment of the need for government support, stakeholder consultations, determination of the PPP modality,⁵ and drafting of tender documents including the PPP agreement. An important part of the feasibility study will be financial modeling to determine project “bankability” and affordability.

13. Provided the outcome of the feasibility study is positive and the project proposal is approved by the PPP Steering Committee for implementation, the third phase – the transaction execution – will start. The consultants will assist the Government Agency in undertaking market

administered by the PPP Cell, will ultimately be a revolving fund, with the project preparation and transaction execution costs reclaimed from winning bidders. For further details, see the *Guidelines for the Project Development Facility for Public-Private Partnerships in Infrastructure*, approved by the Provincial Cabinet of Punjab on 19 August 2009, through Notification SO (CAB-II)1-6/2009, Services and General Administration Department (Cabinet Wing), Government of the Punjab.

⁵ These activities are sometimes referred to as technical, legal, environmental and financial due diligence.

sounding aimed at packaging the project in a way that attracts interest of private investors. The market sounding will be followed by a two-stage tendering process consisting of pre-qualification and bidding. Based on a technical and financial evaluation of the bids received, the preferred bidder will be determined and invited to contract negotiations. After the PPP agreement has been signed, the selected private party will endeavor to arrange the necessary financing and thereby achieve financial closure for the PPP project. This will mark the end of the transaction execution phase and the beginning of project construction.

14. During the last phase that covers construction, operation and transfer (if applicable), the Government Agency will be responsible for monitoring and evaluating the PPP project to ensure its conformity with the plans, specifications, performance standards and tariffs in the PPP agreement. The Government Agency will submit annual reports on the PPP project to the PPP Cell. At the end of the period covered by the PPP agreement and if so provided therein, the PPP project will be transferred by the private party to the Government Agency.

III. APPLICABILITY OF THE GUIDELINES

A. PPP Modalities

15. The projects should adopt one of the PPP modalities shown in Table 1, or a combination of these:

Table 1: PPP Classification

Modality	Owner-ship	Invest-ment	O&M	Commercial Risk	Duration (years)	Typical Example
Service Contracts	Public	Public	Public/ Private	Public	1-3	Meter reading and billing, or road maintenance outsourcing
Management Contracts	Public	Public	Private	Public	2-5	Public utility management
Lease Contracts	Public	Public/ Private	Private	Public/ private	10-15	Leasing of existing tourism facilities
Concessions	Public/ Private	Private	Private	Private	25-30	Water supply concession
BOT Contracts	Public/ Private	Private	Private	Private	20-30	Independent power producer

BOT = build-operate-transfer; O&M = operation and maintenance.

Source: Public-Private Partnership Handbook, ADB, 2008.

16. The role of the private sector increases down the table, i.e., it is minor under service contracts and major under build-operate-transfer (BOT) contracts.⁶ Given their public resource constraints, Punjab, like other developing countries, will be primarily looking for PPP modalities, under which the private party arranges financing for the project and is responsible for its design, construction or rehabilitation, operation and maintenance. Such modalities – concessions and BOT-type contracts – have so far been adopted for about 75% of PPP projects worldwide. Consequently, the Guidelines focus on these higher-grade PPP modalities. If a lower-grade

⁶ Or their variations such as build-own-operate (BOO), build-own-operate-transfer (BOOT) and rehabilitate-operate-transfer (ROT) contracts.

PPP modality is chosen that does not require private investment, such as a service or management contract, some tasks and activities of the feasibility study are not required. The principal objective should be to demonstrate that such modalities will generate efficiency improvements.

B. Infrastructure Sectors

17. In line with the PPP law and PPP policy (footnotes 1 and 2), the projects should be in one of the following infrastructure sectors and sub-sectors defined in a broader sense to cover also physical infrastructure in the social sectors:

- (i) Transport and logistics including provincial and municipal roads, rail, airports, as well as warehousing, wholesale markets, slaughter houses and cold storage;
- (ii) Mass urban public transport including integrated bus systems as well as intra and inter-city rail systems;
- (iii) Local government services including water supply and sanitation, solid waste management; low cost housing, and education and health facilities;
- (iv) Energy projects including hydro and thermal power generation projects other than those being undertaken at the federal level;
- (v) Tourism projects including cultural centers, entertainment and recreational facilities and other tourism-related infrastructure; and
- (i) Industrial projects including industrial parks and special economic zones.

IV. IMPORTANCE OF PROJECT PREPARATION

18. There is sometimes a tendency in the public sector to prepare only a pre-feasibility study for a PPP project, or even to shift the responsibility for all preparatory activities to the private sector. This is done to save public resources and fast-track project development. However, international experience clearly shows that this practice is counterproductive and that it has the following major disadvantages:

- (i) It leads to land speculation;
- (ii) It discourages competition as each potential investor has to prepare its own feasibility study;
- (iii) It results in high fees and user charges for infrastructure services as bidders include significant risk margins; and
- (iv) It leads to major delays in contract negotiations and financial closure, or even inability to achieve the latter, as there are too many uncertainties and issues left open in the tender documents.

19. The proven best practice, prescribed by the PPP law and PPP policy (footnotes 1 and 2), is therefore for the public sector to reduce uncertainties and thoroughly prepare the PPP project before the selection of the private party by undertaking a full feasibility study and, preferably, acquiring the necessary land and obtaining the requisite permits and approvals. The project preparation has the following objectives:

- (i) Ensuring overall success of the PPP program;

- (ii) Ensuring technical, economic and financial viability and environmental sustainability of PPP projects;
- (iii) Designing sound contractual structures for PPP projects that make them “bankable”;
- (iv) Minimizing and fairly allocating risks of PPP projects;
- (v) Allowing informed decision making by the Government, based on good-quality feasibility reports;
- (vi) Enhancing competition in the procurement process;
- (vii) Providing the basis for contract negotiations;
- (viii) Minimizing the transaction costs of PPP projects and avoiding unnecessary delays; and
- (ix) Facilitating financial closure for PPP projects.

20. Feasibility study is the key component of project preparation and a technical working document for project appraisal. Any PPP project regardless of its scale and nature can have long-term implications with a great deal at stake once it is implemented. A feasibility study therefore needs to be authentic, accurate and comprehensive. It should be a complete document capturing all aspects of the project and thereby allowing the Government Agency, PPP Cell, PPP Steering Committee and potential private sector investors to make informed investment decisions. As such, the feasibility study should

- (i) Establish that the project is consistent with the predetermined needs, and is the most suitable technical and financial solution to meet these needs;
- (ii) Recommend how the project should be structured and designed;
- (iii) Provide information about all costs during the project life cycle;
- (iv) Identify the impact of the project on the environment and population and, if necessary, devise a resettlement plan, including compensation and management programs;
- (v) Develop a project-specific land acquisition plan;
- (vi) Document all stakeholder consultations undertaken for the project;
- (vii) Develop a financial model with key investment ratios, and the capability of running scenario and sensitivity analyses;
- (viii) Identify all significant risks associated with the project, and recommend their allocation and mitigation;
- (ix) Assess whether or not the project is affordable to the Government and/or the end users of the services in terms of direct and contingent fiscal obligations;
- (x) Establish the economic justification for the project;
- (xi) Prepare a project management plan for the subsequent development phases; and
- (xii) Draft documentation for the procurement of the private party during the transaction execution phase.

21. To meet the above objectives and requirements, the feasibility study should contain all activities traditionally carried out for public infrastructure projects, plus some additional ones required for the PPP mode only, such as project structuring and risk allocation. To the extent possible, the various activities should be pursued simultaneously to expedite project preparation. The main tasks to be completed by the consultants are described in more detail below.

