



# InfraCo Asia

***Creating Infrastructure for Developing Asia***

Policy Development Center, Australian National University

March 9, 2016

# Agenda

1

Introduction to InfraCo Asia

2

PPP Overview

3

Case Study 1: Okhla Waste to Energy Project, India

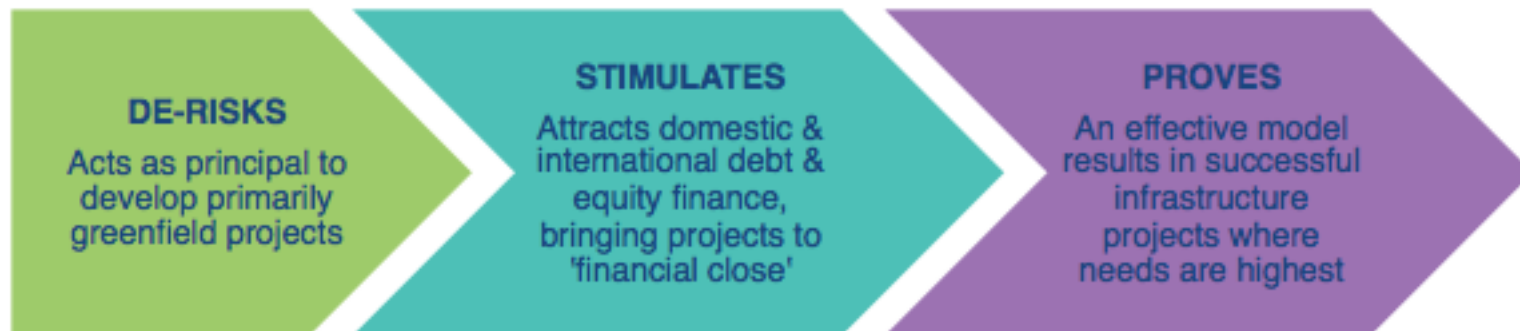
4

Case Study 2: Coc San Hydro Project, Vietnam

# InfraCo Asia's mandate

- ❖ ***Reduce poverty and provide social benefits***
  - ❖ ***Complement, not compete, with the private sector***
  - ❖ ***De-risk commercially viable projects***
- InfraCo Asia bridges the gap in public-private infrastructure finance across South and South East Asia's frontier and emerging markets.

The mandate at work:



# Supported by PIDG

- InfraCo Asia is backed by the Private Infrastructure Development Group (PIDG) a multi-donor organisation that promotes private infrastructure investment in developing countries through a range of specialised financing and project development facilities and programmes

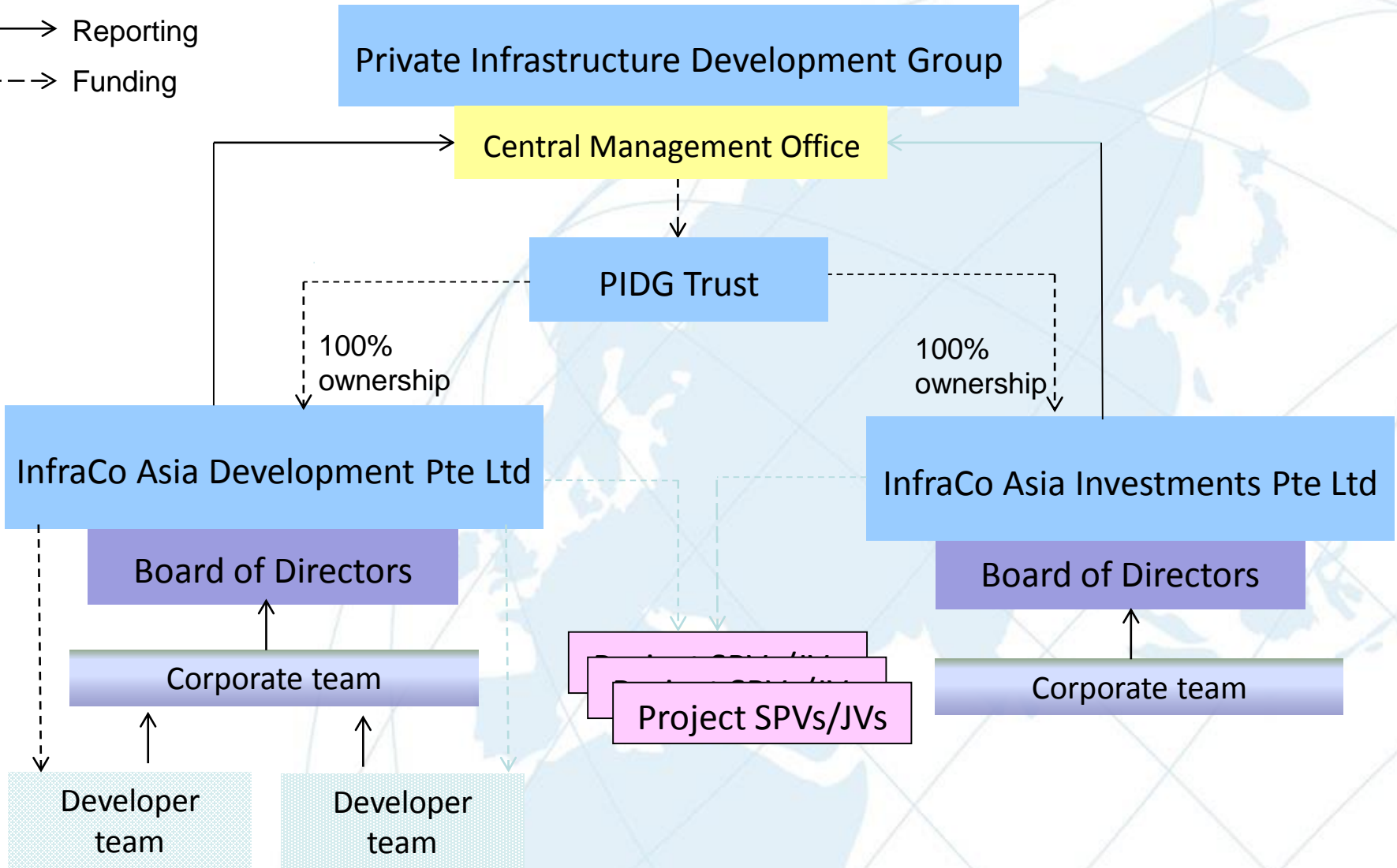


## Private Infrastructure Development Group (PIDG)

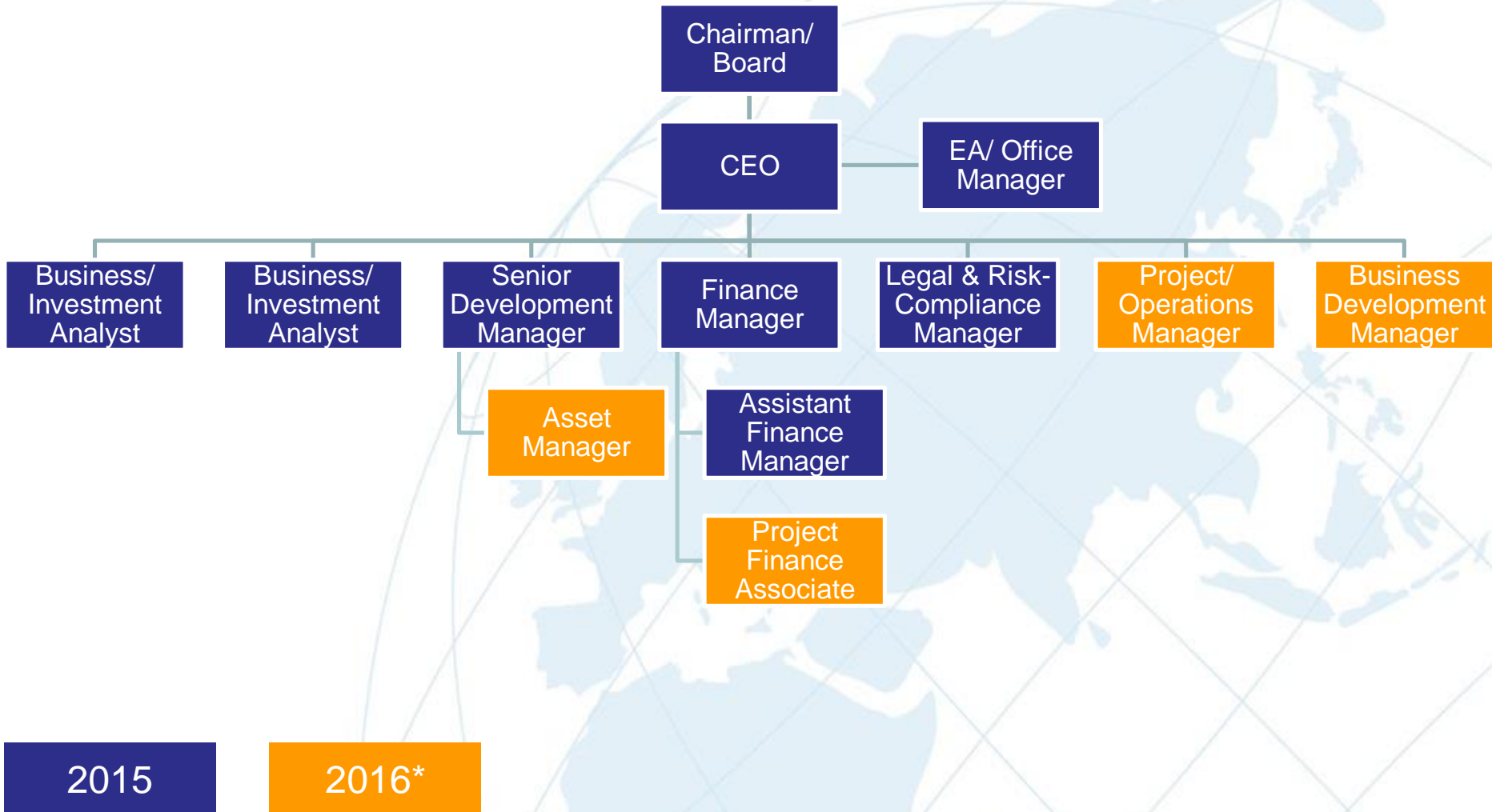


# Corporate and Reporting Structure

—→ Reporting  
- - - → Funding



# Organisational Chart



*\*Resource requirements will be evaluated on an annual basis*

# Approach

## Combining donor capital and private sector expertise, InfraCo Asia:

- **Develops infrastructure projects as a principal**
  - Project development leadership and commitment as Joint Owner & Sponsor
  - Participates in full development cycle to bring projects to financial close
  - Works with local governments and development partners
  - Provides development capital and expertise
  - Invests in equity ownership
  - NOT a consultant
- **Acts commercially**
  - Seeks market based risk adjusted returns
  - Development timeline is a priority – seeks to close projects expeditiously
- **Actively participates in project development**
  - NOT a passive funding source for development expenses
- **Puts development capital at risk**
  - Takes on risk and loss associated with unsuccessful projects
- **Offers a world class team of developers**
  - Partners with experienced developer teams
  - Developers worked in leading infrastructure development companies

# InfraCo Asia fills a critical gap in the market by funding high risk development costs

## Stages of Infrastructure Project Development



**InfraCo Asia** plays a key role in attracting more private sector investment but very few peers exist

- Investment at this stage only \$2 to \$8 Million (2 to 10% of the total cost depending on project size)
- However, riskiest stage of investment
- Lack of sources of early stage financing in industry

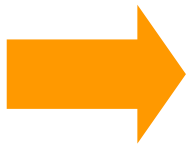
- IFC Infra Ventures
- Global Infrastructure Facility
  - Recent World Bank initiative
  - Supported by Australian government, European institutions and Swiss firms

Most institutional investors focus on Stage 3 and Stage 4 projects as a way to diversify their portfolios

- Commercial Banks
- Multi-laterals
- Private Equity
- Pension Funds
- Sovereign Wealth Funds
- Infrastructure focused government sponsored funds such as AIF, AIIB

# How InfraCo Asia operates

- Identifies and screens infrastructure opportunities
- Creates a local subsidiary company to act as an 'organising entity' on the ground
- Develops projects to financial close at own cost and risk
- Secures debt financing and sells majority stake in local company to (domestic and foreign) equity investors
- Reinvests proceeds from successful sales in more development activity
- Works in partnership with local and foreign partners when appropriate
- Access to credit enhancement facilities and output based aid can help make projects bankable and politically acceptable



