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# Asia's infrastructure trends and Case Study discussions

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# ***Contents***

|                                                                   |    |
|-------------------------------------------------------------------|----|
| Section 1: Asia's infrastructure trends and the Singapore Journey | 3  |
| Section 2: Case Study – Sport and Culture Category                | 10 |
| Section 3: Case Study – Water Category                            | 19 |

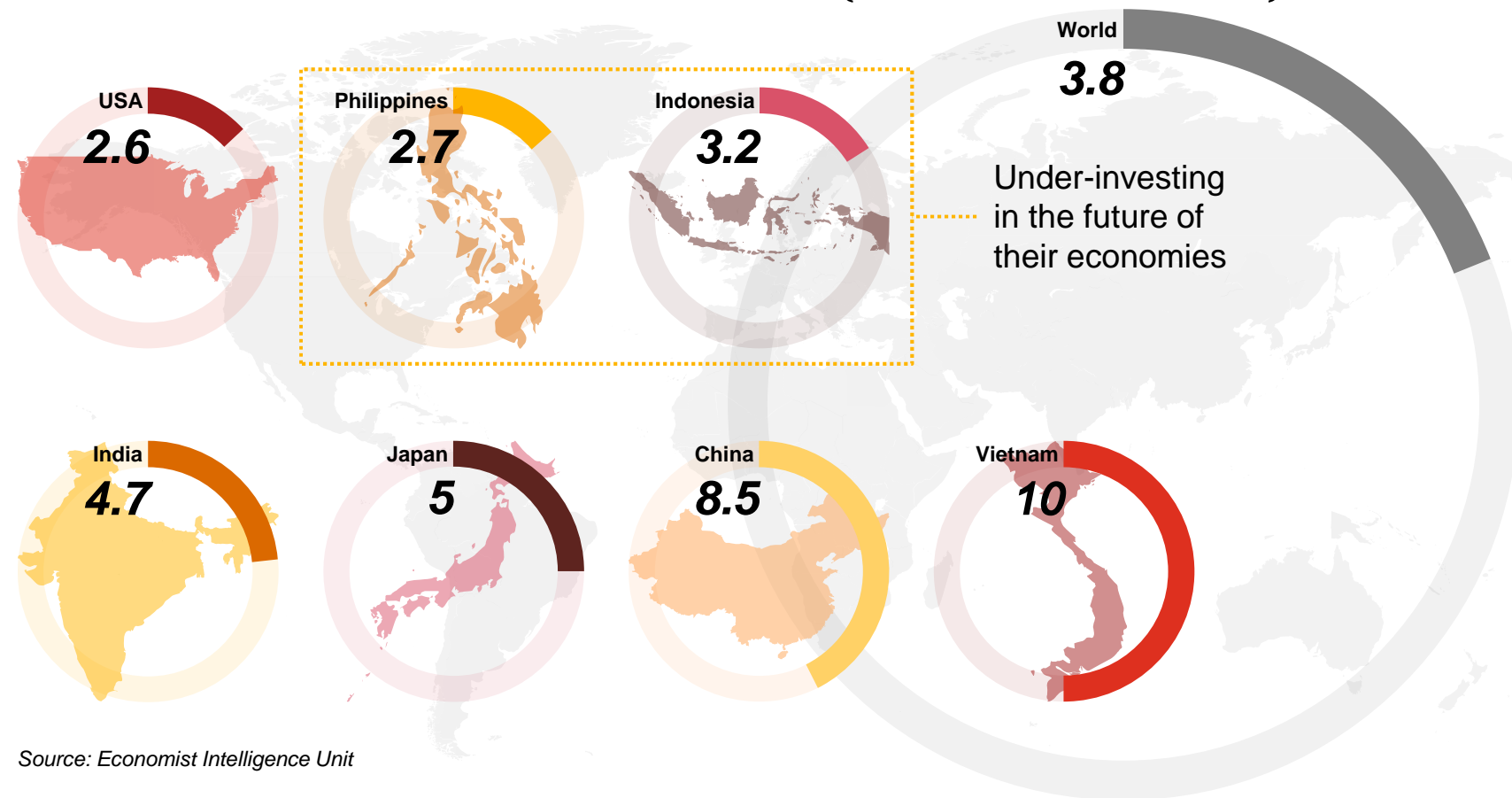
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# *Section 1*

## Asia's infrastructure trends and the Singapore Journey

## ***Despite clear infrastructure deficits, APAC still under-invests***

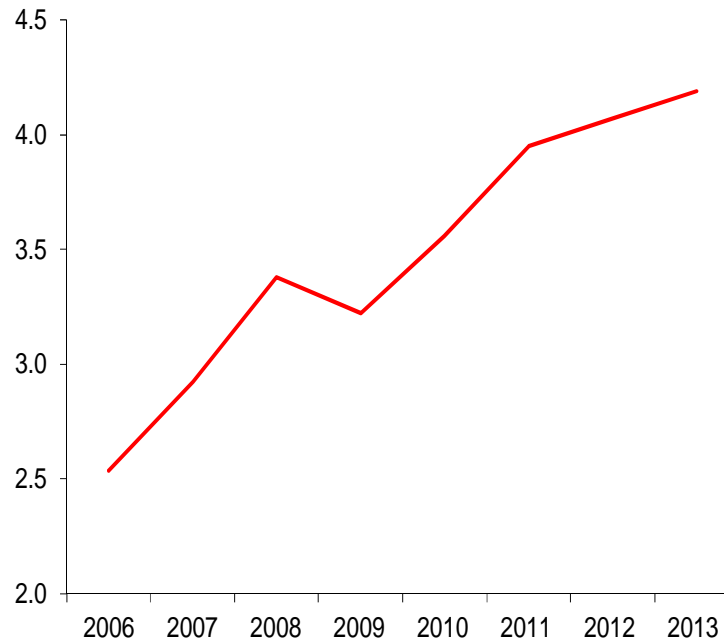
Infrastructure investment as % of GDP (latest data available)



