ADB

ASIA WATER FORUM 2018

INFORMATION, INNOVATION, AND TECHNOLOGY

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Contracts scheme

for

NON REVENUE WATER

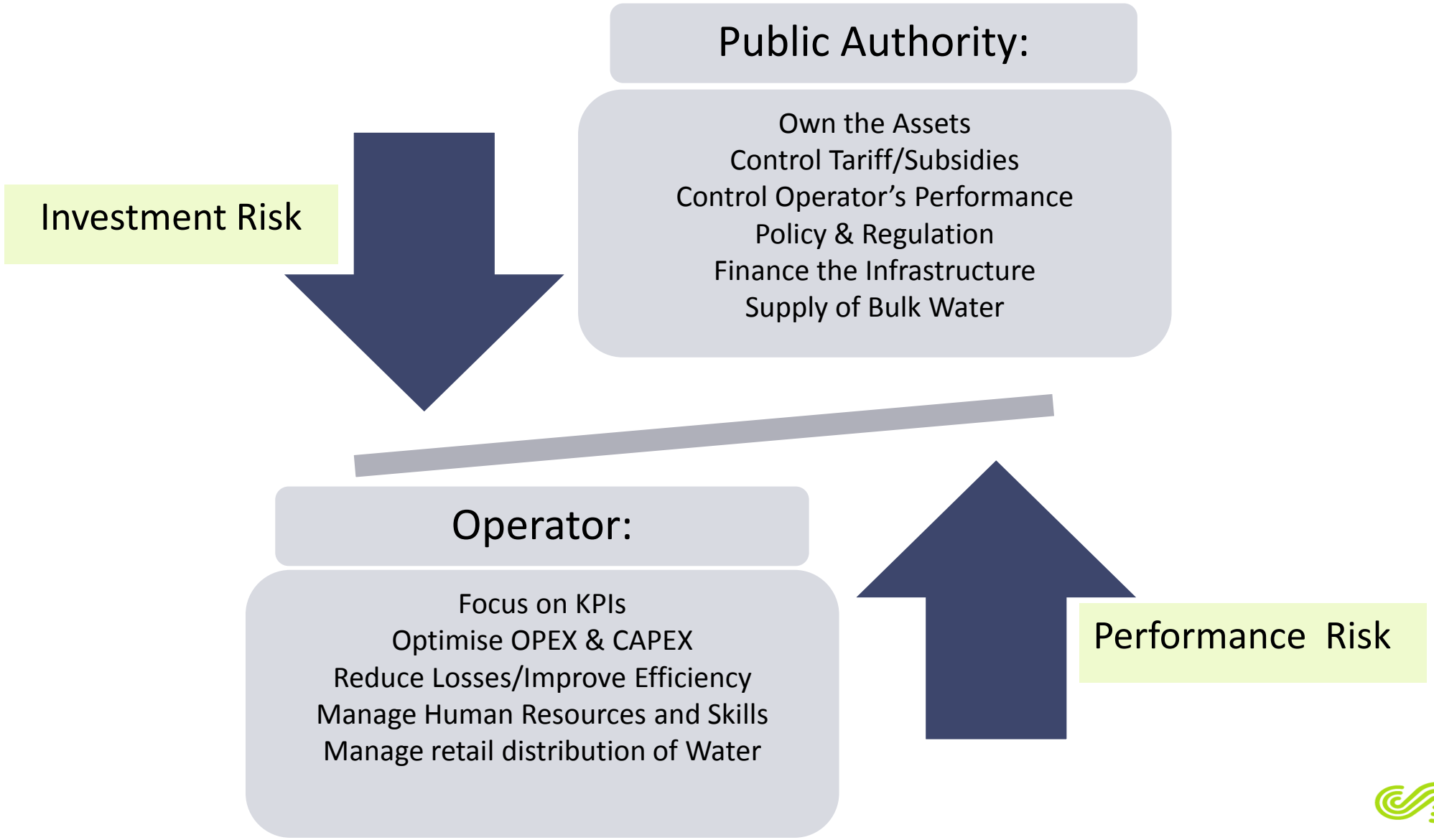
Jean-Marc LOTTHE

SUEZ India

