CHAPTER 4

FEASIBILITY ANALYSIS & PPP PLAN

4.1.0 Introduction

It is essential to examine the most critical aspects of the project before making commitments on investment. Thus, it is worth spending a small amount of money on an exercise called pre-investment study/formulation. This cost may vary depending on the size of the project. However, during this process, based on the analytical study of the data and other information collected, enables the project sponsoring organization/Department to stop further expenditure at any stage of investigation when the data indicate unfavorable trends. Today's projects especially in the urban development sector are focused on achieving specific social & economic development objectives. Although, problems galore in all types of projects, it is now increasingly noticed that development projects generated by the local governments, public agencies and Government departments have been faced with unclear output in terms of quality and quantity.

The Project Formulation exercise is done with a view to;

1. Understand various dimensions of the project from a very broad angle

2. Facilitate the project authorities to take a decision as to whether it is going to be beneficial for the organization to conduct a detailed feasibility study or not.
   Otherwise the project idea may be dropped at this stage without proceeding or probing any further.

3. A well formulated project is the one which presents a very unbiased picture of the project idea in more clear-cut terms with regard to all the above factors.

4. The project authorities should use the information generated through the formulation exercise to identify the deficiencies and gaps and take remedial measures ahead of time.

5. Projects leading to loss in terms of money, time and desired output need immediate attention.

6. Pre-investment study and investment decision in any project in the government should become the important function.

7. Preparation of detailed feasibility report should be undertaken only when there are evidence of number of positive indicators to go for the project.

8. During the pre-investment study, technical assessment, economic appraisal, input analysis, project design, cost analysis is done to assess whether the inputs that are required for the project implementation are available. Such inputs are identified & quantified so that it becomes an important input for the cost-benefit analysis of the project.

9. The project has also to be assessed from the point of view of social benefits. Most of the urban development projects are aimed to achieve direct and indirect social benefits. For example, a water supply project for a town has direct benefits such as supplying the required quantity of safe water to the house-holds. At the same time, it has indirect benefits such as reducing the water borne diseases, health improvement of the people, increased work out-put because of improved health etc.

4.1.1 Preparation of PPP Plan

The approach to preparation of PPP Plan starts with analysis and selection from the set of possible projects identified in the sector. The PPP process for individual projects begins from this stage. Selected projects that might become PPPs should be analysed for their quality as a project and checked for their suitability to being developed as a PPP:

- Project pre-feasibility analysis
- PPP suitability checks

Pre-feasibility analysis is a necessary stage in the evaluation of an individual PPP project. Suitability checks are made to ensure that supporting environment for the project exists and aspects such as legal, institutional and market capacity are well-defined. The purpose is to weed out poorly suited projects early, before more resources are used on developing them as PPPs. For the purpose of suitability checks, the Toolkit developed by the Department of Economic Affairs, Government of India should be utilized.

The PPP Plan will have to be prepared preferably for every district in the state integrating all sector-wise projects and the process involves the following basic steps and institutions;

- PPP Cell in the Department of Infrastructure Development at the State Level and District PPP committees will initiate the process of identification of projects in consultation with respective departments, ULBs, PRIs and public agencies.
- A comprehensive survey of need based projects which could be taken up on PPP mode in each district and sector. Take the advice of experts from Government and Private Sector(transaction Advisors) to develop PPP projects.
- An annual PPP plan of each department/ULB/PRI/Public Agency need to be prepared by identifying shelf of projects under each applicable sector as mentioned in the Karnataka Infrastructure Policy 2007. This will done by the PPP Cell in coordination with district committee and experts from Government and Private.
- To prepare a shelf of projects to be offered for PPP and take them forward with assistance of the owner departments through a transparent selection process.
- Screen out projects that cannot be taken up on PPP mode where the Government alone can directly invest, especially in backward regions and which are purely social service oriented.
- Each Department is to prepare a PPP Plan with a Nodal Officer to look after the PPP projects & to coordinate with State PPP Cell.
- Each Dept, in association with State PPP Cell, has to identify, conceptualize & structure probable PPP projects and prepare a concept note including the need & benefits of doing under PPP mode, its main features, VFM (Value for Money) test etc.
- All projects should normally be tested for PPP amenability – for fully state funded projects.

- The shelf of probable PPP projects is to be placed before the State PPP Cell & State level committee.
- Conduct feasibility analysis and after ascertaining the feasibility and viability, prepare DPR, concessions required, land requirement of VGF, types of State support, VFM analysis.
- To leverage State and Central Govt. funds to support Private investment and to create a conducive environment to utilize the efficiencies, innovativeness and flexibility of Private Sector to provide better infrastructure and service at an optimal cost.
- Setting up of a transparent, consistent, efficient administrative mechanism to create a level playing field for all participants and protect interest of all stakeholders.
- Putting in place an effective and efficient institutional mechanism for speedy clearance of the projects.
- Provide necessary risk sharing framework in the project structure so as to assign risks to the entity most suited to manage them.
- Facilitate capacity building & training of officials through ATI Mysore, iDeck, IDD and other Agencies
- Putting in place an appropriate and robust regulatory / grievance redressal mechanism.
- Provision for contingency of failure & abandoning should be made at the conceptualization/ Project report stage.