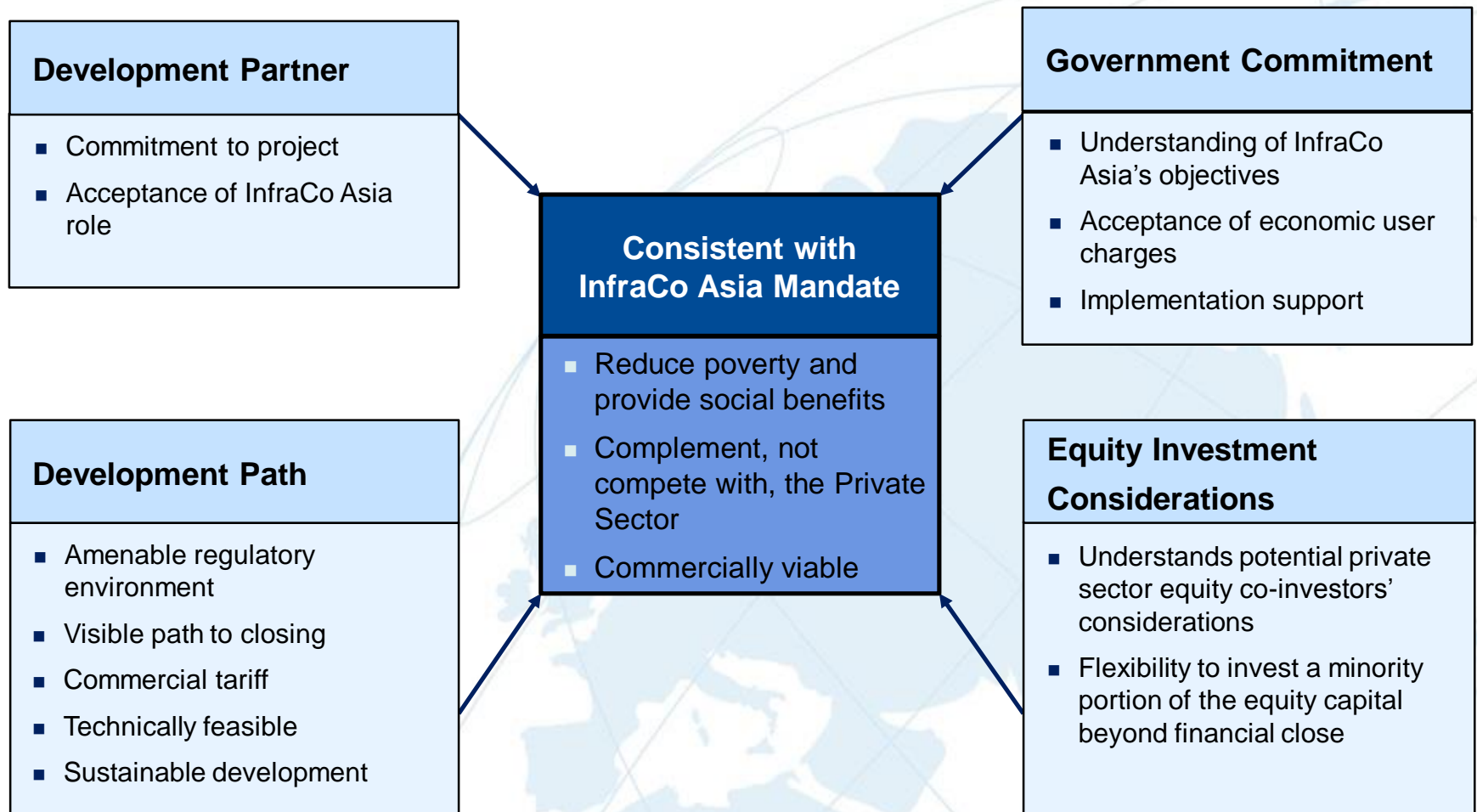
*InfraCo Asia makes infrastructure projects happen in situations where the private sector would otherwise be unwilling or unable to invest*

# Investment Criteria

- Projects must satisfy three criteria for investment:
  - ❖ **Additional** – projects where private sector developers are unwilling or unable to take on the upfront costs and risks on their own
  - ❖ **Development impact** – projects must deliver development benefits for the poor and meet social and environmental best practice
  - ❖ **Commercial viability** – projects must be commercially viable (to attract private investment and ensure a return on the sale of InfraCo Asia's ownership rights)
- “Balanced portfolio” approach - InfraCo Asia pursues a mix of larger, more commercial projects (e.g. power plants) and some smaller, more directly “pro-poor” projects (e.g. agriculture-supporting infrastructure)

InfraCo Asia applies a consistent and disciplined approach to project screening

# Project selection



**InfraCo Asia applies a consistent and disciplined approach to project screening**

# Sector Coverage



Water & Waste Water



Transport & Logistics



Communication



Renewable & Conventional Power



Transmission



Pipelines



Urban Infrastructure



Agri - Infrastructure



Cement & Fertilizer and Others



# InfraCo Asia: a unique position

- **Bridges a critical gap in Asian infrastructure development:** Early stage development expertise complemented by development capital to de-risk high risk projects
- **Complements efforts of host governments:** Seeks to identify and develop commercially viable infrastructure projects in host government priority areas
- **Balances the interests** of host governments, private sector investors and financiers
- **Complements and does not compete** with local or international developers for projects: Additionality is a core principle
- **Focuses on commercially viable and attainable projects that produce social benefits** (improved services, jobs and environment) and help to alleviate poverty
- **Aims to exit the investment at or near financial close:** Draws in new private sector investment once the project is prepared and structured

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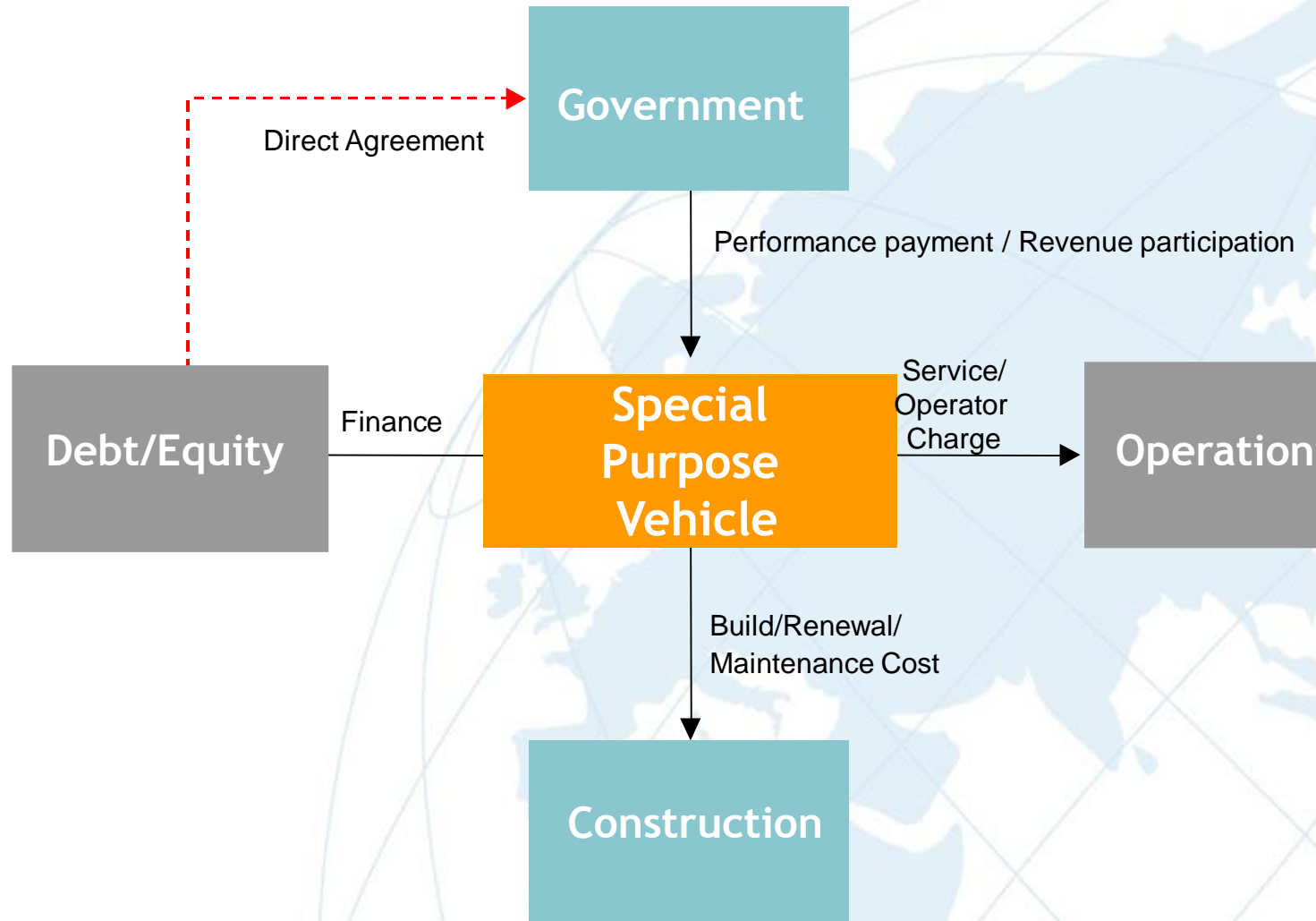
# Public Private Partnership (PPP)

- What is it?
  - Partnership; long term
  - Risk sharing relationship between public and private sector
  - Provision of a service to the public through a long term contract often involving financing (PFI)
  - Undertake some day-to-day functions of the public sector
  - Payment for services not assets
  - Charges or tariffs often based on key performance indicators (KPI'S)
  - Sometimes direct payment from end-users

# Key Features of a PPP

- Buying specified outputs or outcomes of a service.
- Creating a process that delivers the service required to the necessary standard throughout the lifetime of the project.
- Aligning the interests of the user(s), the service provider and the major funders.
- Establishing a relationship between public and private sectors, that is based on partnership rather than confrontation.
- Providing private sector the appropriate training, motivation and reward for staff to ensure that quality services are provided on a consistent basis.

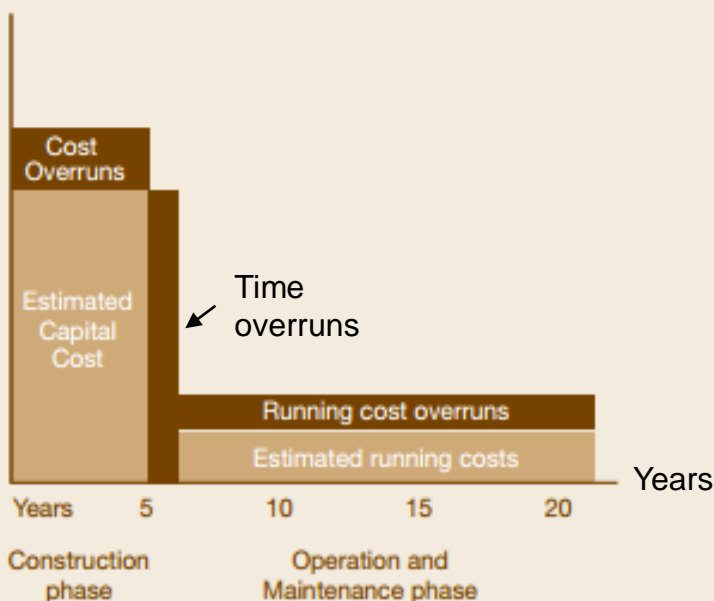
# The PPP Concept and Model



# Procurement – Payment profiles

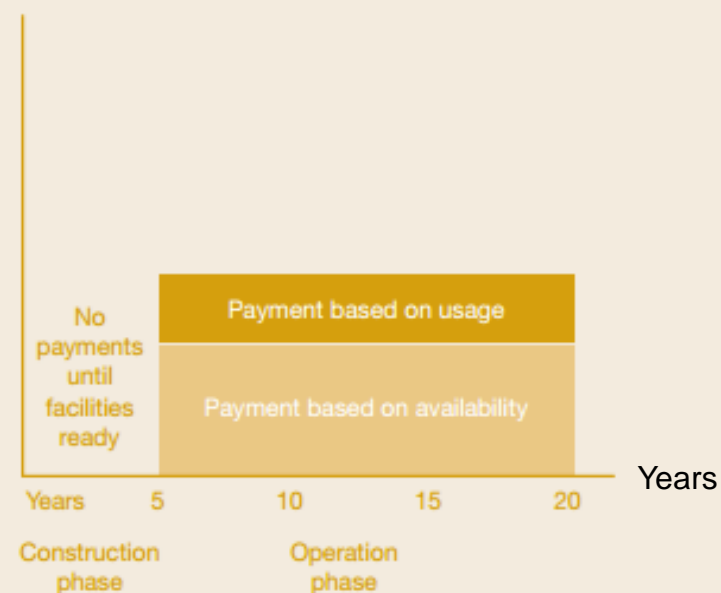
## Traditional Government procurement

Payment profile can be depicted as follows:



## PPP procurement

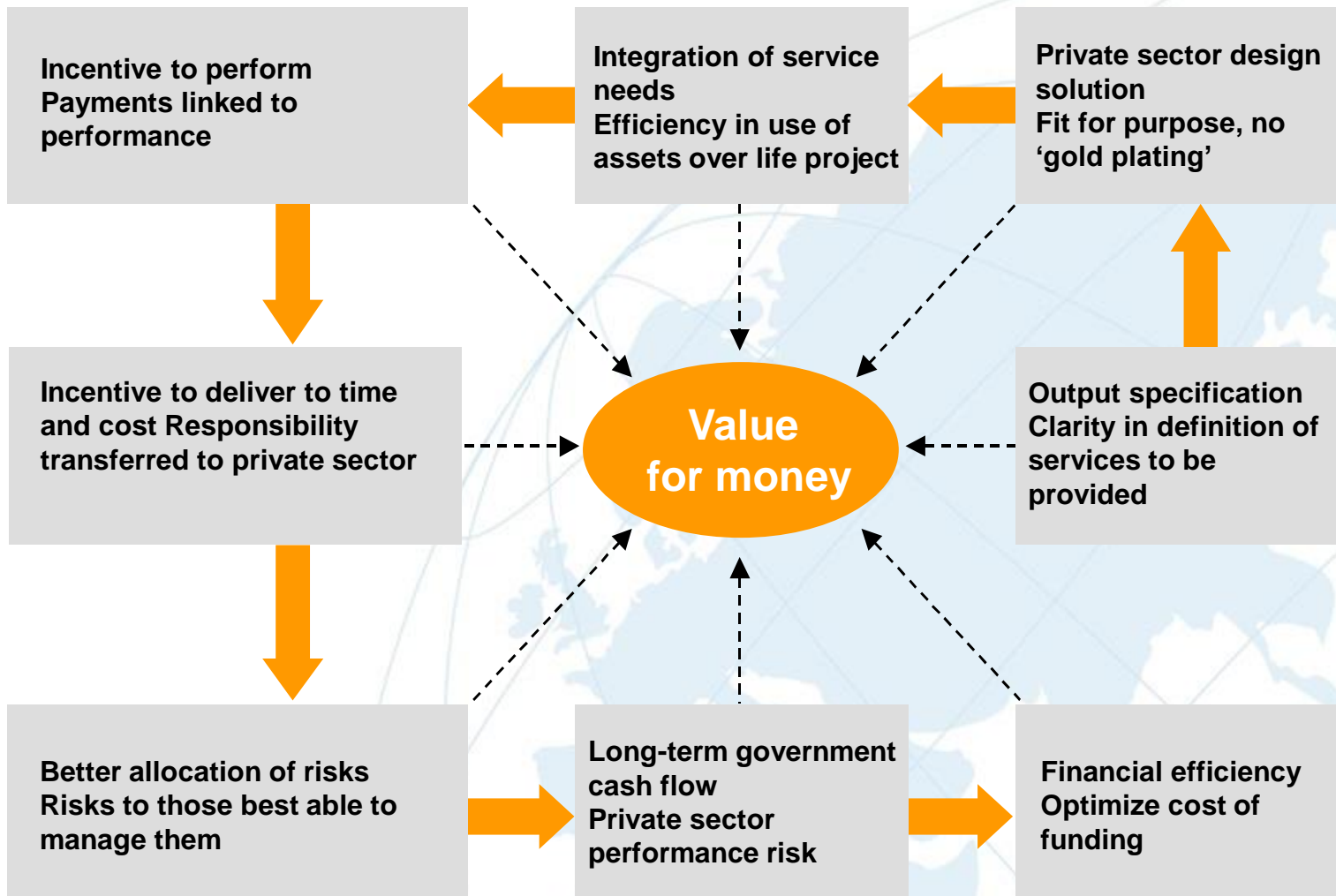
Payment profile for the public sector



- Capital and operating costs are paid for by the public sector, who take the risk of potential cost overruns and potential late delivery
- The public sector or users only pay over the long term as services are delivered. The private sector funds itself using a large portion of debt plus shareholder equity. The returns on their equity will usually depend on the quality of services.

Source: PwC

# Value Creation in PPP



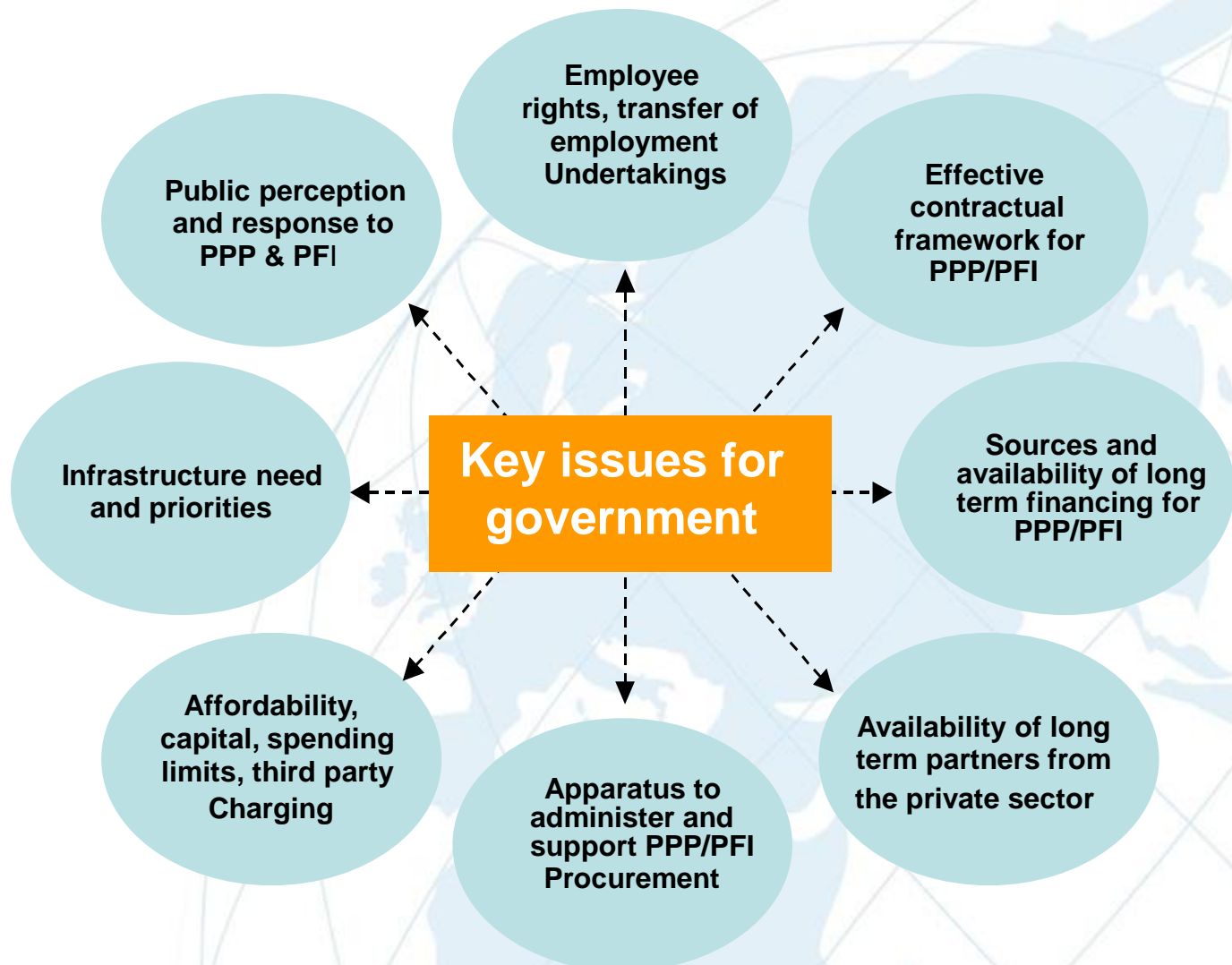
# Pre-requisites of successful PPPs

- Political commitment
- Enabling legislation
- Expertise and capacity building in both public and private sector
- Projects prioritisation
- Deal flow and standardisation

# Features and Drivers of PPP

- Government retain ownership of existing strategic assets
- Manage long-term risk and reduction of subsidies (if any)
- Need for enhanced efficient and reliable services to meet demands
- Maintain services and to improve when necessary
- Tariff reforms – introduce broad principles of:
  - User pays – Polluter pays
  - An economic and true price for the service

# Developing a PPP Framework – Key issues for Government



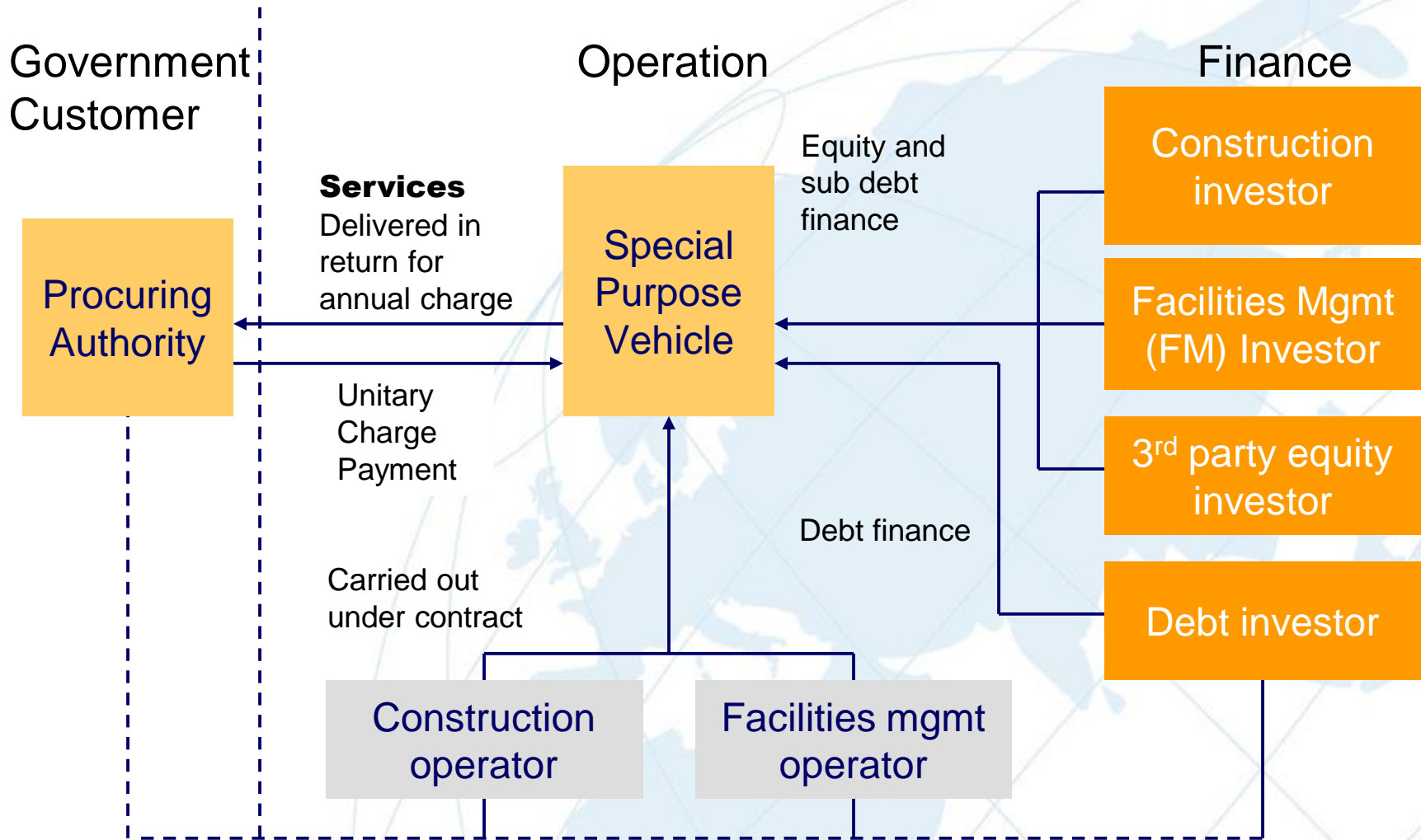
# Forms of Public-Private Partnerships

- Design, build, operate (DBO) & DBOF
- BOO (Build-Own-Operate) or BOT (Build-Operate-Transfer) or BOOT (Build-Own-Operate-Transfer)
- Operation and maintenance service contracts (O&M)
- Public Finance Initiatives – (PFI)
- Concession contracts
- Joint ventures
- Acquisitions

# Comparison of PPP Options

Type of Contract	Service/ O&M	Management Consultancy	Lease	BO(O)T DBO(F)	Concession	Acquisition
Client	Concessionaire	Concessionaire	Concessionaire	Concessionaire	Local public sector/National Regulator	Government/ National Regulator
Scope	Discrete function, area or plant	Advisory only for discrete function or whole operation	Part/whole system	New process or partial development area	Whole system	Whole system
Demand & Customer Revenue	Public	Public	Private	Public	Private	Private
CAPEX	Public	Public	Public	Private, for relevant process development	Private	Private
Efficiency Gains	Limited to OPEX only	Dependent on client implementation	OPEX only CAPEX potential	CAPEX & OPEX in relevant process area only	CAPEX & OPEX	CAPEX & OPEX
Regulation	Contractual	Contractual	Contractual	Contractual	Contractual/ Regulator	Regulatory
Public Acceptability	Good	Good	Fair	Good	Fair	Poor
Performance & Improvement	Limited to area covered. No development progress	Limited but no continuous development or managerial progress	Some but no development progress	Within relevant process area only	Good	Good
Notes	OPEX = operation Expenditure		CAPEX = capital Expenditure		Periodic Review desirable	Periodic Review desirable

# The consortium company/joint venture model



# Determining the right structure

- Privatisation with possible residual government support
- Joint Venture
- Concession Contract
- Split Concession / Hybrid
- Asset and Service procurement contract