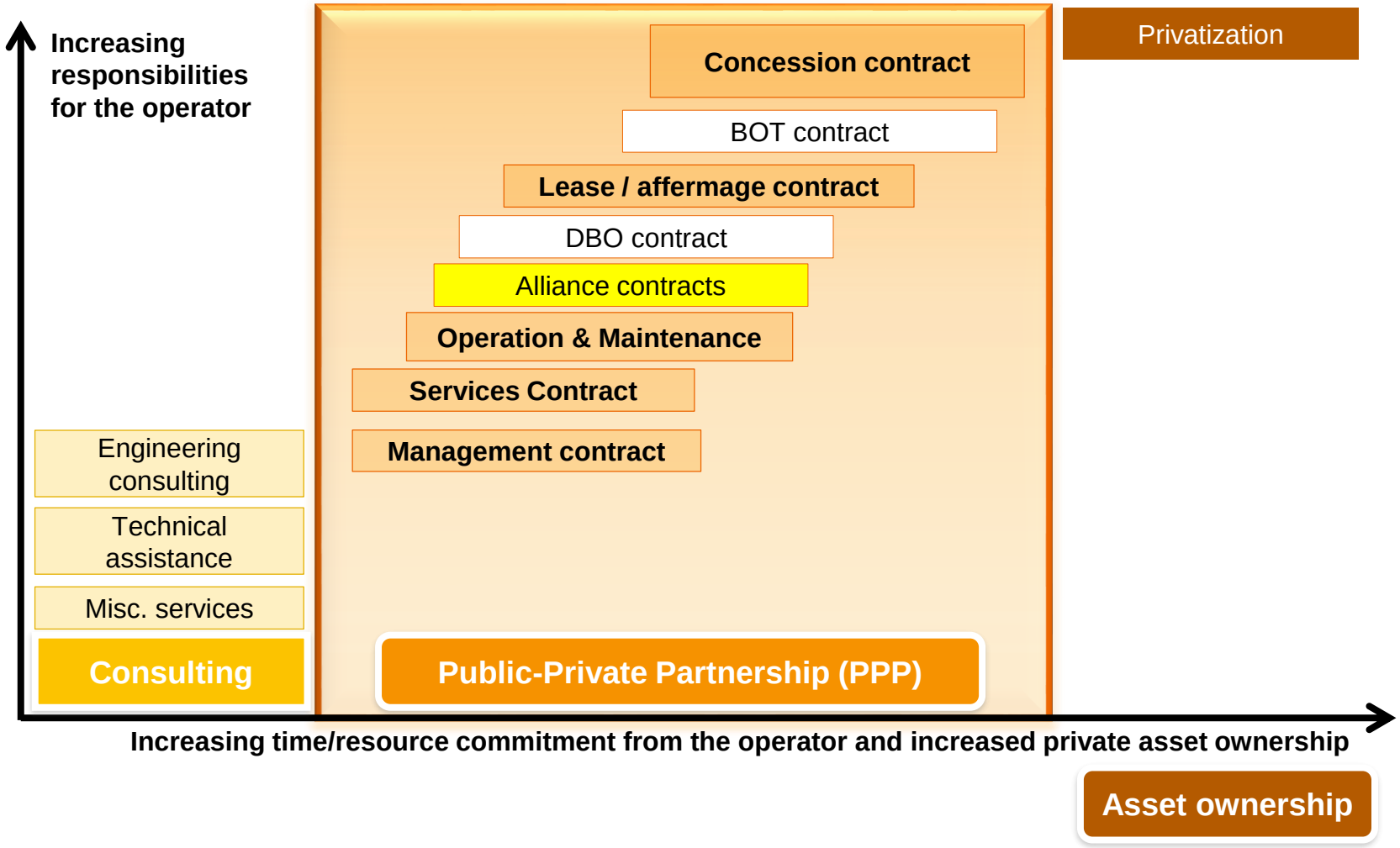
SUEZ

Contracting Options

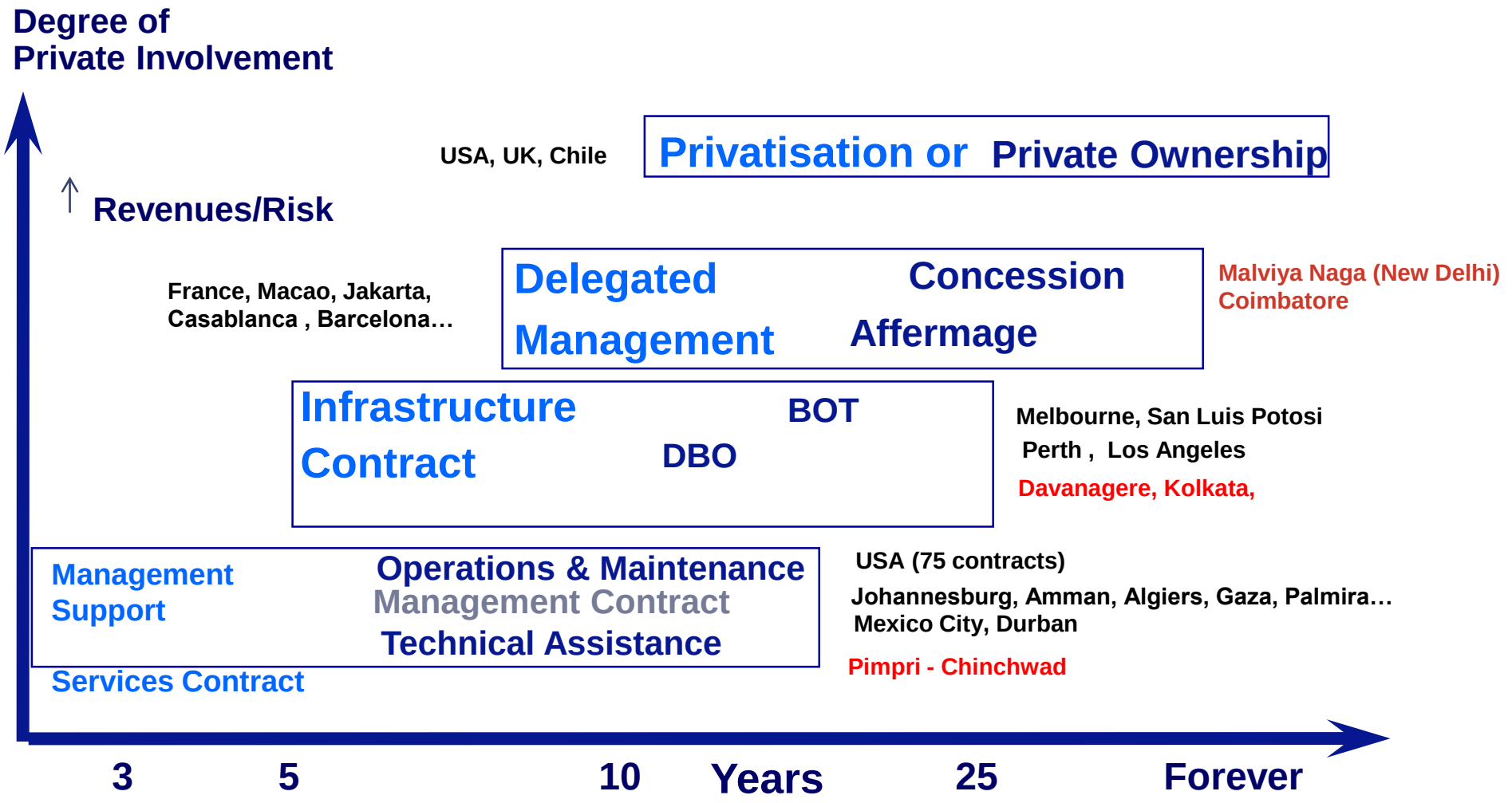