4.1.2 Critical Success factors

- Favorable Karnataka State Infrastructure policy & frame work
- Consensus and political support
- Cost recovery & Risk sharing between public and private sector

Some other critical issues:

- The value for money assessment takes into consideration the costs over the life cycle of a project;
- The value for money assessment takes into consideration the risk allocation and focuses on the impact of the risk transfer on the costs to the government or society
- The value for money assessment is based on the principles of discounting i.e it present a net present value of all future cash flows taking into account that future cash flows are less attractive than current cash flows as reflected by the use of a discount rate;
- The value for money assessment. Upon review of bids the value for money assessment is to be updated based on the actual bids.
- Choice of the tender strategy, most notably competitive bidding versus direct negotiations or unsolicited proposals;
- Nature of the tender strategy, in particular the difference between value for money driven tender procedures versus accelerating investments driven tender procedures.
- The coherence of the contract, most specifically the relation between risk allocation specifications and payment mechanism

4.1.3 Illustration on Identification of PPP Projects for School Education

Policy	Outcome	Output
No child left out	Availability of 1 school for every 20,000 population	About 250 schools to be constructed
Free Education for girl child	Girl child to be educated free up to 10th class	Fund for offsetting cost of education of girls
Flexible timings for schools for wide outreach	Schools with adaptive timings & Curriculum in order to allow flexibility to girls to study	3-shift policy introduced in schools
No girl left out	More schools for girls	33% of schools for girls
Retaining and Enhancing GER especially for girls	Primary GER improved to by 10 percentage points every year, 15 PP for girls	Incentivizing retention of students, especially girls
Ensuring adults are educated	Adult education to be enhanced	Increasing the number of adult education centres
All schools to be housed in permanent buildings	Decrease in percentage of school without building by 5 % per annum	Increase the construction of schools

4.1.4 PPP Planning Approach & Shelf of Projects

The PPP life cycle refers to the process of conceptualizing a PPP all the way through the termination of a PPP. As such this process includes the following phases;

a. Identification and Organization
b. Feasibility and viability
c. Analyse and Structure
d. Tender and Contracting
e. Implementation and Monitoring

Further at the department/agency level, each of the service/work/project being considered for PPP mode need to go through the following stages.

- Unbundling/Bundling of Services
- Needs Assessment of services to be taken up under PPP and Government
- Identify parts amenable to PPP
- Select Mode of Privatization

- Divestiture assets/Rights are Sold or
Transferred for BOT, BOO, BOOT etc.)

- Contracting Out
- Financing
- Deregulation
- Invite Bids

- Assess the Bidding
- Selection of Bids
- Preparation of Contract
- Award of Contract
- Monitoring, Evaluation and Impact Assessment

Once a PPP project is conceived and identified, the key questions that need to be addressed are;

1. Is the project desirable ?
2. Is a PPP achievable ?
3. Is a PPP likely to be attractive ?
4. Does the projects fit within the respective sector policy i.e does the project serves a purpose & objectives of the sector policy.
5. Does the project has political support
6. Is the project adequately justified i.e. is there a clear rationale for the project
7. Is the possible PPP legally viably i.e. are there no legal impediments to a PPP e.g. is private participation allowed, is it allowed to charge users and so on;
8. Is the project affordable i.e is there a fall back option should the PPP appear not to be financially viable or require some level of fiscal support ;
9. Is there sufficient market appetite for the project to ensure an adequate level of competition for the purpose of competitive pricing? The market appetite is defined by the respective market for infrastructure development the key characteristics of the project most notably ts risk profile and the PPP readiness of the respective constituency ;

The attractiveness of the PPP is defined by the following elements ;

1. Is there the possibility to transfer risks in order to enable the private sector to deliver value for money ;
2. Is there the possibility to define the specifications in output terms to allow innovative solutions and consequent value for money ;
3. Does the project have sufficient scale and profit potential to offset the transaction cost, for both the public sector and the private sector which are commonly higher for PPP than for conventional procurement ;
4. Is there sufficient time for project preparation and the tender and contracting procedures, which may be in the rage of 6 months to 2 years and which are commonly more lengthier than upon conventional procurement ;
5. Is there the possibility to optimize life cycle costing or are the life cycle costs predominantly capital expenditures ;
6. Are there any issues with regard to employee rights or is there the possibility to transfer the operating responsibilities without endangering employee rights.

If a project is assessed as a suitable PPP by the decision maker, the next step is to establish a project environment. The project environment normally includes the following element :

1. Steering Committee comprised of the major public stakeholders to ensure coordination and commitment and with the responsibility to guide the project development and approve the key features proposed;

2. Project Manager who is to be a seasoned expert in PPP and experienced project manager. The project Manager is to manage the project team and to act as the linking pin between the Project Team and the Steering Committee and the Project manager is the face of the project.
3. Project Team , which is normally to a large extent comprised of transaction advisors and other relevant advisors complemented by some internal staff to ensure alignment with internal procedures and policies.

The senior decision maker should allocate sufficient resources for the establishment of the project environment, possibility supported with financial support from the India Infrastructure Development Fund for which guidelines are available, and should communicate regularly with the members of the Steering Committee and the Project manager.

One the project is assessed as suitable and the project environment is in place, he next step is to analyse and structure the PPP. This includes predominantly the following elements ;

1. Design of an appropriate risk allocation framework;
2. Appraisal for an economic, financial, social and environmental perspective to ensure that the project meets all the respective requirements;
3. Design of an appropriate fiscal support package if necessary to ensure a suitable and bankable financing structure ;
4. Assessment of the possible value for money from applying PPP in comparison with conventional procurement.

If the outcome of the financial analysis is that the project is not self sustainable, the decision maker need to decide on how to support the bankability of the project i.e. the fiscal support package. There are various options in this respect, most notably:

1. The use of guarantees, which in essence implies a revision of the risk allocation and which will reduce the project risk profile and consequently the required rates of return from the capital providers which are a function of the risk the respective capital providers are taking; in principle, the government would like to avoid guarantees.
2. The use of grants in order to reduce the private financing requirements. Govt. of India and some State Governments have the scheme of Viability Gap Fund which allows for a grant up to 20% of the capital expenditures;
3. The use of in-kind contribution e.g. Land would reduce the private financing requirements;
4. The use of debt facilities, most notably long-term debt, which is relatively scarce in the private financial sector. In india, this facility is provided by the state-owned India Infrastructure Finance Company Ltd.,
5. The use of risk-capital facilities, i.e, the public sector taking an equity stake in the project company. This option is to be considered with due care as it implies that the government will have not less than 3 roles: Contracting authority, regulatory authority and shareholders. These roles all have conflicting interest.

4.1.5 PPP Toolkit of GoI

The Government of India has developed PPP Toolkit a web-based resource that has been designed to help improve decision-making for infrastructure PPPs in India and to improve the quality of the PPPs that are developed. The Toolkit is for use by PPP practitioners across India in both the public and private sectors. It has been designed with a focus on helping decision-making by Project Officers at the Central, State and Municipal levels. Other users, including PPP practitioners in the private sectors, will also find the material useful.

