

Infrastructure Development in India

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Roads

- India has one of the largest road networks in the world, aggregating to 3.34 million km.
- The country's road network consists of Expressways, National Highways, State Highways, Major District Roads, Other District Roads and Village Roads.
- The road network, as on December 2007, comprises 66,590 km of National Highways, 128,000 km of State Highways, 470,000 km of Major District Roads and about 2.65 million km of other District and Rural Roads.
- National Highways comprise only about 2 percent of the total length of roads and carry about 40 percent of the total traffic across the length and breadth of the country.

- The National Highways Development Project (NHDP), the largest highway project ever undertaken by the country, is being implemented by the National Highway Authority of India (NHAI).
- NHDP Phase I & II envisage 4/6 laning of about 14,279 km of National Highways, at a total estimated cost of Rs.650 million (at 2004 prices).
- These two phases comprise of Golden Quadrilateral (GQ), North-South and East-West Corridors, Port Connectivity and other projects.

Ports

- India's coastline of 7,517 km. is added with 13 major ports and 187 non-major ports.
- Of the non-major ports, around 60 are handling traffic.
- The total traffic carried by both the major and minor ports during 2005-06 was estimated at around 570 million tonnes.
- The 12 major ports carry about 3/4th of the total traffic,
- The annual aggregate cargo handling capacity of major ports increased from 397.5 million tonnes per annum (MTPA) in 2004-05 to 456.20 MTPA in 2005-06, with the average turnaround time increasing marginally from 3.4 days to 3.5 days in 2005-06.

Airports

- 11 international airports 114 domestic airports
- 20% annual growth
- Passenger traffic crossed 100 million passengers p.a.
- Cargo traffic to grow at over 20% p.a. over the next five years
 - Inbound traffic also on rise due to trade and investment
- Maintenance, Repair and Overhaul (MRO) growing in a big way

Railways

- India has one of the largest railway networks in the world (63,000 route KMs network)
- Accounts for 30% of total freight traffic
- Traffic volumes set to double by 2012
- The high-density network connecting the four metropolitan cities of Chennai, Delhi, Kolkata and Mumbai, including its diagonals, popularly called the Golden Quadrilateral has got saturated at most of the locations.
- Potential for rolling stock, locomotives, passenger coaches, track equipment, signaling equipment

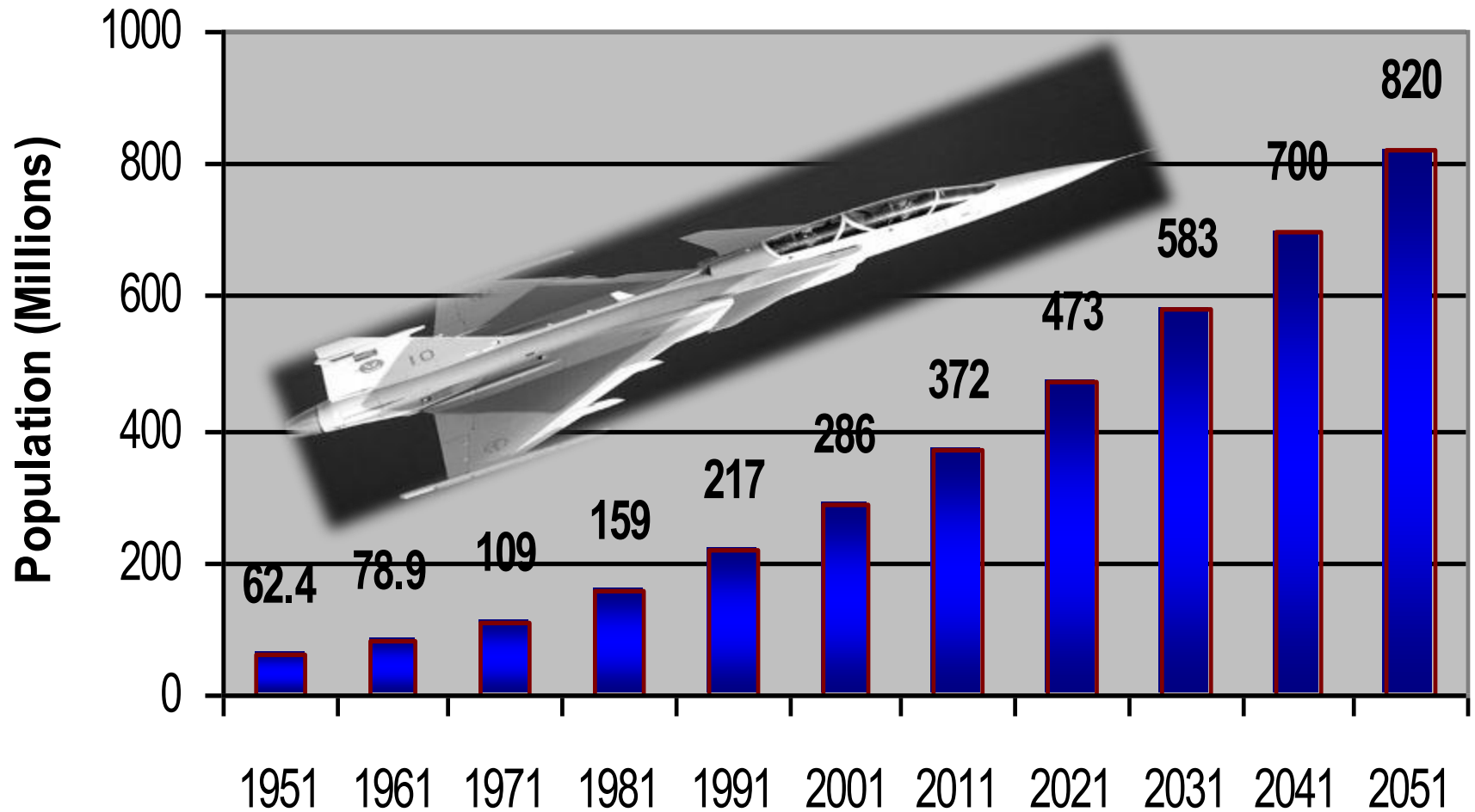
Power

- Since independence, generating capacity has increased from 1362 to over 100,000 MW
- However there are widespread shortages of power in almost all parts of the country.
- Inadequate inter-regional transmission links;
- Inadequate and ageing sub-transmission & distribution network leading to power cuts and local failures/faults;
- Large scale theft and skewed tariff structure;
- Slow pace of rural electrification;
- Inefficient use of electricity by the end consumer.

Status of Urban Infrastructure

- The growth of population has put urban infrastructure and services under severe strain.
- Smaller cities have found it particularly difficult to cope with the increasing demands on services because of inadequate financial resources.
- Urban areas in India, present a grim picture with regard to availability of basic infrastructure.

India: Projected Urban Population



Urban Infrastructure - Statistics

- About 21 per cent of the urban population is living in squatter settlements, where access to basic services is extremely poor.
- Although 89 per cent of the urban population is reported to have access to safe drinking water but there are severe deficiencies with regard to equitable distribution of water.
- Recent data suggest that water supply is available for 2.9 hours per day across cities and towns.
- The non-revenue water that includes physical and revenue losses account for 40-60 percent of total water supply.

- About 30 to 50 percent households do not have sewerage connections and Less than 30 percent of total waste water is treated.
- Solid waste systems are severally stressed. Average per capita generation of waste is estimated at 0.4 kg per capita per day in cities ranging from 1 lakh to 50 lakh population and the garbage collection efficiency ranges between 50 to 90 per cent of the solid waste generated.
- City roads are inadequate for traffic requirements, leading to congestion and fast deterioration in quality of roads due to excess loads.
- The state of services reflects the deterioration in the quality of city environments.