Balance of Roles



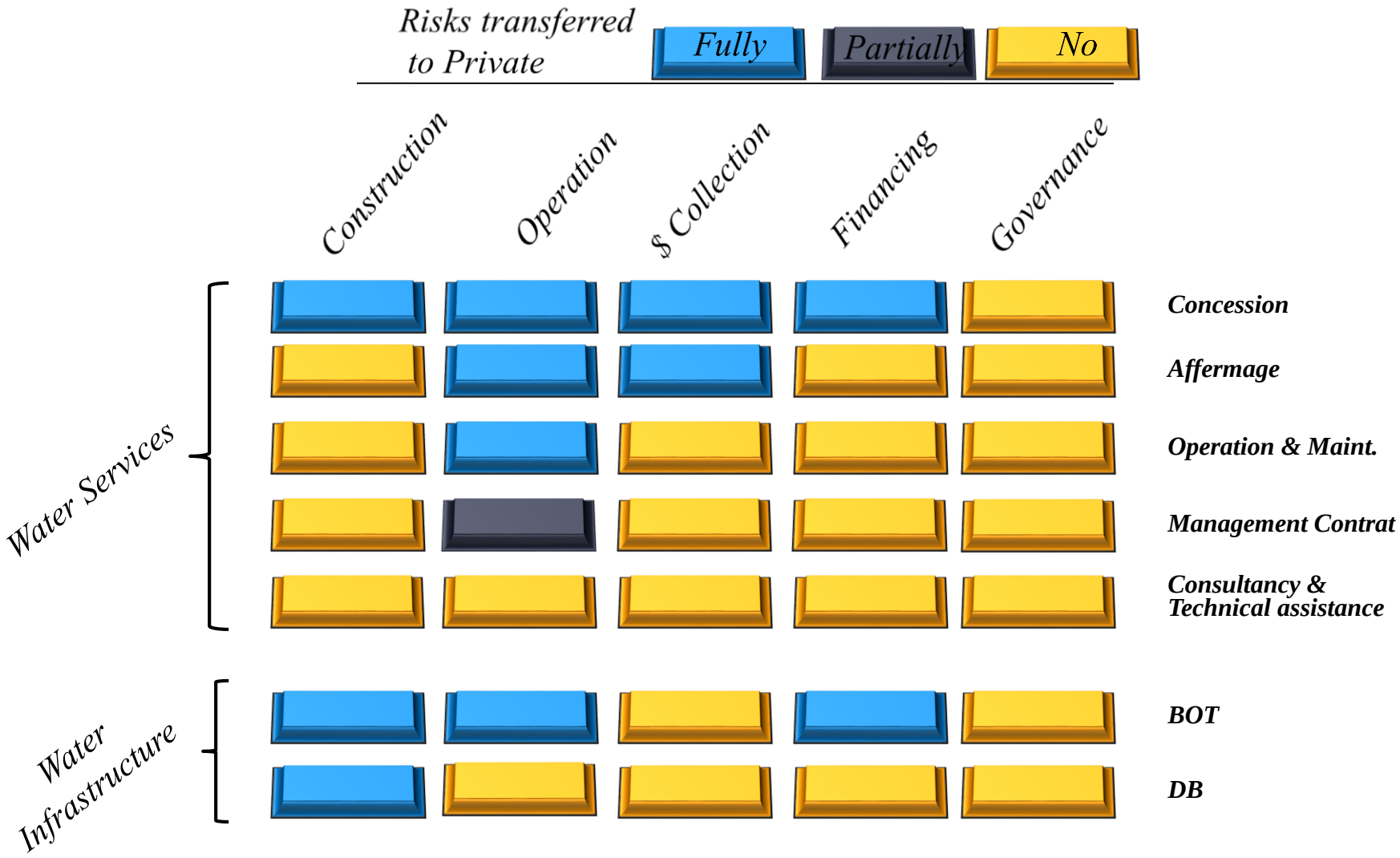
Private Sector Participation: Existing forms of Co-operation