Source: Economist Intelligence Unit

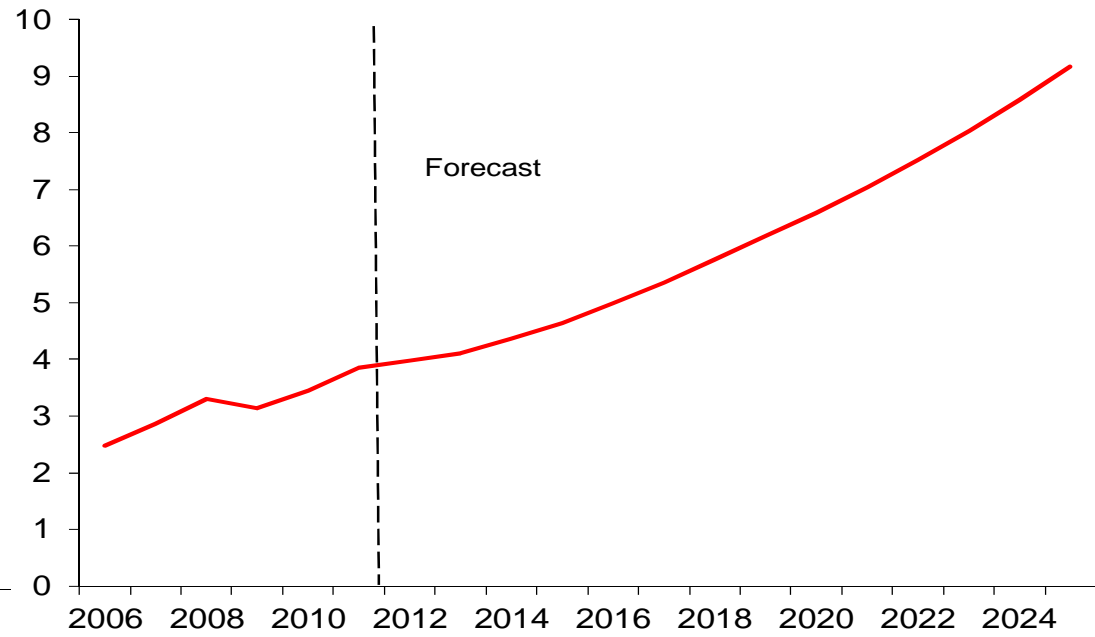
# *Infrastructure: growth in spending*

\$ trillions, current prices



Source : Oxford Economics/Haver Analytics

\$ trillions, current prices

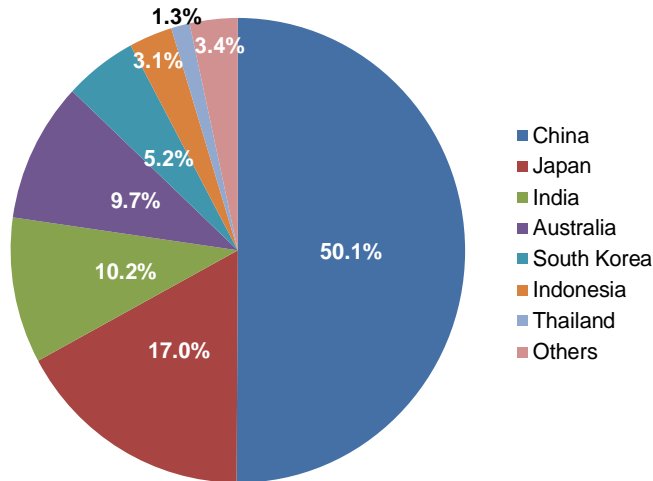


Source : Oxford Economics/Haver Analytics

- Government is a key driver of all infrastructure spend – public and private

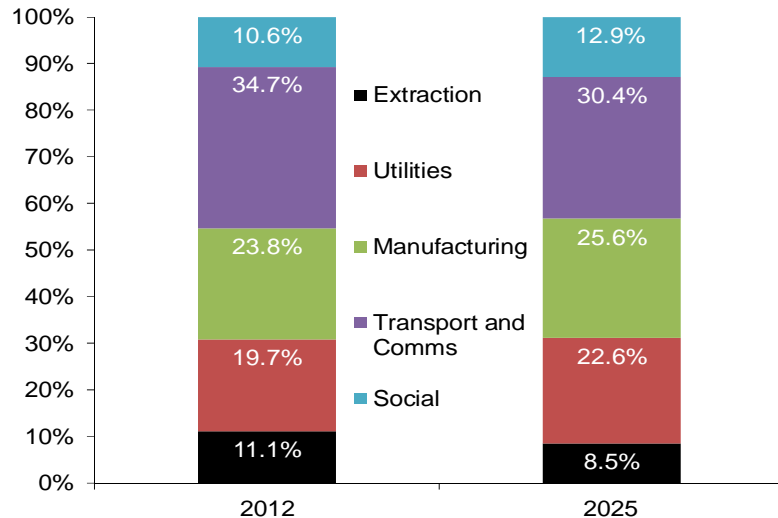
# Asia – Infrastructure spend

Percent of regional infrastructure spend



Source : Oxford Economics/Haver Analytics

Percent of total infrastructure investment



Source : Oxford Economics/Haver Analytics

- Government across region recognise need for continued Infra spend.