V. NEEDS ANALYSIS

A. General

22. Building upon the preliminary needs analysis carried out during the project inception phase, the consultants should gather all available information on the sector background, present and future needs of the Government Agency, its available resources including budget for project development and implementation, and the market situation. The collection and analysis of this information will pave the way for the subsequent options analysis.

B. Sector Diagnostic

23. To be successful, PPP projects should be built upon a sector diagnostic that provides a realistic assessment of the status quo in terms of sector constraints, identifies gaps and weaknesses, and outlines opportunities for improvement through private sector participation. To establish the basis for selecting an appropriate PPP modality, the sector diagnostic should cover the following subjects:

- (i) Technical issues such as low system efficiency, poor utility operations, low responsiveness to customers, underinvestment, poor investment planning, inadequate maintenance, ineffective management, inadequate technical standards, lack of operational expertise, and lack of links among various system elements;
- (ii) Legal, regulatory, and policy frameworks such as applicable laws, existing regime for assigning authority and setting performance standards, oversight arrangements, regulatory bodies and economic regulations, major sector institutions and government entities related to the sector, tariff and subsidy policies and arrangements, legally mandated service quality standards, relevant natural resource safeguards and management requirements, relevant environmental and health regulations, relevant labor laws and regulations, limitations on foreign ownership/sector participation, restrictions on foreign exchange convertibility, and limitations on repatriation of profits;
- (iii) Institutional issues such as the existence, or lack of it, of the institutional and legislative frameworks required to support sector improvement and PPP development; any impediments perceived by the concerned department, users, and utility; level of autonomy and accountability of stakeholders vis-a-vis their proposed obligations; readiness of the relevant levels of government to relinquish or revise their roles; readiness of the relevant levels of government to delegate some control to private partners within defined policy and regulatory parameters; and availability in the concerned institutions of the funding, staff, training, and equipment required to discharge their revised functions; and
- (iv) Commercial and financial issues such as the business orientation and financial position of the infrastructure service provider which may become a partner in the

PPP project, status of the billing system, availability of a customer database, status of receivables, current funding arrangements, and adequacy of the current pricing system in terms of tariff levels and structure.

C. Commitment of the Government and Its Agency

24. The private sector will expect the Government to be a competent partner in discharging its obligations in terms of policy and reform planning, project development, and contract oversight. It will also expect that the Government has established the appropriate legal and other frameworks to set targets; monitor, evaluate and report progress; enforce the contract provisions; and handle disputes. The Government's commitment should be assessed in the feasibility study based on the following factors:

- (i) Adherence to its reform strategy and PPP policy;
- (ii) Extent of stakeholder consultations and transparency of the process;
- (iii) Provision of adequate funding and support for the process; and
- (iv) The appointment of a powerful champion, or driver, for the process, who is accountable for progress, is a focal point for public communication and information, ensures that appropriate attention is given to the main issues, works with various parties to achieve cooperation/ consensus, and leads the Government toward decisions. In Punjab's case, the PPP Unit is supposed to play the role of the champion. The standing, credibility, and strength of mandate of the PPP Unit will be strong indications of the true commitment of the Government to the PPP project.

25. To be in the best interest of the Government Agency, the project needs to be closely aligned with its policies and priorities. The Government Agency's commitment should be assessed by the consultants in three steps:

- (i) Summarize the Government Agency's mission statement, its strategic objectives, and the government policy that determines what the Government Agency's deliverables are;
- (ii) Describe the functions that the Government Agency performs in the public interest or in terms of public infrastructure services; and
- (iii) Discuss the following aspects of the project:
 - (a) How does the project contribute to the implementation of the policy of the Government and the Government Agency?
 - (b) Does the Government Agency have the ability and the capacity to provide the services?
 - (c) What is the relative size of the project, in terms of its anticipated budget or capital expenditure?
 - (d) What are the potential cost savings for the Government Agency?
 - (e) What is the capacity of the private sector to provide the services?

- (f) What is the expected life of the project?
- (g) Will the project address the broad needs of the Government Agency over time?

D. Available Budget of the Government Agency

26. Keeping in mind that affordability is a key aspect of the feasibility study, this analysis should include the following steps:

- (i) Discuss assumptions about future budgetary commitments required from the Government for the proposed project;
- (ii) Prepare a long-term projection of such commitments;
- (iii) Discuss any possible budget consolidation by drawing funds from various budgets, which would be ring-fenced for the project; and
- (iv) List cost items in the Government Agency's current budget which may no longer be incurred as a result of the project.

E. Capacity of the Government Agency

27. It should be demonstrated that the Government Agency has the capacity to manage, process, evaluate, negotiate and implement the project. This is done in four steps:

- (i) Assess the institutional capacity of the Government Agency;
- (ii) Provide information on the proposed project team;
- (iii) Provide information on key institutional stakeholders, their attitude towards the project, their relationship with each other, and the project's impact on each of them; and
- (iv) Develop a plan for incorporating the views and contributions of these key stakeholders.

F. Demand-Supply Analysis

28. A thorough analysis of the market, i.e., the demand for and supply of the services to be provided by the project, is crucial for its justification, as well as for the determination of its outputs, scope and timing. As the results of this analysis provide the basis for estimating revenues and benefits in the financial and economic evaluations of the project, care should be taken of their reliability and accuracy, and each of the key assumptions should be explained in sufficient detail.

29. The analysis should look into both the current demand and supply and forecasts for the future, as follows:

- (i) Examine whether the current supply is appropriate to meet the actual demand and determine if there is any suppressed demand;

- (ii) Prepare long-term supply forecasts without the project, taking into account aging of the existing facilities, new facilities to be constructed, and potential imports;
- (iii) Prepare long-term demand forecasts, analyzing historical trends, using micro or macro analysis, and taking into account all relevant factors such as population, income, activities in other sectors, the likely development of prices for the services, and the income and price elasticity of demand ; and
- (iv) Based on the long-term supply and demand forecasts, determine the incremental demand for the services to be provided by the project.

30. Some projects such as those for flood control are not amenable to the conventional supply-demand analysis. In such cases, the expected effects of the project and their comparison with other options should be considered qualitatively and, to the extent possible, quantitatively.

G. Specification of Project Outputs

31. A distinct feature of PPP procurement is that it focuses on project outputs, as opposed to the traditional public procurement where the goal is to minimize the cost of inputs. Once the objectives and budget of the Government Agency are ascertained, its commitment and capacity demonstrated, and the incremental demand for the given infrastructure service determined, the outputs of the proposed project should be specified. It is important not to confuse outputs with inputs, because the risk of providing adequate inputs and assets to deliver the required outputs must be borne by the private sector.⁷ To ensure output delivery, assets will be created by the private sector, over which the Government Agency has certain rights during the life of the project and which are usually transferred to it at the end of the term or the PPP agreement.

32. When specifying outputs, care should be taken to avoid subsidization of any inefficiencies, and to ensure that the outputs are clear and measurable because a payment mechanism will be structured around them. To define the services to be delivered in terms of outputs, the following steps need to be accomplished:

- (i) Describe the service that the Government Agency needs to deliver;
- (ii) Specify the outputs required to deliver this service;
- (iii) Specify the minimum performance standards for the outputs to ensure that the service delivered by the project meet the Government Agency 's expectations;
- (iv) Assess whether the output specifications can meet the Government Agency 's ongoing service needs;
- (v) Specify key indicators that will measure performance to allow accurate costing of the output specifications;

⁷ For instance, a water supply project should be defined in terms of providing clean and adequate water to 'X' number of households, rather than a water treatment plant with a network of water distribution pipes. Other examples are an airport project capable of handling 'X' number of flights and 'Y' number of passengers, rather than the airport building surrounded by ramps and runways, or a power project supplying 'X' number of units of energy to the power utility, rather than the power plant itself.

