

Project Development Phase

Model Performance Test

Team ID	NM2023TMID04427
Project Name	Project – Tracking Public Infrastructure And Toll Payment Using Blockchain

Model Payment Testing :

Project team shall fill the following information when working for blockchain.

S.No	Parameters	Values	Screen Shot
1.	Basic features of PPP models	A categorization of the PPP/PSP models together with their main characteristics is shown in table 13 .	
2.	Typical structure of a PPP project ⁷	complex involving contractual arrangements between a number of parties including the government, project sponsor, project operator, financiers, suppliers, contractors, engineers, third parties (for example, an escrow agent ⁶), and customers (see Chapter 4, 'Terms of contract').	

3.	Classification of PPP models	The main features of each of the broad categories of the PPP models are discussed next.	<table><tr><th>Broad category</th><th>Main variants</th><th>Ownership of capital assets</th><th>Responsibility of investment</th><th>Assumption of risk</th><th>Duration of contract (years)</th></tr><tr><td rowspan="3">Supply and management contract</td><td>Outsourcing</td><td>Public</td><td>Public</td><td>Public</td><td>1-3</td></tr><tr><td>Maintenance management</td><td>Public</td><td>Public/Private</td><td>Private/Public</td><td>3-5</td></tr><tr><td>Operational management</td><td>Public</td><td>Public</td><td>Public</td><td>3-5</td></tr><tr><td>Turnkey</td><td></td><td>Public</td><td>Public</td><td>Private/Public</td><td>1-3</td></tr><tr><td rowspan="2">Affermage/Lease</td><td>Affermage</td><td>Public</td><td>Public</td><td>Private/Public</td><td>5-20</td></tr><tr><td>Lease</td><td>Public</td><td>Public</td><td>Private/Public</td><td>5-20</td></tr><tr><td rowspan="2">Concessions</td><td>Franchise</td><td>Public/Private</td><td>Private/Public</td><td>Private/Public</td><td>3-10</td></tr><tr><td>BOT</td><td>Public/Public</td><td>Private/Public</td><td>Private/Public</td><td>15-30</td></tr><tr><td rowspan="3">Private ownership of assets and PFI type</td><td>BOO/DBFO</td><td>Private</td><td>Private</td><td>Private</td><td>Indefinite</td></tr><tr><td>PFI</td><td>Private/Public</td><td>Private</td><td>Private/Public</td><td>10-20</td></tr><tr><td>Divestiture</td><td>Private</td><td>Private</td><td>Private</td><td>Indefinite</td></tr></table>	Broad category	Main variants	Ownership of capital assets	Responsibility of investment	Assumption of risk	Duration of contract (years)	Supply and management contract	Outsourcing	Public	Public	Public	1-3	Maintenance management	Public	Public/Private	Private/Public	3-5	Operational management	Public	Public	Public	3-5	Turnkey		Public	Public	Private/Public	1-3	Affermage/Lease	Affermage	Public	Public	Private/Public	5-20	Lease	Public	Public	Private/Public	5-20	Concessions	Franchise	Public/Private	Private/Public	Private/Public	3-10	BOT	Public/Public	Private/Public	Private/Public	15-30	Private ownership of assets and PFI type	BOO/DBFO	Private	Private	Private	Indefinite	PFI	Private/Public	Private	Private/Public	10-20	Divestiture	Private	Private	Private	Indefinite
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4.	Agreements in a typical PPP arrangement	The nature and the general order of execution of agreements between different parties. The contract agreement with the government forms the basis for subsequent agreements with other parties.	<pre>graph TD HG[Host Government] --> MOU[MOU/LOI Between government and sponsors] MOU --> Sponsors[Sponsors X, Y, Z] MOU --> Shareholders[Shareholders agreement MOA Equity] Sponsors --> Concession[Concession agreement • Project development • License and Permit • Obligations • Financial matters • Transfer, termination • Rights] Shareholders --> SPV[SPV Project company] Concession --> SPV SPV --> Output[Output O/Hake agreement] SPV --> EPC[Engineering procurement construction EPC] SPV --> OMA[Operation and maintenance agreement] SPV --> TPA[Third party agreement • Insurer • Escrow agent • other parties] SPV --> LA[Labour agreement] SPV --> ISA[Input supply agreement] SPV --> OSPA[Other supply/ procurement agreement] SPV --> ICA[Inter-creditor agreement Non-recourse debt]</pre>																																																																		
5.	Risk matrix	The risk matrix in table 3 shows some examples of possible mitigation measures against the risks.	<table><tr><th>Category of risk</th><th>Description and likely effect</th><th>Mitigation measures</th><th>Allocation</th></tr><tr><td>Developmental risk</td><td>Insufficient preparatory tasks and project planning leading to delays in procurement and financial close</td><td><ul style="list-style-type: none">Good feasibility study (that includes comprehensive analysis of risks, possible effects and how to address them as well as de-risking to the extent possible)Institutional due diligenceCompetent transaction advisor</td><td>Government/ implementing agency</td></tr><tr><td>Sponsor risk</td><td>Financial strength (ability to participate with equity, can arrange third party equity, financially solvent and financial requirement does not exceed capacity, can provide limited recourse, if needed)</td><td><ul style="list-style-type: none">Credit references and ratingMinimum level of equity stakeBank guarantee and undertakingBid bond from banker(s)Track recordFinancial statement analysisEnsure adequacy of finance under loan facilitiesUse of non-financial evaluation criteria and due diligence on private parties</td><td>Government/ implementing agency</td></tr><tr><td>Cost overrun risk</td><td>During the design and/or construction phase, the actual project costs exceed the estimated cost</td><td><ul style="list-style-type: none">Fixed price and fixed time EPC contractReview by lender's engineerContingency provisions; standby debt facilities/additional equity commitments (commitments are needed upfront)Equity stake of EPC contractor</td><td>SPV/PPP (can pass on to EPC contractor)</td></tr></table>	Category of risk	Description and likely effect	Mitigation measures	Allocation	Developmental risk	Insufficient preparatory tasks and project planning leading to delays in procurement and financial close	<ul style="list-style-type: none">Good feasibility study (that includes comprehensive analysis of risks, possible effects and how to address them as well as de-risking to the extent possible)Institutional due diligenceCompetent transaction advisor	Government/ implementing agency	Sponsor risk	Financial strength (ability to participate with equity, can arrange third party equity, financially solvent and financial requirement does not exceed capacity, can provide limited recourse, if needed)	<ul style="list-style-type: none">Credit references and ratingMinimum level of equity stakeBank guarantee and undertakingBid bond from banker(s)Track recordFinancial statement analysisEnsure adequacy of finance under loan facilitiesUse of non-financial evaluation criteria and due diligence on private parties	Government/ implementing agency	Cost overrun risk	During the design and/or construction phase, the actual project costs exceed the estimated cost	<ul style="list-style-type: none">Fixed price and fixed time EPC contractReview by lender's engineerContingency provisions; standby debt facilities/additional equity commitments (commitments are needed upfront)Equity stake of EPC contractor	SPV/PPP (can pass on to EPC contractor)																																																		
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