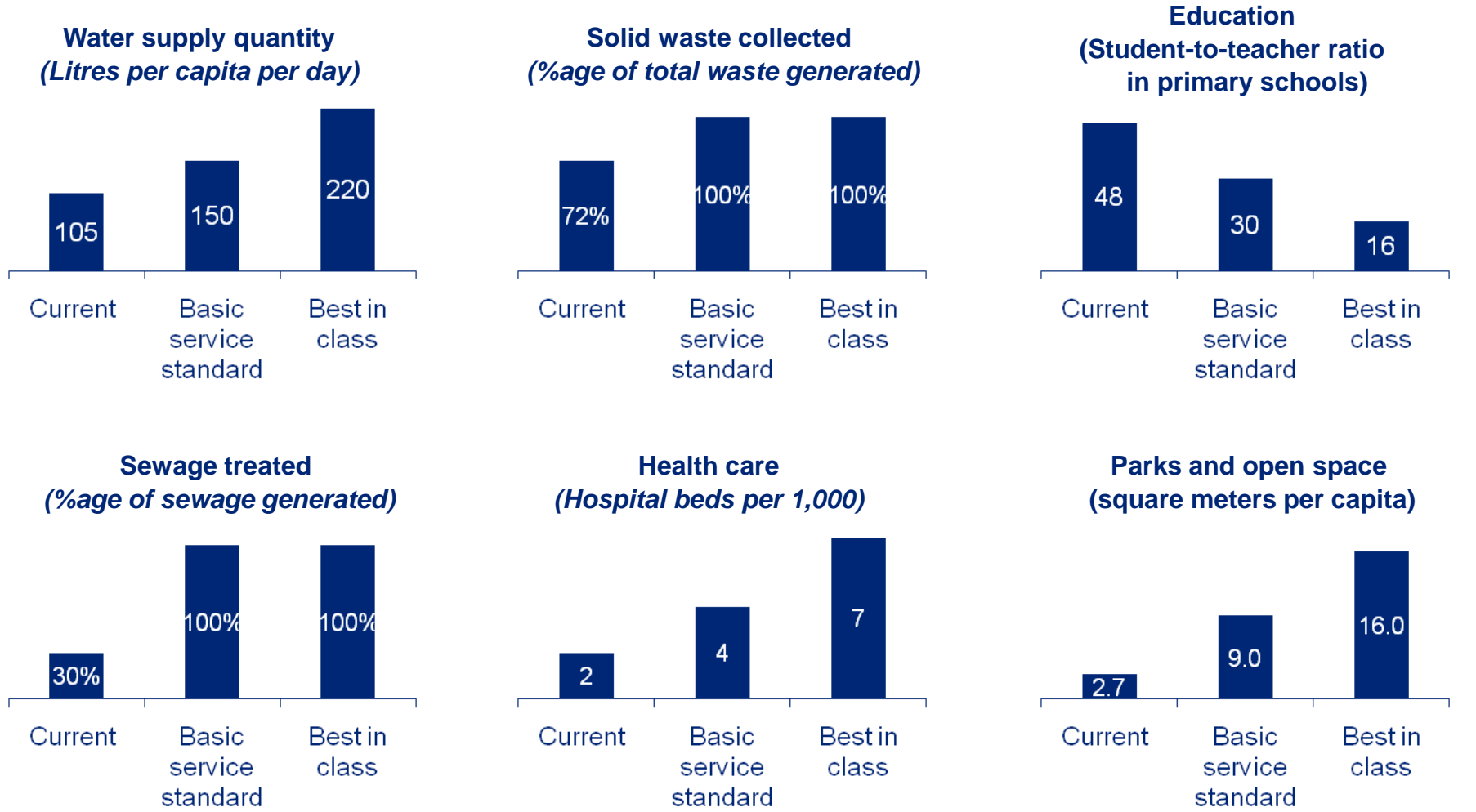
Infrastructure scenario: India snapshot

existing infrastructure under tremendous pressure

Sector	Infrastructure deficit at the beginning of 11 th FYP
Roads/Highways	<ul style="list-style-type: none"> • 65,590 km of NH comprise only 2% of network and carry 40% of traffic • Single-laned: 38% • 2-laned: 50% • 4-laned: only 12%
Power	<ul style="list-style-type: none"> • 13.8% peaking deficit; • 9.6% energy shortage; • 40% transmission and distribution losses
Railways	<ul style="list-style-type: none"> • Old technology • Saturated routes • Slow speeds (freight: 22kmph; passengers: 50kmph) • Low payload to tare ratio (2.5)
Airports	<ul style="list-style-type: none"> • Inadequate runways, aircraft handling capacity, parking space and terminal buildings
Ports	<ul style="list-style-type: none"> • Inadequate berths and rail/road connectivity

Infrastructure scenario: India snapshot

existing infrastructure under tremendous pressure



Source: India's urban awakening, April 2010, McKinsey Global Institute

Infrastructure scenario: India snapshot

Infrastructure needs

- India is the second fastest growing economy.
- Inadequate infrastructure:
 - significant constraint on India's growth potential
 - retards GDP growth rate by 1-2 % p.a. (estimates)
 - acts as a major barrier to Foreign Direct Investment
 - hinders the objective of Inclusive development
- Eleventh Five Year Plan recognizes that adequate, cost-effective and quality infrastructure is a pre-requisite for sustaining the growth momentum. This is reaffirmed in the approach documents to the 12 FYP

The expert group on commercialization of Infrastructure estimated the loss due to poor roads and congestion at around Rs 200 billion per annum. This is just one sector...

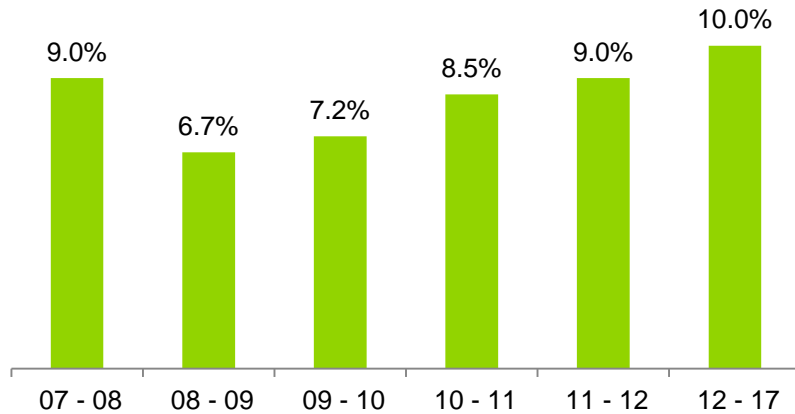
Infrastructure scenario: India snapshot

Infrastructure needs

“ the infrastructure gap in the country was holding back economic growth by 1.5-2 per cent every year”
 Mr P. Chidambaram,
 Former Minister of Finance

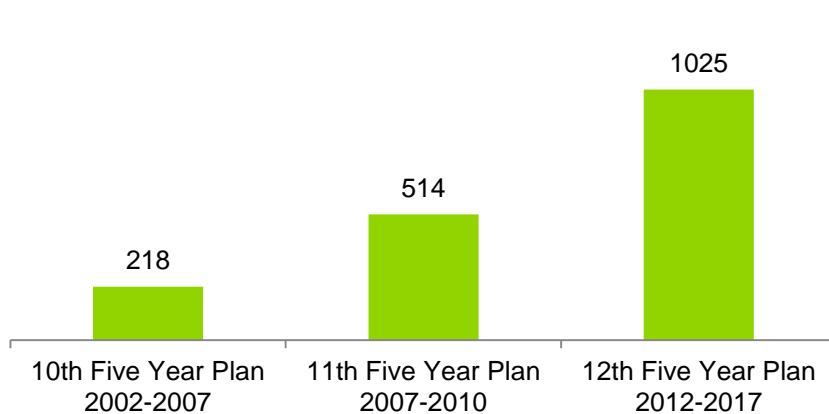
Accelerating economic growth

GDP growth rate targets



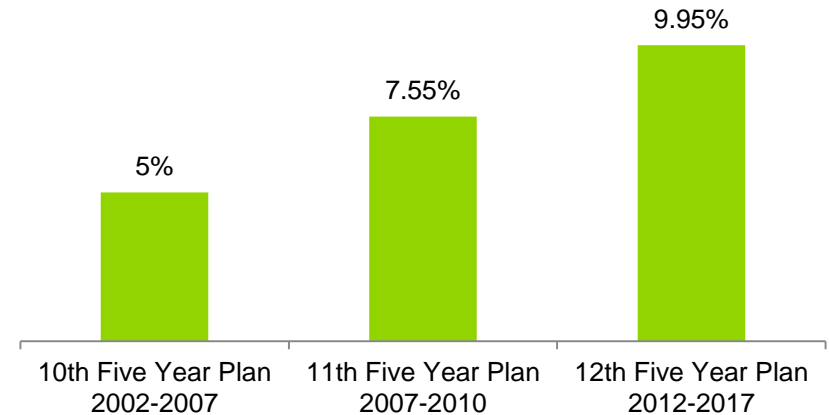
..and increasing infrastructure finance needs