- (vi) Identify interfaces between the project and the Government Agency's other services; and
- (vii) List the socio-economic targets that the Government Agency wishes to achieve through the project.

H. Scope of the Project

33. Based on the Government Agency's institutional needs, strategic objectives, resources and output specifications for delivering the required service, the optimum project scope should be determined. The time horizon to determine the maximum output capacity should be as realistic as the demand forecast, to avoid any bias towards "bigness", which would not only mean idle resources but also jeopardize the viability of the project itself.

34. While the determination of the project scope will depend on the sector, project type, resources, demand, technology, and institutional and social aspects, the following steps should generally be accomplished:

- (i) Identify all factors determining the scope such as the market, growth rates and other service providers, and analyze their likely future development;
- (ii) Identify all limiting factors and constraints such as affordability and risks;
- (iii) Based on an analysis of the above factors and distinguishing between inputs and outputs, determine the scope of the project in terms of physical facilities and their capacity (inputs) and service to be provided (outputs); and
- (iv) Determine project phasing, if needed.

VI. OPTIONS ANALYSIS

A. PPP Options

35. The selection of an appropriate PPP option should be based on the needs analysis, in particular the sector diagnostic, taking into account the following factors:

- (i) PPP modalities available (as described in Section III.A and Table 1);
- (ii) Technical constraints and goals of the sector;
- (iii) Legal and regulatory constraints;
- (iv) Institutional issues;
- (v) Commercial and financial issues;
- (vi) Financing requirements and constraints; and
- (vii) Preferences of potential domestic and foreign investors.

36. The selection should take into account the Government's specific objectives. Is there just a limited goal of improving one of the Government Agency's functions such as billing and collection? Or is it the Government's priority to reduce the costs of service? Or is the priority to

expand coverage and improve the quality of service? However, the Government's priorities may sometimes differ from the private sector's interest. For example, a particular option such as a concession may best meet the objectives of the Government, but the level of risk may be unacceptable to potential private investors.

37. Particular PPP forms are used more widely and are more readily applied to particular sectors. For instance, BOTs are more often employed for power generation while concessions are frequently seen in water supply and sanitation, and service or management contracts in health care. Each PPP modality has a set of prerequisites for successful implementation. For instance, the higher-grade modalities that transfer greater risk to the private sector will require more sophisticated legal and regulatory structures, as well as availability of local skills to implement and monitor the transactions. Other constraints may be low-cost recovery levels, lack of system information, or poor technical performance. If the sector diagnostic determines that the prerequisites are yet not in place, it may be prudent to start with a less extensive PPP modality. An alternative would be to achieve the prerequisites during the preparatory phase by implementing the necessary reforms.

38. No PPP option should be applied without tailoring it to the local context. The modalities described in Section III.A provide a menu of contract types that can be modified to suit specific project requirements. Incorporating different components of different contract types or using several contracts in combination may be necessary. Additional modifications may be necessary to facilitate the financing of the transaction and to respond to concerns of potential partners.

39. The options analysis should start with the identification of all technical and financial options available to the Government Agency for meeting its output specifications for service delivery. The various options should be then evaluated against a set of criteria specific to the project such as potential for raising private finance, and speed and ease of implementation, thus allowing the Government Agency to choose the preferred option. The options analysis should be carried out by the consultants in four steps:

- (i) List all reasonable options available;
- (ii) Evaluate the advantages and disadvantages of each option, together with its risks, benefits and potential impacts;
- (iii) Assess which options are likely to attract private sector investment; and
- (iv) Recommend the preferred option.

B. Choice of Technology

40. Taking into account site conditions, the scope of the project and the type of facilities proposed, all prima facie viable technological options should be examined, as follows:

- (i) Provide an overview of technological options, which are available in Pakistan and abroad, and describe them briefly, including the main technical parameters and basic charts of the technological processes involved;
- (ii) Assess the advantages and disadvantages of each technological option, taking into account the relevant factors such as its track record, appropriateness for the local conditions, operation and maintenance requirements, economics, and

environmental impact, as well as Punjab's legal and technical standards and norms, the location, size and required capacity of the project facilities, and technology transfer; and

- (iii) Select the most suitable technological option for the project.

C. Choice of Location

41. The location of a project is determined by a wide variety of sometimes conflicting factors. As for the technological options and closely related to these, alternative locations should be compared to select the most suitable one, as follows:

- (i) Provide an overview of location options and describe briefly their natural, administrative, economic and social conditions;
- (ii) Assess the advantages and disadvantages of each location option in terms of proximity to the market and customers; availability of raw materials and fuel supply; availability of labour; availability of supporting infrastructure for transport, power and water supply; land use and construction planning; environmental and social impacts; and topographic and geotechnical conditions;
- (iii) Determine whether there are any constraints, which would pose problems for the implementation of the project or of its possible extension in the future; and
- (iv) Select the most suitable location option for the project.

VII. PROJECT DESIGN AND COST

A. Preliminary Design

42. Once the preferred option for providing the needed infrastructure services is selected, a design appropriate to the complexity of the project should be prepared, including the main technical specifications. It may be a preliminary design for complex and high-cost projects or a basic design for simpler projects for which reliable cost data is available. It should meet good engineering design and construction practices and standards as specified by the Government of Pakistan or other standards and best practices accepted in the country, and should be in accordance with the relevant laws and regulations of the Government.

43. The purpose of this design work is to provide a basis for costing and implementation planning, which in turn will underpin the economic and financial analyses of the project. However, the final design should be the responsibility of the private party selected for the project. It should be this private party, rather than the Government Agency, which will ultimately bear the design risk.

44. Technical specifications of the PPP project should be defined in the feasibility study, documented in the bid documents, and ultimately enshrined in the PPP agreement. During this process, a balance between should be struck between too narrow or restrictive specifications and too loose ones. Technical specifications that are too narrow could prevent bidders from using the most economical technical solution. Too loose specifications may lead to proposals that diverge significantly from each other and are hard to compare and rank. A strategy for dealing with this dilemma is to focus on defining the technical outputs expected rather than

dictating the inputs to be employed, thus allowing the bidders reasonable latitude to determine the most efficient way of achieving the outputs.

B. Cost Estimates

45. Accurateness and reliability of cost estimates are essential. The amount of effort required for their preparation depends on the complexity and innovativeness of the project. In general, feasibility studies of standard projects in a well-known environment can make use of the most recent experience with similar projects, while innovative projects in completely new surroundings may require special investigations. It is essential to avoid common shortcomings in this type of work, such as a systematic bias to underestimate cost, the application of erroneous unit prices, omission of some project components such as relocation of affected people, and omission of some cost categories such as contingencies. The last two frequently made mistakes can be avoided by breaking down the project cost into its components, sub-components and items, and preparing a separate cost estimate for each of these. All estimates should be related to historical cost information where available, or utilize realistic expected costs based on other similar projects within Pakistan, if available, or in a similar environment in another country.