- US\$9trn per annum by 2025

- US\$78trn between now and 2025

Overall, the Asia-Pacific infrastructure market will grow by 7% to 8% a year over the next decade, approaching US\$5.3 trillion by 2025

- Government requires private sector finance and expertise to deliver on the infrastructure promise

- Private sector capital and capability critical to sustained delivery

# The Asian Infrastructure Gap: Forecast (2009)

## Infrastructure Deficit of US\$8 trillion (2010-2020)

| Sectors            | Amt (US\$ trn) |
|--------------------|----------------|
| Telecom            | 1.1            |
| Power              | 4.1            |
| Transport          | 2.5            |
| - Rail             | 0.04           |
| - Road             | 2.3            |
| - Others           | 0.09           |
| Water & Sanitation | 0.4            |
| <b>Total</b>       | <b>8.0</b>     |

Source: ADBi (2009),  
Bhattacharya (2008)

## Investment Barrier

- Poor project preparation
- Legal & Regulatory Framework
- Poorly Defined and Unstructured Procurement Processes
- Haphazard Pipeline Management
- Risk Allocation and Commercial Structure – imbalanced risks vs reward
- Lack of Capacity
- Political risks – stability and cycles
- **Lack of investment subsidy in certain jurisdictions**

## Supply of Capital

- Government
- Multi-laterals
- Commercial lending
- Private sector (15-30%, Indonesia-65%)
  - Infrastructure funds
  - Pension funds
  - Strategic investors
    - Constructors
    - Operators
- Others

# *The Singapore Journey - PPPs*

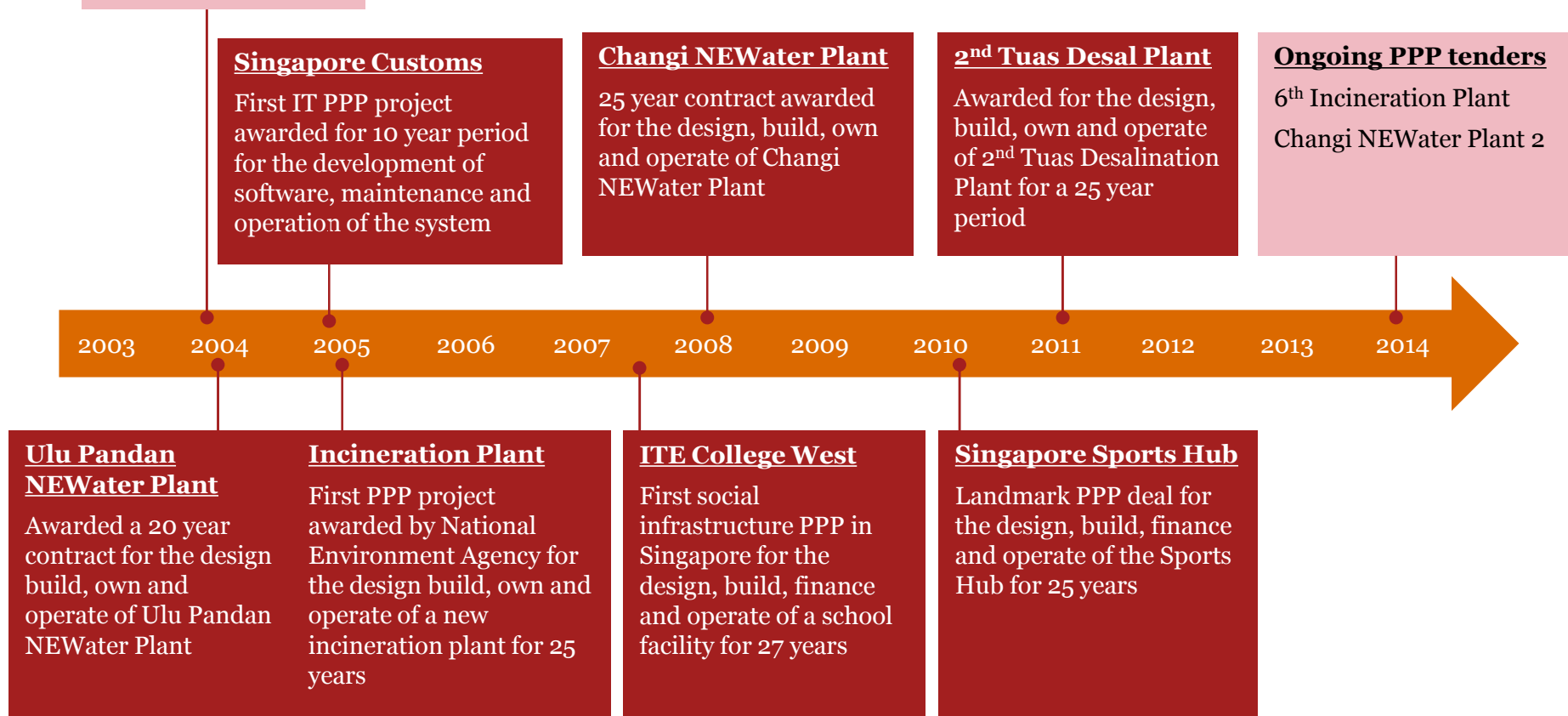


- First PPP handbook issued by the Ministry of Finance (Singapore) in Oct 2004
- Provided guidance to all implementing government agencies
  - Introduction to PPP – setting out the rationale
  - Structuring a PPP deal
  - PPP Procurement Process
  - Managing a PPP – critical success factors
- Promoted the use of PPP for all projects above S\$50m