Amount of infrastructure investments in USD billion



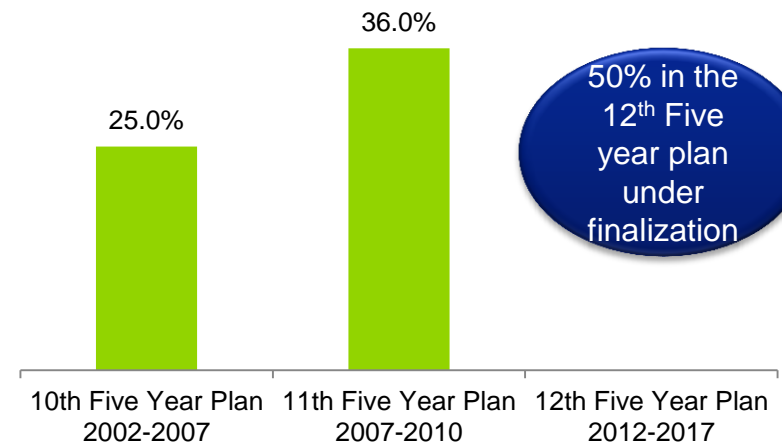
Requires increasing infrastructure investments

Required infrastructure investment in % of GDP



...and increasing need for private finance

Private finance as % of total finance need

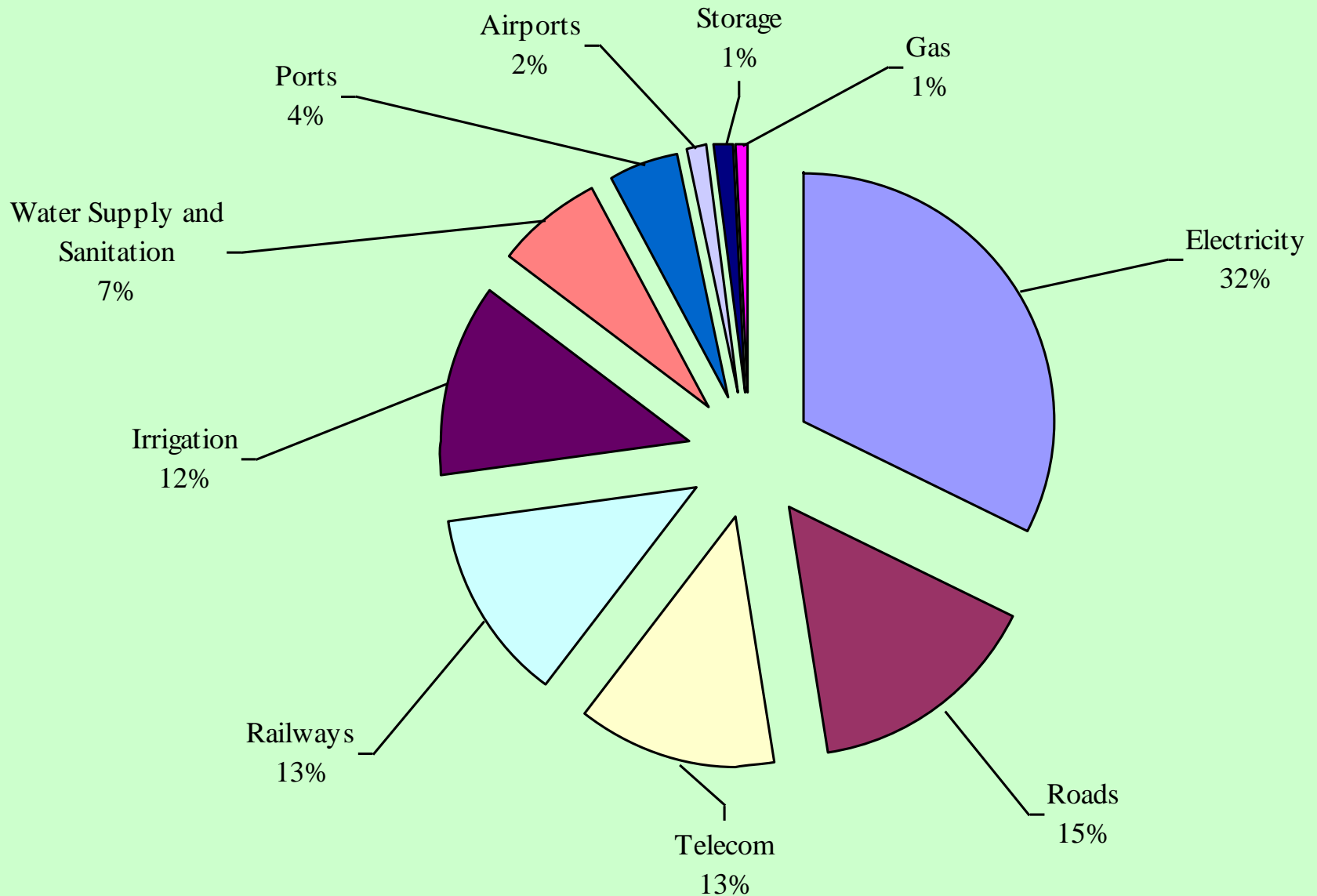


50% in the 12th Five year plan under finalization

Projected Investment in Infrastructure

	X Plan		XI Plan	
Sectors	US \$ billion	Share (%)	US \$ billion	Share (%)
Electricity (incl. NCE)	72.96	33.49	166.63	32.42
Roads and Bridges	36.22	16.63	78.54	15.28
Telecommunication	25.84	11.86	64.61	12.57
Railways (incl. MRTS)	29.91	13.73	65.45	12.73
Irrigation (incl. Watershed)	27.88	12.80	63.33	12.32
Water Supply and Sanitation	16.20	7.44	35.93	6.99
Ports	3.52	1.61	22.00	4.28
Airports	1.69	0.78	7.74	1.51
Storage	1.20	0.55	5.59	1.09
Gas	2.43	1.11	4.21	0.82
Total	US \$ billion	217.86	514.04	
	<i>Rs. crore</i>	871,445	2,060,193	100

Projected Eleventh Plan Sector Share (%)



Infrastructure scenario: India snapshot

Infrastructure needs: bridging the gap

“Investment gap”

- Gap between existing and required infrastructure
- Improving the availability of infrastructure by **increased investment** in the infrastructure assets
- As per the 11th Five year plan, the gross capital formation (GCF) in infrastructure should rise as a share of GDP from 5% in 2006-07 to 9% by the end of the plan period (2011-12)

“Efficiency gap”

- Need to enhance quality of service, minimum acceptable standards of service

Options to bridge the gap

Traditional public procurement

Public Private Partnerships (PPPs)

Privatisation

PPPs are an option to supplement scarce public resources and improving efficiencies without necessarily transferring ownership to the private sector

Recent Infrastructure Initiatives

- 'Bharat Nirman' Programme to develop rural infrastructure at an estimated cost of Rs. 1,74,000 crore (~US\$40 billion)
- Jawhar Lal Nehru Urban Renewal Mission –Rs. 100,000 crore (US\$22 billion)
- Country wide rural connectivity programme to link all unconnected village having population of 500 with fair weather road undertaken

Introduction to PPP

Understanding PPP Concepts and Principles

Objectives of the Training Module

To introduce the basic concepts and rationale for PPPs

Basic concepts of PPPs (What is PPP?)

Key Concepts	<ul style="list-style-type: none">• Definition of PPPs• Common characteristics• PPPs in comparison with traditional public procurement• Common myths and concerns related to PPPs
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Rationale for PPPs (Why PPP?)

Key Concepts	<ul style="list-style-type: none">• Potential advantages of PPPs• Possible concerns of PPPs
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How to do PPP?