46. Project cost consists of various items, depending on the type of project and its characteristics, which may widely vary. The cost of each item should be carefully estimated based on the services required, preliminary design and main technical characteristics. The methods and assumptions used for the estimates should be clearly stated. While there will be differences in the cost items, some of the methodological aspects are similar. Estimates should be prepared for the following main cost categories:

- (i) **Capital costs:** These are costs specifically associated with the provision of new infrastructure services. They can include construction of a new facility or acquisition of a new asset. They should include, but not be limited to, the design, land and development costs, raw materials, construction, plant and equipment, and should also account for labor, management and training costs related to development and implementation of a project, including financial, legal, procurement, technical and project management services (see Appendix 2). Costs pertaining to asset replacement as they occur during the project life should also be estimated. The capital cost estimates should be broken down into foreign exchange and local currency, taking into account whether the various items are likely to be procured domestically or abroad. A disbursement schedule should be prepared showing the distribution of capital costs over the implementation period. Capital cost estimates should be prepared using either COSTAB⁸ or Microsoft Excel software.
- (ii) **Maintenance costs:** The estimates should include the full life-cycle costs of maintaining the assets in the condition required to meet the output specifications. They should include elements such as raw materials, tools/equipment costs and labor costs associated with maintenance. The level of maintenance costs assumed should be consistent with the capital costs, the operating cost forecasts and the residual value treatment of any assets.

⁸ COSTAB (Standard Project Cost Table) was originally developed by the World Bank and updated several times by ADB. The current version of COSTAB can be downloaded from www.adb.org/Projects/costab.asp.

- (iii) **Operating costs:** These are associated with the daily operation of the service and should include full staff costs (including wages and salaries, employee benefits, accruing pension liabilities, contributions to insurance, training and development, annual leave, travel and any expected redundancy costs), raw materials and consumables, insurance, direct management costs, and any indirect costs such as additional overhead costs related to senior management's time, personnel, accounting, billing, legal, rent, communications and other resources that are used by the project.

VIII. ENVIRONMENTAL AND SOCIAL ASSESSMENT

A. Environmental Assessment

47. Over the past few decades, the threshold of environmental acceptability for investment projects has been significantly raised worldwide. Environmental assessments have become an accepted and widely used instrument for integrating environmental issues into the formulation of plans to undertake the projects. Such assessments are particularly important in the case of infrastructure projects, for which an initial environmental examination, followed by a full environmental impact assessment, if necessary, and the specification of environmental performance requirements are mandatory. Environmental requirements to underpin implementation of infrastructure projects involve far more than simply making sure that there is compliance with environmental laws and regulations. Authorization of projects by the environmental authorities is an important step because a project's inability to meet environmental requirements can have an adverse impact on its financing efforts. There needs to be a proper and full consideration, understanding and mitigation of negative environmental effects throughout the project life cycle.

48. In line with the Pakistan Environmental Protection Act XXXIV of 1997 and other relevant laws, rules and regulations, an initial environmental examination should be undertaken during the feasibility study for all PPP projects irrespective of their type and size. If the project is likely to cause an adverse environmental effect, this should be followed a full environmental impact assessment. The consultants should address the following two main types of concerns:

- (i) Ecological – for projects involving conversion or degradation of natural habitats or ecosystem functions either directly or potentially through induced development. These concerns have largely to do with natural habitats, biodiversity and extraction of natural resources; and
- (ii) Pollution – for projects involving pollution hazards presenting risks to people or ecosystem functions. These concerns are mainly related to air and water quality, and treatment and disposal of hazardous materials and wastes.

49. Specifically, the consultants should do the following:

- (i) Describe key environmental issues and the area of influence of the project on natural environment (air, water and land), and human health and safety;
- (ii) Identify and assess all significant negative environmental impacts;

- (iii) Indicate environmental criteria and standards to be used for the design of the project in terms of technology, processes and construction;
- (iv) Prepare an environmental management plan specifying mitigating measures to be taken in order to meet the environmental requirements throughout the project life cycle;
- (v) Assess the institutional capacity to handle implementation of the environmental management plan;
- (vi) Estimate the cost of the recommended mitigation measures; and
- (vii) Develop a system with explicit indicators for monitoring and evaluation of environmental impacts during project implementation and operation.

B. Social Impact Assessment

50. Social considerations require that all infrastructure projects should avoid adverse impacts on the people and be appropriate for the culture of the local communities and project beneficiaries. In case adverse impacts are unavoidable, efforts should be made to mitigate these impacts to ensure that the affected people can restore or improve their living standards compared with the situation before the project. Inability to meet social requirements is likely to have an adverse impact on efforts to mobilize financing for the project, as well as on its implementation and operation. Social issues, in particular those related to resettlement, need therefore to be properly investigated, understood and mitigated at all stages of the project life cycle. The feasibility study plays a particularly crucial role in this regard.

51. In line with the relevant social safeguard laws and regulations, the consultants should assess the impact of the project in socio-economic and socio-cultural terms and propose the necessary measures, as follows:

- (i) Identify and assess the positive effects of the project in terms of satisfying basic needs, alleviating poverty, generating employment, and reaching large population segments;
- (ii) Recommend measures to ensure sustainability of such positive effects;
- (iii) Identify and assess negative social effects such as physical displacement, changes in access to resources, disruption to livelihoods, changes in social or economic standing, inequitable distribution of benefits and costs among stakeholders, and changes to patterns of behavior that would not be consistent with prevailing gender perceptions, social norms, and religious or cultural values;
- (iv) Determine whether the project has negative effects on particular categories of stakeholders such as women and ethnic minorities;
- (v) Determine whether there are any risks regarding the participation and acceptance by stakeholders that are essential for the sustainability of the project;
- (vi) Recommend mitigation measures such as special institutional arrangements and modifications in project design;
- (vii) Estimate the cost of the recommended mitigation measures; and
- (viii) Develop a system with explicit indicators for monitoring and evaluation of social impacts during project implementation and operation.

C. Land Acquisition and Resettlement Plans

52. The feasibility study should address ownership and availability issues to ensure that the project site is available for the private party and clear of any legal, institutional, technical and other impediments that could delay implementation. Based on the project design and the related environmental and social assessments, the consultants should do the following if the PPP project involves land acquisition and resettlement of affected people:

- (i) Prepare a detailed land acquisition plan including the scope of land acquisition, description of land ownership and availability, discussion of legal issues (if any); implementation schedule and procedure for land acquisition; and cost estimates; and
- (ii) Prepare a detailed resettlement plan including a list of affected people; entitlement policy and compensation policies; institutional arrangements; public participation, consultation, and grievance mechanisms; implementation schedule; cost estimate; and a monitoring and evaluation system.

D. Stakeholder Consultations

53. Despite the considerable international experience with PPP projects, they remain controversial among a range of stakeholders. This is partly attributable to the diverse range of stakeholders involved in the process and the difficulty in reconciling their interests and concerns. In addition, too often the stakeholders have not been properly consulted or engaged in the process. Dialogue is increasingly seen as important for several reasons:

- (i) Inadequate consultation or communication with stakeholders increases the danger of opposition, potentially late in the process, leading to delays or even cancellation.
- (ii) The stakeholders are critical to the sustainability of a PPP project. Even if the contract is awarded despite opposition, the difficulty and risk of the project increase drastically if public support is not present.
- (iii) Stakeholders provide valuable input to the design and practicality of an approach. Allowing stakeholders to comment on PPP strategies allows for a sense of buy-in and can lead to innovative approaches.
- (iv) Broad public support and understanding of the reform agenda encourage politicians to stay committed.
- (v) Dissemination of information leads to increased credibility of project partners.