**Risk transfer  
to private  
sector**

# Understanding Project Economics

- Detailed feasibility study with private sector input
- Clear revenue and cost projections based on considered and reasonable assumptions
- Understanding of private sector return requirements
- Identify government budget constraints and objectives
- Identification and selection of appropriate level and form of government support:
  - Capital contribution
  - Availability type payment
  - Revenue support
  - Usage undertaking
  - Competitive protection
  - Tax relief
  - Pricing support
  - Discount on land cost
  - Packaged deal (e.g.. with property development)

# Key Elements – Risk Transfer

## Typical Procurement

Design
Construction
Service provision
Maintenance and renewal
Quality of service
Volume
Force majeure
Obsolescence
Residual value
Regulation/ policy

## Private Sector Participation

Design
Construction
Service provision
Maintenance and renewal
Quality of service
Volume
Force majeure
Obsolescence
Residual value
Regulation/ policy

Private sector
  Government
  Shared

# Financing PPP Projects

- External / internal
- Equity / debt
- Government support
- Local banks versus foreign banks
- Export Credit / multi-laterals
- FOREX / commercial loans
- Revenue products - dividends for equity participants, repayment of lenders' capital and interest

Subsidies & Grants

Equity

Hybrid Capital  
Mezzanine Debt

Non-Capital Market  
Senior Debt

Capital Market  
Senior Debt

# Appetite for Financing PPP Projects

- Key considerations for international lenders:
  - Quality sponsor for project
  - Location of project
  - Support of municipal provincial government
  - Strong foreign exchange reserve position
  - Involvement of creditworthy financial institutions

# Management of Selected Risks (1/3)

- **Completion Risk**
  - E.g. Land for Pipelines
  - Design – construction approvals
  - Designated Subcontractors
  - Interface with Supply and Distribution
  - Termination vs. Force Majeure
- **Demand Risk**
  - Lack of Historical Data or Transparency
  - Greenfield vs. Joint Venture
  - Importance of Surplus Above Take or Pay to Project Economics
  - Mitigation: Take or Pay (TOP) and Termination Rights

# Management of Selected Risks (2/3)

- **Tariff Risk**
  - Variables in Tariff Formula: FX Rates, Interest, Inflation
  - Early “Freeze” Period: Delay in Commencement
  - Tariff Adjustment: Sensitivity and Approval Risk
  - Note: Key Issue for Banks
  
- **Off-taker Credit Risk**
  - Lack of Historical Data or Transparency
  - Mitigation: Upward trends in tariffs; Aiming at user pays polluter pays principle

# Management of Selected Risks (3/3)

- Force Majeure and Termination Risk
  
- Enforceability Risk
  - Concession Measures
  - Termination Payments
  - Tariff Payments and Adjustments
  - Arbitration and Execution

# The PPP frameworks heavily influence private sector investment...

Country	Policy Framework	Legal Framework	PPP Govt Agency	Guidelines	Govt Financial Support	Land Acquisition
Myanmar	Few infra policies in dev plan	New Foreign Investment Law	No specific PPP agency	No published PPP guidelines	No developed regime	Limited govt support
Cambodia	Limited PPP specific policies	Use Law on Concession	CDC is focal point for concession law	Procurement manual	No developed regime	Limited Govt support
Lao PDR	Limited PPP specific policies	No specific laws (FDI laws used)	No specific PPP agency	MPI Investment guidebook	No developed regime beyond tax incentives	Limited govt support
Vietnam	Policies for PPP projects & FS fund	Based on 2010 PPP regulations	2012 PPP Team & Steering Comm	No published PPP guidelines	Govt guarantees on BOT power projects	Limited govt support
Indonesia	Economic Master Plan & PPP book	Several specific PPP laws/regns	Bappenas and other bodies	PPP Investor's guide & PPP Book	Guarantee (through IIGF) and VGF	Land Funds or related laws
Philippines	Philippines Development Plan	BOT framework; impl rules/reg	PPP Center	PPP Manual & Sector Guidelines	Project development & monitoring facility	Strategic Fund for ROW acquisition
Malaysia	Privatization policy, 2009 PPP guideline	No specific PPP laws	3PU (UKAS)	PPP Guideline (2009)	Facilitation Fund for private initiatives	Federal/State can acquire private land
Thailand	General infra policies to develop PPP regime	Act for Private Investment in state undertaking	PPP Committee	No published PPP Guidelines	No developed regime	Govt responsible for land acquisition
Singapore	Some policies set out in PPP handbook.	No specific PPP laws	MOF has overall responsibility	PPP Handbook published by MOF	Refinancing guarantee on Sports Hub PPP (2010)	Compulsory acquisition is possible

PPP specific framework

Limited PPP framework

No PPP framework

# ...as well as restrictions on private and foreign investment

%

	United States <sup>1</sup>		United Kingdom		India		Indonesia		Vietnam		Thailand		Philippines	
Power	100	100	100	100	100	100	100	95	100	100	100	100	100	100 <sup>4</sup>
Airports	100	100	100	100	100	74	100	49	0	0	100	100	100	40
Ports	100	100	100	100	100	100	100	49	100	49	100	100	100	40
Roads	100	100	100	100	100	100	100	95	100	49	100	100	100	100
Railways	100	100	100	100	100	100 <sup>2</sup>	100	55	100	49	100	100	100	100 <sup>4</sup>
Telecom	100	100	100	100	100	74	100	49 <sup>3</sup>	49	49	100	100	100	40
Water	100	100	100	100	0	0	100	95	49	0	100	100	100	100 <sup>4</sup>
Irrigation	100	100	100	100	0	0	100	100	100	100	100	100	100	100 <sup>4</sup>

<sup>1</sup>No limitations. However, critical infrastructure projects are subject to congressional review.

<sup>2</sup>100% for building railway infrastructure; rail operations are run solely by government.

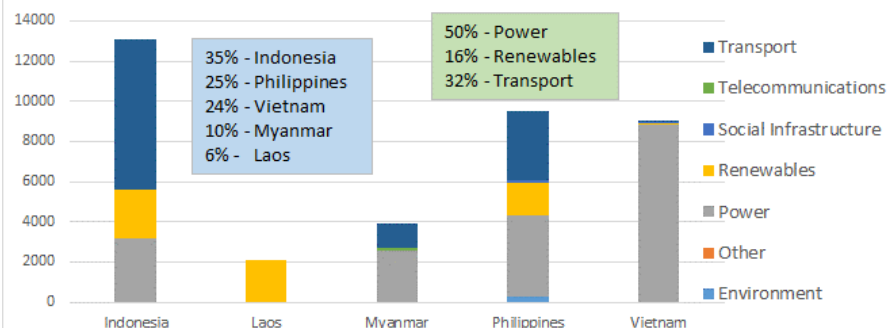
<sup>3</sup>49% applies to fixed-line infrastructure; limit for mobile infrastructure is 65%.

<sup>4</sup>100% for greenfield projects; 40% for brownfield projects.

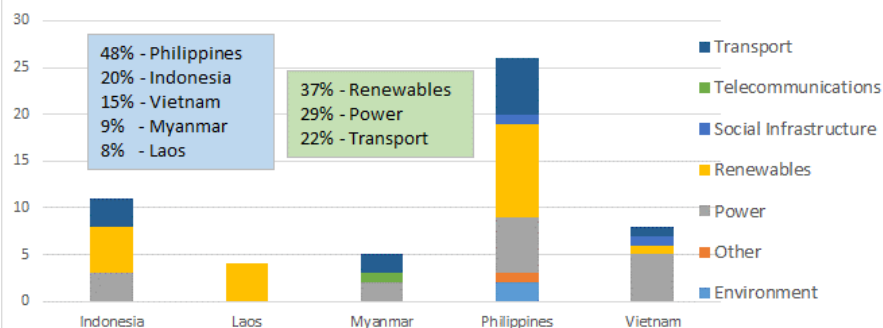
# Market Analysis (1/2)

## Transactions activity in South-East Asia in 2014/2015

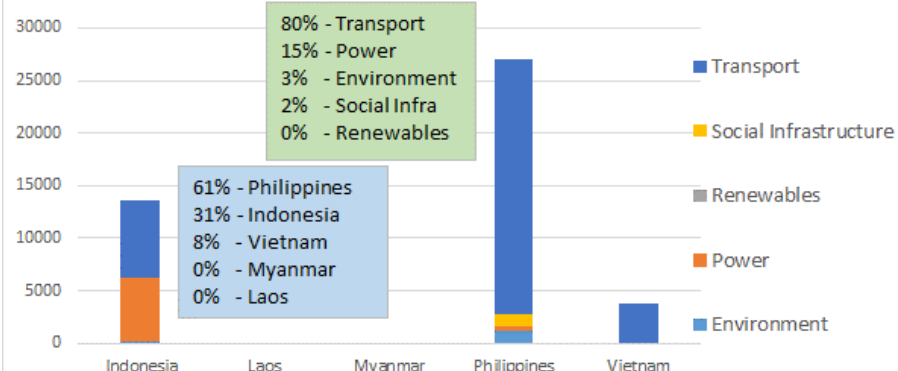
Projects closed in South East Asia by Value (\$M) in 2014/2015



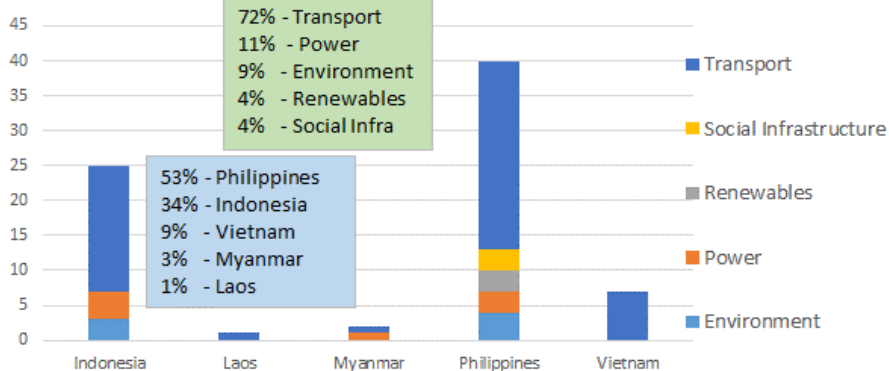
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Projects open in South East Asia by Value (\$M)



Projects open in South East Asia by Number

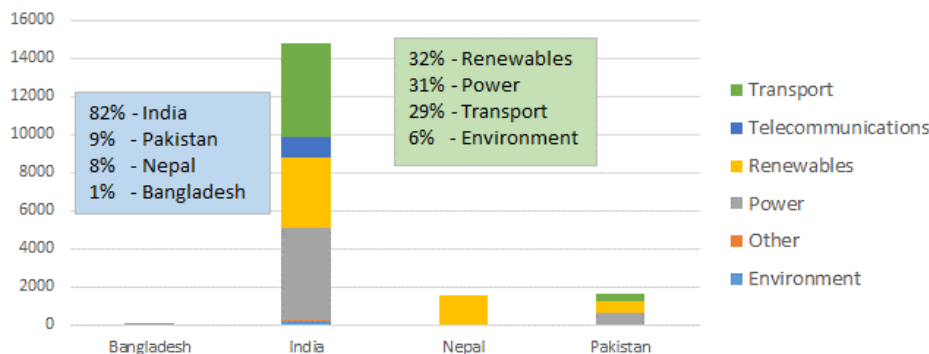


- Large number of small transactions in renewable energy
- Transport sector has large volume of transactions
- No transactions in Water & Sanitation

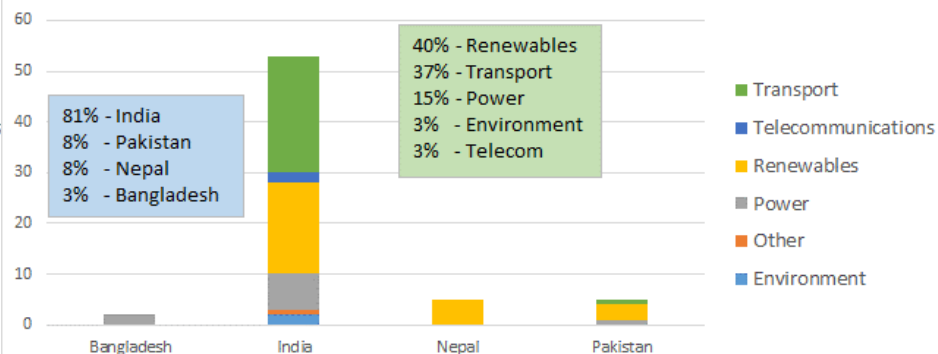
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## Transactions activity in South Asia in 2014/2015

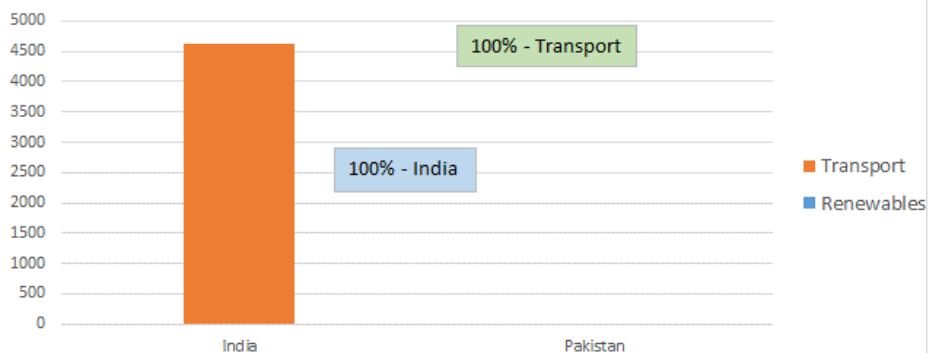
Projects closed in South Asia by Value (\$M) in 2014/2015