4.1.6 PPP process:

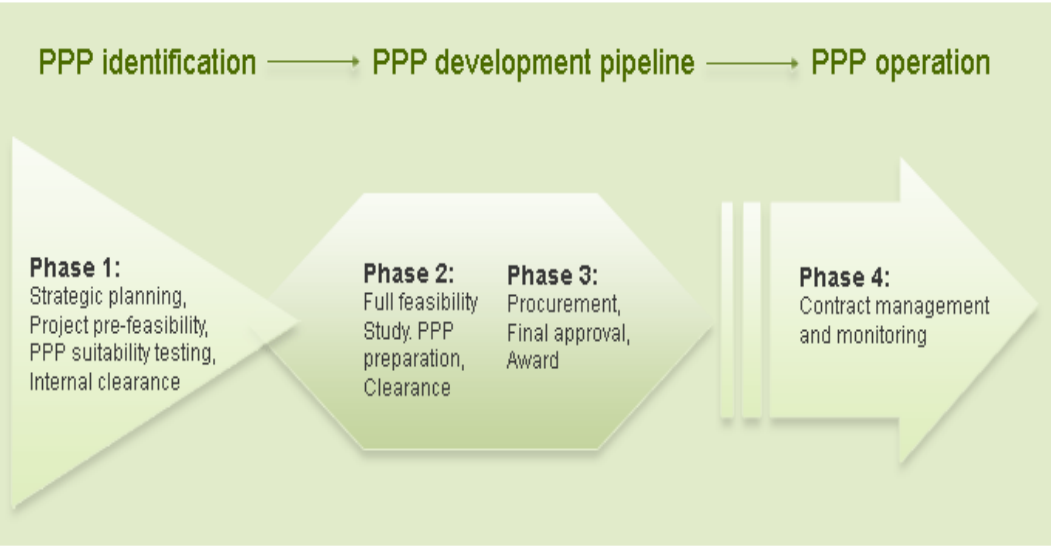
- **Phase 1: PPP identification**, covering strategic planning, project pre-feasibility analysis, PPP suitability checks, and internal clearance to proceed with PPP development

- **Phase 2: Full feasibility, PPP preparation and project clearance**, covering project appraisal including a full feasibility study, PPP preparation including draft documents, and in-principle clearance

- **Phase 3: PPP procurement**, covering procurement, final drafts of bidding documents, final approval and project award

- **Phase 4: PPP contract management and monitoring**, covering project implementation and monitoring over the life of the PPP

The PPP process



Phase 1 takes place before projects are allowed to enter to the development pipeline. The purpose of Phase 1 is to ensure a quality pipeline of PPPs. This is a very important Phase. Projects that are in Phase 2 or Phase 3 are in the 'PPP development pipeline'. This means they are under detailed study, development and (if they are good enough) procurement as a PPP.

Projects that are successfully developed through to award of a contract to a private bidder then enter the operations Phase, covered in Phase 4. In most cases Phase 4 is the longest Phase in the

life of a PPP. This Phase is focused on monitoring the terms of the contract to ensure that the infrastructure services are delivered to the agreed standard. For a PPP to be successful the Sponsoring Authority must remain engaged with the project throughout its operating life.

The toolkit includes a series of Readiness Checks at key points in the PPP process. At each of these checks the project must prove that it is ready to continue to further development as a PPP. If a project is not ready it must either be improved or it should exit the process altogether to make way for a higher quality project.

For this reason, a project is called a 'potential PPP' until it has been given final approval by the relevant Authority in Phase 3.

A set of tools has been developed to assist the analysis and decision making of potential PPPs. These tools are used at several stages in the PPP process. The tools are:

- **PPP family indicator tool**, to show typical options for PPP mode in the sector, and to give a starting indication of which PPP 'family' might be right for the particular project.

  PPP Mode Validation tool, to use a risk allocation analysis to help decide further which PPP mode the project is best suited to

  The PPP Suitability Filter, to test how well suited the project is to being a PPP. Used in Phase 1 during the selection of projects for PPP development.
- **PPP Financial Viability Indicator Model**, to analyse the key questions of financial viability and test these using '*what-if?*' scenarios. Used in Phase 1, Phase 2 and Phase 3.

- **VFM Indicator Tool**, to help check how likely the project is to provide value-for-money to the public sector. This is used in Phase 2 and Phase 3.

- **Readiness Filter**, to check that all the important steps have been followed and that the project is suited to further PPP development. Used in all Phases during the Readiness Checks.

4.1.7 Strategic Planning Exercise

Preliminary needs assessment study

- The key drivers for planning an infrastructure programme are the service needs of the end-users. An overall needs assessment should be carried out taking account of the types of services users will need, total user demand for those services, and all sources of existing and planned delivery of services.

- Planning for infrastructure services that are provided by assets with long lives should include a needs assessment that covers a correspondingly long period. This requires a holistic view taking account of factors that might affect the level and location of demand, including expected and planned urban and industrial development.

- Infrastructure services can be defined and measured in total for all users and broken down into totals for specific groups of users. The strategic plan should provide at least a preliminary assessment of needs for user groups that would be served by particular infrastructure assets or integrated systems. These can then be mapped to individual project interventions.

- Defined services in the roads sector would include vehicle kilometres, peak-hour flows.

- Examples of specific user groups include roads sector users of a particular route or corridor, such as commuter traffic, light commercial vehicles, buses, multi-axle vehicles etc.