54. As shown in Table 2, the range of stakeholders involved in PPP projects is wide, and their role different:

Table 2: Role of Different Stakeholders in the PPP Process

Group	Role
Political decision makers (PPP Steering Committee)	<ul style="list-style-type: none"> ➤ Establish and prioritize goals and objectives of PPP development ➤ Communicate these goals and objectives to the public ➤ Approve decision criteria for selecting preferred PPP option ➤ Approve recommended PPP option ➤ Facilitate project implementation
Management and staff of the Government Agency	<ul style="list-style-type: none"> ➤ Identify their specific needs and goals of the PPP project ➤ Provide relevant data and information ➤ Assist in marketing and due diligence process ➤ Implement change
Consumers	<ul style="list-style-type: none"> ➤ Communicate ability and willingness to pay for service ➤ Express priorities for quality and level of service ➤ Identify existing strengths and weaknesses in service
Affected people a)	<ul style="list-style-type: none"> ➤ Discuss environmental and social impacts of the PPP project ➤ Provide feedback on project design and mitigation plans
Investors	<ul style="list-style-type: none"> ➤ Provide feedback on attractiveness of various PPP options ➤ Follow rules and procedures of competitive bidding process ➤ Perform thorough due diligence resulting in competitive and realistic bids
Consultants	<ul style="list-style-type: none"> ➤ Undertake feasibility study ➤ Provide unbiased evaluation of PPP options ➤ Act as facilitator for cooperation among stakeholders

Source: Public-Private Partnership Handbook, ADB, 2008.

a) Including concerned NGOs and civil society organizations.

55. To reconcile and prioritize the diverging interests of the various stakeholders, the consultants should do the following in close cooperation with the Government Agency:

- (i) Identify key stakeholders in the PPP project;
- (ii) Depending on the project type and location, design a communication program consisting of opinion research, direct stakeholder consultations, public awareness efforts and/or public education;
- (iii) Implement the program during the feasibility study phase;
- (iv) Document the program implementation with regard to the type of activity completed, its date and location, and stakeholders involved; and
- (v) Recommend mechanisms for continued involvement of key stakeholders in the monitoring and evaluation of project impacts during implementation and operation.

IX. FINANCIAL ANALYSIS

A. Financial Modeling

56. The financial model is a key tool to support the analysis. To develop the model, historical data should be reviewed, consistent assumptions made for all inputs, and key points of sensitivity identified. The model should be capable of simulating the financial results of the project by demonstrating anticipated cash flow under different scenarios such as overruns in

construction costs, changes in operating costs, changes in projected demand, or changes in interest rates. The model should reflect assumptions made about risks and their allocation. It should enable decision makers to make informed choices about the project structure and the operating environment, including the impact of different tariff and subsidy levels and different coverage targets. The information yielded by the model should allow decision makers to understand how the private party, lenders and consumers may perceive the project.

57. The consultants should construct the financial model in a standard spreadsheet program such as Excel, consisting of the following worksheets:

- (i) Inputs and assumptions including
 - (a) Economic data such as inflation, discount rate and tax rates;
 - (b) Construction data such as initial capital expenditures over the construction period;
 - (c) Future capital expenditures, both maintenance and growth-related;
 - (d) Residual value of capital assets at the end of the period of analysis, constituting a revenue of the project;
 - (e) Funding levels and types such as equity, loans, bonds and subsidies;
 - (f) Financial data such as the terms of the various financing instruments;
 - (g) Recurrent operating and maintenance costs; and
 - (h) Operating revenues with the underlying data such as demand forecasts and user charges.⁹
- (ii) Sheets with cash flow statement, profit and loss account, and balance sheet of the project company;
- (iii) Results and summary sheets demonstrating the impact of different assumptions on the project's cash flow. The results should be presented in the form of the following financial indicators:
 - (a) Financial internal rate of return (FIRR), which measures the return on investment over its life regardless of the financing structure and equals to the discount rate at which the net present value of the project is zero;
 - (b) Return on equity, which shows the return to shareholders and equals to the discount rate at which the present value of dividends minus investments by the shareholders is zero;
 - (c) Annual debt service cover ratio, which shows the project company's ability to repay debt from its annual cash flow and is calculated as net operating cash flow from the project divided by debt service consisting of principal and interest during the year;

⁹ Estimating operating revenues of the project based on the demand forecast for its outputs is a crucial part of the financial analysis. All relevant factors such as the ability to invoice and collect revenue, user affordability and willingness to pay, and income and price-elasticity of demand should be taken into account. For instance, as the level of toll fees assumed in the financial analysis of a toll road project will have a strong impact on future traffic, the two variables should not be forecast in isolation. For larger projects, market surveys should be undertaken to underpin the revenue estimate.

- (d) Loan life cover ratio, which shows the project company's ability to accommodate an occasional shortfall of cash and is calculated over the whole term of the loan by dividing the net present value of operating cash flow from that year to the end of the debt repayment period by the total of debt outstanding at that year; or
- (e) For projects that do not generate any revenues, the cost per unit of output over the life of the project, calculated in present value terms.

58. The consultants should prepare a manual so that the model can be used throughout the PPP process to continually assess the impact of different pricing, financing, and service scenarios; update or confirm decisions about project structure; evaluate proposals made by the private party during the transaction execution stage; and monitor financial performance once the project is in operation.

B. Sensitivity Analysis

59. Revenue overestimation and cost underestimation are the most common deficiency in feasibility studies. To determine how the FIRR reacts to changes in key assumptions and parameters, a sensitivity analysis should be carried for the following scenarios:

- (i) Increase in investment cost by 10% to 30%;
- (ii) Increase in operating costs by 10% to 30%;
- (iii) Increase in both investment and operating costs by 10% to 30%;
- (iv) Reduction in revenues by 10% to 30%; and
- (v) Increase in investment and operating costs and reduction in revenues by 10% to 30% (the worst case scenario).

C. Risk Assessment

60. Since a fair and transparent risk transfer is one of the main objectives of PPP projects, constructing a risk matrix is a fundamental part of feasibility studies. This activity should be integrated with the financial modeling described above. It involves the following steps:

- (i) Identify all risks involved in the project;
- (ii) Assess the financial impact of these risks;
- (iii) Assess the likelihood of these risks materializing;
- (iv) For all significant risks, estimate the ranges of possible outcomes and calculate their value;
- (v) Allocate such risks to the party best able to manage them; and
- (vi) Recommend measures for mitigating such risks during engineering, implementation and operation of the project.

61. These Guidelines recommend the valuation of each significant risk as a separate cash flow item, rather than adjusting the discount rate as an indication of the overall level of risks for the project. The reason for adopting the cash flow impact approach is that it allows a focus on the cost of each significant risk and facilitates the understanding of how risk transfer can be achieved and what its financial effects would be. In addition, different risks have different timing implications throughout the project life. Some risks may only have an impact at the initial stage of the project, while the impact of other risks may diminish or escalate during its life. Valuing each risk as a separate cash flow item takes this timing into account.

62. The base case financial model described in Section IX.A should be expanded to include all significant risks of the project. The risk-adjusted model should then be used to recalculate the FIRR and other financial indicators.