# The Singapore Journey – PPPs (Continued)

Ministry of Finance published the Public Private Partnership Handbook



# PPP – Common Sectors (globally)

| Sectors of Expertise – Across the PPP and Deals Advisory space                                                                                 |                                                                                                                                                                                   |                                                                                                                                                         |                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
|  <b>Water</b>                                                 |  <b>Power &amp; Energy</b>                                                                       |  <b>Transport</b>                                                    |  <b>Housing</b>                     |
| <ul style="list-style-type: none"> <li>▪ Water treatment</li> <li>▪ Waste water</li> <li>▪ Desalination</li> <li>▪ Inside the fence</li> </ul> | <ul style="list-style-type: none"> <li>▪ IPPs/PPA projects</li> <li>▪ Merchant plants</li> <li>▪ Inside the fence</li> <li>▪ District heating</li> <li>▪ Oil &amp; Gas</li> </ul> | <ul style="list-style-type: none"> <li>• Light rail</li> <li>• Roads</li> <li>• Bridges</li> <li>• Rail</li> <li>• Airports</li> <li>• Ports</li> </ul> | <ul style="list-style-type: none"> <li>▪ Low income</li> <li>▪ Affordable</li> <li>▪ Defence accommodations</li> </ul> |
|  <b>Healthcare</b>                                           |  <b>Education</b>                                                                               |  <b>Prison</b>                                                      | <b>Other Sectors</b>                                                                                                   |
| <ul style="list-style-type: none"> <li>▪ New facilities</li> <li>▪ Refurbishment</li> <li>▪ Facilities management</li> </ul>                   | <ul style="list-style-type: none"> <li>▪ New facilities</li> <li>▪ Refurbishment</li> <li>▪ Facilities management</li> </ul>                                                      | <ul style="list-style-type: none"> <li>▪ New facilities</li> <li>▪ Refurbishment</li> <li>▪ Facilities management</li> </ul>                            | <ul style="list-style-type: none"> <li>▪ Sports Infrastructure</li> <li>▪ Properties and Real Estate</li> </ul>        |

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## *Section 2*

# Case Study – Sport and Culture Category

# ***Case Study – Sports and Culture Category***

## **Singapore Sports Hub**



### **Project Brief**

The project cost of the Singapore Sports Hub was c.S\$1.8billion, making it the largest sports PPP project in the world. The project included the construction of a national sports stadium with capacity of 55,000, swimming complex with capacity of 6,000, aqua centre, a 41,000 square meter business development park, taking over the Singapore Indoor Stadium constructed in 1989, and other supporting facilities.

PPP Project Company is responsible for the design, construction, financing, operations and maintenance of the Singapore Sports Hub, concession length 25 years. PPP Project Company will create a multi purpose sports, recreation and lifestyle location to attract internationally renowned sports events and performances from all over the world.

PwC acted as the lead financial advisor to the government, and led other legal, technical and operational consultants in the advisory consortium.

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## ***Case Study – Sports and Culture Category*** **Singapore Sports Hub – 2010 Awards**

Deal of the Year by  
《Euromoney》



Deals of the Year

Deal of the Year – PPP  
by Infrastructure Journal  
《IJ》



Asia Pacific PPP Deal of  
the Year by 《 PFI 》



Other awards include:

- Asia Pacific PPP Deal of the Year by 《Euromoney》
- Asia Pacific PPP Deal of the Year by 《Infrastructure Investor》
- Financing Deal of the Year by 《The Asset》
- Asia Pacific Financing Deal of the Year by 《Asiamoney》
- Asia Pacific Financing Deal of the Year by 《Euroweek Asia》
- Asia Pacific Leisure Deal of the Year by 《Euromoney》

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## ***Case Study – Sports and Culture Category*** **Singapore Sports Hub – Vision**

**Fully integrated sports entertainment and lifestyle hub as a landmark**

### **Objectives**

1. Integrated Lifestyle Hub for World-Class Sports & Entertainment Events
2. Commercially Viable Business Model
3. National & Global Landmark



### **Desired Outcomes**

1. Thriving sports & entertainment ecosystem
2. Key driver for 'Sporting Singapore' vision
3. Platform for business partnerships
4. Preferred sports & entertainment destination
5. Urban regenerator of Kallang area
6. Vibrant lifestyle hub with world-class customer service

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## ***Case Study – Sports and Culture Category***

### **Singapore Sports Hub – Reason for using PPP**

#### **Leverage on value of private sector for Government projects & objectives**

- Government agency outsourcing of 'non-core'
- Private sector can design, build, finance and operate facilities
- Allows Government agency to focus on 'core' activities

#### **PPP Co to provide integrated plan and whole life costing:**

- Integrated Design & Construction – end use driven
- Optimised finance solution – equity and debt
- Facilities Management
- Facilities Operator – attract, promote and manage events
- Venue Management, Lifecycle and maintenance
- Innovation

# Case Study – Sports and Culture Category

## Singapore Sports Hub – Input vs. Output

### Input Specification (Technical Brief)

Compliance Based  
Excludes Innovation  
Building focused  
Predictable outcomes  
*“more of the same”*

**RETAINS design RISK**

**LIMITS CREATIVITY**

**Architect/Builder Driven**

E.g. In order to ensure the comfort of the spectators, the national sports stadium should have 10 large air conditioners per seating zone.

### Output Specification (Performance Brief)

Strategic Delivery  
Performance Based  
Encourages Innovation  
Business focused  
Optimised outcomes

**TRANSFERS design RISK**

**PROMOTES CREATIVITY**

**End User Driven**

E.g. In order to ensure the comfort of the spectators, the national sports stadium should have an ambient temperature maintained at 23-25 degrees celsius during operations.