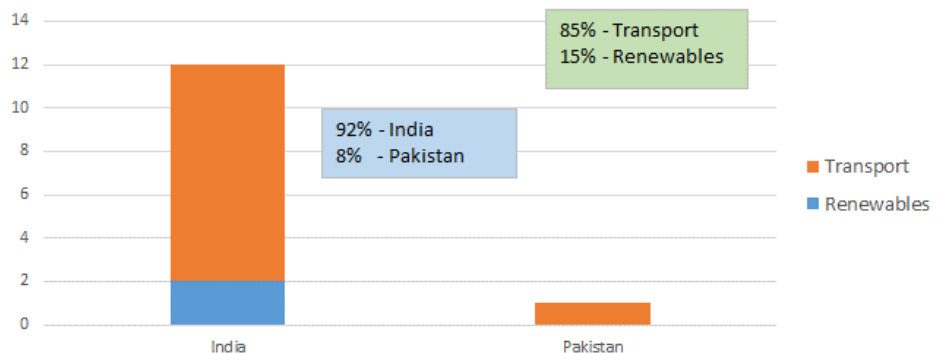
Projects closed in South Asia by Number in 2014/2015



Projects open in South Asia by Value (\$M)



Projects open in South Asia by Number



- India accounting for bulk of the transactions in South Asia
- Transport and power are the dominant sectors
- Renewable energy is increasing in proportion

# Conclusions

- PPP has proven value for money and service improvement characteristics
- A well structured and implemented Public Private Partnership model can be very successful and delivers benefits for:
  - Government
  - Customers
  - The environment
- PPP provides a vehicle for:
  - Efficiency, effectiveness and delivery, while retaining public ownership of the assets

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# Project Summary

- Okhla Waste to Energy (WTE) project is the first WTE facility in India converting 1/3<sup>rd</sup> of Delhi's waste into much-needed electricity serving 600,000 households
- First integrated waste management project ever set up in the country, aiming for a sustainable solution (Zero Waste Concept) taking Municipal Solid Waste (MSW) through an environmentally friendly process to generate clean, renewable energy
- 20.9 MW capacity project has a concession period of 25 years and is operational since 2012 processing ~1950 Tonnes per day of MSW
- Idea conceived in 2005 by Government of Delhi and Infrastructure Leasing & Finance Company (ILFS) to develop the project on a PPP model
- JITF Urban Infrastructure (part of Jindal Group, India's 4<sup>th</sup> largest conglomerate) won the bid to be the private sector developer from over 30 local and international bidders; awarded on the basis of lowest levelized power tariff as the financial bid parameter
- Project is registered with the United Nations Framework Convention on Climate Change (UNFCCC) under the Clean Development Mechanism (CDM) earning carbon credits

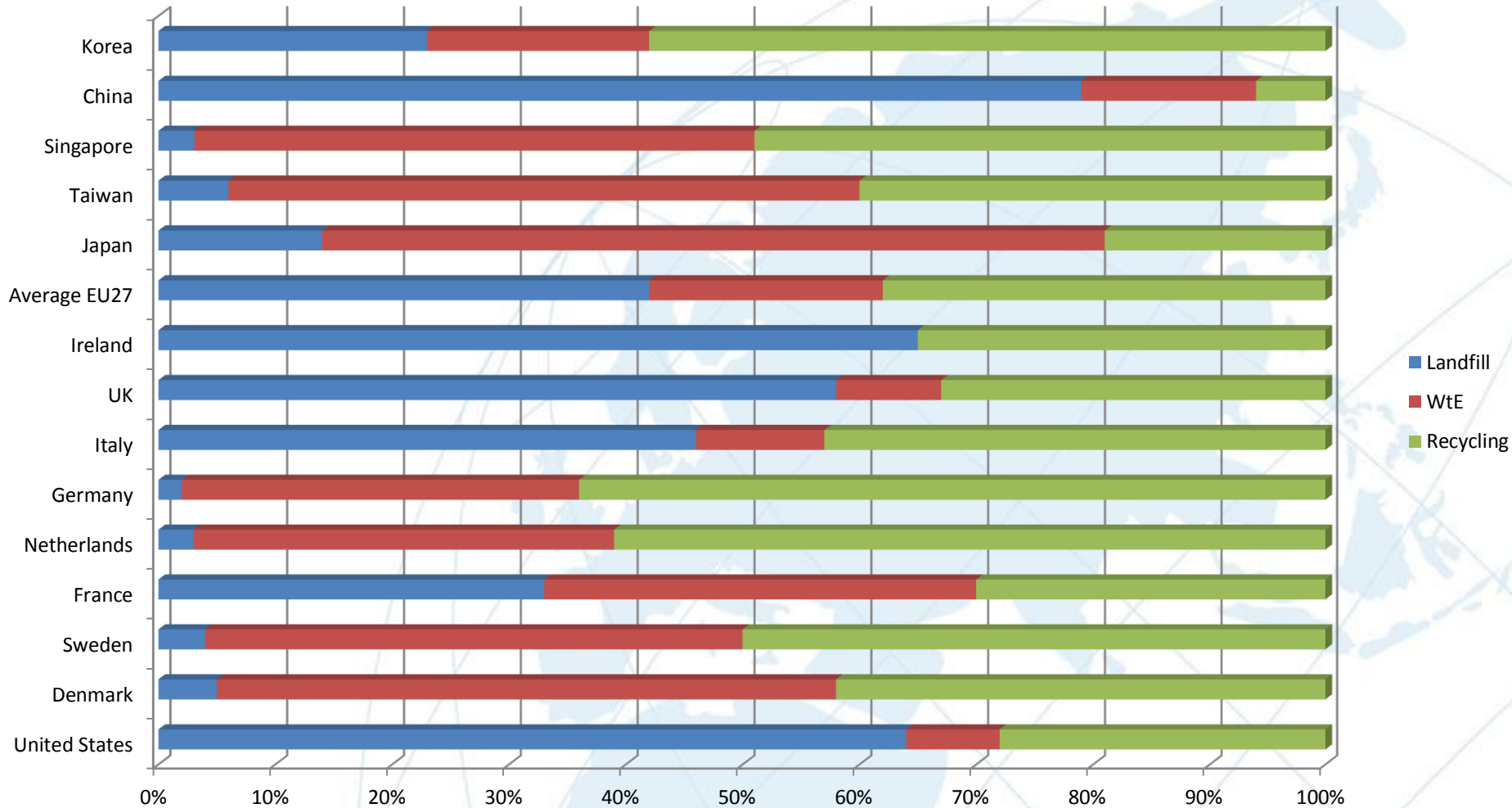
# In Operation



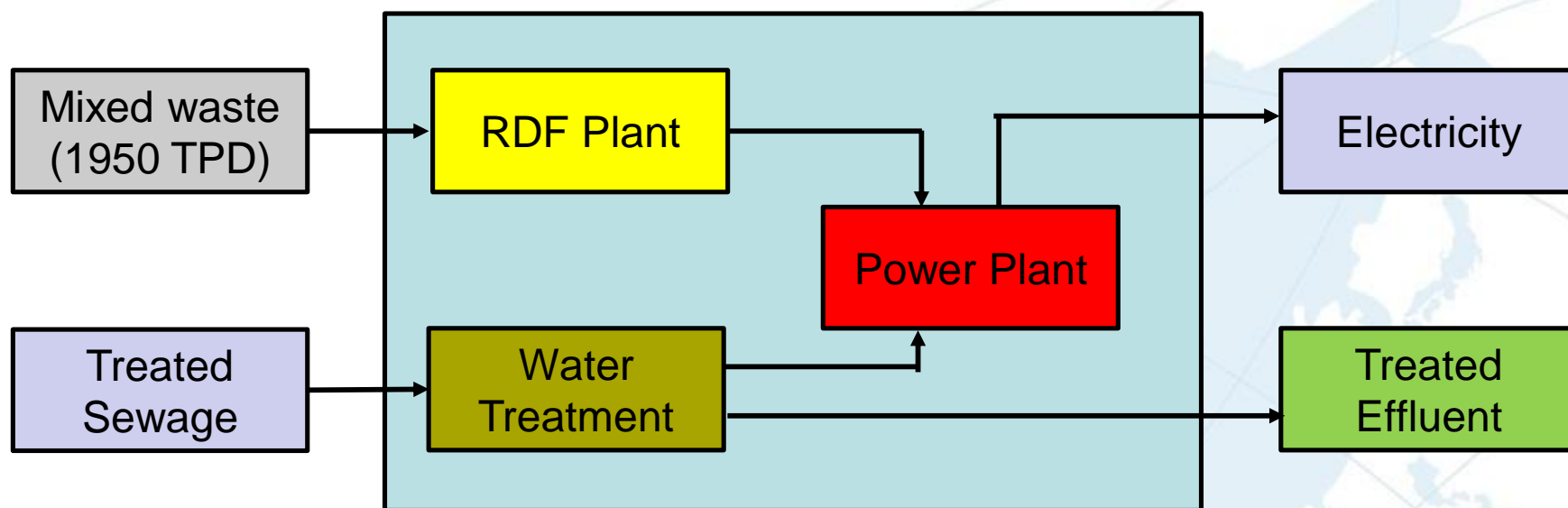
# Project Context – Local conditions

- **An untenable situation**
  - Delhi generates 9000 metric tonnes (MT) of MSW daily which is expected to increase to 18,000 MT by 2021
  - Majority of MSW disposed of in landfill sites that are at capacity
  - Open landfills generate methane which is 20+ times more potent than CO<sub>2</sub>
- **Addressing the situation**
  - Project has dual benefits
    - Reduces the amount of MSW being disposed in the landfill sites
    - Utilizes the waste for generating power
  - Identified project site in Okhla (outside Delhi) was earlier an 'Open Dump'