63. Some typical examples of risks to be considered follow:

- (i) Project-related risks that are generally manageable by the private party and its lenders:
 - (a) Completion risk in terms of cost overruns and delays during engineering and construction;
 - (b) Operational performance risk in terms of lack of technical and operational know-how;
 - (c) Market risk in terms of lower-than-projected sales volume and tariffs;
 - (d) Financial risk in terms of exchange rate and interest rate fluctuations;
 - (e) Environmental risk in terms of project delays, cost overruns and future liabilities; and
 - (f) Land acquisition risk in terms of cost overruns and non-availability of parts of the land required for the project;
- (ii) Non-project-related risks that are not manageable, or only partly manageable, by the private party and its lenders:
 - (a) Political risk in terms of expropriation, political violence, and lack of currency convertibility and transfer;
 - (b) Contractual risk in terms of default on contractual obligations such as timely application of tariff adjustment formulas;
 - (c) Macroeconomic risk in terms of volatility in exchange rate and inflation;
 - (d) Legal risk in terms of deficiencies in the judicial system, regulatory procedures and arbitration; and
 - (e) Force majeure risk in terms of natural disasters and armed conflicts.

64. A simple risk allocation matrix, which should be regarded as an illustrative example rather than the standard to be followed for all projects, is shown in Table 3:

Table 3: Example of Risk Allocation and Mitigation

Risk Category	Sub-Category	Government Agency	Private Party	Commercial Lenders	Potential Risk Mitigation Measure
Construction	Delay		■		Turnkey contract
	Cost overrun		■		Turnkey contract; contingent finance
Operating	Damage and theft		■		Commercial insurance
	Technical performance		■		Supplier performance guarantee
	Management		■		
Commercial	Operating cost		■		Operation and maintenance subcontract
	Price	■			Government guarantee; long-term take-or-pay agreement
	Demand	■	■		Government guarantee; long-term take-or-pay agreement
	Payment	■	■		Government guarantee; escrow account
Financial	Total debt amount		■	■	Project finance ; syndication
	Interest rate		■	■	Interest rate swap
	Exchange rate		■	■	Exchange rate swap
	Maturity		■	■	Partial credit guarantee from international financing institutions
Political	Expropriation, etc.	■			Government guarantee; partial risk guarantee from international financing institutions
Force Majeure	Natural disasters, etc.	■	■		Insurance from export credit agencies

D. Need for Government Support

65. As stated in its PPP policy (footnote 2), the Government will provide Viability Gap Funding (VGF)¹⁰ for projects that have a strong economic and social justification but fall short of financial viability because of affordability and other constraints imposed on user fees. VGF is a strategy for supporting the delivery of basic services such as electricity, water, sanitation, and transport when policy and social concerns justify public funding to complement or replace user fees. Ability to pay of particular groups of users, positive externalities, or the non-viability of imposing direct user fees are typical examples of policy and social concerns that may provide the justification to use public funds in order to facilitate access to infrastructure services.

66. VGF should be an explicit subsidy that is performance driven (based on the private service provider achieving agreed measurable outputs) and targeted towards socio-economically disadvantaged users or groups of users. VGF schemes can take a variety of forms depending on the nature of the service and the rationale for public funding. Examples of the possible forms include the following:

¹⁰ The VGF concept is sometimes referred to as public service obligation, which is defined as the government-directed provision of infrastructure services to disadvantaged groups such as the poor or geographically isolated. This situation occurs when for social reasons, government explicitly requires the provision of loss-incurring services to these groups that the infrastructure provider would not choose to do on a commercial basis.

- (i) Contribution to the capital cost (cash or in kind such as land) when the objective is to increase the FIRR to the market level;
- (ii) Payment of subsidies tied to the number of new connections made when the objective is to expand access to network services;
- (iii) Payment of declining transitional subsidies tied to verified consumption when the objective is to gradually bring user fees to full cost recovery levels;
- (iv) Payment of subsidies tied to verified household consumption of targeted disadvantaged groups, equivalent to the difference between a life-line user fee (paid for by the household) and the full user fee;
- (v) Payment of subsidies tied to the achievement of positive externalities (e.g., subsidies for sanitation disbursed against the achievement of specific environmental targets); and
- (vi) Payment of targeted voucher-based support to allow consumer choice of provider, when a goal is to enhance competition and thereby performance among service providers. These income transfers are eligible as long as the payment linked to a specific output delivery is expenditure-based.

67. The need for VGF to make the project “bankable”, together with its form and tentative amount, should be established as part of the financial analysis in the feasibility study. If necessary, market testing should be undertaken to substantiate the assumptions made. The exact VGF amount should subsequently be determined through competitive tendering to ensure the lowest liability for the Government. In view of the Government’s resource constraints, only the highest priority projects should receive the VGF subsidy.

E. Tariff Design

68. Based on the financial modeling, the consultants should determine appropriate tariff levels and structure for the project. The tariff design should balance the following objectives and factors against each other:

- (i) Stipulated service standards and associated costs;
- (ii) Customers’ willingness and ability to pay;
- (iii) Fairness and equity;¹¹
- (iv) Incentives for efficiency;
- (v) Cost recovery and return on investment for the private party;
- (vi) Need for and availability of subsidies; and
- (vii) Simplicity and comprehensibility.¹²

¹¹ Tariffs for different customer categories should reflect the cost of supplying them. However, some services, like water supply, are often considered a public service, and no customer should be denied access to them on the grounds of poverty. Specific direct subsidies or cross-subsidies built into the tariff system can address this situation.

¹² Tariffs should be easily accessible and understandable to employees and consumers of the Government Agency. However, over-simplification should be avoided as it may result in incentives being lost or have a negative impact on fairness.

69. To expect one set of tariffs, or even a tariff structure or regime, to remain viable and appropriate over the typical life of a PPP project is unrealistic. The consultants should therefore define practical rules for adjustments. This requires defining

- (i) The triggers or drivers for a price adjustment, such as changes in raw material prices (e.g., coal prices for power), inflation, and exchange rate fluctuations;
- (ii) The mechanisms by which the adjustment will be made for utilities, such as cost plus and price cap regulation;¹³ or
- (iii) Other adjustment mechanisms, such as cost pass-through, tariff indexation, and tariff resets,¹⁴ including the frequency of their application.

X. ECONOMIC ANALYSIS

A. Least-Cost Analysis

70. Unless already done so as a part of the master plan, from which the project has been identified as a suitable PPP candidate, the consultants should demonstrate that the project is the least-cost solution for meeting the incremental demand.

B. Economic Internal Rate of Return¹⁵

71. The consultants should calculate the incremental benefits and costs of the project to the society as a whole based on "with" and "without" project scenarios, and demonstrate in economic terms that the proposed project is viable. The economic analysis should go beyond the level of financial analysis, widening the orbit of costs and benefits from the project level to the provincial level and expanding their categories beyond the mere financial dimension. In practice, however, the economic analysis should start with the framework of the financial analysis:

¹³ The cost-plus or rate of return mechanism permits the utility to pass all operating expenses and capital costs on to the consumers, including an after-tax return on investment. Under this system, there is no adjustment unless the utility applies to the regulatory authority and requests a tariff review and adjustment. Revenue or price-cap regulation provides a more direct incentive for efficiency. Revenue or price caps are put in place to control the quantum of revenue over a period or specific prices, but the utility is given leeway to increase earnings through performance improvements. Under this mechanism, the private party can change its price level and its tariff structure according to an index that typically includes an inflation measure and a "productivity offset" (commonly called the X factor).

¹⁴ With cost pass-through, changes in the costs of certain inputs such as energy or bulk water) are immediately reflected in the tariffs charged to consumers. In this way, the risk of any input price increase is passed on to consumers without delay. Tariff indexation is similar to the cost pass-through mechanism but uses a different tool to make the adjustment. Rather than the actual costs of the service, the tariffs are adjusted to reflect a change in an index of prices (such as the consumer price index) on a regular timetable. Tariff reset is a more tailored mechanism for adjusting tariffs for long-term PPP projects, when cost pass-through or an indexation would likely be insufficient to accommodate all sector changes. Tariff resets are allowed on a predetermined periodic basis, such as every 5 years.