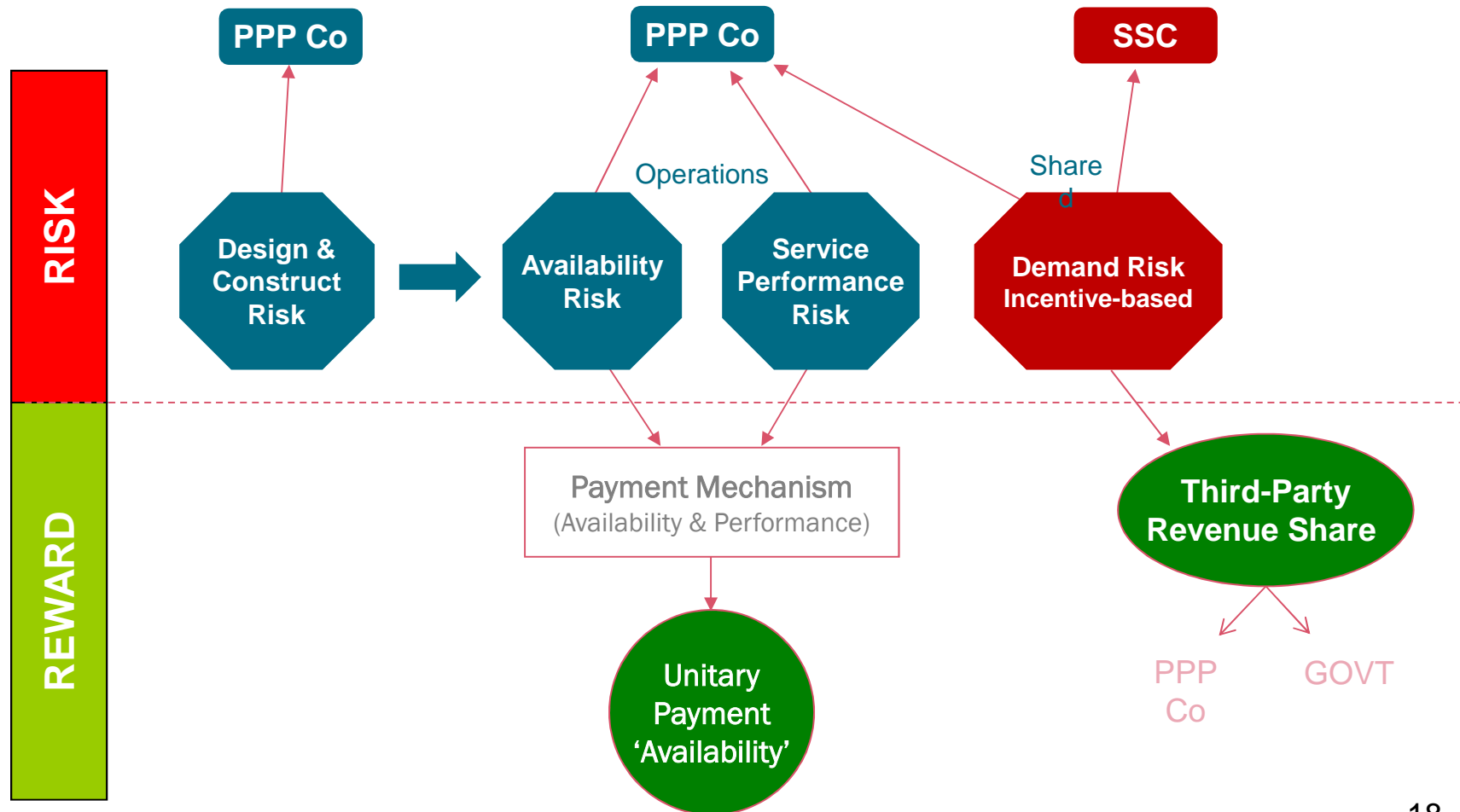
## ***Case Study – Sports and Culture Category*** **Singapore Sports Hub – Evaluation Criteria**

|                                                                 |                                                                                                                                                      |     |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>Appeal of sports, leisure, and entertainment programming</b> | Ability of the Bidder to deliver an appropriate programming calendar, including proposed events programs, facility promotion & community development | 40% |
| <b>Functionality and Quality of Design</b>                      | Design and technical evaluation, including program, deliverability, functionality and urban integration                                              | 25% |
| <b>Financial and Legal Appeal</b>                               | Compliance with the PPP Contract drafted by SSC; legal & commercial qualifications; financing of the construction program                            | 25% |
| <b>Facility Management</b>                                      | Support service proposals for the management and operation of the facilities                                                                         | 10% |

# Case Study – Sports and Culture Category

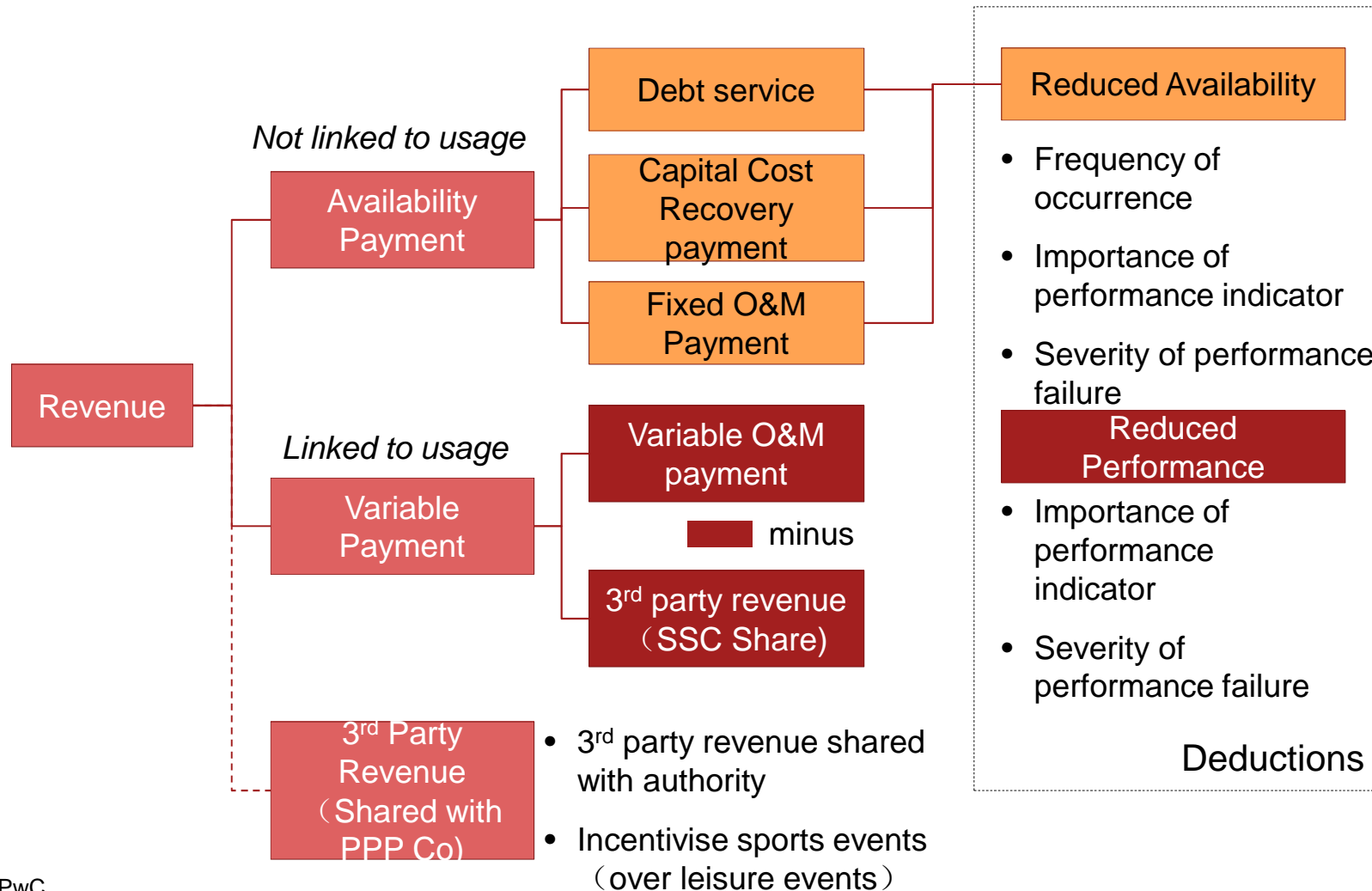
## Singapore Sports Hub – Risk and Return

