PROJECT FINANCING STRATEGIES & PPP
FINANCIAL ANALYSIS & MODELLING
TECHNIQUES

1.2: Review of PPP Contracts Structures, Financing Requirements, & the Role of Financial Analysis & Modeling

Edward (“Ned”) White
September 2018
Goals of this Session:

• Understand the overall requirements of the PPP Project Management Cycle
• Understand the requirements of PPP financing & Project Finance
• Understand the specific goals of PPP financial analysis & modeling within overall PPP Project Management Cycles
• Understand the practical risks of PPP Project Financing & need for PPP financial analysis & modelling through Project Financing Case Study Analysis
What ARE PPPs?

• **Definition:**

Public-Private Partnerships (PPPs) are a form of *legally enforceable contract* between the public sector and private sector, which *requires new investments* by the private contractor (money, or technology, or expertise/time, or reputation, etc.), which *transfers key risks* to the private sector (design, construction, operation, etc.), in which *payments are made in exchange for performance*, for the purpose of *delivering a service* traditionally provided by the public sector.

• PPPs are defined by “HOW” a public service is delivered, not by “WHAT” the underlying infrastructure or asset is.
1- **Defining Public-Private Partnerships.** Public-private partnerships are long-term contractual arrangements between a government body and a private sector partner for up to thirty-five years (as per the PPP Law). Partnerships aim to enhance the role of the private sector in delivering public services and infrastructure through new construction or rehabilitation of existing assets. This provided that value for money and the ability to bear costs are guaranteed and that each party is allocated an appropriate share of risks. Under PPPs, the private sector bears financial, technical, operational, and environmental risks associated with the project. Contracts will clearly stipulate the details of the project, including service standards and remuneration for the private party in return of such services.
## Jordan's PPP Institutional Framework:

<table>
<thead>
<tr>
<th>PPP Phase:</th>
<th>Private Sector Partner</th>
<th>Public Contracting Body &amp; Technical Committee</th>
<th>PPP Unit</th>
<th>PPP Council &amp; Council of Ministers</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHASE 1: REGISTRATION &amp; APPLICATION - PROJECT INITIATION, SELECTION &amp; DEVELOPMENT FUNDING</td>
<td></td>
<td>Select Candidate PPP Projects &amp; Prepare Project Assessment Application (PPP Concept Paper)</td>
<td>Review of PPP Application &amp; Recommendation</td>
<td>Approval/Disapproval of Application &amp; Registration of Project</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Locate Funding for PPP Preparation &amp; Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHASE 2: PPP PROJECT PREPARATION (FEASIBILITY STUDY &amp; BUSINESS CASE DEVELOPMENT)</td>
<td></td>
<td>Conduct PPP Feasibility Study with PPP Transaction Advisor</td>
<td>Review of PPP Feasibility Study &amp; Recommendation</td>
<td>Approval / Disapproval by PPP Council &amp; Cabinet</td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>PHASE 3: PPP TENDERING &amp; PROCUREMENT</td>
<td></td>
<td>Prepare &amp; Review PPP Tender Documents</td>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
<td>Submit PPP Qualifications &amp; Proposals</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Implement PPP Tender Process</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Award, Negotiate &amp; Initial PPP Contract</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sign &amp; Execute PPP Contract</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deliver Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manage PPP Contract &amp;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHASE 4: PPP CONTRACT MANAGEMENT &amp; PERFORMANCE MONITORING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
International Private Investment in Infrastructure
Record for Developing Economies:
Private Investments in Infrastructure in Developing Economies (1991-2015) by Sector (USD $ Millions)

- Energy
- Information and communication technology (ICT)
- Transport
- Water and sewerage
JORDAN: Private Investments in Infrastructure: 1990-2017

Number of Projects/Transactions

Projects reaching financial closure by sector

- Electricity: 29
- ICT: 3
- Ports: 2
- Railways: 1
- Water and sewerage: 5
- Airports: 2
JORDAN: Private Investments in Infrastructure: 1990-2017

Investment Size ($ millions)

Investment in projects by sector (US$ million)