¹⁵ For details about the methodology, see ADB's *Guidelines on Economic Analysis of Projects* published in 1997 and available on http://www.adb.org/Documents/Guidelines/Eco_Analysis/default.asp. These Guidelines were complemented in 2001 by a CD-ROM, which contains tutorials on principles and methodologies, good practice illustrations, case studies, and practical exercises (see <http://www.adb.org/Documents/Publication/product.asp?sku=0004CD>).

- (i) Determine the economic costs and benefits of the project by making the following adjustments in their valuation and definition:
 - (a) Eliminate transfer payments like taxes, duties and subsidies as such costs and revenues at the individual level are revenues and costs at the provincial level, thus offsetting each other from the provincial perspective;
 - (b) Adjust prices if these do not reflect the economic value due to market distortions caused by regulatory measures or monopolistic practices, by using shadow prices;¹⁶
 - (c) Replace project revenues by economic benefits such as cost savings, time savings, employment generation, improved public health conditions, reduced pollution, and increase in land value; and
 - (d) Add externalities, which are beyond the confines of the project, but are relevant from the society's perspective as external benefits or costs.
- (ii) Determine the following main assumptions for the economic analysis:
 - (a) Economic life of the project facilities;
 - (b) Base year for expressing constant value (currency and year) for defining the incremental costs and benefits in constant terms; and
 - (c) Opportunity cost of capital to be used as the discount rate; and
- (iii) Calculate the economic internal rate of return and net present value of the project.

C. Value for Money

72. Another indicator of economic viability is value for money,¹⁷ which is measured by the savings in net present value terms achieved by undertaking the project in the PPP mode rather than through the traditional public procurement. This criterion is particularly important in developed countries with strong public budgets sufficient to meet infrastructure needs. In such countries, the PPP approach will generally be used only if it can be reasonably expected to provide enhanced value for money compared with the public procurement methods. Punjab, like most other developing countries, does not have this luxury of choice as its public budget is facing many competing demands. Punjab's key objective in adopting the PPP approach is to attract the much needed private investment to accelerate infrastructure provision. In addition, value for money assessment techniques are complicated and time consuming, and the results are only as good as the baseline data used.

73. If these factors make a quantitative assessment difficult, the consultants should at least carry out a qualitative assessment, demonstrating that the project has efficiencies, which the private sector can and has provided on similar projects, that there is a suitably competitive market, that risks can be transferred to the private sector and that such risk transfer will be achieved within the costs of the financial model. While factors determining value for money will

¹⁶ However, the need to use shadow prices has decreased with the increasing worldwide liberalization and growing competition, which have brought market prices in most cases close to their economic value. The shadow pricing concept should therefore be adopted only if there is a significant difference.

¹⁷ Called also public sector comparator.

vary from project to project and from sector to sector, PPP projects will generally generate efficiency improvements as a result of the following factors:

- (i) Competitive procurement of the private party;
- (ii) Strong performance incentives inherent in the structure of PPP projects;
- (iii) Faster construction of the project facilities;
- (iv) Reduced life cycle costs due to the long-term nature of PPP agreements;
- (v) Optimum allocation of project risks; and
- (vi) Superior management skills of the private sector.

74. Bidders will then have to provide identical or better financial terms for the risk transfer assumed in the financial model devised in the feasibility study, adjusted for changes in macro-economic conditions between the feasibility study and the bid, if any.

XI. PROJECT MANAGEMENT PLAN

75. The consultants should prepare a detailed project management plan covering the transaction execution, implementation and operation phases. The plan should describe arrangements for the selection of the private party, financial closure, construction, financial management, and monitoring and evaluation.

76. The project management plan should include, but not be limited to, the following:

- (i) Detailed schedule highlighting the key milestones and approvals from transaction execution to implementation to operation;¹⁸
- (ii) List of any potential challenges to the project and discussion on how these should be addressed by the project team;
- (iii) Description of the governance processes to be used by the Government Agency in the management of the project, especially regarding decision making;
- (iv) Description of project stakeholders, the extent of their involvement in the project, and the necessary coordination mechanisms;
- (v) Organization charts showing the parties involved in the remaining phases of the project life cycle;
- (vi) Composition of the project team with its functions, job descriptions, and qualification and experience requirements, including a capacity building program required to successfully undertake the project;
- (vii) Description of information to be made available to potential investors and how such information should be developed and disseminated;

¹⁸ Depending on the complexity of the project, a bar chart showing the sequence of events or a Gantt chart with a critical path analysis should be used for this purpose.

- (viii) List of approvals and permits required from other government departments and agencies, together with actions necessary for obtaining these approvals and permits;
- (ix) Contingency plans for dealing with deviations from the timetable and budget;
- (x) Description of the tendering process including quality assurance process for tender documentation, pre-qualification and bid evaluation criteria, and audit trail for the process ;¹⁹
- (xi) Description of security and confidentiality systems, including confidentiality agreements, anti-corruption mechanisms, and conflict of interest forms to be signed by all project team members;
- (xii) Description of accounting, financial reporting and audit arrangements; and
- (xiii) Description of monitoring and evaluation of the project's performance during operation, including institutional arrangements such as a monitoring unit in the Government Agency, regulatory body or independent auditors, as well as reporting arrangements such as websites and regular reports to the PPP Unit.

XII. DRAFT TENDER DOCUMENTS

77. Unless the preceding activities have proved the PPP project to be non-viable, the consultants should draft tender documents for the pre-qualification and bidding exercise that will be undertaken during the transaction execution phase. The following documents should be produced:

- (i) Pre-qualification document;
- (ii) Instructions to bidders;
- (iii) Minimum design and performance standards and specifications;
- (iv) Bid form, specifying the information required to evaluate the bid;
- (v) Bid security form and performance bond form; and
- (vi) Draft PPP agreement.

XIII. PROJECT APPROVAL PROCEDURE

78. As soon as the feasibility study has been completed by the consultants, the Government Agency should do the following:

- (i) Review the results of the feasibility study and assess whether the project is technically deliverable, affordable to users, economically viable for Punjab, financially viable for investors, and environmentally and socially sustainable;
- (ii) Decide whether or not to further proceed with the PPP project;
- (iii) If the decision is positive, compare the project with others within its sector and/or geographic area of responsibility, using criteria such as supply and demand gaps,

¹⁹ Based on and consistent with the *Project Procurement Guidelines* issued by ... on ...

social and economic benefits, financial attractiveness, risks and uncertainties involved, and readiness for implementation;

- (iv) If the project is confirmed to have a high priority, prepare a project proposal summarizing the results of the feasibility study, as follows:
 - (a) Rationale and objectives (problems the project intends to solve);
 - (b) Proposed PPP modality;
 - (c) Project scope and description;
 - (d) Cost estimates;
 - (e) Environmental and social impacts and mitigation measures;
 - (f) Financial indicators such as the FIRR;
 - (g) Proposed risk allocation and mitigation;
 - (h) Requested type and tentative amount of government support;
 - (i) Economic internal rate of return and intangible economic benefits; and
 - (j) Project development schedule.
- (v) Submit the project proposal, together with the feasibility report and other supporting documents, through the PPP Cell to the PPP Steering Committee for consideration.