....a viable business model to attract private sector funding



# Case Study – Sports and Culture Category

## Singapore Sports Hub – Paymech



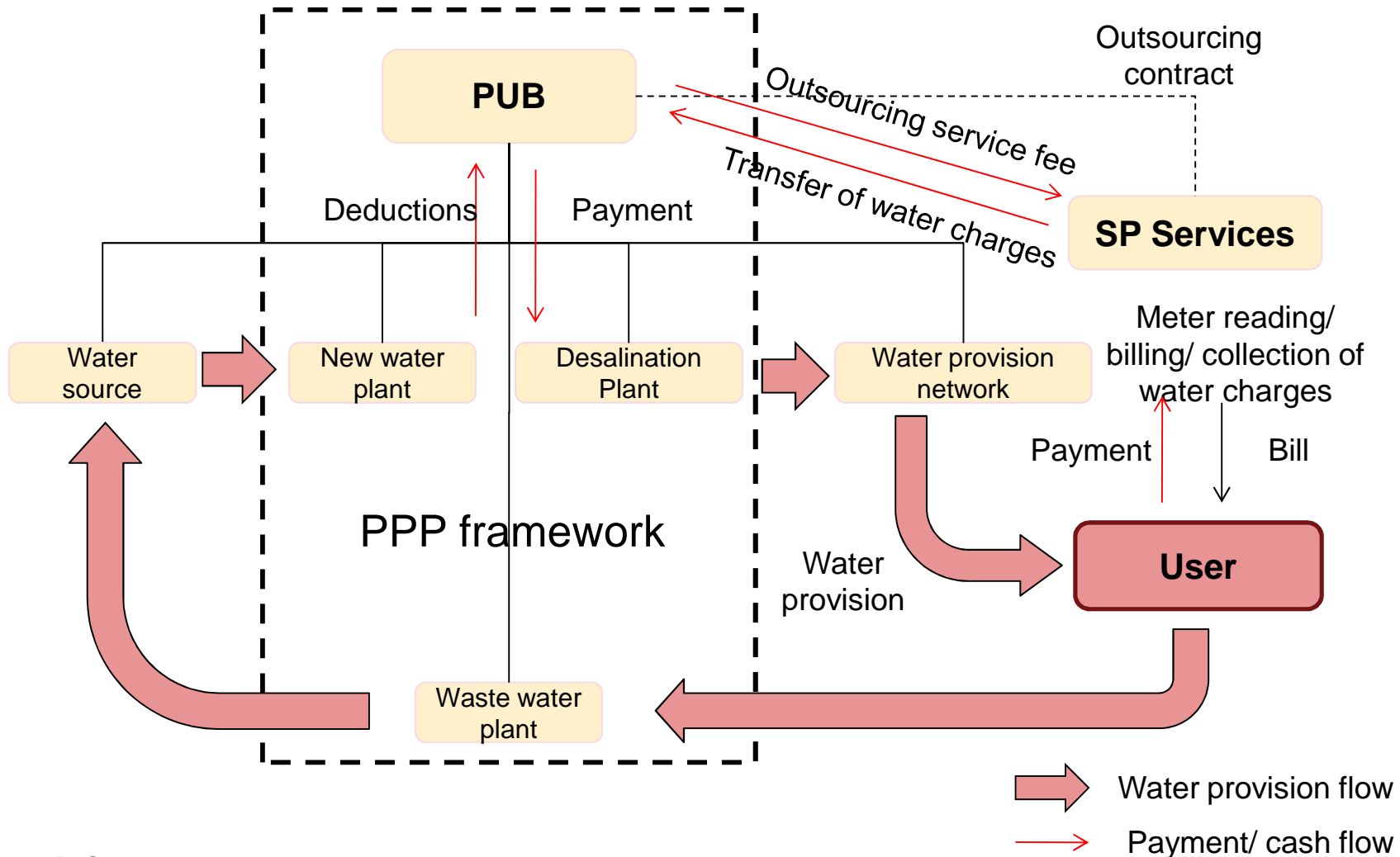
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# *Section 3*

## Case Study – Water Category

# Case Study – Water Category

## Singapore Water Industry Value Chain



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## ***Case Study – Water Category***

### **Singapore Water PPP Case Study**

- Singapore has successfully introduced the private sector in its water industry
- Common BOT structure for water and wastewater treatment- NEWater, Desal, raw water
- Private player is paid through a payment mechanism which has fixed and variable components. Private player does not take on volume risk on water consumption level
- Public Utilities Board (PUB) is the regulator as well as the off taker