4.1.8 Pre-feasibility analysis

The pre-feasibility of the project should include the following preliminary analysis::

- Needs and options analysis
- Legal feasibility
- Technical feasibility
- Scoping social/environment safeguards analysis
- Preliminary financial viability including expectations of required Government financial support
- Institutional capability analysis
- Identification of next steps required

4.1.9 Full feasibility Study and PPP due diligence

Contents of the full feasibility study

The analysis and information contained in a feasibility study will in general include those listed below. Each of these is a detailed separate section of the toolkit. Sector specific contents of feasibility studies are given in the tools section.
The general contents of a feasibility study include:

- **Market analysis and project scope,** to assess the need for and appropriate scope of the project, building on the work already done at the strategic planning and pre-feasibility stage. This would include:

  - **Needs analysis** – does the project meet an end-user need? Does it contribute to meeting the objectives of the sponsoring authority? Who will the users be?

  - **Options analysis** – what is the best option for meeting the service need: a no-asset solution, existing assets, or new assets?

  - **Define the output** – what services will the project provide?

  - **Estimate and forecast demand** – what level of demand is there for the outputs / services from the project, and how much are users willing to pay (what is the value of the demand)?

- **Social and environmental feasibility,** including the requirements for impact assessments and for the associated mitigations

- **Technical feasibility** and technical parameters based on the market analysis, including specification of required facilities and scenarios of project size, for use in preliminary project design

- **Risk studies and refined PPP mode** – Assessment of the risks associated with the project, study of which party is best able to bear each risk, and refinement of the PPP mode selected at the pre-feasibility stage

- **Preliminary cost assessment,** to within a sufficient range based on the technical specification and assessed project risks
- **Financial analysis and due diligence,** incorporating a projected revenue structure (eg. Proposed tariff, required annuity) and assessing any need for financial support from the public sector

  Economic feasibility – Assessment of overall net economic benefit of the project, incorporating estimated project benefits and costs including non-market factors such as those from the social and environmental assessment.

- **Other PPP due diligence activities,** including value-for money analysis if data is available

- **Project implementation schedule,** including an outline of the proposed PPP procurement and award process through to technical and financial close, an outline of the construction schedule and target operation date, and any phasing that is planned for project extensions or ongoing development.

Social and environmental feasibility

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

Social impacts on communities affected by the project include, for example, requirements for resettlement and the associated impact on quality of life and livelihoods, and impacts related to environmental alteration (eg on health and livelihoods)

Environmental impacts on the project location and in associated areas (eg downstream, ground water or ambient air) include effects on environmental resources due to alterations or pollutants

It will often by a mandatory regulatory requirement for assessments of social and environmental impacts to be carried out during infrastructure project development. The scope of social and environmental studies can cover:

- Quantifiable social and environmental costs and benefits
- Non quantifiable social and environmental costs and benefits
- Options for mitigating adverse impacts and the cost of mitigation.

The secondary effects should be included in the assessment. Public consultation is often a part of the social and environmental feasibility process.

The analysis should identify what type of social and environmental impact studies are needed, and the type of permits and licenses required, and should take into account health and safety standards. This information will assist the sponsor with the preparation of tender documents if the project is taken to market, and will assist bidders with the preparation of risk minimising bids.

The final assessment of environmental and social costs and benefits is an input to the economic assessment of the project. Therefore, in addition to being a requirement from a legal and regulatory perspective, the social and environmental analysis is an important part of the assessment of the project's overall welfare impact, as captured in the economic analysis.

4.1.10 Environmental Clearance and EIA

Under Central Government regulation, Environmental Clearance (EC) must be gained for all physical infrastructure projects that meet certain thresholds. An Environmental Impact Assessment (EIA) report is often a key requirement as part of the process of gaining Environmental Clearance. In the recent past an EIA has been a particularly stringent requirement for road related projects (such as Highways). EIA is governed within the EC process.

In some cases a preliminary EIA is carried out at the feasibility stage and a complete assessment takes place during procurement. In other cases the full EIA will be carried out as part of or in parallel to the feasibility study.

Depending on the regulatory regime, final approval may depend on the EIA being satisfactory and that there are no major adverse environmental impacts which can not be mitigated. The whole environmental clearance process can take a year depending on the complexity of the project. This must be factored into the PPP development plan.

Environmental Clearance is regulated at the Centre by the Ministry of Environment and Forests (MoEF), which is the nodal agency. The requirements are specified in MoEF's draft Environmental Impact Assessment Notification (2006) (the Notification was modified in 2009 but remains in the draft stage). Environmental Clearance is mandatory under the Notification.
In addition to formal environmental impact analysis, environmental laws and regulations may also require:

- Mitigation plan
- Environmental monitoring plan
- Approvals from the State Forest Department or Central / State Pollution Control Boards, if required

4.2.0 Social impact analysis / social feasibility

Social Impact Assessment (SIA) is a process that provides a framework for prioritizing, gathering, analyzing, and incorporating social information and participation into the design and delivery of projects. It ensures that infrastructure project development is:

- informed and takes into account the key relevant social issues, and
- incorporates a participation strategy for involving a wide range of stakeholders

At the micro-level, SIA impacts on individuals, at the meso-level it impacts on collectives (eg, groups of people, institutions, and organizations) and at the macro-level it impacts on social macro-systems (eg, national and international political and legal systems).

The stages in Social Impact Assessment are:

- Describe the relevant human environment/ area of influence and baseline conditions
- Develop an effective public plan to involve all potentially affected public
- Describe the proposed action or policy change and reasonable alternatives
- Scoping to identify the full range of probable social impacts
- Screening to determine the boundaries of the SIA
- Predicting Responses to Impacts. Develop Monitoring Plan & Mitigation Measures

Ideally the SIA should an Integral part of other assessments as shown below.

4.2.1 Technical feasibility

A technical description of the engineering and non-engineering aspects of the project would be developed. This would be based on the service definition and sizing in the project scope.

This would include:

- Field surveys of the project site, which may include (depending on the project) mapping, topographical and geotechnical surveys,
- Analysis of environmental conditions that impact on the technical design. There may be some overlap between the information collected for this task and for the environmental impact assessment.
- A preliminary technical design of facilities required to provide the project outputs. This should consider alternative design options, taking into account uncertainty in the demand projections and other site-related uncertainties.

4.3.0 Feasibility Study Report

The outputs of the full feasibility analysis should be drawn together into a Feasibility Study Report (FSR), which provides the PPP business case. If the feasibility study is supportive of the investment and procurement by PPP the FSR can then be presented to the relevant Appraisal / Clearance Authority for in-principle clearance.