Key Concepts	<ul style="list-style-type: none">• Common PPP models• Critical success factors across PPP Life cycle• Common pitfalls to avoid
Pedagogical Tools	<ul style="list-style-type: none">• Case examples explaining different PPP modal variants

Introducing PPP

Structure of the Training

What is PPP?

Understanding the Characteristics of PPPs, common myths & concerns

Effective and
Efficient
Delivery of
Public Services

How to do PPP?

Understanding the Common PPP models and Critical Success Factors

Why PPP?

Understanding the Rationale for PPPs

Introducing PPP

What is PPP?

Basic concepts of PPPs (What is PPP?)

Key Concepts

- Definition of PPPs
- Common characteristics
- PPPs in comparison with traditional public procurement
- Common myths and concerns related to PPPs



What is PPP?

Defining PPPs

Department of Economic Affairs, Govt. of India defines Public Private Partnerships (PPPs) as :

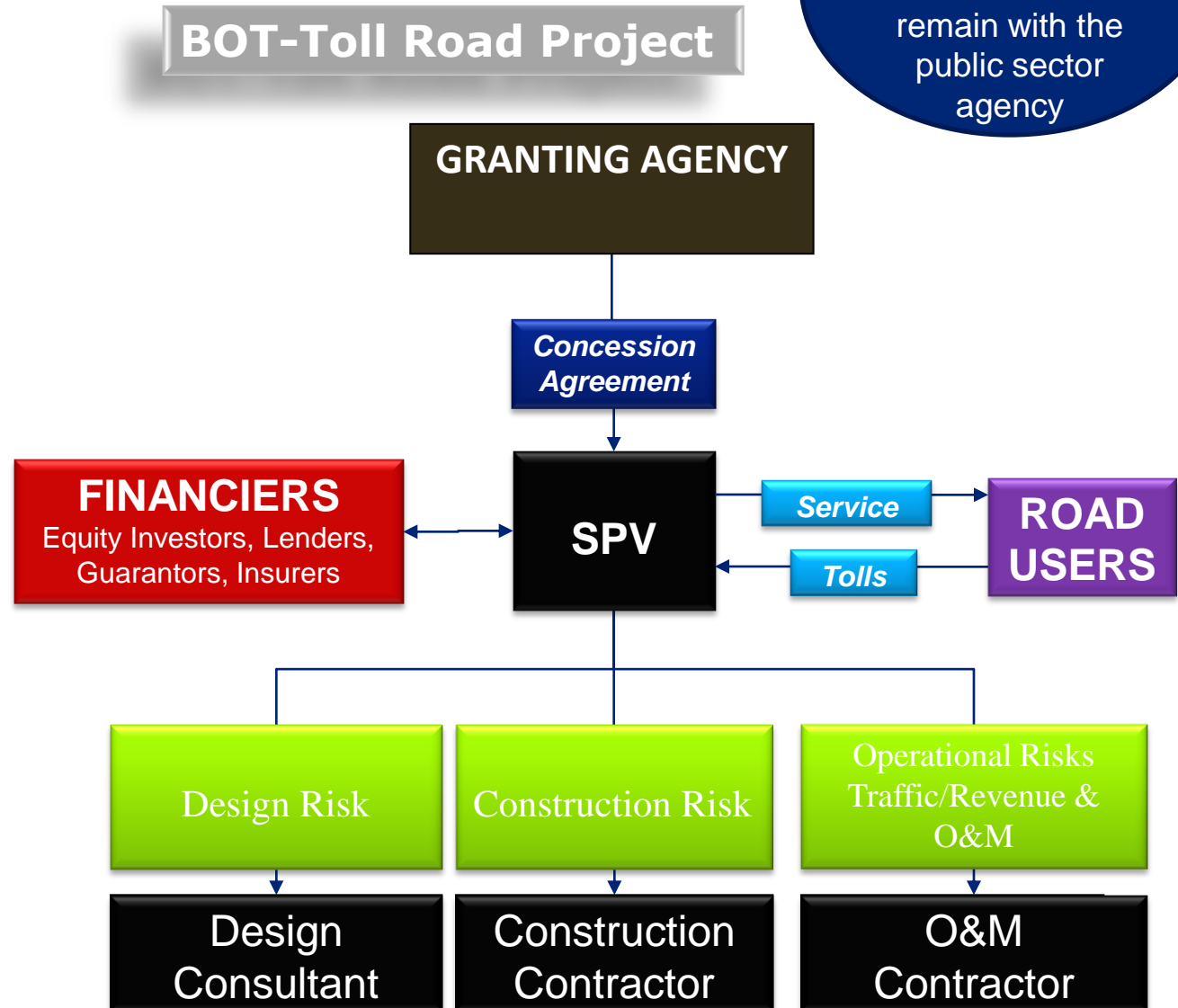
- ✓ **An arrangement** between **government** or statutory entity or government owned entity on one side and **a private sector entity** on the other,
- ✓ for the **provision of public assets** and/or related services **for public benefit**,
- ✓ through **investments being made** by and/or **management undertaken** by the **private sector entity** for a **specified period of time**,
- ✓ where there is a **substantial risk sharing** with the private sector
- ✓ and the private sector receives **performance linked payments** that conform (or are benchmarked) to specified, pre-determined and measurable **performance standards**.

The above are Essential Conditions in the definition. In addition there are several desirable features or good practices that can be adopted.

What is a Public Private Partnership?

7 essential conditions that define PPPs

- 1 Arrangement**
Between public & private
- 2 Provision**
Of services for public benefit by private partner
- 3 Investments**
In and/or management of public assets by private partner
- 4 Time Period**
For a specified time
- 5 Risk Sharing**
Optimally between contracting parties
- 6 Standards**
Focus on quality of service / performance
- 7 Payments**
Linked to performance



What is PPP?

An alternative procurement option

The final responsibility for service delivery continues to remain with the public sector agency

- PPP is only one of the several options available for procuring infrastructure.
- PPPs should not be seen as a replacement of the traditional public procurement.
- PPP should be applied only where it can provide better value for money for the public at large.
- PPPs recognize that both the public sector and the private sector have their own strengths.
- PPPs attempt to balance the strengths of both parties, to create a win-win combination.

PPP is not a panacea to all our infrastructure requirements. It is a tool that should be considered along with other options of procurement.

What is PPP?

Traditional public procurement: Role of private sector

- Public authority is vested with the responsibility of developing the infrastructure
- **Responsibility of Public Authority:**
 - Design, Build, Finance individual projects
 - Operate and Maintain once the project is completed
- **Involvement of Private sector:**
 - Public authority utilizes the services of the private sector for Design and Construction, with award of individual contracts.
 - Government generally uses lowest price tender method.

Role of public sector: Provider of infrastructure and services

What is PPP?

Comparison: Traditional public procurement and PPP

Characteristic	Traditional public procurement	PPP
Focus	Procuring Assets	Procuring Services
Project management	Public sector is responsible for all project management roles	Private sector manages overall project - design, construction, operations and maintenance. Focus on project life cycle expected to bring efficiency.
Service Delivery	Public sector directly responsible for service delivery to users	Private sector directly responsible for service delivery to users
Financing	Public sector responsible for financing the project. Thus financing impacted by budgetary allocations and then actual disbursements	Private sector may contribute finance through debt and equity issuances
Risk Sharing	Public sector bears all project risks. Risk sharing limited to the extent of warranties.	Risks allocated to parties which can manage them most efficiently
Contractual Arrangement	Short term, generally segregated contracts for asset creation (BOQ based) and maintenance.	Long term contracts- Public sector/users pay for services linked to performance.

PPP:The public sector procures a service, not an asset, from the private sector.

Why PPP?

Availability of Private sector finance (most commonly cited reason):

Through PPPs governments can leverage private sector finances to meet the infrastructure needs.