The relatively simple and robust structures for these PPPs mean that PUB is able to attract wide interests from the private sector to participate

## ***Case Study – Water Category*** **Singapore Changi New Water**

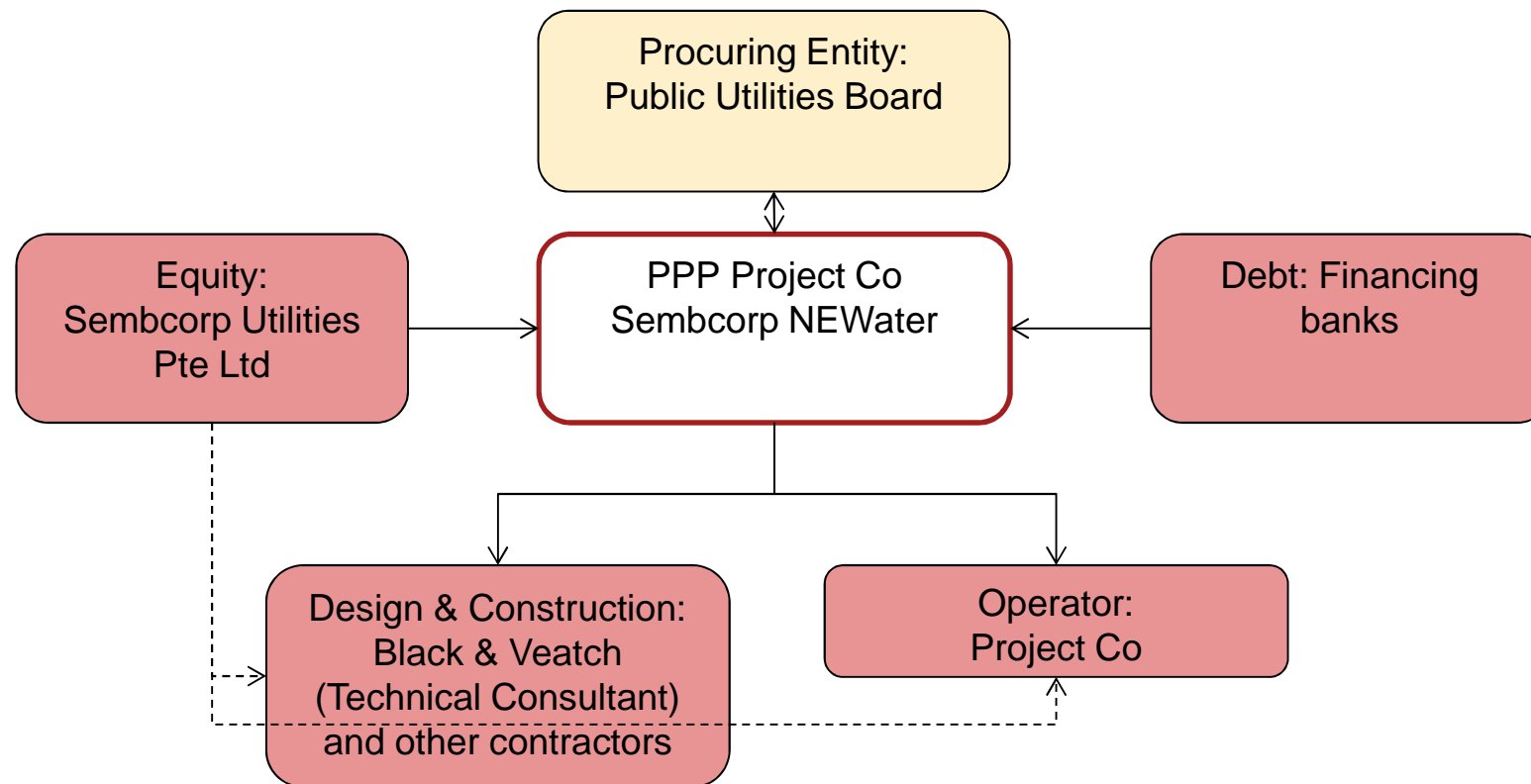
- After 3 months of competitive tender, the consortium Sembcorp Newater Pte Ltd was selected as Preferred Bidder out of 5 bidders in 2008
- Contract term : 27 years
- Responsibility of consortium: Design, construct, operate and maintain Newater Plant, and financing for initial design and capex costs during construction
- Project Cost: SGD 120 million