The FSR summarises the results of the project feasibility analysis and PPP due diligence. It provides all the information that will be needed for a decision by the appraisal and clearance committees.

At a minimum the FSR should contain summaries of the outputs of each component of the feasibility study described above. The contents in this list have been separated into two parts to

emphasise the point that there should be a particular focus on the PPP aspects of the project. However, the contents of the actual FSR may be arranged differently.
The FSR should include the following:

- **Support and justification for the project** – Results of the feasibility study providing justification for the investment:
  - Need for the project – gaps identified in the market analysis that would be filled by the project, policy objectives met by the project, alternatives considered
  - Description of the project, including definition of services / outputs it would provide, location, target user group, technologies to be employed, agencies involved and their responsibilities, project timeline, etc
  - Social and environmental assessments and planned impact mitigations
  - Technical description of infrastructure additions required for the project
  - Benefits and costs of the project and their distribution among key stakeholders, including social and environmental impacts
  - Summary of the financial viability of the project
  - Summary of economic appraisal (benefit / cost analysis)
  - Project implementation schedule

- **Support for procuring the project as a PPP** – In addition to the general project feasibility results, the FSR should include results of the specific PPP due diligence analysis:
  - Identification of major project risks and their allocation between the public and private partners
  - Type of PPP proposed including description of likely finance structure
  - Requirement for government assistance to the project (eg VGF)
  - Value-for-money (VFM) analysis and result
  - Other due diligence assessments (legal, market sounding)
  - Capacity of sponsor to implement the PPP, plan for implementation and PPP management including capacity building and use of advisors, plan for meeting project development costs

- **A section summarizing the justification for the PPP project**
  Projects that are applying for JnNURM funding are required to prepare a Detailed Project Report (DPR), which has similarities to the contents of a FSR.

4.3.1 Pre-feasibility report assessment template

The following template should be used for assessment of the pre-feasibility study:

Pre-feasibility task	Completed: yes/no?
Needs and options analysis	
Has a needs analysis been carried out?	
Does the proposed project meet a demonstrated need? Does it meet the objectives of the Sponsoring Authority and wider policy goals? Does the project fit within the strategic plan?	
Has an options analysis been carried out? Have alternatives to new asset development been considered (ie, use of existing assets and non-asset solutions)?	
Technical and operational practicality	

Has the project site or options for the site options been identified?	
Is the project site or at least one of the project site options suitable from technical and operational practicality of the Project Concept?	
Has the technical scope of the project been defined?	
Is the preliminary engineering plan practical?	
Is the operations and maintenance plan practical?	
Have the major technical and operational risks to the project been identified?	
Has an impact and management strategy been prepared to deal with the major technical and operational risks to the project?	
Based on the preliminary analysis, does the Sponsoring Authority consider the Project Concept to be practical?	
Environmental and social safeguard activities	
Has a scoping social impact assessment been done?	
Has a scoping environmental assessment been done?	
Financial and economic viability	
Have all major project cost components (capital, operations, maintenance) of the technical scope of the project been estimated?	
Are the assumptions on major project cost components reasonable, can they be justified based on a rationale?	
Has a preliminary market demand analysis been done? (Tariffs, Volume)	
Are the assumptions on tariff/ prices reasonable, can they be justified based on a rationale? Will the users be willing to pay the proposed tariff/ prices?	
Are the assumptions on volume/ quantity of usage reasonable, can they be justified based on a rationale?	
Have similar projects that were done in the past been analysed for project cost, tariff/ prices and volume/ quantity of usage?	
Are the assumptions in the proposed project comparable to similar projects that were done in the past? If not, then can the assumptions be justified on sound economic rationale?	
Has a financial analysis model, such as the Financial Viability model in the PPP toolkit, been used to assess the financial viability of the project?	
Have preliminary financial projections been prepared?	
For a project that is to be developed with private sector participation, has an estimate of required financial support from the public sector been made?	
Have the key financial ratios been computed? (for example, NPV, IRR, etc.)	
Have the major financial and commercial risks to the project	

been identified?	
Have the impact and management strategy of the financial and commercial risks to the project been prepared?	
Has a sensitivity analysis been undertaken?	
Does the preliminary financial analysis demonstrate that the Sponsoring Authority will recover its investments along with a reasonable return under reasonable scenarios?	
Have the likely economic benefits generated by the project been identified?	
Based on the preliminary analysis, does the Sponsoring Authority consider the Project Concept to be financially and economically viable?	
Has a strong rationale and recommendation been made by the Sponsoring Authority in the preliminary assessment?	
PPP suitability checks	
Has the Suitability Filter been used to assess the potential of the project as a PPP? What was the result?	
If any questions in the Suitability Filter were skipped has this been recorded and justified?	
Have all results from the Suitability Filter that indicated "Difficult as a PPP" been recorded and explained in the Report? Has a preliminary risk assessment and risk management plan been prepared to address these issues?	
Has a print-out of the Suitability Filter showing answers and results been included in an annex to the Pre-feasibility Report?	
Possible arrangements for private sector participation	
Has the role of the private sector (direct or indirect investment, indicative PPP mode, etc) been identified?	
Has a project structure or contractual framework for the PPP arrangement been prepared?	
Has the procedure for inviting private sector participation been identified?	
Will the procedure encourage competition in the private sector?	
Have the major legal documentation required to allow participation of the private partner(s) been identified?	
Next steps	
Has an estimate of resources (financial, external expertise) to complete the feasibility study and selection of PPP been made?	
Are budgets available for the above?	
Have all the parties that will be responsible in the next steps, been identified? Such as within sponsor agency, provincial departments and other parties.	
Have the roles and responsibilities of involved parties been prepared?	

Is there an agreement amongst involved parties in undertaking their respective roles and responsibilities?	
Has the time frame required for completing the feasibility study and selection of PPP been estimated?	
Is the time frame reasonable and practical?	