SUEZ participation in all forms of Contracts



Scheme Adapted to Public Authority's Requirement



Contracts in India

Over 30 years of strong partnership with major cities

1. Delhi, New Delhi
   - 717 MLD WTP
   - 400MLD STP
   - Malviya Nagar Water Services project for 40,000 connections
2. Bangalore, Karnataka
   - 1550MLD WTP
   - 175MLD STP
   - Leak Detection for 1,750 km distribution network
   - D1A Project: Water Loss Reduction Contract
3. Mumbai, Maharashtra
   - 3355MLD WTP
   - 37MLD STP
   - Water Distribution Improvement Program for 15 million people
4. Kolkata, West Bengal
   - Water Loss Management Contract for 25,000 connections
5. Chennai, Tamil Nadu
   - 530 MLD WTP
6. Bisalpur, Rajasthan
   - 400 MLD WTP
7. Pune, Maharashtra
   - 500 MLD WTP
   - 77 MLD STP
   - 24/7 Water Supply Project in Pimpri, Chinchwad
8. Trivendrum, Kerala
   - 74 MLD WTP
9. Kozhikode, Kerala
   - 174 MLD WTP
10. Nagpur, Maharashtra
    - 120 MLD WTP
11. Saidabad, Bangladesh
    - 450 MLD WTP
12. Kelani, Sri Lanka
    - 180 MLD WTP
13. Kandy, Sri Lanka
    - 46 MLD WTP
14. Coimbatore, Tamil Nadu
    - 24/7 Water Supply Project for 150,000 consumers
15. Davanagere, Karnataka
    - 24/7 Water Supply Project for 92,000 properties
16. Kolkata, West Bengal
    - Water Loss Management For 40,000 connections

Davanagere, Karnataka

Davanagere DBO Contract - Key Features

- ✓ 12-year Design Build Operate Contract for Davanagere City of 500,000 population in Karnataka
- ✓ Operator to build entire distribution system and rehabilitate bulk water system
- ✓ In distribution O&M - Network as well as all Customer Services (meter reading, billing, complaint handling) to be managed
- ✓ City Corporation fixes tariff and Operator bills the customer as per prevailing tariff. Revenue collection by Corporation.
- ✓ Operator's Revenue is for Works and O&M
  - Works paid as per item rate quoted in financial bid
  - O&M paid as Fixed Fee and Performance Fee (based on achieving KPIs) in lumpsum

Design Validation Phase

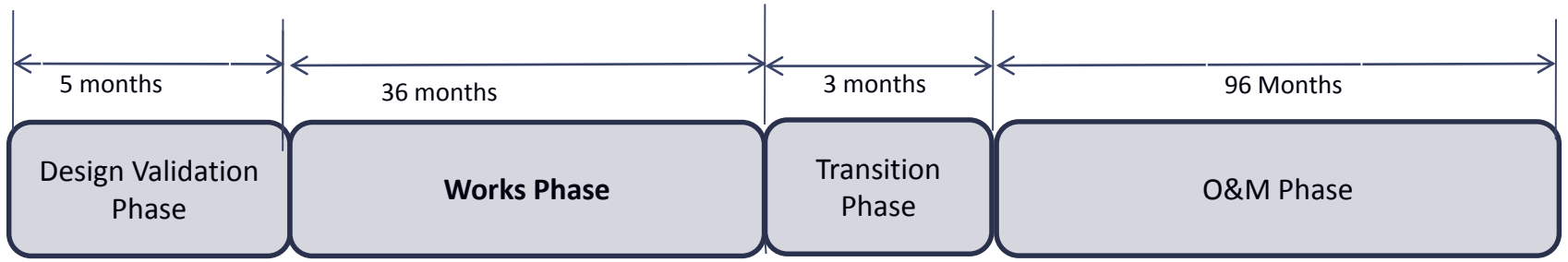
- Customer & GIS Survey, Soil Investigation
- Design Validation of Clear Water Transmission and Water Distribution
- Detailed Study of OHT, Head Works and WTP Rehabilitation Scope

Works Period

- 64 Kms of Clear Water Transmission
- 1174 Kms of Distribution (New)
- 100,000 Connections & Meters
- SCADA for Bulk and Distribution assets
- Rehabilitation of Head Works, WTPs & Over Head Reservoirs

Davangere Project Phasing

✓ Four Phases spread over 12 years, starting from Contract Signing Date



✓ Contract Based on FIDIC – Multilateral Development Bank Harmonised For Construction Contracts