79. The PPP Cell should exercise quality control and take care of the overall prioritization, as follows:

- (i) Review the completeness of the documentation submitted by the Government Agency;
- (ii) Review compliance of the project with the provisions of the PPP law, and objectives and principles of the PPP policy;
- (iii) Assess the technical, economic and financial viability, and environmental and social sustainability of the project;
- (iv) Ensure its compatibility with other similar PPP projects;
- (v) Assess its priority across sectors and the province, taking into account Punjab's development objectives;
- (vi) Assess the type and amount of government support requested for the project (in close cooperation with the Risk Management Unit – see para. 80);
- (vii) Summarize results of the review and assessment in a briefing paper for the PPP Steering Committee, including the recommendation on whether to approve, reject or modify the project; and
- (viii) Forward the project proposal, together with the briefing paper, to the PPP Steering Committee.

80. If the PPP project requires any government support in the form of financial contribution to close the viability gap or guarantees for undertakings of the Government Agency, the PPP

Cell should share the project proposal with the Risk Management Unit, which should do the following:

- (i) Examine whether the request for government support and the proposed risk allocation are consistent with the risk management guidelines;
- (ii) Review the justification for government support provided in the project proposal;
- (iii) Assess the related direct and contingent liabilities and analyze their fiscal impact;
- (iv) Assess whether the proposed government support is fiscally sustainable; and
- (v) Draft the corresponding section of the briefing paper for the PPP Steering Committee and send it to the PPP Cell.

81. Taking into account the recommendation of the PPP Cell and Risk Management Unit as contained in the briefing paper, the PPP Steering Committee should consider the project proposal and decide on whether to approve the PPP project for execution, reject it outright, or suggest modifications. This decision, together with the principal reasons, should be conveyed in writing by the PPP Cell to the Government Agency. If modifications are suggested, the Government Agency should incorporate these and re-submit the revised project proposal through the PPP Cell to the PPP Steering Committee.

MAIN STEPS DURING THE PROJECT LIFE CYCLE

Phase	Steps	Responsibility				
		GA	PPPC	RMU	CF	PPPSC
1. Project Inception	➤ Decide to explore the PPP mode	✓				
	➤ Identify a potential PPP project from master plan or through preliminary needs analysis	✓	✓ ^{a)}			
	➤ Screen the project using multiple criteria	✓	✓ ^{a)}			
	➤ Decide whether to pursue the project any further	✓	✓ ^{a)}			
	➤ Prepare a project concept paper	✓	✓ ^{a)}			
	➤ Register the project with the PPP Cell	✓				
	➤ Appoint a project manager	✓				
	➤ Draft terms of reference for the feasibility study and transaction execution	✓	✓ ^{a)}			
	➤ Prepare a budget estimate for the required consulting services	✓	✓ ^{a)}			
	➤ Apply for financing from the PDF (optional) ^{b)}	✓				✓
	➤ Prepare and issue a request for proposals for consulting services	✓	✓ ^{a)}			
	➤ Evaluate the technical and financial proposals	✓				
	➤ Negotiate and sign a contract with the first-ranked consultants	✓				
2. Project Preparation	➤ Carry out the feasibility study	✓			✓	
	➤ Review its conclusions and recommendations	✓				
	➤ Decide on whether to proceed with the project any further	✓			✓	
	➤ Prepare a report on the project proposal	✓				
	➤ Submit the project proposal through the PPP Cell to the PPP Steering Committee	✓				
	➤ Review the project proposal and prepare a briefing paper for the PPP Steering Committee		✓	✓ ^{c)}		
➤ Decide on whether to approve, reject or send back for reconsideration the project proposal					✓	
3. Transaction Execution	➤ Prepare an information memorandum for project marketing				✓	
	➤ Undertake market sounding of potential investors and lenders				✓	
	➤ Finalize project structure and tender documents				✓	
	➤ Establish a data room for due diligence by investors	✓			✓	
	➤ Issue a request for pre-qualification applications	✓				
	➤ Evaluate pre-qualification applications	✓			✓	
	➤ Issue a request for technical and financial proposals to pre-qualified bidders	✓				
	➤ Evaluate bids received	✓			✓	
	➤ Prepare a bid evaluation report including recommendation on contract award	✓			✓	
	➤ Submit the bid evaluation report through the PPP Cell to the PPP Steering Committee	✓				
	➤ Review the bid evaluation report and prepare a briefing paper for the PPP Steering Committee		✓	✓ ^{c)}		
	➤ Decide on whether to approve or send back for reconsideration the contract award recommendation					✓
	➤ Conduct negotiations with the preferred bidder	✓			✓	
	➤ Sign the PPP agreement	✓			✓	
➤ Fulfill conditions precedent to financial closure	✓					
4. Construction, Operation and Transfer	➤ Monitor project implementation to ensure conformity with plans and specifications	✓				
	➤ Monitor and evaluate project operation to ensure conformity with performance standards and tariffs	✓				
	➤ Prepare annual reports on project performance to the PPP Cell	✓				
	➤ Monitor and evaluate financial performance of the project			✓		
	➤ Make arrangements for project transfer to the Government at the end of the term of the PPP agreement	✓				

CF = consulting firm; GA = Government Agency; PDF = Project Development Facility; PPP = public-private partnership; PPPC = PPP Cell; PPPSC = PPP Steering Committee; RMU = Risk Management Unit.

^{a)} If support by the PPP Cell in this activity is requested by the Government Agency.

^{b)} See the *Guidelines for the Project Development Facility for Public-Private Partnerships in Infrastructure*.

^{c)} If government support is required for the project.

Appendix 2

EXAMPLE OF A CAPITAL COST BREAKDOWN

No	Item	Description
1	Land acquisition	Cost of land acquisition, compensation to affected people (if the project involves involuntary resettlement), improvements of infrastructure at the relocation site, etc. To be based on market prices for land or long-term lease, and legal norms for land acquisition and compensation.
2	Civil works	Structural and construction works, including materials, machinery, labour, fuel, transportation, etc. To be based on actual prices, and actual wages and wage norms.
3	Goods and services	Machinery, equipment and auxiliary materials, including transport, packaging and insurance to the project site. To be based on quotations from manufacturers or most recent experience in other similar projects.
4	Project management	Costs relating to the management of project implementation by the Government Agency (e.g., costs of the PMU).
5	Consulting services	Cost of consulting services for project engineering and construction supervision. To be based on the assignment schedule for experts and broken down into remuneration and supporting costs such as airfares, per diems, local travel, office equipment, office supplies, and communications.
6	Training and capacity building	Training and capacity building by equipment suppliers and other external entities. To be based on the number of participants, venue, duration, etc.
7	Taxes and duties	Excise taxes, sales taxes, value added taxes, import duties, and customs duties. To be based on the prevailing laws and regulations.
	Sub-Total Base Cost	Sum of items No.1 to 7.
8	Physical contingencies	Allowance to reflect possible increases in the base cost estimates due to unforeseen changes in quantities, methods, and period of implementation. Depending on the degree of uncertainty, to be calculated at 5-10% for equipment, 10-15% for standard civil works and 15-20% for Civil works in more difficult terrain.
9	Price contingencies	Allowance to reflect forecast inflationary increases in the base cost estimates during the project implementation period, the more exposed is a project to such price increases in the domestic and foreign markets. To be calculated from the base costs plus physical contingencies and calculated separately for foreign exchange and local currency expenditures by applying the expected rates of domestic and international inflation.
10	Interest during construction	Financing charges on domestic and foreign loans, such as front-end fees, commitment fees and interest during the implementation period.
	Total Project Cost	Base cost plus items No. 8 to 10.