Achieving greater Value for Money through Efficiency gains:

In principle, PPPs can improve VfM by:

- Incentivising On-Time and Within-Budget delivery
- Optimising the Life cycle costs
- Providing an opportunity to innovate
- Optimizing the risk allocation

Value for money achieved by PPPs is often debated

Expectations of government & private sector

Government

- Harness private sector efficiencies (on-time, on-budget delivery; access to latest technology etc.)
- Augment government resources
- Provide better value for money
- Facilitate improved access and service delivery

Private sector

- Viable business opportunity
- Fair distribution of risk & responsibility
- Transparency in procurement
- Consistency in legal and regulatory framework
- Stable political and economic environment

PPPs: Common Myths/Concerns

Myth/Concern	Clarification
<ul style="list-style-type: none">• Profit motive of private sector is incompatible with the service motive of public sector	<p>No. The key is to harness private sector's profit motive, by incentivizing them to provide better quality service and earn reasonable return.</p>
<ul style="list-style-type: none">• PPPs increase user tariffs	<p>Not Necessarily. When appropriate safeguards like effective regulation and/or adequate competition are in place.</p> <p>However in sectors where existing tariffs are inadequate to cover costs of specified level of service tariffs may initially require some upward adjustment. Over time efficiency gains expected to rationalize tariffs.</p>
<ul style="list-style-type: none">• Money for PPPs comes from private sector "pockets"	<p>Initially, YES. But private sector would make those investments provided they can recover those investments either from users or the government with reasonable return.</p>
<ul style="list-style-type: none">• Once a private sector partner is brought in, there is little or no role for the public sector	<p>No. Public sector's role changes from direct involvement in construction and service provision, to ensuring that the PPP delivers value for money for the government and better services for users.</p>

How to do PPP?

How to do PPP?

Key Concepts

- Common PPP models
- Critical success factors across PPP Life cycle
- Common pitfalls to avoid

Pedagogical
Tools

- Case examples explaining different PPP modal variants

How to do PPP?

The essence is partnership



Purpose of Partnership

To deliver a project or a service traditionally provided by the public sector

Principle of Partnership

To allow each party to do what they do best so as to provide greater value for money for the public at large

Role in Partnership

The public sector role is redefined as one of **facilitator and enabler**, rather than being involved in direct management or delivery of services.

Type of Partnership

The type of partnership or the choice of PPP Structures is **limitless** and depends on the extent of risk and responsibility transfer to the private party.

How to do PPP?

Understanding the common PPP Models

- Even under Traditional Procurement Private sector has been involved in developing the infrastructure
- **PPP** provides another *procurement option* by increasing the *involvement of the Private sector* by transferring more *responsibility and risk*.
- Choice of partnership structure (PPP Models) is limitless and depends on the *extent of risk and responsibility transfer*
- There is *no one generic* or best PPP model.
- PPP Structure *is tailored* to meet the specific requirements of the project.

PPPs come in various shapes and sizes...

PPPs come in many shapes and sizes

Across many infrastructure sectors...



Private Sector can participate through....

In several ways/forms...

- Performance/management contracts
- Leases
- Concessions (BOT, BOOT, BOO, DBFO, etc..)

- **D**esigning
- **B**uilding
- **F**inancing
- **O**wn
- **O**peration
- **M**aintenance
- **T**ransfer

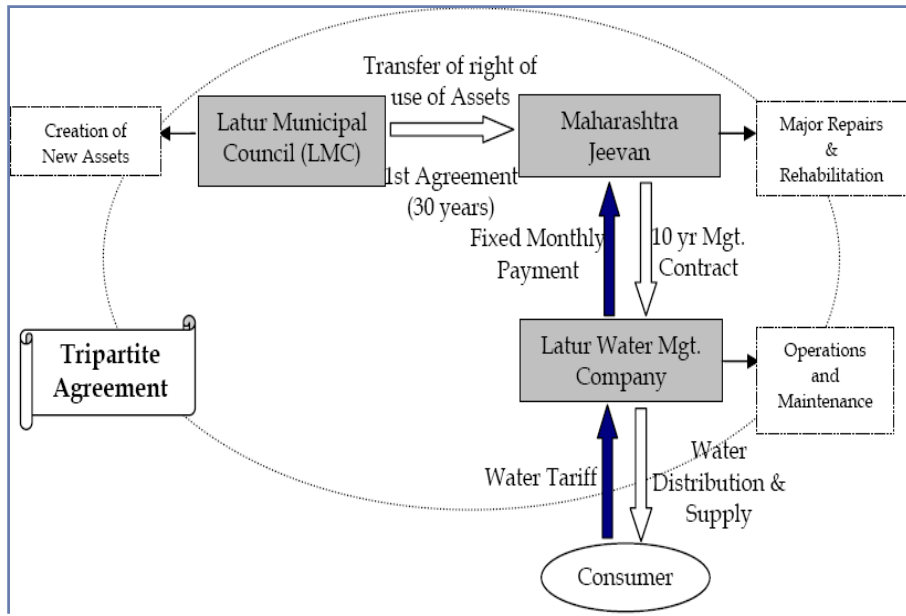
Key Aspects defining the PPP Mode

- Does the PPP involve building new assets to provide the service (capital expenditure project), or are the required services for operations and management only?
- Which roles will the private sector carry out? For example, who will provide finance? Who will design and construct?
- Who will take ownership of the assets?
- What will be the duration of the PPP contract?
- How are the various project risks allocated between the private and public partners?
- What will be the major revenue source for the project? For example, will it be from charges to users (direct tolls), or payment from Government (e.g., annuity)?
- Is demand for the infrastructure service expected to be stable over the period of the contract?

Distinguishing features of the forms of PPPs

		Different Types of PPPs				
Key parameter		Contracts		Concessions		
		Management	Lease	Area	BOT (User Fee)	BOT (Annuity)
Responsibility	Asset Ownership	Public	Public	Public	Public & Private	Public & Private
	Incremental Capex	Public	Private	Private	Private	Private
	O&M	Private	Private	Private	Private	Private
Risk	Construction	NA	Private	Private	Private	Private
	Finance	NA	Private	Private	Private	Private
	O&M	Private	Private	Private	Private	Private
	Demand	Public	Private	Private	Private	Public
Case study/ E.g.		Latur Water Supply	Columbia Hospital	Macau Water Supply / Delhi power distn.	Interstate bus terminal (Dehradun)	NHAI Annuity Concessions

Management Contract. Latur water supply project



Objective: To improve water supply in Latur

Project Structure:

Ten year Management Contract with LWMC (SPV) in June 2008 for operation, maintenance and repairs of all assets and resources

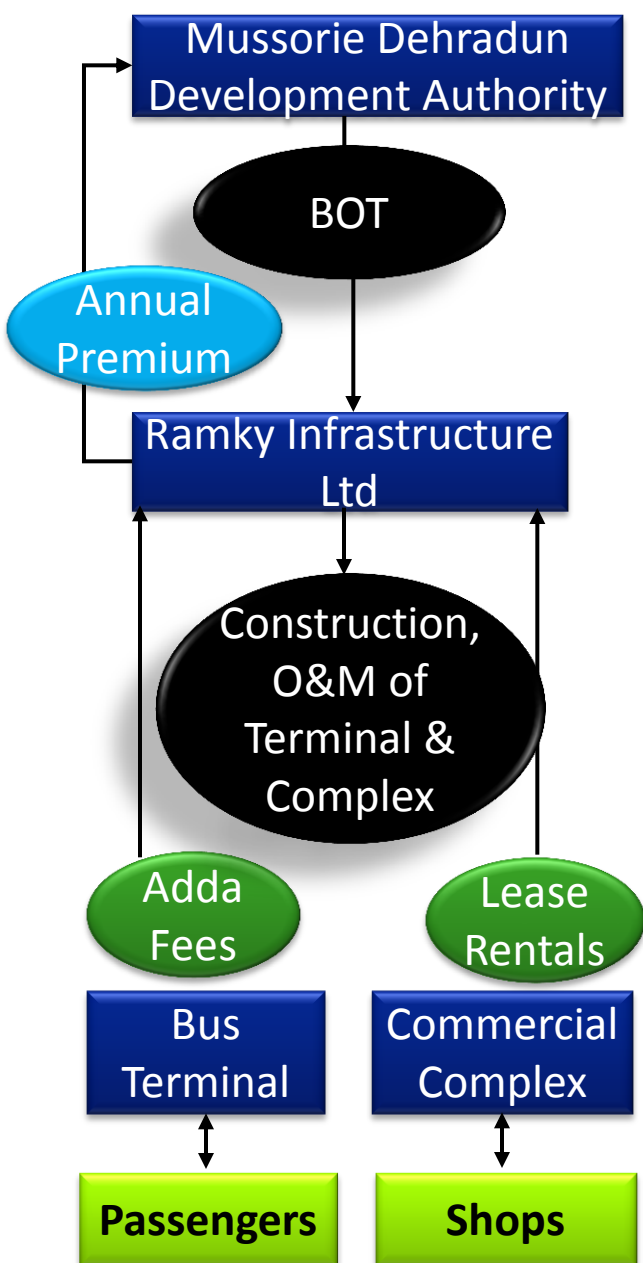
Ownership of asset:

Ownership continued to rest with public agency

O&M	Responsibility of concessionaire
Construction / Finance:	Management contract only – operation of existing assets only. The concessionaire did not have any ownership on the assets
Commercial arrangement	All operation & maintenance responsibilities with the concessionaire. Under the provisions of the contract LWMC (the SPV) collected water tariffs from users, and in turn paid a fixed monthly fee to MJP

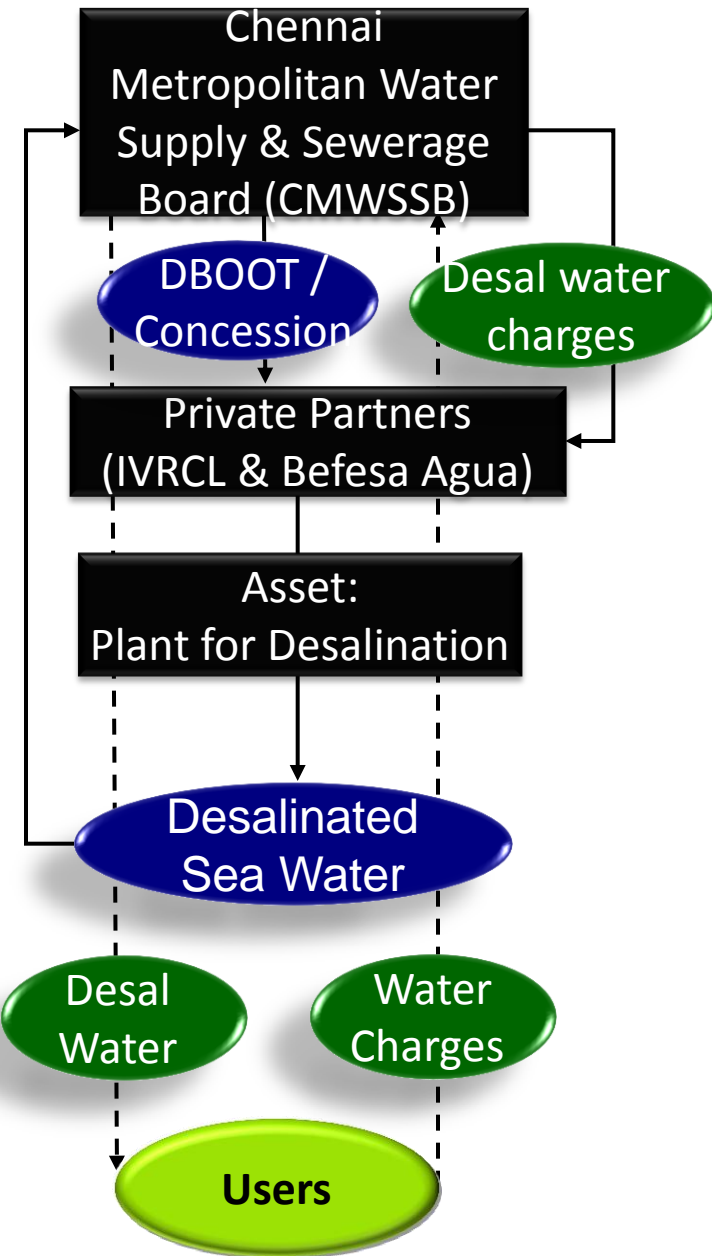
BOT, Interstate Bus Terminal, Deharadun

Objective: To develop a modern Inter State Bus Terminal



Project Structure:	First BOT ISBT in India, Phase 1- ISBT Complex, Phase 2- entertainment & comm. complex; 20 year concession period, extendable by 10 years
Ownership of asset:	Land owned by authority
O&M :	Responsibility of concessionaire
Construction / Finance:	Construction and finance by concessionaire. All related risks borne by concessionaire.
Commercial arrangement:	-All construction cost by concessionaire - Revenue: Services fees from scheduled 750 buses/day & lease rental from commercial complex; Guaranteed annual revenue of INR 8.1 million/annum

DBOOT, desalination of Sea water, Chennai



Objective: To augment the scarce water supply by establishing a 100 MLD (Million Liters Per Day) seawater desalination plant

Project Structure:	CMWSSB entered into a Bulk Water Purchase Agreement with a Special Purpose Vehicle for 25 years
Ownership of asset:	Ownership of concessionaire during concession period
O&M :	Responsibility of concessionaire
Design /Construction / Finance:	Design, construction and finance by concessionaire. All related risks borne by concessionaire.
Commercial arrangement:	Long term bulk water purchase agreement between concessionaire and CMWSSB
Other arrangements:	-Uninterrupted power supply ensured to concessionaire -Supply of raw water for treatment responsibility of CMWSSB

lease contract – state hospital in Columbia

- Country: United States
- Public Partner: State of Oklahoma & Columbia
- Private Partner: Columbia/HCA Healthcare Corporation

- Objective: To improve the efficiency of operations in the state hospitals

Key Features and Benefits

Project Structure:	Operations of state hospital transferred to private player under a 50 year lease. Key objective – to improve the efficiency of operations
Ownership of asset:	No transfer of ownership
O&M Responsibility:	O&M responsibility transferred to private operator
Commercial arrangement:	Lease fee: state received up-front payment (USD40 million), annual rent (USD9 million); Profit sharing: between private operator and state for the entire lease period
Other - Performance monitoring:	Operator to appoint governing committee to monitor functioning; provisions to replace management in case of non performance

(Area) concession, water supply in Macau

- Country: China
- Public Partner: Civic and Municipal Affairs Bureau, Office for Infrastructure Development
- Private Partner: Sino-French Holdings