✓ Operator responsible for Bulk water and distribution O&M from Transition Phase onwards

✓ **WORKS PRICE (BOQ based)**

- Phase 1: Design Validation (Study Period): 5 Months
- Phase 2: Works Period: 36 months (possibility of O&M commencement of DMAs when commissioned ##)
- Phase 3: Transition Phase (Complete Handover of Bulk and Distribution Assets from DCC to Operator): 3 Months post Completion of Phase 2

✓ **O&M PRICE (8 Years O&M Price)**

- Phase 4: 96 Months of O&M Post Completion of Phase

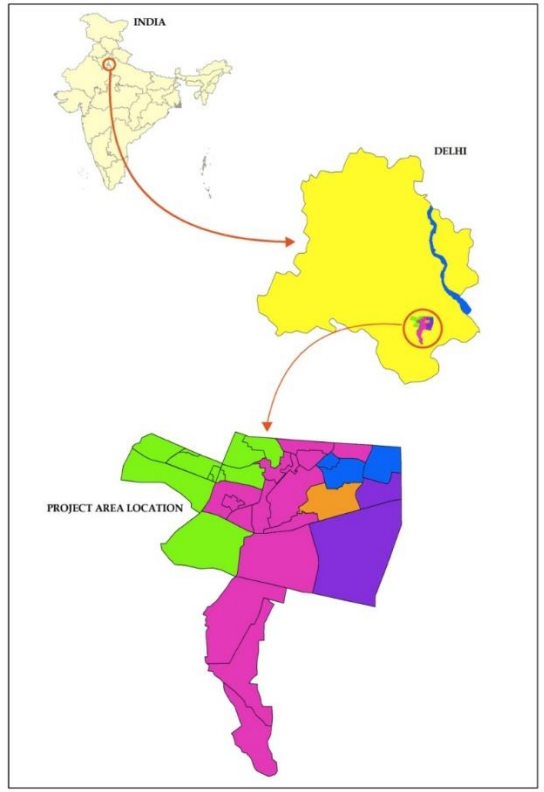
Davangere O&M Scope: Operator and Corporation

Work Description	Responsibility	
	Design and Works Phase (Phase 1 and 2)	**Transition and O&M Phase (Phase 3 and 4)**
Bulk Water System (Intake structure, WTPs, Raw Water Transmission Mains)	DCC / Contractor (3rd party)	Operator
DMAs and Related Reservoirs upon commissioning	Operator	Operator
Meter Reading and Billing	N/A	Operator
User charges Collection	DCC	DCC
Network Repairs	N/A	Operator
New Service Connections	Operator	Operator
Disconnections	Operator to disconnect upon DCC's approval	Operator to disconnect upon DCC's approval
Preventive and Reactive Maintenance	Operator Only for Commissioned DMAs	Operator
Complaint Redressal and Management	DCC	Operator

Malviya Nagar, New Delhi

Malviya Nagar Concession - Key Features

- ✓ 12-year Concession Contract for an area in south Delhi of 400,000 population
- ✓ Tender fixed Capital Cost of Rs 171 Crores (~ $25 Mn)
  - Bidders didn't quote for Works item rates (fixed by contract)
  - Operator finances $4 Mn
- ✓ Delhi Jal Board (DJB) supplies 75 MLD bulk treated water to project area
- ✓ Operator is in-charge of distribution, O&M - Network as well as all Customer Services (meter reading, billing, collection, complaint handling)
- ✓ DJB fixes tariff (same as in rest of Delhi), and Operator collects user charges and deposits in the escrow account
- ✓ Operator's O&M Revenue is for only the water billed & collected
  - O&M Revenue: Gross Rate * Volume billed and collected during the month
  - Gross Rate re-adjustment if the business plan assumptions change.