# Project Context – Use of WtE Globally

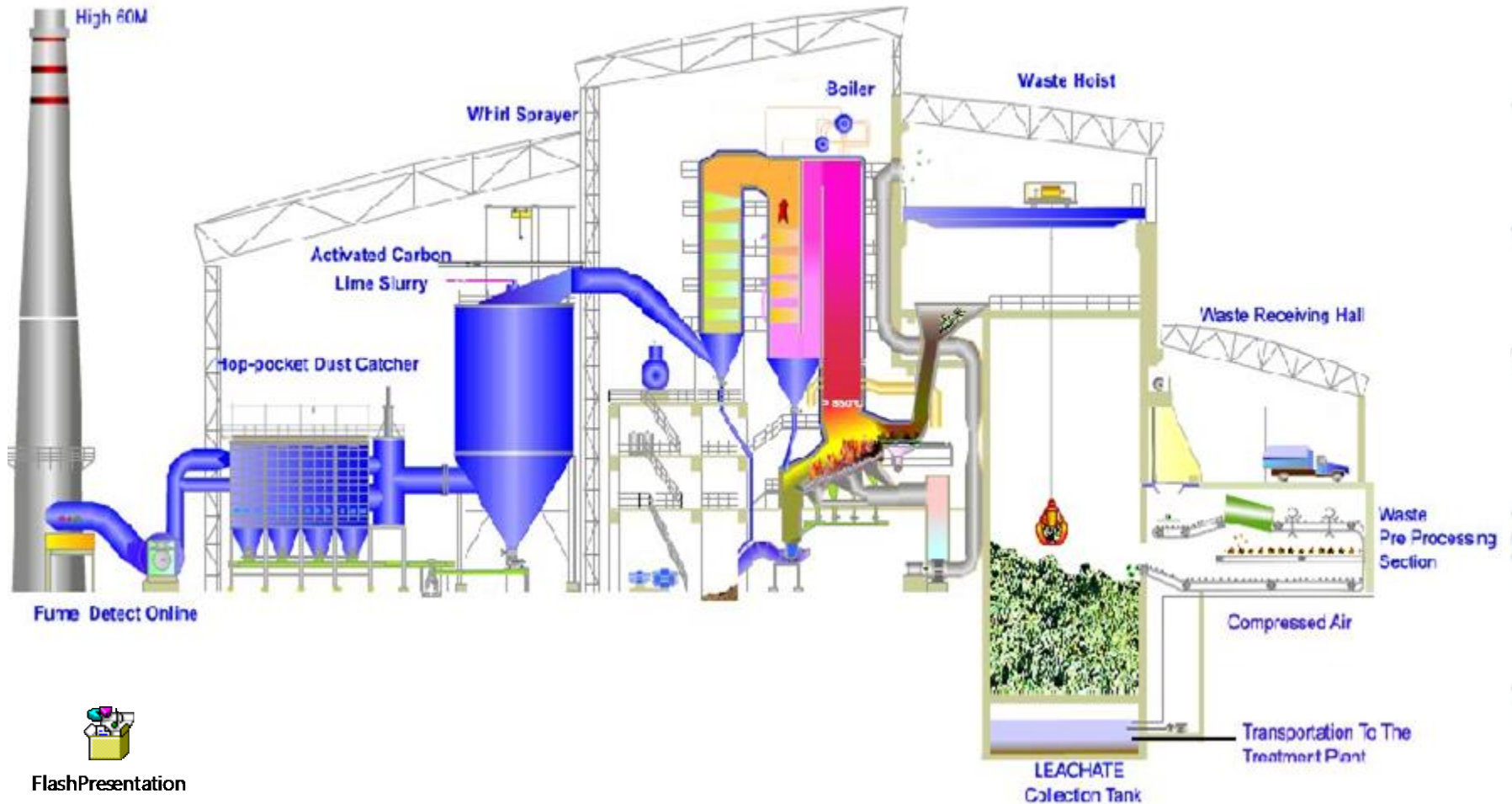


# Project Design



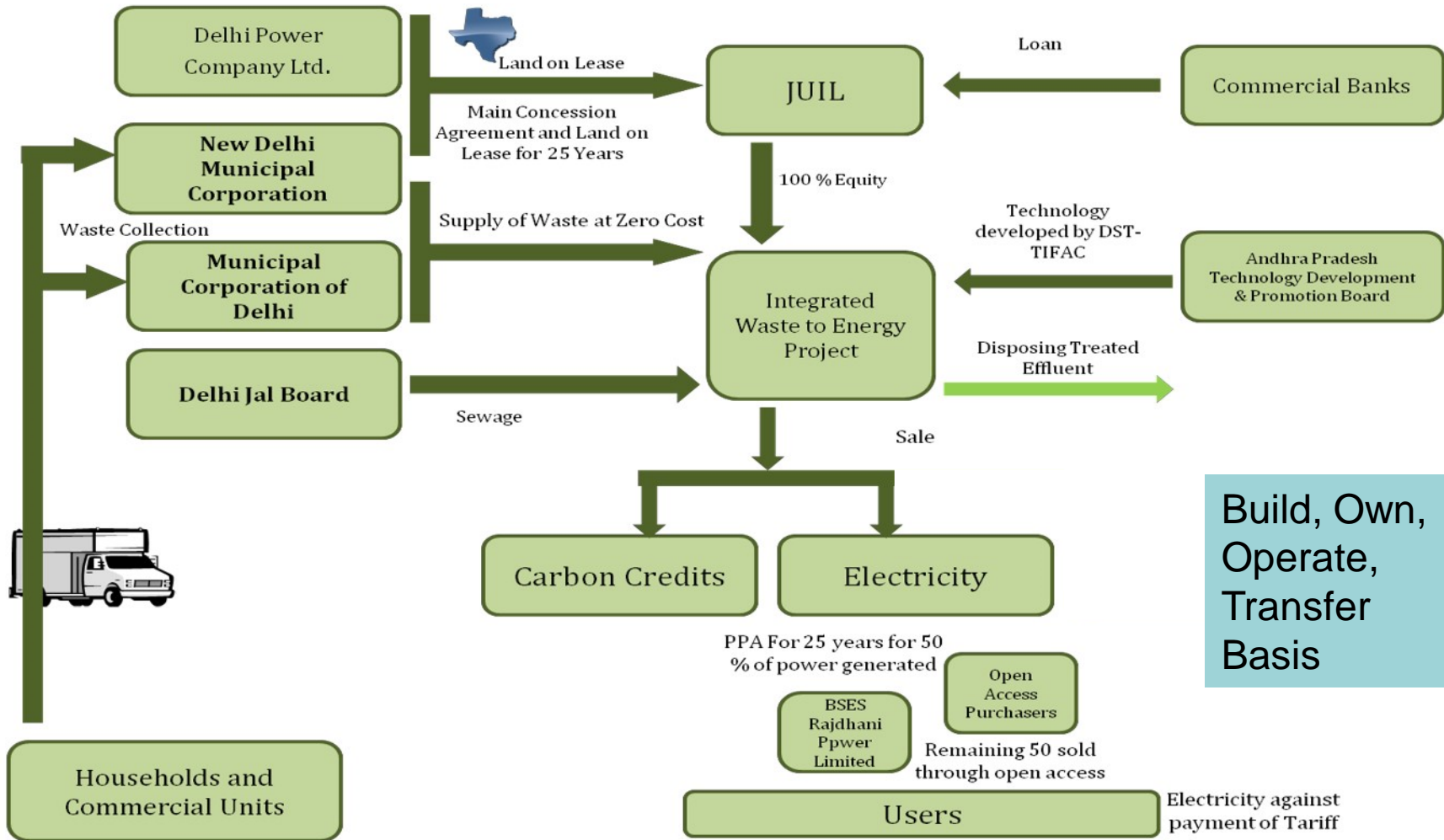
- Plant for converting MSW to Refuse Derived Fuel (RDF), capable of processing 1950 tons of waste per day
- A water recovery plant capable of handling up to 6 Million Litres per Day of treated sewage for recycling into process water and cooling water.
- A Power plant with a generation capacity of over 20 MW
- Earning 2.6 Million Certified Emission Reductions (CERs) over a 10-year period under the UNFCCC Clean Development Mechanism

# Snapshot - WTE Technology

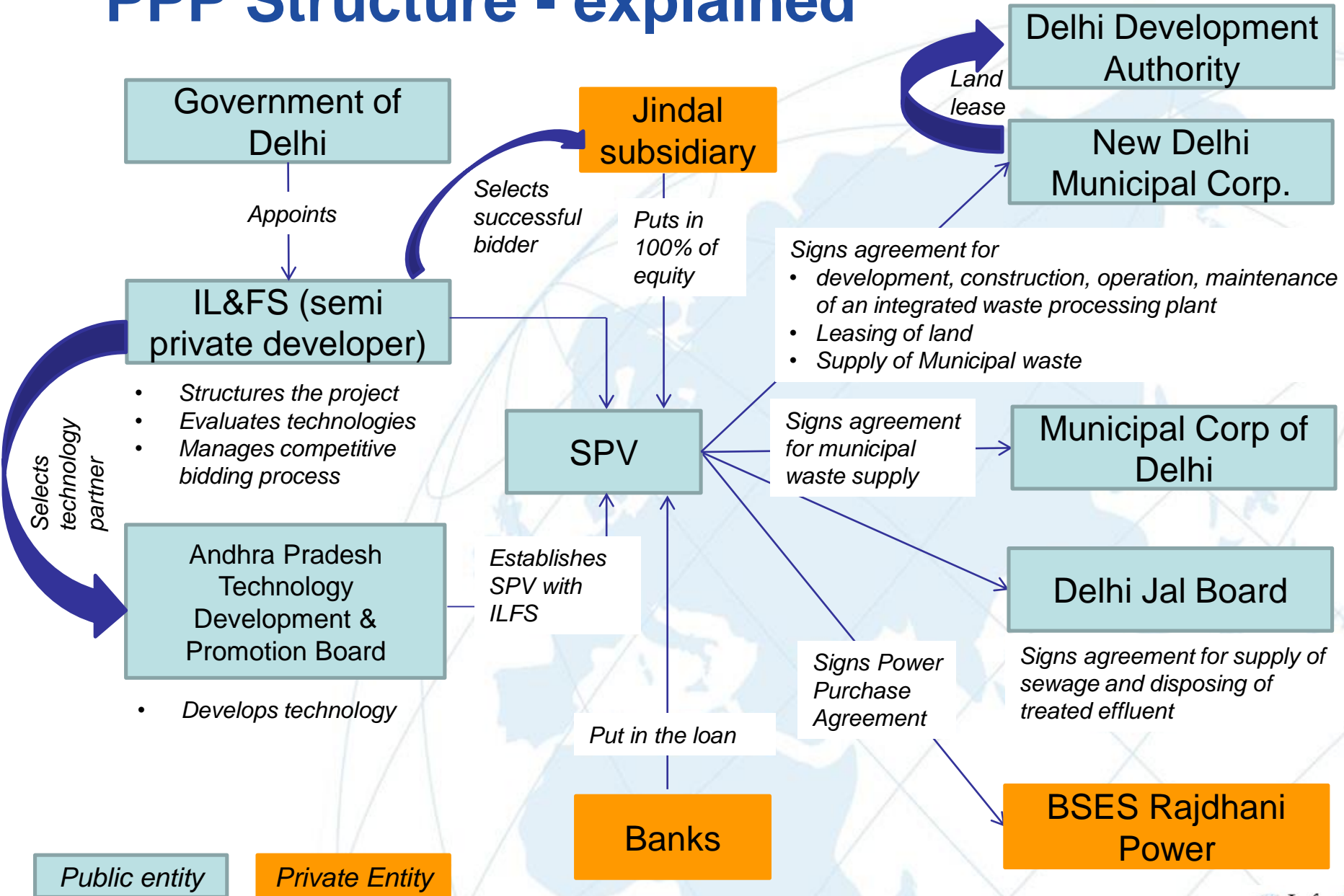


FlashPresentation

# Overall PPP Structure

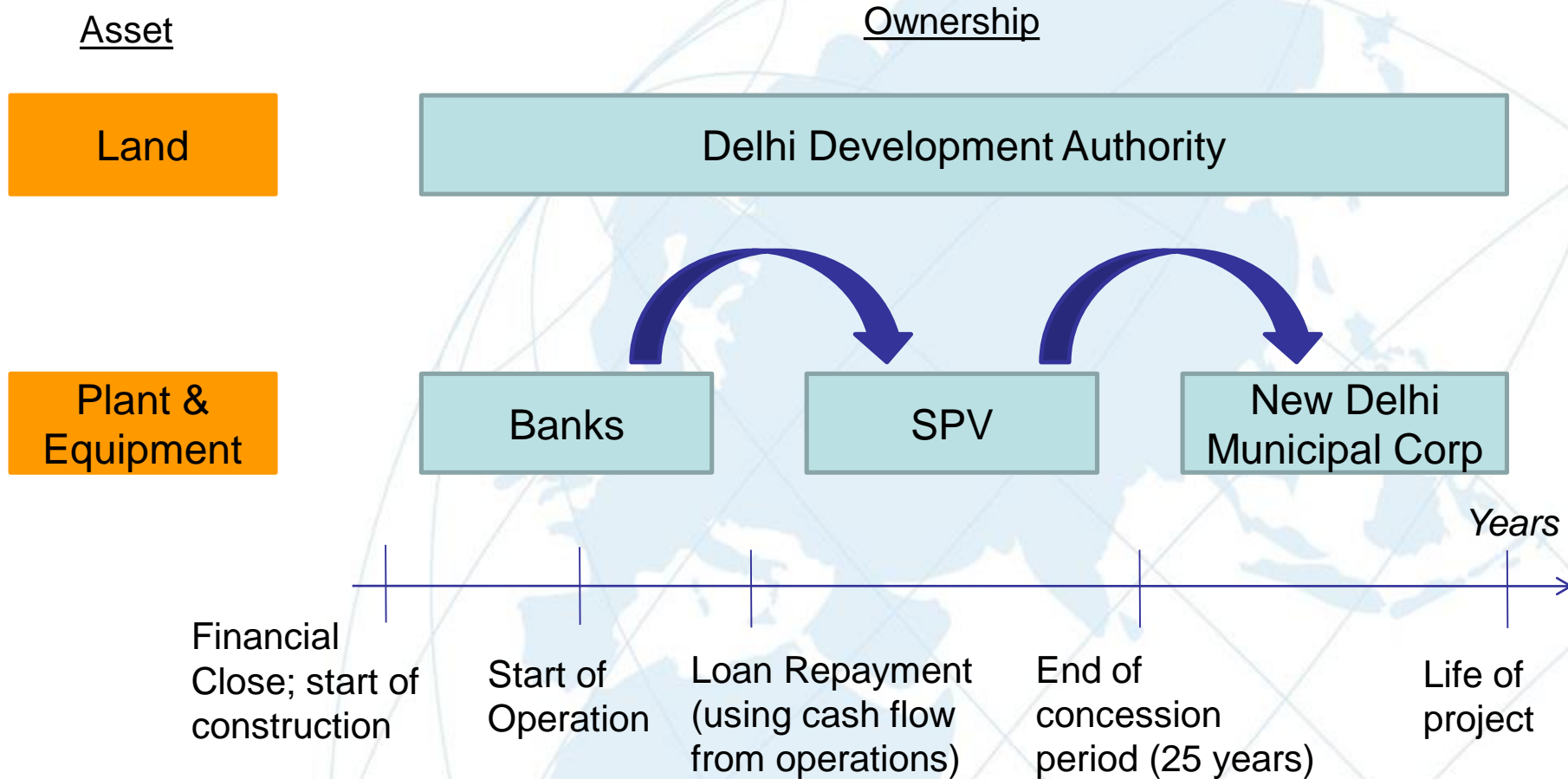


# PPP Structure - explained



# Asset Ownership

- Build, Own, Operate, Transfer (BOOT) Basis



# Financing Information

- Overall Financing Structure
  - 70:30 Debt to Equity Ratio
- Project Returns and Debt Servicing

Particulars	Value
Project IRR	16.5%
Average DSCR	1.96
Minimum DSCR	1.21

**Note:** The financial indicators mentioned above have been taken from the application for carbon credits to the UNFCCC. The financial indicators with Clean Development Mechanism (CDM) Support were calculated considering the sale of energy at INR 4.75 per kWh. However the final selected bidder quoted a levelised tariff of INR 2.83 per kWh with CDM

**Source:** Compendium of Case Studies; PPP Projects in India (World Bank & Government of India)

# Project Feasibility – Landfills vs WTE



- 100-year anaerobic decomposition process
- Leachate and landfill gas issues AND
- long-term environmental liability
- Generation of methane gases, 20 x more poisonous than CO<sub>2</sub>.