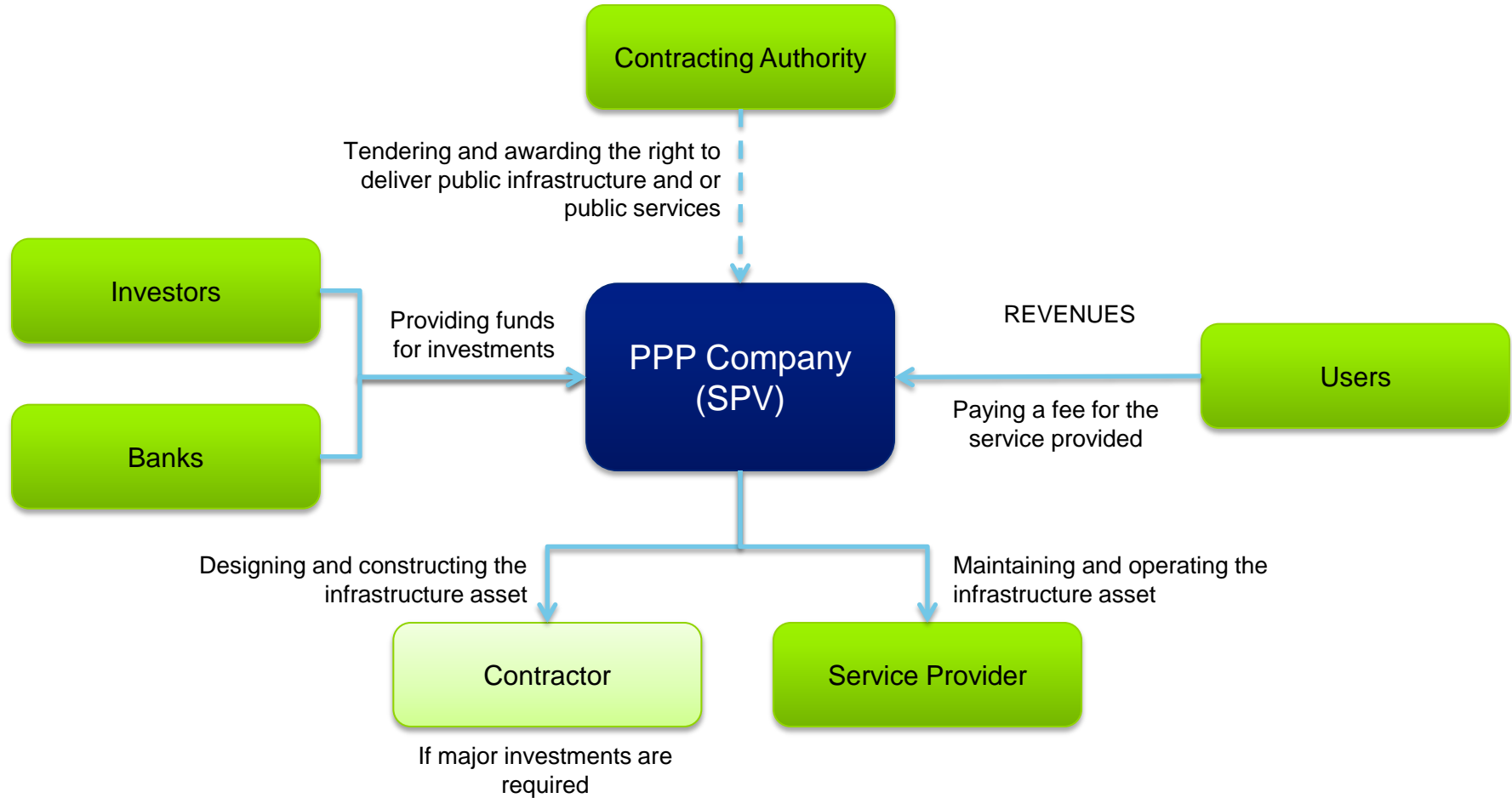
- Objective: To improve the coverage and efficacy of water supply in Macau by involving international companies and using better technology

Key Features and Benefits

Project Structure:	Concession contract for 25 years granted to pvt. operator
Ownership of asset:	No transfer of ownership
O&M Responsibility:	O&M responsibility transferred to private operator
Construction / Finance:	Works undertaken by pvt. Operator - Private player invested in upgrading water treatment plants, replacing faulty meters, replacing major pipelines and introduce control systems
Commercial arrangement:	Source of income for operator was water user's fee. Annual revision of the tariff was done based on the total costs incurred but due to efficiencies and economies of scale, a lower tariff was charged to consumers.