<table>
<thead>
<tr>
<th>Financial closure year</th>
<th>Project name</th>
<th>Subtype of PPI</th>
<th>Subsector</th>
<th>Contract Period</th>
<th>Total Investment ($ Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>Aqaba Railway</td>
<td>Build, rehabilitate, operate, and transfer</td>
<td>Railways</td>
<td>25</td>
<td>$182</td>
</tr>
<tr>
<td>2000</td>
<td>Orange Jordan (former Jordan Telecom Co</td>
<td>Partial</td>
<td>ICT</td>
<td>Not Available</td>
<td>$558</td>
</tr>
<tr>
<td>2003</td>
<td>Khirbet Al Samra Wastewater Treatment Plant</td>
<td>Build, operate, and transfer</td>
<td>Treatment plant</td>
<td>25</td>
<td>$169</td>
</tr>
<tr>
<td>2006</td>
<td>Aqaba Container Terminal Concession Contract</td>
<td>Build, rehabilitate, operate, and transfer</td>
<td>Ports</td>
<td>25</td>
<td>$705</td>
</tr>
<tr>
<td>2007</td>
<td>Amman East Power Project</td>
<td>Build, own, and operate</td>
<td>Electricity</td>
<td>25</td>
<td>$300</td>
</tr>
<tr>
<td>2007</td>
<td>Central Electricity Generating Company (Cegco)</td>
<td>Partial</td>
<td>Electricity</td>
<td>Not Available</td>
<td>$120</td>
</tr>
<tr>
<td>2007</td>
<td>Queen Alia International Airport</td>
<td>Build, rehabilitate, operate, and transfer</td>
<td>Airports</td>
<td>25</td>
<td>$675</td>
</tr>
<tr>
<td>2009</td>
<td>Al-Qatrana Power Project</td>
<td>Build, operate, and transfer</td>
<td>Electricity</td>
<td>25</td>
<td>$465</td>
</tr>
<tr>
<td>2009</td>
<td>Disi-Amman water conveyor</td>
<td>Build, operate, and transfer</td>
<td>Water Utility</td>
<td>25</td>
<td>$951</td>
</tr>
<tr>
<td>2012</td>
<td>AES - Diesel IPP</td>
<td>Build, own, and operate</td>
<td>Electricity</td>
<td>25</td>
<td>$350</td>
</tr>
<tr>
<td>2012</td>
<td>As-Samra Wastewater Treatment Plant Phase II</td>
<td>Build, rehabilitate, operate, and transfer</td>
<td>Treatment plant</td>
<td>25</td>
<td>$223</td>
</tr>
<tr>
<td>2013</td>
<td>Al Manakher Tri-Fuel Power Plant (IPP3)</td>
<td>Build, own, and operate</td>
<td>Electricity</td>
<td>25</td>
<td>$812</td>
</tr>
<tr>
<td>2013</td>
<td>Tafila Wind Farm</td>
<td>Build, own, and operate</td>
<td>Electricity</td>
<td>20</td>
<td>$290</td>
</tr>
<tr>
<td>2014</td>
<td>Queen Alia International Airport – Phase II</td>
<td>Build, rehabilitate, operate, and transfer</td>
<td>Airports</td>
<td>25</td>
<td>$94</td>
</tr>
<tr>
<td>2014</td>
<td>SunEdison Ma’an Solar Power Project</td>
<td>Build, operate, and transfer</td>
<td>Electricity</td>
<td>20</td>
<td>$66</td>
</tr>
<tr>
<td>2015</td>
<td>Falcon Ma’an Solar PV Plant</td>
<td>Build, operate, and transfer</td>
<td>Electricity</td>
<td>20</td>
<td>$50</td>
</tr>
<tr>
<td>2015</td>
<td>Jordan Solar One PV Power Plant</td>
<td>Build, operate, and transfer</td>
<td>Electricity</td>
<td>20</td>
<td>$70</td>
</tr>
<tr>
<td>2015</td>
<td>Shams Ma’an PV Solar Power Plant</td>
<td>Build, own, and operate</td>
<td>Electricity</td>
<td>20</td>
<td>$168</td>
</tr>
<tr>
<td>2016</td>
<td>Al Rajef Wind Farm</td>
<td>Build, own, and operate</td>
<td>Electricity</td>
<td>Not Available</td>
<td>$185</td>
</tr>
<tr>
<td>2016</td>
<td>Fujeij Wind Farm</td>
<td>Build, own, and operate</td>
<td>Electricity</td>
<td>20</td>
<td>$197</td>
</tr>
<tr>
<td>2016</td>
<td>Zarqa CCGT power plant</td>
<td>Build, operate, and transfer</td>
<td>Electricity</td>
<td>25</td>
<td>$475</td>
</tr>
<tr>
<td>2017</td>
<td>Attarat Oil Shale-Fired Power Plant</td>
<td>Build, own, and operate</td>
<td>Electricity</td>
<td>30</td>
<td>$2,109</td>
</tr>
<tr>
<td>2017</td>
<td>Baynouna Solar PV Plant</td>
<td>Build, own, and operate</td>
<td>Electricity</td>
<td>20</td>
<td>$280</td>
</tr>
<tr>
<td>2017</td>
<td>Empire Solar PV Plant</td>
<td>Build, own, and operate</td>
<td>Electricity</td>
<td>20</td>
<td>$98</td>
</tr>
<tr>
<td>2017</td>
<td>Safawi Solar Plant</td>
<td>Build, own, and operate</td>
<td>Electricity</td>
<td>20</td>
<td>$93</td>
</tr>
<tr>
<td>2017</td>
<td>Shobak Wind Farm</td>
<td>Build, own, and operate</td>
<td>Electricity</td>
<td>20</td>
<td>$104</td>
</tr>
</tbody>
</table>
RATIONALE FOR PPPs: Breaking the “Vicious Cycle” of Public Infrastructure Management

- Operating Inefficiency
- Low Cost Recovery
- Inadequate Maintenance
- Poor Service Delivery
- Deteriorating Facilities

Breaking the "Vicious Cycle" of Public Infrastructure Management

- Operating Inefficiency
- Low Cost Recovery
- Inadequate Maintenance
- Poor Service Delivery
- Deteriorating Facilities
A Familiar Look at the Problem...
NEW SOURCES OF WATER

1. NEW DAMS
2. RIVER SHARING
3. RAIN-WATER HARVESTING
4. DESALINISATION
5. ICE-BERGS

JUST PLUG THE LEAKS!!
**Reasons for PPPs:**

**Additionality:** The increased economic benefits to consumer welfare of having needed public services/infrastructure accessible **NOW** because of the PPP, rather than having to wait until Govt. could provide the public services much later (continuation of economic growth)
Reasons for PPPs:

- “Avoided Costs/Avoided Public Borrowing”:
  - By contracting with the private sector to finance & operate a new infrastructure project, scarce Government capital budgets can be directed to other priority sectors (i.e., social services, education, health care, etc.)

Without a PPP:

- **Govt. Capital Budget**
  - **Project A:** Bus Terminal Construction
  - **Project B:** Health Clinics Construction

With a PPP:

- **Private PPP Developer**
  - **PPP**
  - **Govt. Capital Budget**
  - **Project A:** Bus Terminal Construction
  - **Project B:** Health Clinics Construction

**BUT Beware:** avoiding Govt. borrowing in the short-term could result in higher annual PPP payments over the life of the contract…
**Reasons for PPPs**

- **Improved Quality of Service & Cost Competitiveness:**
  - Higher quality of services (ie reliability) & lower per unit costs. **Better Value for the Public’s Money (VfM).**
  - **Clearer, Contracted, Performance-based output standards:** Better reliability due to a clear contract with performance-based output standards. Payment in exchange for performance.

- **Technology Transfer:**
  - Access to new technologies and experienced management not currently available through the public sector.

- **NOT Ideological reasons...**
  - Increasing the size of the private sector (and the new taxes it will pay to the Govt.) can be a welcomed side-effect of a PPP, but is **NEVER a sufficient reason** by itself to undertake PPP transactions.
  - **REMEMBER:** The Private Sector can easily be less efficient & more expensive than Govt. at delivery public services (Consistent comparison of public vs. private costs & performance are needed!)
Range of PPP Structuring Options

**“RISK”** (Private Sector Investment Required)

- Service Contract
- Management Contract
- Lease/Affermage
- Concession
- BOO/BOT
- Divestiture (Investor-Owned Utility)

**“RETURNS”** (to The Private Sector)

- Low
- High

**Low**

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## Spectrum of Different Private Sector Participation Structuring Options:

<table>
<thead>
<tr>
<th>PPP Contract Instrument</th>
<th>Average Contract Term</th>
<th>Provides the Service or the Management</th>
<th>Provides the Working Capital</th>
<th>Receives the Net Income or Covers Net Loss</th>
<th>Provides Long-Term Finance</th>
<th>Legally owns the Assets</th>
<th>Provides Sectoral Planning &amp; Regulates Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Contract</td>
<td>2-3 years</td>
<td>Private</td>
<td>Public</td>
<td>Public</td>
<td>Public</td>
<td>Public</td>
<td>Public</td>
</tr>
<tr>
<td>Management Contract</td>
<td>2-5 years</td>
<td>Private</td>
<td>Public</td>
<td>Public</td>
<td>Public</td>
<td>Public</td>
<td>Public</td>
</tr>
<tr>
<td>Lease/Affermage</td>
<td>7-15 years</td>
<td>Private</td>
<td>Private</td>
<td>Private</td>
<td>Public</td>
<td>Private</td>
<td>Public</td>
</tr>
<tr>
<td>BOT (&quot;PFI&quot;)</td>
<td>20 - 30+ years</td>
<td>Private</td>
<td>Private</td>
<td>Private</td>
<td>Private</td>
<td>Private</td>
<td>Public</td>
</tr>
<tr>
<td>BOO</td>
<td>20 - 30+ years</td>
<td>Private</td>
<td>Private</td>
<td>Private</td>
<td>Private</td>
<td>Private</td>
<td>Private</td>
</tr>
<tr>
<td>Concession</td>
<td>20 - 30+ years</td>
<td>Private</td>
<td>Private</td>
<td>Private</td>
<td>Private</td>
<td>Private</td>
<td>Public</td>
</tr>
</tbody>
</table>
Lease

- Govt’s Board/Asset Holding Company identifies short-term operating vs. long-term problems & goals

- Private firms compete for the right to lease the assets from the Government in exchange for paying a lease fee (“rent”) to AHC, terms usually 7 - 15 years.

- Contract specifies performance measures and targets (incentives & penalties)

- Lease Contractor provides management, O&M decisions, spare parts, working capital, and keeps any residual profits/losses from commercial operations.

- Govt’s Board/AHC still owns the long-term network assets, services long-term debt, and makes all long-term planning decisions, including setting the operational performance targets

- Public employees become employees of the private Leased Corporation
**LEASE EXAMPLE – Port Container Terminal:**

- **Tanzania:** Tanzania International Container Terminal (TICTS) 2001 Lease, by the Government of Tanzania, to a private sector operator: Tanzania International Container Terminal Services Ltd. (TICTS)

- TICTS: a locally incorporated company with 51% shareholding by International Container Terminal Services Inc., 24% CTSI International Holiday Corporation (both of Manila, Philippines) and Vertex Financial Services Ltd. of Dar es Salaam with 25% make up the private sector consortium operating the Container Terminal.

- ICTS, Inc. Is owned by Hutchinson Port Holdings Ltd, (Hutchinson Whampoa) a leading global port, investor, developer, and operator.

- Contracting Authority/Public Asset Holding Authority: Tanzania Ports Authority (TPA)

- Increases in port capacity: 3,000 TEUs in 2008 to 23,000 TEUs in 2011.

- Reduction in container dwell time by 70%
BOOs & BOTs (Example of Independent Power Project “IPP”)

- Private Owners (Sponsors)
- Commercial Lenders
- Government (Min. of Fin.)

Incorporation

Loan Agreement

Direct Agreement

Single-Purpose Project Company (SPV)

Fuel Supply Agreement

Power Purchase Agreement

Electric Utility (Off-Taker)

Consumer Accounts

Consumers

Fuel Supplier

Commercial Lenders

Power Purchase Agreement

Fuel Supplier

Electric Utility (Off-Taker)
Independent Water & Power Projects (IWPPs)

Private Investors & Lenders

$\rightarrow$ IWPP

Bulk Water

Electricity

Power Off-Taker/Public Electric Utility

Water Off-Taker/Public Water Utility
## Selected Int’l Desalination & IWPP Cases

<table>
<thead>
<tr>
<th>Name</th>
<th>Country</th>
<th>Structure</th>
<th>Cost</th>
<th>Term</th>
<th>Date (Closure)</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taweelah A2</td>
<td>Abu Dhabi</td>
<td>IWPP</td>
<td>$620 m</td>
<td>20 years</td>
<td>March, 2004</td>
<td>710 MW + 227,000 m3/day</td>
</tr>
<tr>
<td>Taweelah B</td>
<td>Abu Dhabi</td>
<td>IWPP</td>
<td>$3.0 Billion</td>
<td>20 yr. ROT</td>
<td>July, 2005</td>
<td>2,000 MW + 750,000 m3/day</td>
</tr>
<tr>
<td>Shuweihat</td>
<td>Abu Dhabi</td>
<td>IWPP</td>
<td>$1.6 Billion</td>
<td>20 yr. BOT</td>
<td></td>
<td>1,500 MW + 380,000 m3/day</td>
</tr>
<tr>
<td>Skikda</td>
<td>Algeria</td>
<td>Desal</td>
<td>$110 ($0.74/m3)</td>
<td>25 yr. BOO</td>
<td>July 31, 2005</td>
<td>100,000 m3/day</td>
</tr>
<tr>
<td>Hamma</td>
<td>Algeria</td>
<td>Desal</td>
<td>$250 m</td>
<td>25 yr. BOO</td>
<td>Won - Oct., 2003</td>
<td>200,000 m3/day</td>
</tr>
<tr>
<td>Beni Saf</td>
<td>Algeria</td>
<td>Desal</td>
<td>$160 m</td>
<td></td>
<td>Closed - Sept. 2005</td>
<td></td>
</tr>
<tr>
<td>Tlemcem-Hounanie</td>
<td>Algeria</td>
<td>Desal</td>
<td>$180 m</td>
<td>25 years</td>
<td>Won - Oct., 2005</td>
<td>150,000 m3/day</td>
</tr>
<tr>
<td>Mostaganem</td>
<td>Algeria</td>
<td>Desal</td>
<td>$100 m</td>
<td>25 years</td>
<td>Won - Oct., 2005</td>
<td>100,000 m3/day</td>
</tr>
<tr>
<td>Taksebt</td>
<td>Algeria</td>
<td>Desal</td>
<td>$605 m</td>
<td>Construction &amp; 5 year Ops.</td>
<td>Won - Jan. 2005</td>
<td>600,000 m3/day</td>
</tr>
<tr>
<td>Fujairah</td>
<td>UAE</td>
<td>Desal</td>
<td>$200 m</td>
<td>25 yr. BOT</td>
<td>2003</td>
<td>170,000 m3/day</td>
</tr>
<tr>
<td>Tampa Bay, FL</td>
<td>USA</td>
<td>Desal</td>
<td>$183 m</td>
<td>DBO</td>
<td>2003</td>
<td>95,000 m3/day</td>
</tr>
<tr>
<td>Point Lisas</td>
<td>Trinidad &amp; Tobago</td>
<td>Desal</td>
<td>($0.75/m3)</td>
<td>30 yr. BOT</td>
<td>2003</td>
<td>115,000 m3/day</td>
</tr>
<tr>
<td>Askelon</td>
<td>Israel</td>
<td>Desal</td>
<td>$190 m</td>
<td>25 yr. BOT</td>
<td>2004</td>
<td>395,000 m3/day</td>
</tr>
<tr>
<td>Tuas</td>
<td>Singapore</td>
<td>Desal</td>
<td>$120 m</td>
<td>20 yr. BOT</td>
<td>2003</td>
<td>136,380 m3/day</td>
</tr>
<tr>
<td>Tianjin</td>
<td>China</td>
<td>Desal</td>
<td>$90 m</td>
<td>20 yr. BOT</td>
<td>2006</td>
<td>100,000 m3/day</td>
</tr>
</tbody>
</table>
Concessions (End-User Fees)

- A Consortium of private firms capitalize a new Project Company (“Special Purpose Vehicle” SPV) to expand, improve & operate a public services distribution network.