- Unique feature of technology used in Okhla
  - integrating the solid waste with liquid waste under an integrated municipal waste-processing complex
- Benefits
  - cost optimization
  - commercially viable project
  - Use of wastewater
  - Less need for landfill
  - Prevents methane emission.



# Risk Allocation Framework

Risk Type	Sensitivity	Risk Period	Primary Risk Bearer
Delays in land acquisition	High	First year	Government
Delays in linkages	High	Throughout	Government
Regulatory, administrative delays	Low	Pre-Project Period	SPV
<b>Construction Risk</b>	Moderate	0-2 years	SPV
<b>Change in Scale Risk</b>	Low	Throughout	SPV
<b>Market Risk</b>	Low	Throughout	SPV
<b>Operations risk</b>			
Repairs of weigh bridge	Moderate	Throughout	SPV
Determination of rejected waste	Moderate	Throughout	SPV
Supply of minimum quantity of waste	Moderate	Throughout	NDMC
Provision of landfill site for the disposal of residual / rejected waste	High	Throughout	NDMC
<b>Financial Risk</b>			
Revenue streams	High	Throughout	SPV
Financing the project	High	0-5 years	Government
Force Majeure	High	Throughout	SPV
Change in Law	High	Throughout	SPV
Transfer and Hand back of project facilities	Medium	On completion or Termination of contract	SPV

# Benefits of Private Sector Participation

- Prior efforts of the government to do this on their own were not successful due to
  - Use of inappropriate technology: due to the low calorific value of waste and the inability of MCD to segregate the waste at source
  - Project structure was not commercially viable
- The contracts with the private entity have the appropriate incentives and penalties
  - Municipal Corporation of Delhi will be accountable through a bidding contract with the / SPV for supplying waste, since there are penalties against the non-supply of the same.
  - the private entity will try to increase the operational efficiencies in order to maximise its profits.
  - private party will deploy specialised staff trained or having experience of this sector which will also add to the efficiency gains.

# Key learnings for other PPPs

- **Project preparation** was a key driver of success for this project
  - Significant steps were taken prior to the launch of the bid process
    - Detailed technical studies and reviews
    - Financial evaluation
    - Risk evaluation
    - Obtaining regulatory as well as statutory approvals was undertaken at the project preparation stage itself.
  - Even the SPV to implement the project was also incorporated prior to the launch of the bid.
- **Learning**
  - Good project preparation leads to project attractiveness and faster financial closure.
  - Clarity on the contractual and regulatory framework reduces the extent of uncertainty faced by the private investors.

# Other contributing factors

Factor	Observations	Learning
Government Support	Project had the support and the backing of the Chief Minister of Delhi. Despite this, it took three years to bid out the project.	Single clearance window instead of requiring No Objection Certificates from various government departments
Convenience	SPV had to manage all the steps in the process: clearances from government departments, appraise different departments about progress and seek financial close.	Single clearance window and creation of a government entity to take care of such formalities. This allows private entity to focus on the core development issues rather than being entangled in administrative processes.
Technology	The technology was experimented at two different locations beforehand	Comparative study recommended for cost/benefit analysis of various technologies
Consumer Education	Concerns about pollution and jobs for rag pickers	Public hearings were organized to address these concerns. Buy-in of community is extremely important to avoid unexpected delays and costs.
Public perception and NGOs	A few groups were of the opinion that the WTE Facility would make landfill pickers redundant	Creating public, environmental, health and safety awareness compared with the danger of working at landfills. Identifying potential health impacts of inhaling methane (20x more toxic than CO <sub>2</sub> ), exposure to leachate (waste water) and danger of landslides. The solution here was to employ rag pickers at the pre-processing/sorting lines to separate recyclables from other waste streams in a climate controlled environment and with proper safety equipment.

# Agenda

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Introduction

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PPP Overview

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Case Study 1: Okhla Waste to Energy Project, India

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Case Study 2: Coc San Hydro Project, Vietnam

# Case Study Contents

- 1 Introduction
- 2 Vietnam Market
- 3 Project Overview

# Project Summary

- In partnership with Colben and 2 local sponsors (VIDIFI and HVD), InfraCo Asia (IAD) developed the 29.7 MW Coc san Hydro Power Project (“Coc San”), in Lao Cai Province, Vietnam
- InfraCo Asia Development (“IAD”) through its subsidiary Viet Hydro Pte Ltd (“VietHydro”) owns equity stake in the Lao Cai Renewable Energy (Vietnam) JSC (“LCRE”) which was established to develop the Coc San project
- LCRE has achieved Financial Close on 2nd Dec 2014 and construction works have been restarted on 20 Dec 2013 and are ongoing.
- COD is expected in 1st quarter of 2016

# Construction phase



# Value addition by InfraCo Asia

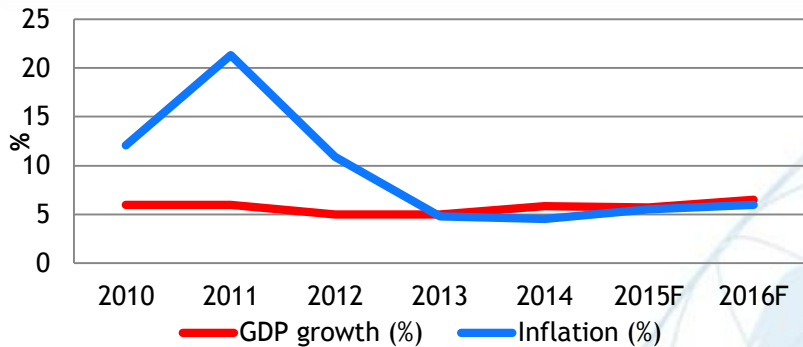
- Resuscitated distressed project that had begun construction but could not secure financing
  - May 2013: ESIA, in compliance with World Bank and IFC Standards, completed by reputable international consultants ERM on June 2013
  - June 2013: Successfully restructured EPC contractual structure to make it more bankable and transparent; Novation and Restatement Construction Agreements signed on June 2013
  - July 2013: Subscribed to shares for US\$ 4 Mn on 4th July 2013 and InfraCo Asia is now a majority shareholder
  - Nov 2013: US\$ 5 Mn commitment of grant funding obtained from PIDG Technical Assistance Facility (TAF)
  - Nov 2013: Signed power purchase agreement with NPC in November 2013
  - Dec 2013: LCRE obtained land use right certificate and signed the land lease agreement for the 110 kV transmission lines areas in July 2013
  - Dec 2013: Signed loan agreement and mortgage agreements with SHB Hanoi in December 2013.
  - Dec 2013: Construction restarted on 20th December 2013. The Project will be completed within 2 years.
  - Dec 2014: Achieved Financial Close
- Addressed potential regulatory issue that would have frozen tariffs and reduced IRR
  - Aligned key PIDG stakeholders to provide a united front against this proposed amendment.
  - Called on in-country resources of DFAT and SECO in Hanoi to work with partner Government stakeholders to raise awareness of the adverse impact of the proposed tariff change.
  - Co-ordinated a consultation process through which the Ministry of Industry and Trade withdrew this amendment

# Case Study Contents

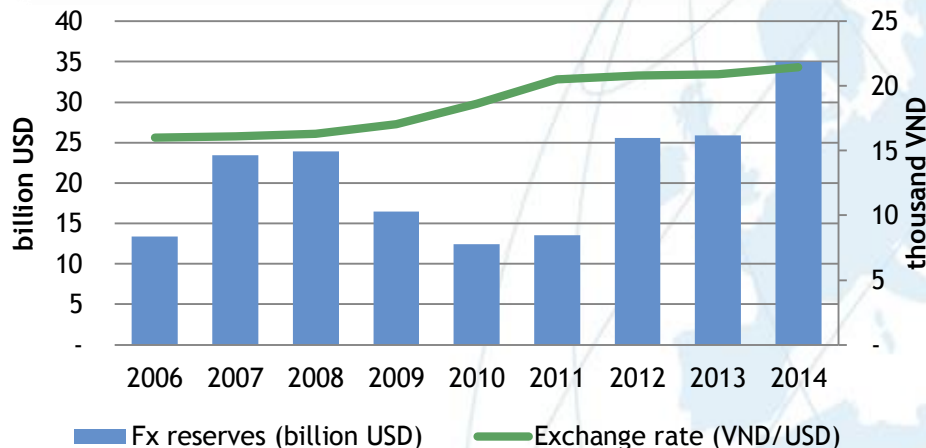
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# Vietnam: Economic Overview

### GDP Growth Rate and Inflation Rate



### Fx Reserve and Exchange Rate

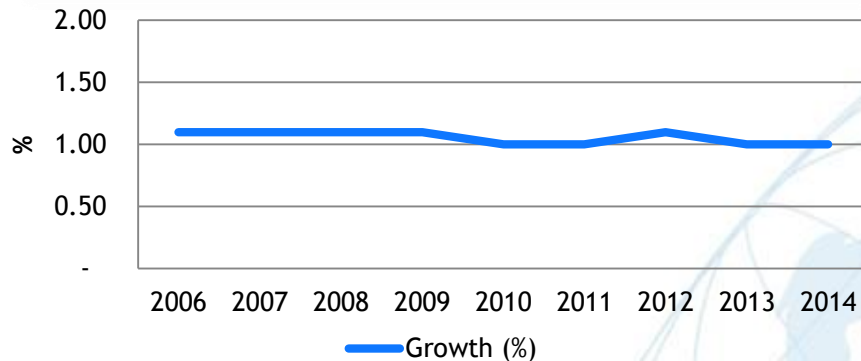


- The Socio-Economic Development Strategy (SEDS) 2011-2020 gives attention to structural reforms, environmental sustainability, social equity, and emerging issues of macroeconomic stability.
- The growth of 5.8% in Viet Nam's GDP in 2014 was a notable increase over the corresponding period of the 2 previous years
- To spur the economy, the central bank lowered interest rates and more recently the government directed financial institutions to step up efforts to meet the target for credit expansion.
- Inflation ebbed to 4.5% in 2014, the lowest since 2003. That was a result of lacklustre domestic demand, ample food supplies, and relatively steady global fuel prices.

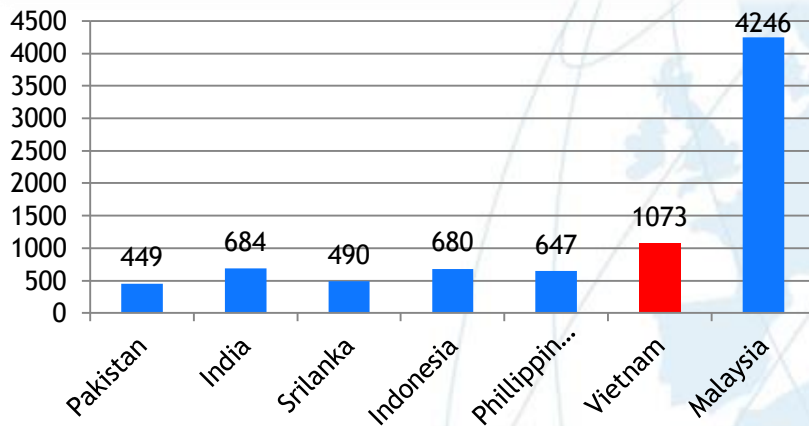
Source: World Bank Data, State Bank of Vietnam, 2013

# Vietnam : Electricity Market Overview (1/3)

### Population growth



### Per Capita electricity consumption in kWh

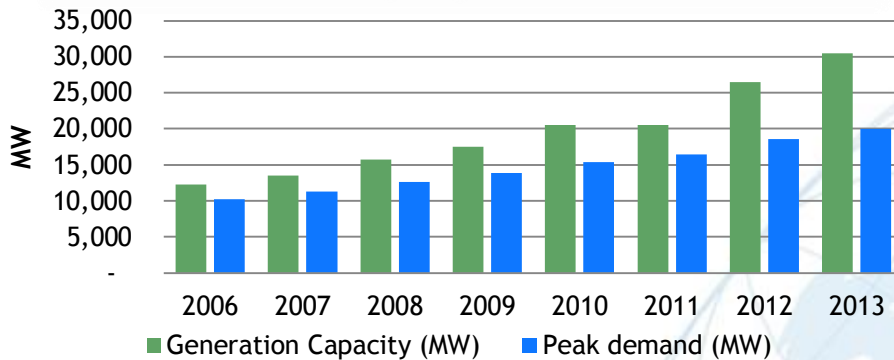


Source: World Bank Data, 2013

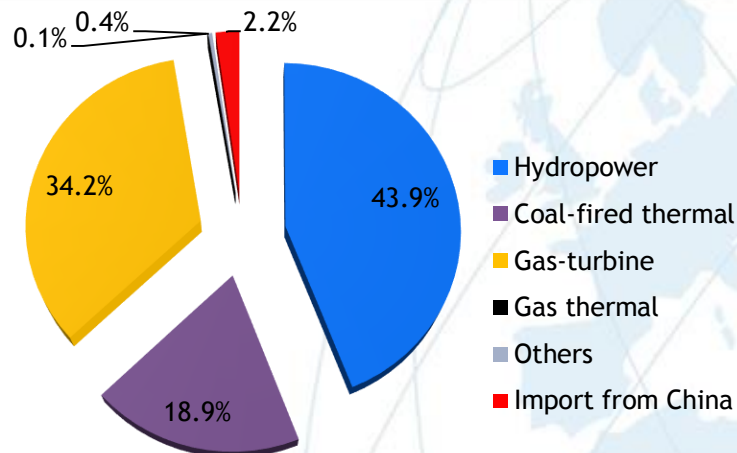
- Over the last decade, the rapid growth and expansion of Vietnam's economy has dramatically increased the demand for electricity in the country. Faced with this challenge, Vietnam's power industry has struggled to expand and improve the country's power system
- Vietnam's per capita electricity consumption is high in comparison to similar countries while Vietnam's population growth is stable
- High electricity consumption has increased quality of life and also boosted economic growth
- Government has identified power sector as key focus area and has taken number of initiatives for its improvement