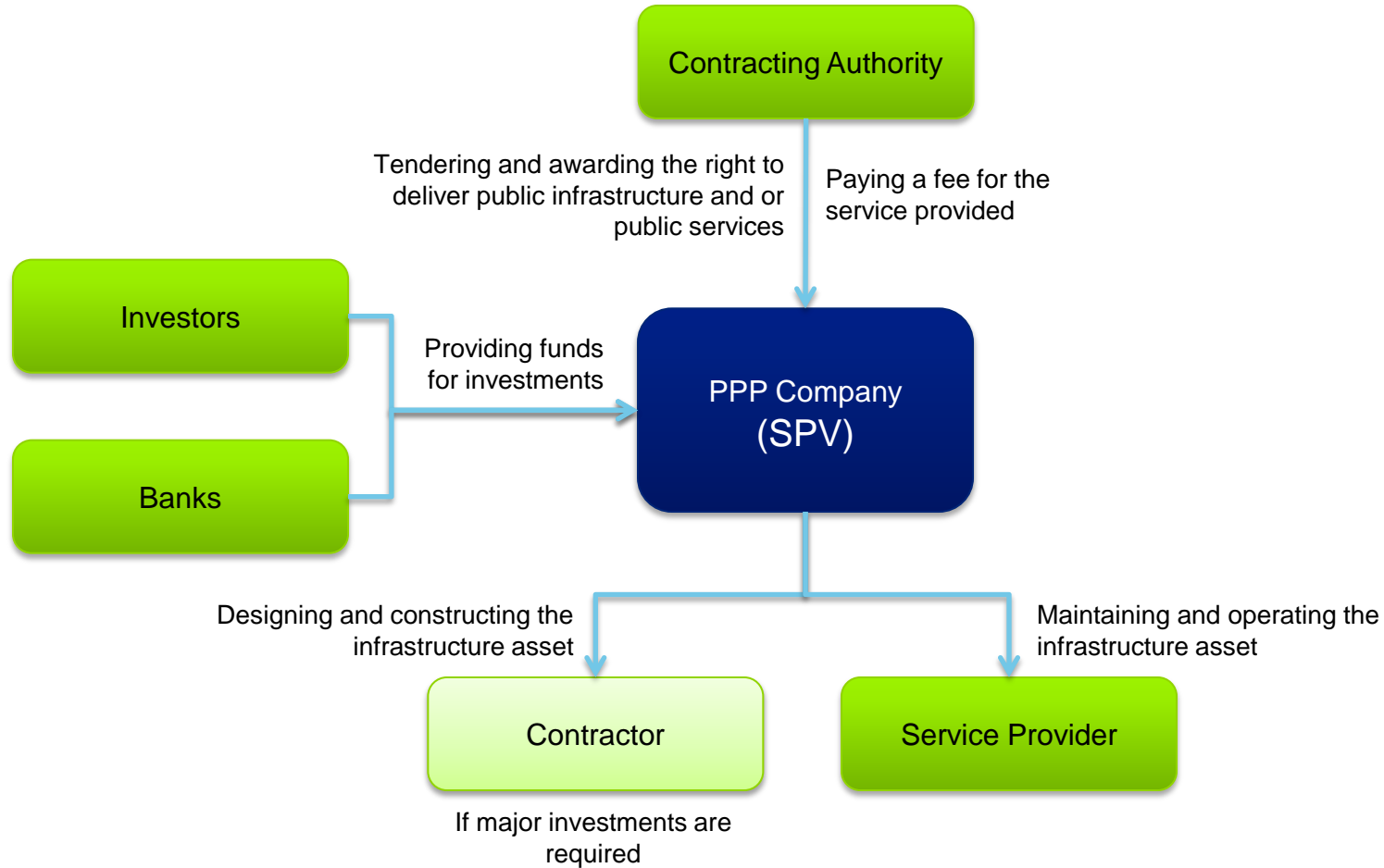
Choice of PPP Models

Typical Structure for BOT/ DBFO Concession



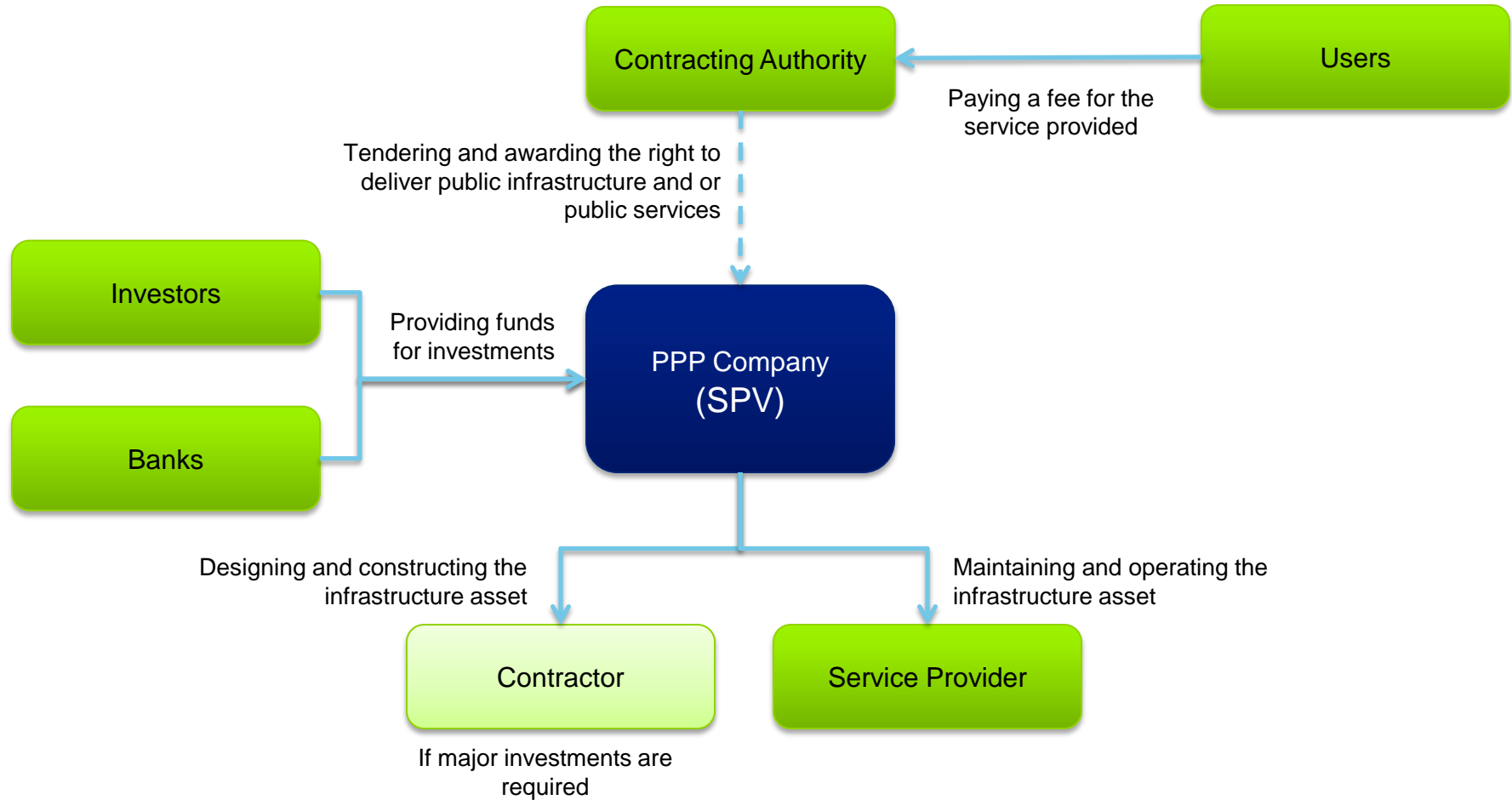
Choice of PPP Models

Typical Structure for BOT (Annuity) Concession



Choice of PPP Models

Annuity can be supported by user charges



Choice of PPP Models:

Summing up

Design

Build

Operate & maintain

Finance

Own

- Key is to structure the relationship between the parties
- PPP model should allow each party to do what they do best so as to ensure that public services and infrastructure are provided in the most efficient manner
- The nomenclature used to describe the PPP Models is **not standardized**
- Familiarization with the concept is more important than understanding the terms



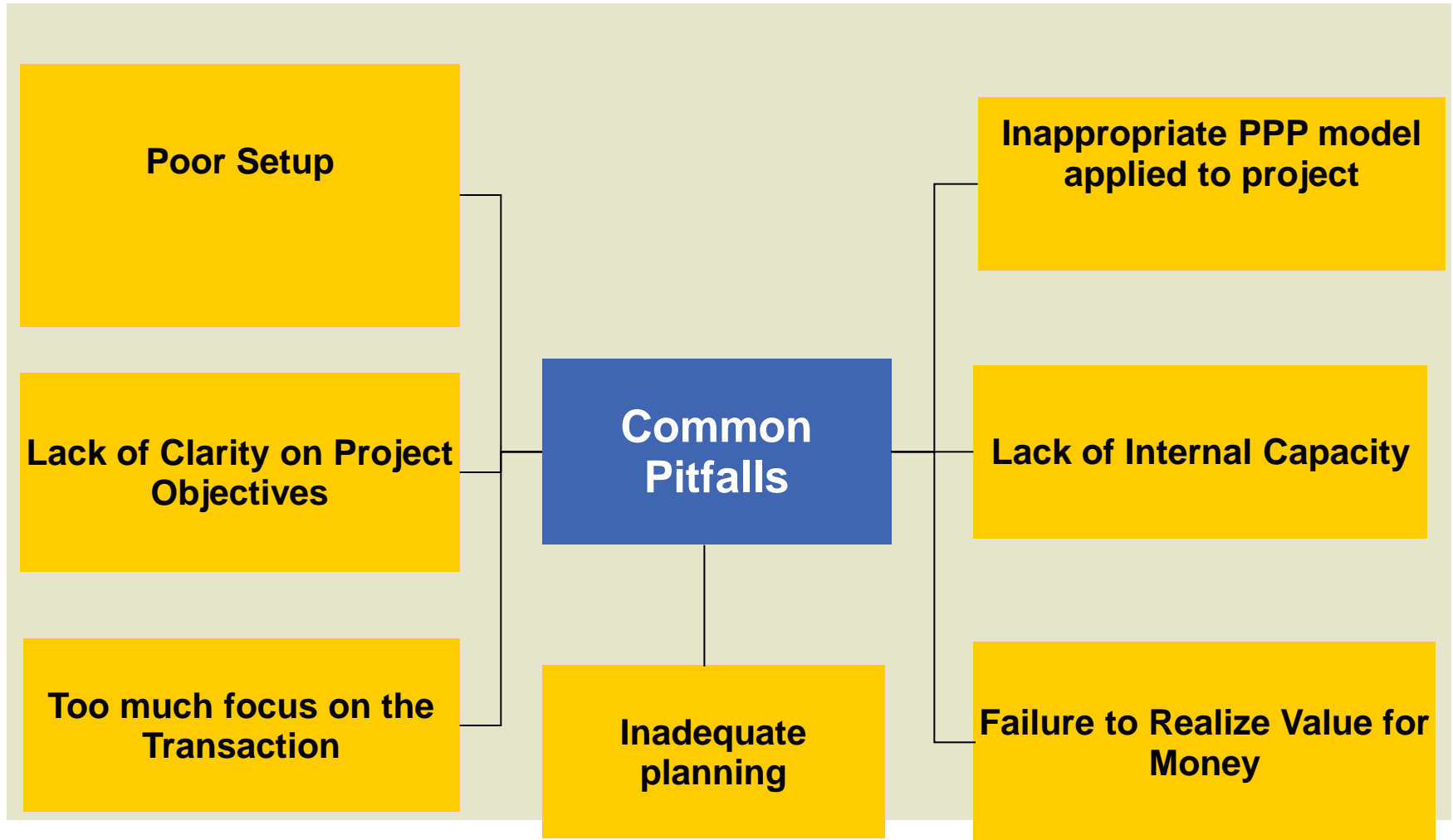
How to do PPP?

Critical success factors

- 1) **Careful planning of PPP project**
- 2) **Solid revenue and cost estimations**
- 3) **User willingness to pay and communication plan**
- 4) **Extensive feasibility study with use of PPP experts**
- 5) **Compliance with contractual agreement**
- 6) **Strong Legal and Regulatory Framework**
- 7) **Strong Institutions with appropriate resources**
- 8) **Competitive and transparent procurement**
- 9) **Mitigation and flexibility in managing macro-risks**

How to do PPP?

Common pitfalls to avoid



Source: Building Flexibility, New delivery models for public infrastructure projects, Deloitte

Legal and Regulatory Framework

Diverse legislation applicable to a particular sector/activity-

- Laws governing various sectors like the Electricity Act, 2003; the Telecom Regulatory Authority of India Act, 1997; the National Highways Authority of India Act, 1988; Municipal laws of various States;
- Laws governing normal commercial transactions like the Contract Act, 1872; the Sale of Goods Act, 1930; the negotiable Instruments Act, 1881; the Companies Act, 1956; the Foreign Exchange Management Act, 1999; the Competition Act, 2002;
- Laws for recognition and enforcement of rights and obligations like the Specific Relief Act, 1963, the Code of Civil Procedure, 1908, the Arbitration and Conciliation Act, 1996.

- Binding rulings and instruments issued by a regulatory authorities include –
 - regulations,
 - practice directions,
 - licenses,
 - quality of supply standards,
 - tariff orders,
 - performance standards,
 - safety standards,
 - environmental issues,
 - and case-specific orders.

Thank You