- The Project Company borrows significant long-term funds from commercial lenders. **The lenders look almost completely to the projected FUTURE revenue stream generated by the project (and the Project Company’s limited assets) to repay all loans.**

- The host country government does not provide a financial guarantee to lenders, nor do the sponsoring private investors. “Off-Balance-Sheet” financing
Private Finance Initiative (PFI) “AVAILABILITY PAYMENTS”

- **Private Sponsor 1**: Developer/Investor
  - Equity
  - Loan
  - Repayments

- **Private Sponsor 2**: Design/Construction

- **Private Sponsor 3**: Facility Maintenance

- **Single Purpose Project Co. (SPV)**
  - Unitary Payment
  - “Available” School Facility

- **Ministry of Education**
  - Education Services
  - Patient Fees (IF any…)

- **Patients**

- **Government (Min. of Fin.)**
  - PPP Contract
  - Financial Perform. Guarantee
  - State Budget Funding
### Concession (User-Fees) vs. BOT (“Availability Payments”)

<table>
<thead>
<tr>
<th>Concession (User-Fees)</th>
<th>BOT (“Availability Payments”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Monopoly (one provider)</td>
<td>• Monopsony (one customer)</td>
</tr>
<tr>
<td>• Based upon legally “ceding” an exclusive right to provide retail public services, usually enshrined in sector law</td>
<td>• Existing (public) Utility simply buys a key input (electricity, treated water, waste treatment, etc.) instead of providing it internally</td>
</tr>
<tr>
<td>• Retail consumers now interface directly with the private concessionaire (End-User Pays)</td>
<td>• Retail consumers still interface with the existing (public) utility. Govt. pays “Availability Payment” to PPP</td>
</tr>
<tr>
<td>• Higher collection risks?</td>
<td>• Lower collection risk?</td>
</tr>
<tr>
<td>• Usually involves taking over a poorly functioning infra. network – higher risk of unknown condition of assets</td>
<td>• Usually involves a new greenfield project, with little or no risk of conditions of existing assets</td>
</tr>
<tr>
<td>• Incentive for improved system-wide operating efficiency</td>
<td>• Adds productive capacity, but does not improve system-wide operating efficiency</td>
</tr>
<tr>
<td>• Regulatory Body needed, to protect consumers &amp; investors</td>
<td>• Contract Monitoring Unit</td>
</tr>
</tbody>
</table>
Phases of the PPP Project Management Cycle:

Phase 1: PPP Project Registration & Application (Identification, Screening, & Selection)

Phase 2: PPP Project Preparation (Feasibility Study & Business Case Development)

Phase 3: PPP Tendering & Procurement

Phase 4: PPP Contract Management & Performance Monitoring
Phase 1: PPP Project Registration & Application (Project Identification, Screening & Selection):

• 1.1: Identifying Suitable Projects to Screen as PPPs (Pub. Sector Invest. Program and PPP Selection Criteria Checklist)

• 1.2: Completing the PPP Project Screening Matrix (Comparing summary information about candidate PPP project & applying consistent PPP evaluation criteria)

• 1.3: Review of PPP Selection Report and Decision to Proceed to Phase 2’s PPP Feasibility Analyses, or not
Phase 2: PPP Project Preparation (Feasibility Study & Business Case Development)

• 2.1: Preparing the Work Plan for Completing Phase 2 PPP Feasibility Analysis
• 2.2: Retaining PPP Project Consultants to Complete the PPP Feasibility Analyses & Proposed Risk-Allocation
• 2.3: Specifying the PPP Project’s Required Output Levels of Service
• 2.4: Designing & Implementing the PPP Stakeholders Consultation Plan
• 2.5: PPP Affordability Analysis: Estimating the Public Sector’s affordability limit for the project
• 2.6: Project Demand Analysis: Estimating the level of demand for the project’s services
• 2.7: PPP Project Technical Feasibility Analysis
• 2.8: PPP Project Financial Feasibility Analysis: Initial Identification of PPP Costs & Tariffs
• 2.9: PPP Project Economic Feasibility Analysis
• 2.10: Legal & Institutional Feasibility Analysis
Phase 2: CONTINUED:

- 2.11: Project Environmental Impact Analysis
- 2.12: PPP Project Risk Identification
- 2.13: PPP Project Risk Analysis
- 2.14: Developing the Recommended PPP Risk Allocation Structure
- 2.15: Assessing Private Sector Market Interest in the PPP
- 2.16: Review of the Final PPP Feasibility Analyses & Proposed Risk Allocation Structure and the **Decision** to Approve or Reject the Project for advancement to Phase 3’s PPP Tendering & Procurement
Phase 3: PPP Tendering & Procurement:

- 3.1: Developing the Implementation Plan for the PPP Tendering & Procurement
- 3.2: Establishing the Internal PPP Procurement Committee (IPPC) for the PPP Project
- 3.3: Retaining & Managing PPP Procurement & Transaction Advisors
- 3.4: Completing Required Pre-Tendering Reforms & Preparations
- 3.5: Preparing & Issuing the Expression of Interest (EOI) Announcement to the Private Sector
- 3.6: Receiving & Evaluating Expressions of Interest from Potential Service Providers/Investor
- 3.7: Drafting & Issuing the PPP Project Information Memorandum
- 3.8: Planning & Coordinating PPP Investors’ Conference
- 3.9: Designing & Drafting the PPP Contract(s)
- 3.10: Drafting & Issuing the PPP Project Request for Qualifications (RFQ) Document
Phase 3: CONTINUED:

- 3.11: Receiving & Evaluating PPP Qualifications & Announcing the Pre-Qualified Bidders Short-List
- 3.12: Preparing & Maintaining the PPP Project Physical and/or Virtual Data Room for Bidders, Conducting Bidder Site-Inspections/walk-throughs
- 3.13: Issuing DRAFT PPP Contract(s) to Pre-Qualified Short-Listed Private Bidders for Comments Prior to Release of the RFP / Reviewing & Incorporating the Appropriate Comments into Revised Contracts
- 3.14: Preparing & Issuing the Request for Proposal (RFPs) and Final PPP Contract(s)
- 3.15: Receiving & Responding to Bidders’ Questions and Requests for Clarification & Modifying Tender Documents
- 3.16: Receiving Final Technical & Financial Bids
- 3.17: Evaluating PPP Technical Bids & Announcing Technical Bid Results
- 3.18: Opening PPP Financial Bids, Ranking of Bidder Proposals & Selecting Preferred PPP Bidder
- 3.19: Officially Announcing Preferred Bidder(s)
Phase 4: PPP Contract Management & Performance Monitoring