4.4.0 Full feasibility report template

The standard contents of the full feasibility report have been provided in the Draft PPP Rules, 2012 notified by the DEA. The same should be utilized and has been outlined below:

Part A: Executive Summary - This summary should provide of the following information:

- Current service provision, if applicable and future requirements;
- A summary of the full list of options;
- A summary of the options selection procedure and the options chosen for detailed examination;
- A summary of the comparative findings and justification for the preferred option; and
- Highlights of the implementation plan.

Part B: Feasibility Assessment

- Project background: This section should provide a background on the project location, type of infrastructure, the Contracting Authority, previous studies undertaken, and previous approvals received etc.
- Strategic needs assessment, demand assessment and project scoping: This section will analyze current and future needs. An analysis of the user‟s needs should be included.

The following issues should be addressed:

- Existing or envisioned service gaps;
- Key stakeholders and their requirements; and
- Consultation plan with key stakeholders to ensure that the PPP Project remains relevant.
- Assessment of demand should also be included in this section. Project scoping Component should determine and define the scope of the PPP Project, outlining the services to be delivered.
- Service standard – output and services: This section will translate the needs identified in the previous step into specific outputs. The following issues should be addressed:
- Impact of the proposed PPP Project on the service gaps identified above and overall objectives the PPP Project aims to achieve;
- Outputs expected from the PPP Project, stated, as far as possible, in measurable and quantifiable terms;
- Support service outputs (the outputs that are not the key drivers of the PPP Projects, but have potential to enhance the PPP Projects value for money); and
- Relevance of the PPP Project to the Contracting Authority’s long-term strategic goals and overall national development plan.
- Market assessment: Once the project outputs have been specified, assessment of the market potential can commence. The purpose of market assessment study is to assist the

Contracting Authority in deciding how to design, and deliver the PPP Project. The study may address the following elements:

- Description of the industry; current market analysis (current offerings, market players and their capability and appetite);
- Competition (alternative service and product offerings);
- anticipated future market potential;
- Potential market players and sources of revenues; and
- demand projections.
- Technical feasibility: This section details how the PPP Project can be delivered (i.e., outline technical solution). The study should address the following elements:
- Field surveys of the project site, which may include (depending on the PPP Project) mapping, topographical and geotechnical surveys;
- A preliminary technical design of facilities required to provide the project outputs. This should consider alternative design options, taking into account uncertainty in the demand projections and other site-related uncertainties;
- Materials and other input requirements;
- Alternatives (such as those involving usage of existing assets for the PPP Project, rather than creating new ones; or achieving the desired outputs by some means other than the proposed solution) and their assessment in relation to the possibility of achieving the targets of the PPP Project; and
- Capital expenditure cost assessment and operating and maintenance cost assessment based on the components of the preliminary technical design.
- Financial feasibility: This section provides an estimate of project costs based on recommended technical solution and identifies possible financing solutions. The study should address the following elements:
- Project costs (initial and replacement capital expenditure, cost of upgrades, operational expenditure);
- Start-up capital;
- Sources of financing;
- Potential revenues;
- Estimated returns; and
- Consulting costs.
- Environment impact: This section should examine environmental considerations, including details of any environment impact study conducted. Environment management plan
- Legal framework: This section examines the suitability of existing legislative environment for the execution and running of the PPP Project. The study should address the following elements:
- Appraisal of current legislative environment in relation to requirements of the PPP Project;
- Licences and/or requirements that the Concessionaire will need to obtain and/or comply with; assessment of required amendments to the current legislation;
- Legal requirements for the proposed market and organizational structure; and
- other legal issues that may inhibit / prevent the development of the PPP Project.

- Stakeholder consultation findings and public interest evaluation: This section should state the findings of the consultation process with the various stakeholders including but not limited to:
- Users;
- Developers;
- Community participants;
- Citizens likely to be affected;
- Financers; and
- Other relevant government authorities.
- Public sector comparator, value for money and recommendations: This section should state the reference project and detail the computation of the public sector comparator and resultant value for money for the Contracting Authority ("Value for Money Assessment"). The Value for Money Assessment involves a qualitative assessment and a quantitative assessment, wherever possible:

- Quantitative Assessment involves estimation of the risk adjusted cost of delivering a project through PPP mode as compare to the risk adjusted cost of delivering the same project through the traditional public procurement mode. The same is determined by:
- Specifying clear outputs from the project and comparing the costs and benefits of a PPP Project with the costs and benefits of a publicly financed project, and
- Estimating risk factors which should be applied to the estimates
- Comparing the risk adjusted net costs/ benefits of both the PPP Project and a publicly financed project on the Contracting Authority, and ascertaining the value for money.
- Qualitative Assessment: PPP shall be considered as a procurement option if the following value for money drivers are present:
- Sufficient scale and long-term nature: The project represents a major capital investment with long-term requirements. In determining whether the scale of a project is sufficient, the Contracting Authority should consider the costs to be incurred in procuring the PPP project;
- Complex risk profile and opportunity for risk transfer: The transfer to the Concessionaire of risks associated with provision of the specified services, asset ownership and asset management during the life cycle of the asset;
- Measurable outputs: The nature of the services enables output specifications and a performance-based contract;

- Asset utilization: Reducing costs to the Contracting Authority through potential third-party utilization or through more efficient design to meet performance specifications;
- Competitive process: A competitive market exists and the use of a competitive process encourages the private entity to develop innovative means of service delivery while meeting the Contracting Authority‟s cost objectives.
- Conclusion and recommendations on feasibility assessment: This component should detail the key conclusions and recommendations on the Feasibility Assessment.

Part C: Structuring

- Risk assessment: This section should identify all material risks associated with the PPP Project, specifying the external and project development risks for the Contracting

Authority, the project risks to be allocated to the private entity and those to be retained by the Contracting Authority.