# Vietnam : Electricity Market Overview (2/3)

### Generation Capacity and Peak Demand



### Generation Capacity Structure 2013

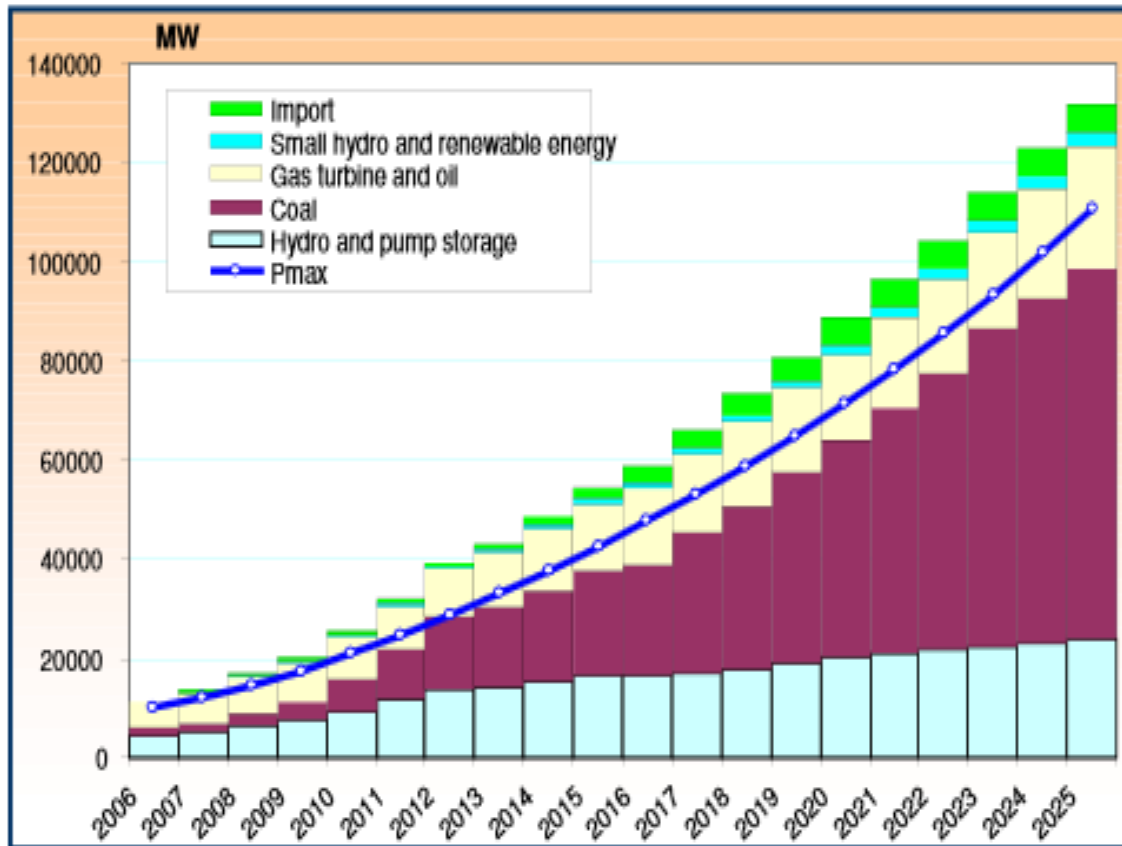


Source: ERAV, 2014

- Electricity demand and supply in Vietnam - With the rapid growth and expansion of the Vietnamese economy over the last decade, power demand has been increasing dramatically.
- In order to meet this rapidly growing demand, Vietnam's power industry has struggled to expand and improve the power system by developing its resources, enhancing transmission lines that connect the country's three regions (north, central, and south), and reducing transmission and distribution (T&D) losses
- Hydropower accounts for a large portion of electricity production.
- It is estimated that by 2020, the total capacity of hydropower plants shall reach around 13,000-15,000 MW.

# Vietnam : Electricity Market Overview (3/3)

## Power Development Plan (Master Plan 6)



Source: ERAV, 2010

- Diversification in power sector investments, allowing participation of all economic sectors.
- Creation of power market, step by step development of competitive generation, wholesale competitive, and retail competitive markets
- Total capacity/Peak Demand:
  - 2010 : 21,400 / 16,000 (MW).
  - 2015 : 55,500 / 29,500 (MW).
  - 2020 : 107,300 / 54,400 (MW).
- Additional generation:
  - 40,000 MW in 2009-2015;
  - 52,000 MW in 2016- 2020

# Case Study Contents

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# Lao Cai Renewable Energy (Vietnam) JSC (LCRE)

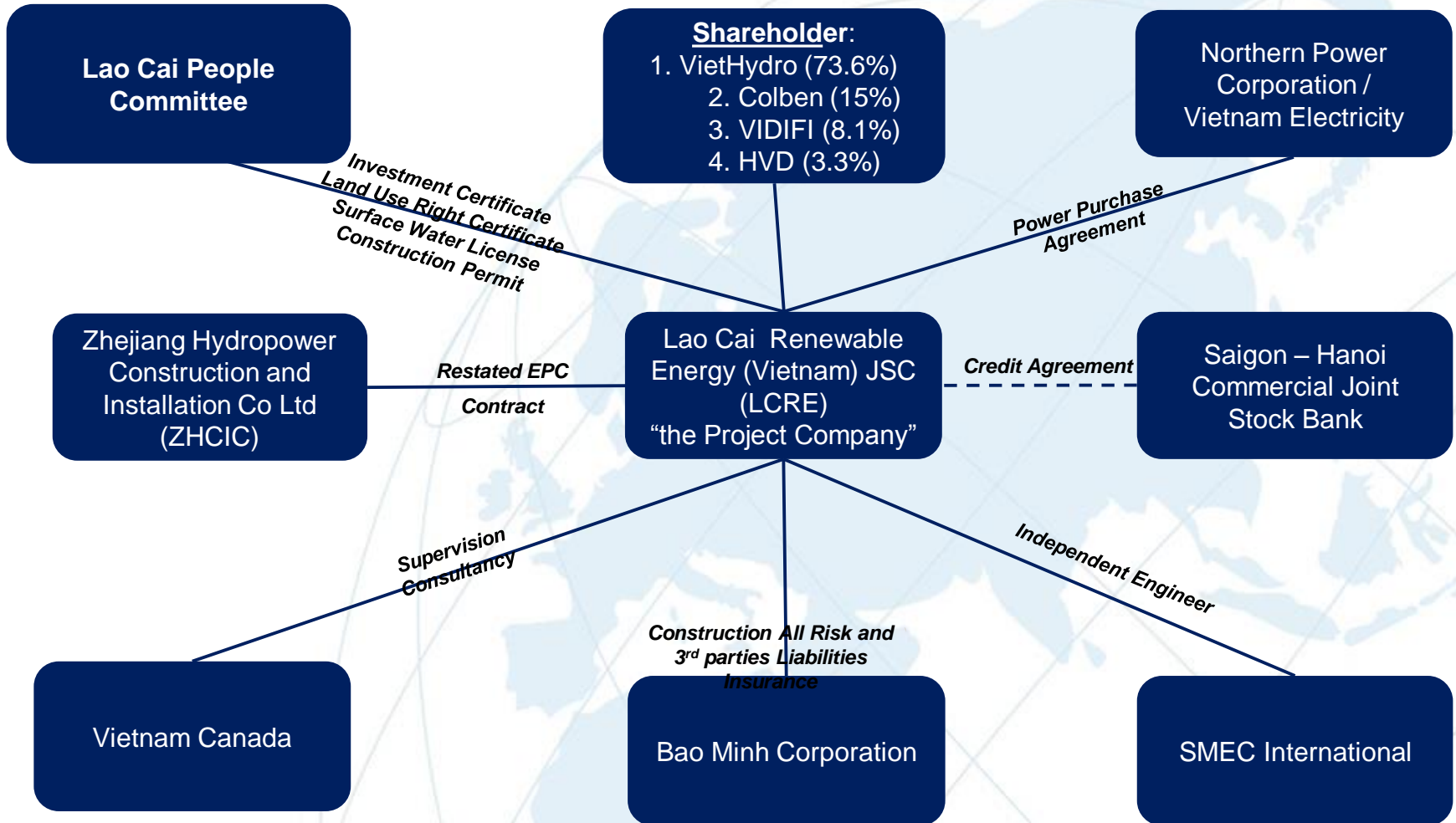
## Location



## Overview

- Located in Lao Cai province of Vietnam
  - Project dam site and power house are located next to the Highway 4D
- Capacity: 29.7 MW
- Land Area: ~ 51ha (Acquired)
- Avoided Cost Tariff applicable for small hydro power project (below 30MW)
- 20 year standard PPA with Northern Power Corporation
- EPC Turn Key Lump Sum Contract, 24 months construction period from Notice To Proceed
- Project Cost of ~US\$50 million
- Achieved Financial Close

# Project's Contractual Framework



O&M Arrangements

# Key Milestones Achieved

## Milestones

- Signed IAI Loan Agreement to secure balance equity of ~US\$ 10 Mn
- Satisfaction of CPs under the VGF agreement within November 2014
- Satisfaction of CPs under the financing agreements within November 2014
- Drawdown – 2nd December 2014

## Financial Close – 2<sup>nd</sup> December 2014

### Equity Funding

- US\$ 10 Mn injected during construction – IAI funds
- US\$ 5 Mn – VGF funding to go in as IAD equity during loan drawdown

### 4. Drawdown from lender

- Fulfilment of CPs and First drawdown in 2<sup>nd</sup> Dec 2014

### 3. PIDG VGF drawdown

- Fulfilment of CPs and First drawdown in Nov 2014

### 2. Balance equity from IAI

- Signed IAI Loan Agreement for ~US\$10 Mn remaining equity, securing equity CP to FC

### 1. Development Budget

- Injected development budget from IAD for funding expenses up to hard financial close

### Credit Agreement

- VND loan equivalent to US\$ 23 Mn from Saigon Hanoi Commercial Bank
- CP to drawdown – availability of VGF funds
- CP to drawdown – availability of equity

# Project's developmental impact

- **Enhancing grid security and reliability:** The project will strengthen the electricity grid in the region providing the basis for secure power for planned mining, industrial expansion in the province. Current electricity imports from China result in supply unreliability due to transmission issues.
- **Bridging unmet electricity demand:** Project will provide ~115-135 GWh of clean energy per annum, and has the potential to benefit over 200,000 consumers.
- **Reducing cost of electricity:** Cost of electricity from hydropower plant will be substantially cheaper, approx. 5 cents per kWh, in comparison to the electricity generated from fossil fuel and/or purchased from China. The project allows a reduction in electricity import costs.
- **Reducing pollution:** The Project will generate electricity from a clean source and is expected to reduce carbon emissions by about 78,000 tons per annum.
- **Promoting local economic activity:** The project will provide employment to approx. 300 people during construction and approx. 35 people during operation. The project is seen by the government as an important part of the strategy to promote non-agricultural economic development in the province.
- **Providing a model for international project financing:** The project achieved financial close having local institutions providing debt financing for the project. This establishes a model for other local private sector developers with similar projects who are struggling to reach financial close.
- **Outreach to the local communes:** Project envisages a multi-pronged pro-poor strategy and is committed to improve the livelihood and reduce the prevalence of poverty. Also, working with the local authorities to implement larger-scale projects in the affected communes by providing funding or technical expertise

# Financial Overview of Coc San Hydro Project

## Lenders to the Project

- Local Lender:
  - Saigon Hanoi Commercial Joint Stock Bank

## Highlights

- Total Project Cost: ~USD 49.9 million
- Debt-Equity Ratio: 47:53
- Total Loan amount: VND debt equivalent of US\$23 million (Based on exchange rate at the time of disbursement)
- Tenor: No more than 12 years from first drawdown, inclusive of:
  - 2 years grace period from 1st drawdown
  - 10 years of repayment post-COD
- 100% of SHB loan eligible for refinancing under the World Bank's green energy fund (REDP) – Portion of it already re-financed
- Repayment: 10 years of repayment post-COD
- Mortgage: Charge on Project assets
- Viet Hydro Share transfer restriction: Sale of shares in the Project Company by Viet Hydro subject to share sale restrictions

# Thank you

For further information please visit:

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