• 4.1: Finalizing Clarifications & Updates to the PPP Contract and its Attached Schedules (managing final technical details vs. legal/contractual risk transfer issues, treatment of “Conditions Precedent,” and ensuring Govt. obligations are fulfilled re conditions precedent)

• 4.2: Review, Approval & Signing the Final PPP contract(s) (Review by Privatisation Commission, Re-Confirmation of Affordability, PSC & VfM analyses)

• 4.3: Understanding the Requirements of Project-backed Financing for PPPs and Requirements of Commercial Lenders (PPP lender due diligence, credit enhancements, final design of facility, final financing package, signature of direct agreement, step-in rights, payment of success fees, etc.)

• 4.4: Monitoring the PPP Project Company’s Progress in Reaching Financial Closure (How Government can facilitate/support the project company & their lenders reaching successful & timely financial closure; and how to handle instances of failure to reach financial closure - cancellation or extension, etc.)
Phase 4: PPP Contract Management & Performance Monitoring – CONTD.

• 4.5: Preparing the PPP Contract Monitoring Plan & Establishing the Monitoring Institution
• 4.6: Monitoring PPP Performance during Construction and Operation/Service Delivery Stage
• 4.7: Managing Requests for PPP Price Adjustments
• 4.8: Managing Requests to Revise or Renegotiate PPP Contracts and Manage Dispute Resolution
• 4.9: Managing PPPs at the End of the Contract’s Term
Key Characteristics of Infrastructure Investments:

✓ Often natural monopolies (economies of scale, bigger=better)
✓ Political: Critical to the economy, public health & standards of living & MDGs
✓ Networked Industries: All investments must comply with long-term local, national & even international/regional plans
✓ High Environmental & Social Impacts: Remediation Costs often needed
✓ Capital-Intensive (High capital costs and relatively lower operating costs)
✓ High Fixed Costs of Operation: High Degree of Operating Leverage (DOL), Highly leveraged.
✓ High ECONOMIC Rates of Return, but often lower FINANCIAL Rates of Return (public supports, contributions, & Viability Gap Funding often needed)
✓ Collections: Often difficult to enforce payment or disconnect late-payers & non-payers, especially for “public” services (water, electricity, public transit, etc.)
✓ Long-term investments (20-50 years): Requires long-term financing
✓ Generally stable demand (whether the economy is in expansion or recession, demand levels is relatively constant compared to other sectors)
Infrastructure Financing Methods: From the Lender’s Perspective

1. Sovereign/Public Finance
2. Corporate Finance
3. Limited-recourse “Project Finance”
Sovereign Finance:

- Government borrows funds to finance a new infrastructure facility and provides a sovereign guarantee to lenders. Govt. may contribute its own equity in addition to borrowed funds.

- Lenders analyze government’s total ability to raise funds through taxation and general public enterprise revenues, including any new tariff revenue from the project.

- Sovereign guarantee shows up as a liability on Government’s list of financial obligations.
A private corporation borrows funds to construct a new infrastructure facility/project and pledges its own existing private assets to lenders as collateral to guarantee repayment.

Corporation carries this debt directly ON its own balance sheet (“Mining the Corporate Balance Sheet”)

The corporation may choose to contribute its own equity as well.

In performing credit analysis, lenders look at the assets pledged by the corporation as well as the strength of its other revenues.
Limited-recourse “Project Finance”

• A Team or Consortium of private firms establish a new Single-Purpose Project Company (SPV) to Build & Operate a new infrastructure facility. The SPV is capitalized with equity contributions (25%?) from private sponsors.

• The Project Company (SPV) then borrows funds (75%) from private commercial lenders. **The lenders look almost only to the projected future revenue stream generated by the project and the Project Company’s limited assets to repay all loans.**

• The host country government does not provide a full guarantee to lenders. Private sponsors provide only limited guarantees to contribute more equity, if needed. “Off-Balance-Sheet” financing
The “Security Package” of PPP Project Agreements

Construction Co. → Equipment Supplier → IPP

Host Govt. (Off-Taker (Utility)) → Perform. Guarantee

PPP → Insurer → Insur. Contract

IPP → Fuel Supply Agreement → Fuel Supplier

EPC → Equip. Supply Contract

PPA → Lenders → Escrow Agent

Incorp. → Loan Agreements → PRG/PCG

O&M Contract → Operator → Developer (Owner)

MDM (Guarantor) → Counter-Guarantee
Project Finance - Flow of Funds

IPP

Construction Co.

Equipment Supplier

Host Govt.

Off-Taker (Utility)

Fuel Supplier

Developer (Owner)

Lenders

Escrow Agent

Insurer

Operator

Taxes Reg. fees

Taxes

Reg. fees

MDB (Guarantor)

1st

2nd

3rd

4th

Last
## Attractiveness of Infrastructure Financing Strategies:

<table>
<thead>
<tr>
<th></th>
<th>Sovereign Finance</th>
<th>Corporate Finance</th>
<th>Limited-Recourse Project Finance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Governments</strong></td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td><strong>Private Developers &amp; Investors</strong></td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td><strong>Lenders</strong></td>
<td>+</td>
<td>+</td>
<td>?</td>
</tr>
</tbody>
</table>
Debt Service Coverage Ratio (DSCR)

The “Waterfall”

Revenue

Operating Income or Earning Before Interest, Taxes, Depreciation & Amortization (EBITDA)

EBITDA

DSCR = \frac{\text{EBITDA}}{\text{Debt Service}} = > 1.3 - 1.5x

1. O & M Costs
2. Debt Repayment
3. Taxes
4. Profit

(VAT, Fuel, Wages, Chemicals, Raw Inputs, etc.)
Many commercial banks offer levelized payments, which include both interest and principal payments.

Over time, as the interest payment portion decreases, the tax deductions from interest payments will also decrease, meaning that the firm’s taxable income will rise. As the amount of taxes the firm pays increases, the resulting cash flow for the firm will decrease.
The “Level-ized Principal Payments” Option

- Some commercial banks may only offer loans through “level-ized” Principal Repayments terms
- As the Principal is paid-down the Total Debt Service Payments (Interest + Principal) decrease over time
- This is less risky for lenders
Minimum DSCRs for PPPs:

- Minimum DSCRs required by commercial lenders depend on the perceived level of risk of the given PPP project.