- Key commercial principles including payment mechanisms: This section should detail the key commercial principles for the PPP Project. These commercial principles would include, inter alia, the payment mechanisms, relief, compensation and force majeure events, default events, termination payments, the Contracting Authority‟s step-in and cure rights and insurance.
- Evaluation criteria for selection of the private entity: This section should detail the evaluation criteria for selection of the Preferred Bidder.
- Implementation plan: This section should detail the activities and timelines during the project development period. It should also state the person or entity responsible for each activity.
- Project resource requirement: This section should detail the resources required during and after the project development period.
- Conclusion and recommendations on structuring: This section should detail the key conclusions and recommendations on the project structuring.

Part D: Appendixes

- The Contracting Authority shall include in this section any supporting documents such as a detailed projected financial statement, environment impact assessment study, technical report or review of legal framework.

4.4.1 Choosing the best-suited procurement method

Before applying for in-principle clearance for the project the Sponsor should decide which procurement method would be best suited. A number of different methods are available. Which one is most appropriate for a particular project will depend on the project characteristics?

It is generally accepted best practice to procure PPP projects via an open, competitive bidding process. Competition encourages innovation and efficiency and ideally should be as strong as possible . Several different competitive bidding options are available.

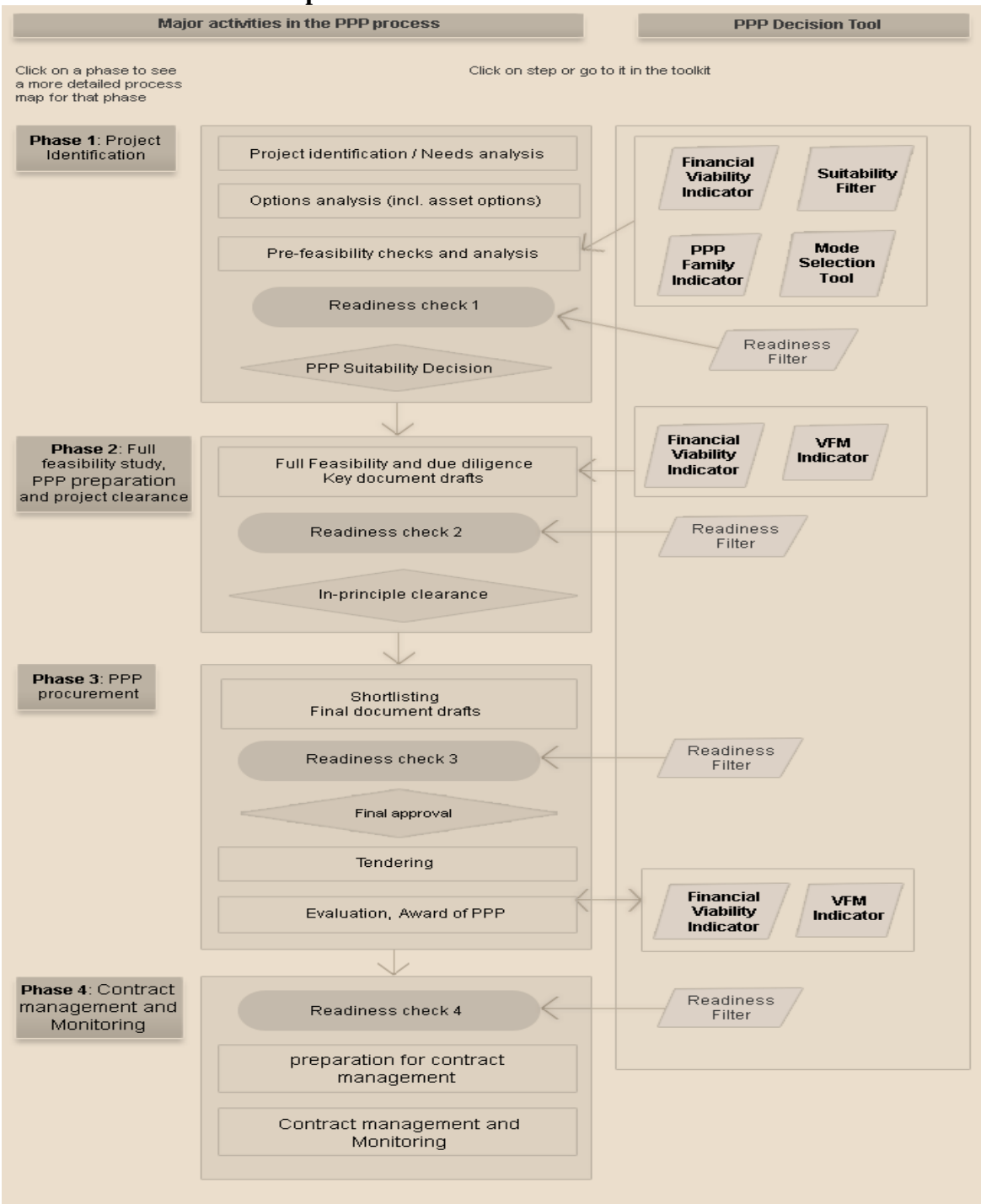
Having decided on the bidding strategy it is also necessary to choose a bidding process. This covers the basis for selection and the number of stages in the bid process.