❖ Bid Variable: Gross Rate per m^3 of Volume billed & Collected

Malviya Nagar O&M Scope: Operator and DJB

Work Description	Responsibility	
	Design and Works Phase	**O&M Phase**
Bulk Water System (Intake structure, WTPs, Raw Water Transmission Mains)	DJB	DJB
DMAs and Related Reservoirs upon commissioning	Operator	Operator
Meter Reading and Billing	Operator	Operator
User charges Collection	Operator	Operator
Network Repairs	Operator	Operator
New Service Connections	Operator	Operator
Disconnections	Operator to disconnect upon DJB's approval	Operator to disconnect upon DJB's approval
Preventive and Reactive Maintenance	Operator	Operator
Complaint Redressal and Management	Operator	Operator

Malviya Nagar Concession: Pros of this Structure

- ✓ Project's revenue model to Operator has a few in-built KPIs as Operator is paid only for volume billed & collected
  - Reduction in NRW
  - Improvement in Collection Efficiency
  - Increase in Service Coverage
  - Increase in Customer base
- ✓ From DJB's perspective,
  - Increase in Revenue for DJB as well as Operator
  - Operator's revenues are 100% performance based (paid from collected user charges)
- ✓ Well defined payment security mechanism, negligible credit risk; all user charges deposited in the escrow account with Operator's first charge on the monies
- ✓ Rate adjustment / Rebasing of Gross Rate for change in business plan assumptions (bulk water supplied by DJB, Operator's investment, etc.)

Malviya Nagar Concession: Cons of this Structure

- ✓ 40,000 connections not enough for economies of scale
  - **fixed costs are very high to ensure high quality O&M for very demanding client and end-customers**
- ✓ Rigid 2 years period for Works and various KPIs; O&M KPIs should be linked with completion of Works Period
- ✓ Not enough water for conversion to continuous water supply
- ✓ No incentive for optimizing Capex
- ✓ No incentives but only penalties for other KPIs

Coimbatore, Tamil Nadu

Coimbatore Water Distribution Concession – Key Features

- ✓ Area of over 105 Square kilometers, serving more than 1 million inhabitants, 150,000 Connections and 1,200 kilometers of Distribution Network.
- ✓ 26-year project to achieve 24x7 water distribution in the city
- ✓ Scope includes optimization, rehabilitation and operation of the entire water distribution system (reservoirs, water network, house connections, meters, etc.)
- ✓ Aims to improve customer services with state-of-the-art customer call centres, meter reading, billing & collection services

Facility		Works/ Rehab	O&M
Bulk Infrastructure	Existing Bulk Water Scheme	Not in Scope	
Distribution Infrastructure	Service Reservoirs/Pumping stations (34 existing and 29 New)	Both Works and O&M are Part of Scope	
	Distribution System (1122 Km existing and 250 Kms new)		
	Comprehensive Operation & Maintenance		
	150,000 Connections, Meter Reading, billing & Collection		
	Customer Services including two contact centers and 4 billing centres		

Coimbatore O&M Scope – Operator & Corporation

Work Description	Responsibility		Cost	
	Operator	CCMC	Operator	CCMC
Operation and Maintenance of Bulk Water System		√		√
Operation and Maintenance of Distribution Water System	√		√	
Meter Reading, Billing and Revenue Collection	√		√	
Complaint Redressal and Management	√		√	
Network Repairs	√		√	
New Service Connections	√		√	
Disconnections		√		√
Asset Management	√		√	
Preventive and Reactive Maintenance	√		√	√ (Major Maintenance)

Coimbatore: Unique Project Structure

Price Bid	**Composite Quote which is sum of Total Works Quote and O&M Quote** • Works Quote: Just the number (no break-up required) • O&M Quote: Annual O&M Fees for each of 25 years (no break-up required)
Revenue Model	**Payment of Staggered Annuities (defined for each of the 25 years; see next slide)** • Quarterly Annuity payments, subject to Works Progress as per BOQ / WP during first 4 years • No penalty for Works delay (except for meter installation) – only delayed revenue realization
Revenue Streams	**Staggered Quarterly Annuity Payment: combined for Works and O&M** • Potential for Additional Revenues: Asset Replacement and Major Maintenance post COD
Works Plan (WP)	**To be prepared in 0th year study period phase** • Based on the Field Surveys, Studies, Hydraulic modelling, etc. • Works Plan's BOQ value can't exceed the Works Quote
Capex Phasing	**More flexibility in Works, Capex Phasing and Investment** • Flexibility in Prioritization of Works and Capex Phasing – BOQ is only for guidance • Investment is flexible; dependent on our price

Key Messages

Key Messages: Challenges in Water Service Contracts (1/5)

1. Inflation & Price Adjustment: Generic Indices don't reflect real price increase

✓ Water Services contracts primarily designed to construct/ rehabilitate water distribution network.