- Minimum required DSCRs depend largely on the degree to which the cash flows for a project are secured (i.e., by an off-take agreement promising to make fixed capacity/availability payments) and are therefore predictable (less risky for lenders).

- Concession-type PPPs, which collect revenues directly from numerous end-users, each-of-which may choose to purchase the service, or not, face higher risks, are less predictable, and have to meet higher minimum DSCRs.

<table>
<thead>
<tr>
<th>Project Financing - Target Minimum DSCRs by Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Power (Single Off-taker)</td>
</tr>
<tr>
<td>Mining &amp; Natural Resources</td>
</tr>
<tr>
<td>IT &amp; Telecommunications</td>
</tr>
<tr>
<td>Infrastructure</td>
</tr>
</tbody>
</table>
Minimum vs. Average DSCR

- Project Finance lenders care more about the minimum DSCR for a PPP (ie “the worst-case scenario”) rather than the Average DSCR over the whole life of the loan.

<table>
<thead>
<tr>
<th>Average Project Financing DSCRs in Different Sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power (Merchant Plant with NO Long-Term Off-take Agreement)</td>
</tr>
<tr>
<td>Power (Independent Power Plant with Long-Term Power Purchase Agreement)</td>
</tr>
<tr>
<td>Transportation &amp; Shipping</td>
</tr>
<tr>
<td>Telecommunications</td>
</tr>
<tr>
<td>Water</td>
</tr>
<tr>
<td>Waste-to-Energy</td>
</tr>
</tbody>
</table>

Lender’s Priorities:
What are the most important criteria a commercial lender looks for when evaluating an invitation to lend to a PPP Project Financing?

1.
2.
3.
Lender’s Priorities - ANSWERS:

1. Experience & Reputation of the Private Sponsors of the SPV (“Who ARE you?”)
2. Purpose of the Project & Clear Long-Term Need (ie reliable demand, conceptually)
3. Financial Details (Leverage ratio, i-rate, term, DSCR, reserve funds, financial risk analysis, credit enhancements, etc.)

* Lesson Learned: Be sure to Qualify to Bid (RFQ Stage) only bidders with clear Proven technical experience, PPP business track record, and the verified Equity Capital available to gain the full confidence of Lenders that they can fully manage ALL phases of the project
## Project Finance

<table>
<thead>
<tr>
<th>“CONs”</th>
<th>“PROs”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lenders are risk-averse</td>
<td><strong>Large Projects</strong> – which no single private corporation can fund on its own balance sheet</td>
</tr>
<tr>
<td>PPP Transaction Costs are high (Triple due diligence)</td>
<td><strong>Long Terms</strong> – long project operating lives, so long-term financing required</td>
</tr>
<tr>
<td>Some PPP projects do not reach financial closure</td>
<td><strong>Unique Function</strong> – projects are a “stand alone” business</td>
</tr>
<tr>
<td>Private financing is more expensive than public financing</td>
<td><strong>Monopoly</strong> – projects are either natural monopolies or given some exclusive rights by Govts.</td>
</tr>
<tr>
<td></td>
<td><strong>Returns</strong> – Loan sizes are very large and higher risks can be matched by higher returns</td>
</tr>
</tbody>
</table>
• PPP is a “leverage” technique for attracting new private financing to match limited public financing. It is not a replacement for public finance.
The Project Finance Lending Process:

1. Origination
2. Structuring
3. Syndication
4. Loan Administration

- Underwriting Commitment
- Closing & Initial Drawdown
- Completion (Term Loan Conversion)
- Loan Maturity

Risk ($)

Graph showing the timeline and risk associated with each stage of the project finance lending process.
Project Financing Documentation: The Term Sheet

• **General Terms**
  - Commitment
  - Availability
  - Pricing
  - Repayment
  - Maturity

• **Conditions**
  - Conditions Precedent to closing
  - Representations & Warranties
  - Covenants
  - Security & Application of Funds
  - Events of Default

• **A good term sheet should be a guide to how the due diligence is performed**
Lender Due Diligence for Project Financing

• **Ownership:**
  – “Who is the borrower?”
  – Should be a single-purpose project company
  – Borrowing consortium should be structured to prevent bankruptcy & minimize sponsor risk

• **Capital Structure:**
  – More important to lenders than % equity participation is, “can the project support this amount of debt?”
  – How to treat loans to the project company of a sponsor?

• **Risk Considerations:**
  – Market risk, Environment, Counter-party credit risk, country risk, etc.
  – Credit enhancements
Project Finance: Lending Documentation

• **Inter-Creditor Agreements:**
  – Whenever there is more than one lender there should be an intercreditor agreement to specify:
    • How collateral may be divided
    • Who may collect accounts receivable
    • Who must provide working capital, etc.

• **Common Trust Security Agreement**
  – With multiple lenders there should be an omnibus agreement so that collateral is held in trust and so lenders agree on remedies in advance
Minimizing Project Finance Credit Risk

• Technology/Design Risks
• Construction/Completion Risks
  • Operating Risk
  • Market/Demand Risk
• Economic Risk
• Counterparty Risks
• Political/Regulatory Risks
• Force Majeure Risk
• Foreign Exchange/Currency Risk
• Environmental Risks

Credit Risk
Key Issues facing National PPP Programs Today

• Today nearly all countries have issued a Policy on PPPs and are in the process of developing full legal, institutional & regulatory frameworks. Be careful not to over-bureaucratize the PPP process.
  – Minimize the number of approvals that line ministries & public corporations must obtain to implement PPPs
  – Minimize the amount of time that PPP Regulatory/Oversight Bodies can spend reviewing & approving/disapproving proposed projects
  – PPP Regulatory Bodies (ie “PPP Units”) should be seen as a helpful RESOURCE by line ministries & public corporations (Offer PPP training, Quick advice on PPPs, Funding for PPP Project Preparation). PPP Units should “market themselves” to these clients. Don’t just be a new regulatory burden for line ministries to get past.
Key Issues facing PPP Frameworks Today

• Biggest current constraint to PPP investments is not inadequate Legal & Regulatory frameworks, but the limited number of candidate PPP projects being identified and prepared by Governments. **Focus on building the PPP project pipeline:**

  – Establish a PPP Project Preparation (or Development) Fund to pay for PPP Business Cases & Feasibility Study

  – Give oversight authority for the Fund to the PPP Unit (to encourage line ministries to seek the advice & input of the PPP Unit)

  – PPP PDF Examples from India, Philippines, Indonesia, etc.
Unlike 15 years ago, private investors & lenders are requiring more and clearer forms of public sector support (VGF), risk-sharing, and contingent liabilities in their PPPs than before (“Blended Finance”). How are Govts. Managing these requests?