4.4.2 Checklist of implementation schedule

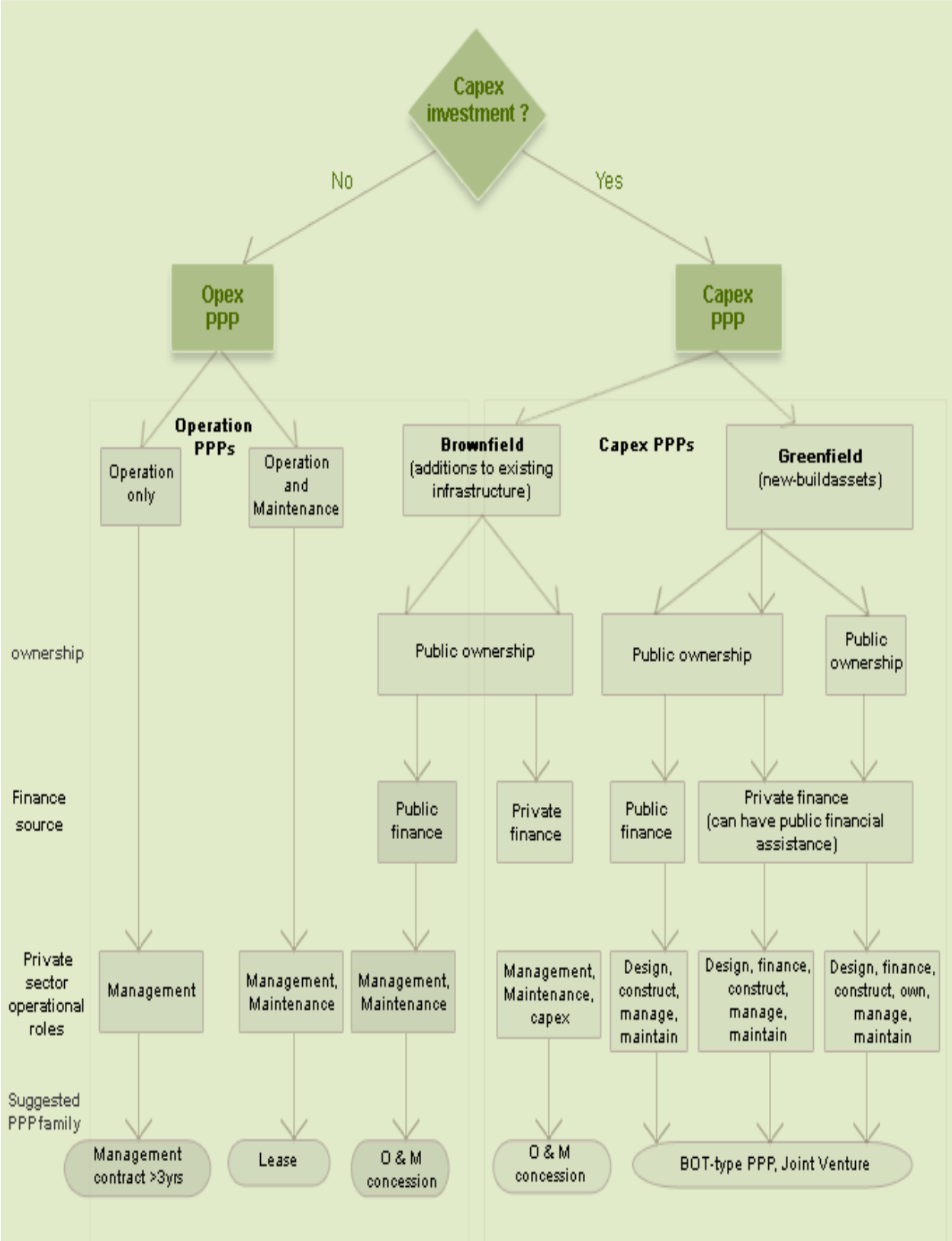
No.	Information to be covered in the implementation schedule	Included? (yes, no)
1	**In-principle clearance timeline:**	
1A	First draft of tender documents and other key project documents (eg, EoI, RFQ, RFP)	
1B	Application for in-principle clearance for the PPP	
2	**Pre-qualification and final document preparation timeline:**	
2a	Issue RFQ	

2b	Pre-qualification of bidders	
2c	Final draft of tender documents, and feedback on bid documents from bidders for complex / new sector projects	
3	**Application for Final Approval of the PPP**	
4	**Procurement and award timeline:**	
4a	Issue RFP, allowing adequate time to respond to bidder queries	
4b	Evaluation of bids	
4c	Negotiation and award	
5	**Technical and financial closure timelines:**	
5a	Detailed technical studies and planning	
5b	Obtaining clearances	
5c	Arranging and finalising finance	
5d	Concessionaire Event of Default	
6	**Engineering, procurement and construction (EPC) activities and timeline (for projects that involve a capital expenditure component)**	
6a	Detailing each major milestone through the EPC process	
7	**Post-construction activities**	
7a	Such as surveys and commissioning facilities	
8	**Expected date for commencement of operations**	
9	**Major milestones in the operating lifecycle of the project**	

4.4.3 Overview - Level Process Map for the PPP toolkit



4.4.4 Generic PPP family decision tree



4.4.5 TEMPLATE (Indicative)

- Name of the project
- Location of Project
- Justification for the Project
- Unbundling of Project

  Identify parts amenable to PPP

  1. Identify Service/Project
  2. Break the service into pieces
  3. Identify parts amenable to PPP

     eg. Water Supply can be broken into

     - Source of supply
     - Headworks
     - Purification
     - Supply to distribution network
     - Metering and Collection of charges
     - Operation and Maintenance

     Solid Waste Management Can be broken into

     - Door to door collection and segregation
     - Secondary storage
     - Transportation
     - Processing and recovery
     - Landfilling
- Select Mode of Privatisation for each part or whole of the project

  Type of PPP (BOT, BOOT, BOLT, OMT etc.)

  - Divestiture of assets/Rights are Sold or
  - Transferred for BOO, BOOT etc.)

- Financing

    - ❖ Total cost
    - ❖ Source of Financing
    - ❖ Phasing of Investment
    - ❖ Returns on Investment
    - ❖ IRR, BCR, NPV at 12% etc.
    - ❖ Social & other environmental benefits

- Screening of Project through GoI PPP Toolkit Yes/No
  Whether Pre Feasibility study is done?
  Whether Full Feasibility study is done?

- Deregulation
- Invite Bids
  Type of bidding option
  Open bidding, E-tendering etc.
- Assess the Bidding
- Selection of Bids
- Preparation of Contract
- Award of Contract
- Monitoring, Evaluation and Impact Assessment

4.5.0 *Questions :*

1. Why is project formulation exercise important ?
2. What are the steps in the preparation of PPP plan ?
3. How would a Government Department prepare PPP Project Plan”
4. Explain the steps in PPP process as per PPP toolkit of GoI ?
5. What are the tasks in pre-feasibility study?
6. How do you justify a PPP project based on feasibility study?
7. Explain the steps to be followed in conducting full feasibility study?
8. How do you structure a PPP project?
9. Explain PPP toolkit and PPP family decision tree ?