Key Elements	Contract Price Indices
• Ductile Iron Pipes and Fittings	• Steel
• PE Pipes and Fittings (MDPE, HDPE, CPVC)	• Cement
• Water Meters – Bulk & Domestic	• Other Material
• Skilled Manpower	• Labour

✓ Generic indices in Price Adjustment formulae. Price increase for specific material is not reflected

Key Elements	Raw Material	Price Rise (Last 12 months)	Reasons	Price Adjustment (As per Contract)
• Ductile Iron (DI) Pipes	• Pig Iron • Coke	**27%**	• Currency depreciation • Anti dumping duties	**4.5%**
• High Density Poly-ethylene (HDPE) Pipes	• Polyethylene Resin	**52%**	• Currency depreciation • Rise in Crude Price	

❖ **Price adjustment indices should correspond to relevant items of Water Services contracts**

Key Messages: Challenges in Water Service Contracts (2/5)

2. Study period scope reduced to Design Validation only

✓ System Improvement Plan (SIP) is a key to improve services

- Based on detailed scientific study (surveys, investigations, design, planning)
- Action plan for continuous supply, reduction of NRW, revenue improvement, complaint redressal

✓ Contracts mandate SIP but in form 'Design Validation'

- Validation for tender data - project reports prepared prior to tendering.
- Significant variance in SIP from tender data – particularly for brown field projects
- Only 4-5 months assigned for study.

✓ Allow detailed scope of SIP v/s Design Validation

Sufficient Time	Flexibility	Revision
• Detailed Study and Design • 9-12 months for any size of city •	• Changing Specifications • Sequencing of activities	• Bill of Quantities • Milestones • KPIs and Coverage

❖ **Concept of Design Validation underestimates scope and time required**

Key Messages: Challenges in Water Service Contracts (3/5)

3. Avoid modification of Standard Clauses

- ✓ Most International Bidding Contracts adopt FIDIC for General Conditions.
- ✓ Local client overwrites most of the standard clauses with their own version, referred to as Particular Conditions.
- ✓ Client's revision are many a times biased against the Operator, takes away the spirit of fair balanced contract.
- ✓ Contractual terms are conveniently interpreted during execution.
- ✓ Contractual terms and conditions relevant for Design Construction scope should not be applied to O&M scope of works.

❖ **Standard clauses as per FIDIC should be adopted and not tempered with**

Key Messages: Challenges in Water Service Contracts (4/5)

4. Rigid Bill of Quantities (BOQ) Format

- ✓ Contract often inflexible in reallocating funds across line items
- ✓ Brown field water service contracts often see large variation in rehab estimates
- ✓ Bill of Quantities should define the rates only for each item and overall Capex Envelope.
  - Flexibility to change quantities and scopes without limits
- ✓ If cost considerations prevails, reduce the coverage and KPIs.
- ✓ Earmark higher provisional amount to cater for increase in quantity.
- ✓ Appropriately Compensate Operator incase of reduction of work scope

❖ **Allow reallocating funds across line items**

Key Messages: Challenges in Water Service Contracts (5/5)

5. Delays in Approvals

- ✓ Most contracts suffer inordinate delay in work approvals.
- ✓ Administrative processes and hierarchy for approvals not explained in Contract.
- ✓ No compensation is paid to Operator on account of approval delay.

6. Integrated Contract v/s Split Contracts

- ✓ Multiple contractors work on sub assignments/ packages of one large project.
- ✓ Often scope of works overlay between packages.
- ✓ Operators incur extra cost and loss of revenue.
- ✓ One point responsibility with integrated contract should be preferred for Water Supply Works

❖ **Capacity building necessary in client organization, strengthen review & approval process**

Thank You