– A growing number of Governments are establishing new “Risk Management Units” in their Ministries of Finance (especially after recent financial crises)

– Some Governments are establishing new PPP Financing & Guarantee Funds which can offer these contingent liability insurance products
### Key Success Factors in PPPs – “Positive” vs. “Negative” Strategies

<table>
<thead>
<tr>
<th>“POSITIVE” PPP STRATEGY</th>
<th>“NEGATIVE” PPP STRATEGY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> Pro-active (long-term infra. Reform)</td>
<td><strong>1.</strong> Re-active (“We just need new money!”)</td>
</tr>
<tr>
<td><strong>2.</strong> “We could probably provide it ourselves, but we choose PPP”</td>
<td><strong>2.</strong> “We are forced into PPP because we can’t afford it ourselves!”</td>
</tr>
<tr>
<td><strong>3.</strong> Long-term competitiveness of our public services</td>
<td><strong>3.</strong> Short-term access to new money</td>
</tr>
<tr>
<td><strong>4.</strong> Better value for the public’s money</td>
<td><strong>4.</strong> Govt. already chooses inputs (Technology &amp; Design)</td>
</tr>
<tr>
<td><strong>5.</strong> Create new jobs &amp; empowerment</td>
<td><strong>5.</strong> Fear of job losses</td>
</tr>
<tr>
<td><strong>6.</strong> Understands that locals are less expensive than expats</td>
<td><strong>6.</strong> Fear of foreign control</td>
</tr>
<tr>
<td><strong>7.</strong> Our existing public staff will become the private sector</td>
<td><strong>7.</strong> Us (the Govt.) vs. “them” (the Private Sector)</td>
</tr>
<tr>
<td><strong>8.</strong> We must regulate (referee) well &amp; fairly to handle new changes and problems sustainably.</td>
<td><strong>8.</strong> We still need to control the contractor, otherwise we will cancel the deal!</td>
</tr>
</tbody>
</table>
Goals of PPP Financial Analysis & Modelling:

**TO SUPPORT INFORMED DECISION-MAKING ABOUT HOW TO STRUCTURE THE PPP PROJECT**

- How much will the project cost to construct & commission/start-up (Initial Investment)?
- How much will the project cost of operate & maintain (including periodic renewals & replacements) over its whole-life?
- **How much revenue** will the project need to cover all of its operating & capital costs, including a reasonable return on capital for private investors?
- Is the estimated revenue required **Affordable** to either Government budgets, end-users, or both?
Goals of PPP Financial Analysis & Modelling – How much Revenue is Required for PPP Financial Sustainability & is it Affordable?:

**Total Cash Needs compared to Sustainable Revenue Needs**

- **Total Cash Needs**
- **Total Self-Sustaining Revenues**
Goals of PPP Financial Analysis & Modelling – INFORMED Decisions for Key PPP Questions:

- How should the project be financed in terms of equity, debt, or grants/Viability Gap Funding (VGF)?
- How should the Risks be best allocated between the public and private sectors, so that the project is financially sustainable?
- What is the level of total Value for Money (VFM) benefits that the public is receiving by doing the project as a PPP (vs. a traditional public investment)?
- What is the value of the public sector current & future liabilities to the PPP Project (fiscal commitments & contingent liabilities)?
Illustration of PPP Cost Estimates

- **PPP Concept & Pre-Feasibility Study:** Using industry benchmark data, large variation in Tariffs/Revenues Required.

- **PPP Feasibility Study/ Business Case:** Scope of project is increased, & more detailed estimates of actual costs are made

- **PPP Tendering:** Preferred Bidder’s Cost Proposal (Competitive bidding delivers a lower price than estimated by PPP Feasibility Study)

- **PPP Operational Phase:** Final costs can still vary due to pass-throughs of fuel costs, forex rates, etc.
Project Financing/Re-Financing Case Study:

“Dulles Greenway Toll Motorway,” USA
The Dulles Greenway: Facts

• Length: 14 miles (23 kms)
• Interchanges: 9
• Bridges: 18
• Construction Cost: $187 million
  • ( $8.13 million/km)
Dulles Greenway: Background

• **1962:** Washington's Dulles International Airport and the Airport Access Highway Open

• **1984:** Traffic along the 16 mile Airport Access Highway grows and necessitates the construction of a new Expressway to the Airport ("Dulles Reston Technology Corridor") The old highway becomes a tolled highway.

• **1985:** Traffic data shows that the new Dulles Toll Road is already at capacity. A private development consortium, Municipal Development Corp. submits an unsolicited proposal to the State of Virginia for the construction of a new 23 km extension of the Dulles Toll Road (From Leesburg, VA to the Dulles Airport) to be undertaken on a privately financed BOT basis.

• **1988 - 1992:** Toll Road Corporation of Virginia, the successor to Municipal Development Corp., tries unsuccessfully to raise 15-year financing for the project. New investors, Toll Road Investors Partnership II (TRIP II), purchase development rights to project.
PPP Project Risk Factors

• **Environmental:** Road would “take away” 64 acres of “wetlands” & cross Goose Creek, a federally designated and protected “Scenic River”

• **Land Acquisition:** would require purchasing land from 26 separate private land-owners including a lease from the Washington Metropolitan Airports Authority

• **Development:** Strong history and projected growth & development in Fairfax and Loudon Counties and along the Dulles-Reston Technology Corridor.

• **Construction Procurement:** Would Public procurement guidelines would apply to the private project company?

• **Bridges & Existing Roads:** Bridges & overpasses for all existing roads would need to be constructed and then maintained for the entire life of the project
Traffic & Toll Revenue Study:

• Average of 120,000 vehicles/day in corridor cross the “screen-line” (from Route 7 to Route 50)
• Estimated Average time savings: 10 - 18 minutes
• Surveys of road users
  • Rule of “One-Thirds” and “the 5%”
• Key Factors in Traffic & Toll Revenue Forecast Studies:
  1. Existing Roadway Network
  2. Population & local economy
  3. Land use distribution (residential & commercial)
  4. Trip Generation
  5. Trip Distribution
  6. Modal Split Analysis
Traffic & Toll Revenue Study:

- Key Success Factors
  - Does this road provide a “Unique Service”? (Clear origin & destination for drivers)
  - Does this road offer Significant Travel Time Savings?
- Proposed Initial Toll: $1.75 ($0.076/km)
  - Escalate to $2.00 after 6 months
  - Cost per minute saved
- Projected Traffic after first 6 months: 36,000/day
<table>
<thead>
<tr>
<th>Average Toll Rates ($/km)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico Cuernavaca Highway</td>
<td>$0.22</td>
</tr>
<tr>
<td>Hungary M1/M15</td>
<td>$0.17</td>
</tr>
<tr>
<td>California SR 91</td>
<td>$0.15</td>
</tr>
<tr>
<td>South Africa N4</td>
<td>$0.09</td>
</tr>
<tr>
<td>USA - Dulles Greenway (proposed)</td>
<td>$0.07</td>
</tr>
<tr>
<td>China: Guangzhou-Shenzen</td>
<td>$0.05</td>
</tr>
<tr>
<td>Malaysia North-South Highway</td>
<td>$0.03</td>
</tr>
<tr>
<td><strong>Quick Version: Toll Road PPP Financial Viability</strong></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Average Construction Cost/km</strong></td>
<td>$8,130,000</td>
</tr>
<tr>
<td><strong>Average Interest Rate</strong></td>
<td>12.00%</td>
</tr>
<tr>
<td><strong>Annual Interest Payments</strong></td>
<td>$975,600</td>
</tr>
<tr>
<td><strong>Interest Payment/Day</strong></td>
<td>$2,673</td>
</tr>
<tr>
<td><strong>Average Acceptable Toll</strong></td>
<td>$0.075</td>
</tr>
<tr>
<td><strong>Minimum Traffic/Day to pay interest only</strong></td>
<td>35,638</td>
</tr>
</tbody>
</table>
The Project Financing Challenge: How to Stay Current with Debt Service Payments in the Early Years

“Ramp-up Phase”

Toll Revenue

Debt Service

Toll Revenue

TIME
<table>
<thead>
<tr>
<th><strong>Dulles Greenway: Project Financing</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concession Term</strong></td>
</tr>
<tr>
<td><strong>Construction Contract</strong></td>
</tr>
<tr>
<td><strong>Pre-Financing Development Costs by Private Sponsor</strong></td>
</tr>
<tr>
<td><strong>Debt</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Dulles Greenway: Project Financing

- **Equity:** $138 million  
  - $40 m  
  - $80 m  
  - $18 m

- **Cash:** $40 m

- **Unfunded Equity Reserve Accounts:** $80 m

- **Preferred Equity Interests:** $18 m

- **Debt : Equity Ratio:** 2:1 (66%:33%)

- **Expected Internal Rate of Return on Project:** 18%
## Dulles Greenway Financing

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Financing Dev.</td>
<td>-$68,000,000</td>
<td></td>
</tr>
<tr>
<td>Debt</td>
<td>$280,000,000</td>
<td>67.0%</td>
</tr>
<tr>
<td>Equity</td>
<td>$138,000,000</td>
<td>33.0%</td>
</tr>
<tr>
<td>Available Capital</td>
<td>$350,000,000</td>
<td></td>
</tr>
<tr>
<td>Fixed Price Construction Contract</td>
<td>-$187,000,000</td>
<td></td>
</tr>
<tr>
<td>Construction &quot;Bonus&quot;</td>
<td>-$7,300,000</td>
<td></td>
</tr>
<tr>
<td>Reserve Funds Level</td>
<td>$155,700,000</td>
<td></td>
</tr>
<tr>
<td>Interest Rate on Debt</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>Project IRR</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>Corp. Tax Rate</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>IRR on Equity</td>
<td>40%</td>
<td></td>
</tr>
</tbody>
</table>
Project Agreements:

• **Comprehensive Agreement (Concession)**
  
  • 42.5 year concession term
  • compliance with Virginia Dept. of Transportation (VDOT) Technical Design, Quality & Safety Standards
  • Independent State Commission (SCC) regulates & approves any tolls
  • Virginia DOT may assume ownership without assuming debt

• **Construction Contract**
  
  • Brown & Root, 14% Equity participation
  • Fixed Price $187 million, 2.5 years
  • Not competitively tendered
  • Liquidated damages penalty: $80,000/day
  • Early Completion Bonus: $40,000/day
Project Agreements:

• O & M Agreement

  • Autostrade, 29% ownership, Government of Italy
  • Autostade’s fee, percentage of operating income
  • Termination if:
    • Actual expenses exceed budget for 3-5 years
    • Cannot perform 180 days after force majeure event
    • Toll collection is less than 95% of what is expected based upon traffic flow
Group Discussion Questions:

• 1. What are the biggest risks this project faces?

• 2. As analysts, how would your team propose enhancing the creditworthiness of the project by changing the overall risk allocation and mitigation structures of the project? Explain your answers.
Epilogue

• **1992 - 1993** Toll Road Investors Partnership II Ltd. (TRIP II) successfully raises financing for the project in the face of the U.S. Savings & Loan crisis.
• **Sept., 1993** Construction of the project begins
• **Sept., 1995** Project opens 6 months ahead of schedule
• **Jan., 1996** Ridership reaches only 12,000/day and tolls are dropped from $1.75 to $1.00
• **July 1996** Ridership reaches 23,000/day & Owners begin to withhold payments to Lenders (according to allowed “standstill provisions”) and commences negotiations and “waiting game”
Dec. 1998 Refinancing

- $70 million in accumulated unpaid debt by Nov. 1998
- Equity holders standstill agreement expires Jan. 1, 1999
- Replacement of $250 m initial 32.5 yr. (exp. 2028) BBB- bonds debt with $360 m of 38 yr. (exp. 2038 = end of concession) AAA bonds
- Deferred Principal: Minimized debt service payments for first 10 years. Raises total principal & interest payments by $575 m
- Some lenders receive limited partnership interests (equity)
- Reorganization of the partnership, Autostrade continued as toll road operator
- Equity losses: Autostrade’s equity cashflows from the project estimated to be reduced by over 50%
Dulles Greenway Project Financing: Lessons Learned

• Understand the real risk that Project LENDERs take in Project Financings: Recourse only to SPV and it’s future cash flows…

• Clear PPP Legal, Regulatory, and Institutional Frameworks are needed to facilitate PPP preparation and approval procedures & time requirements. (7 years is TOO LONG & expensive!!)

• Rarely will there ever be new Toll Road/Bridge/Tunnel Projects who can recover ALL of their costs (O&M, Debt Service & Equity) from toll collections alone. Some forms of Public Sector Supports/Contributions/Risk-Sharing is needed.

• Traffic risk is nearly unmitigatable – by private concessionaires or by Govts.

• Allowed Public Sector Risk-Sharing Options under new PPP Laws:
  – Land Acquisition by Govts.
  – Market & Demand/Traffic Risks: Minimum guaranteed levels
  – Viability Gap Funding/Public Capital Contributions (ie “Blended Finance”)
  – Publicly-facilitated Subordinated Debt (“Transportation Infrastructure Financing Innovation Act” = TIFIA of US Fed Highway Admin.)
Often the first step is the hardest…
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