# Case Study – Water Category

## Singapore Changi New Water

### Commercial Structure

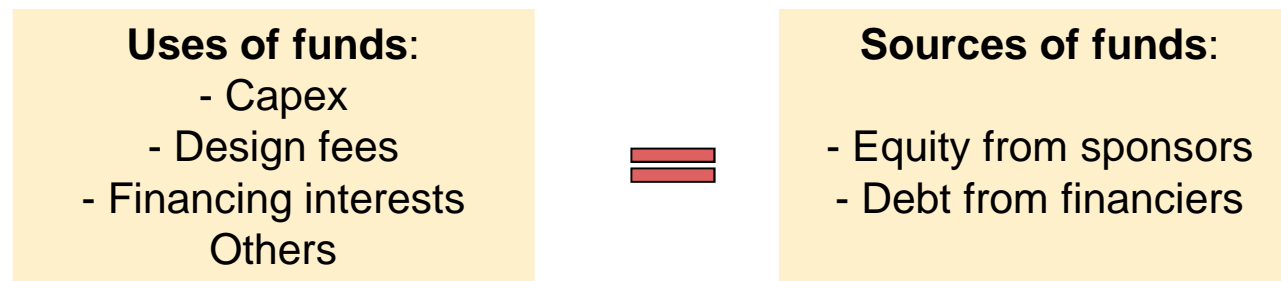




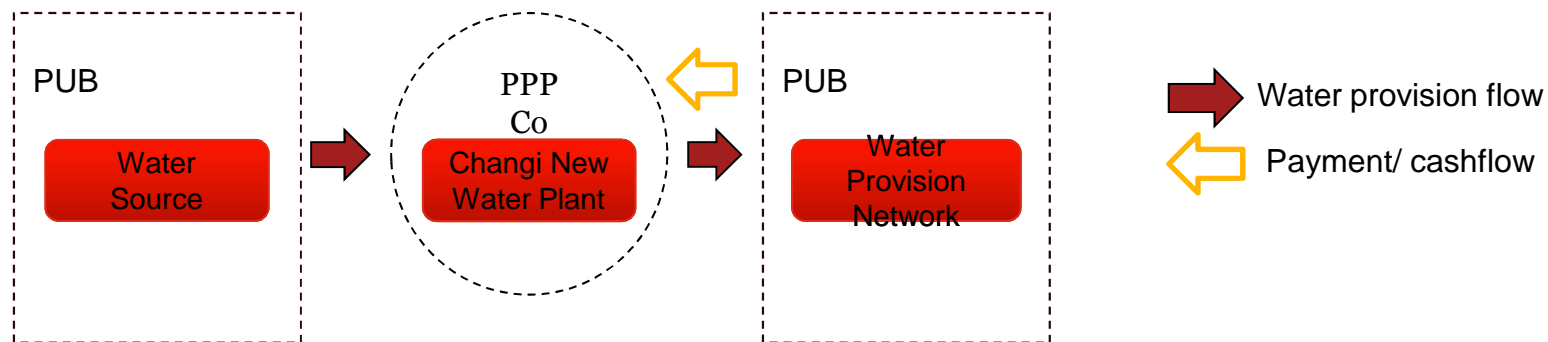
# Case Study – Water Category

## Singapore Changi New Water

- Construction period: PUB does not make payment to PPP Co. PPP Co will need to finance costs during construction

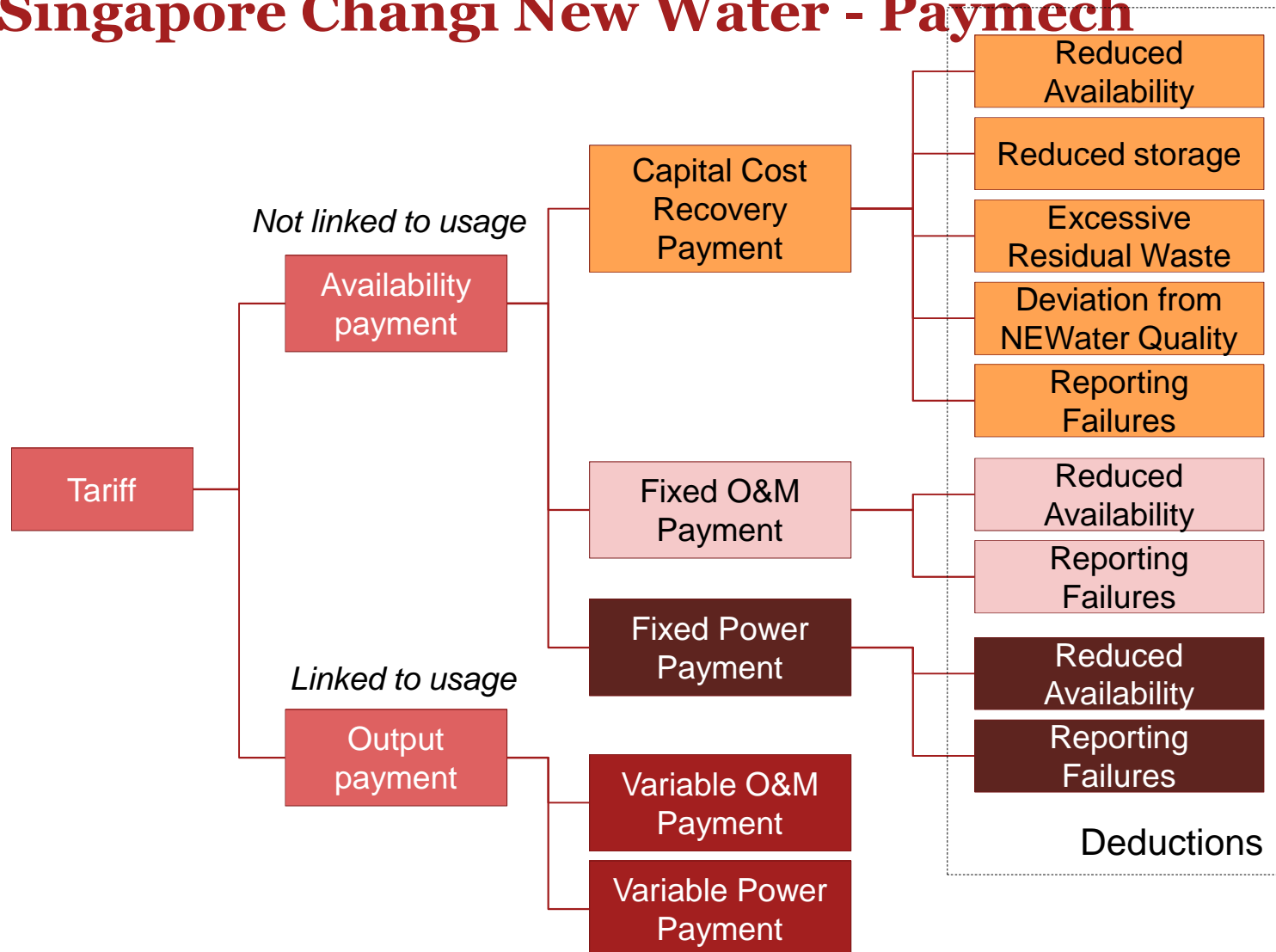


- Operations period: PUB will make payment PPP Co. in accordance to agreed payment mechanism and price



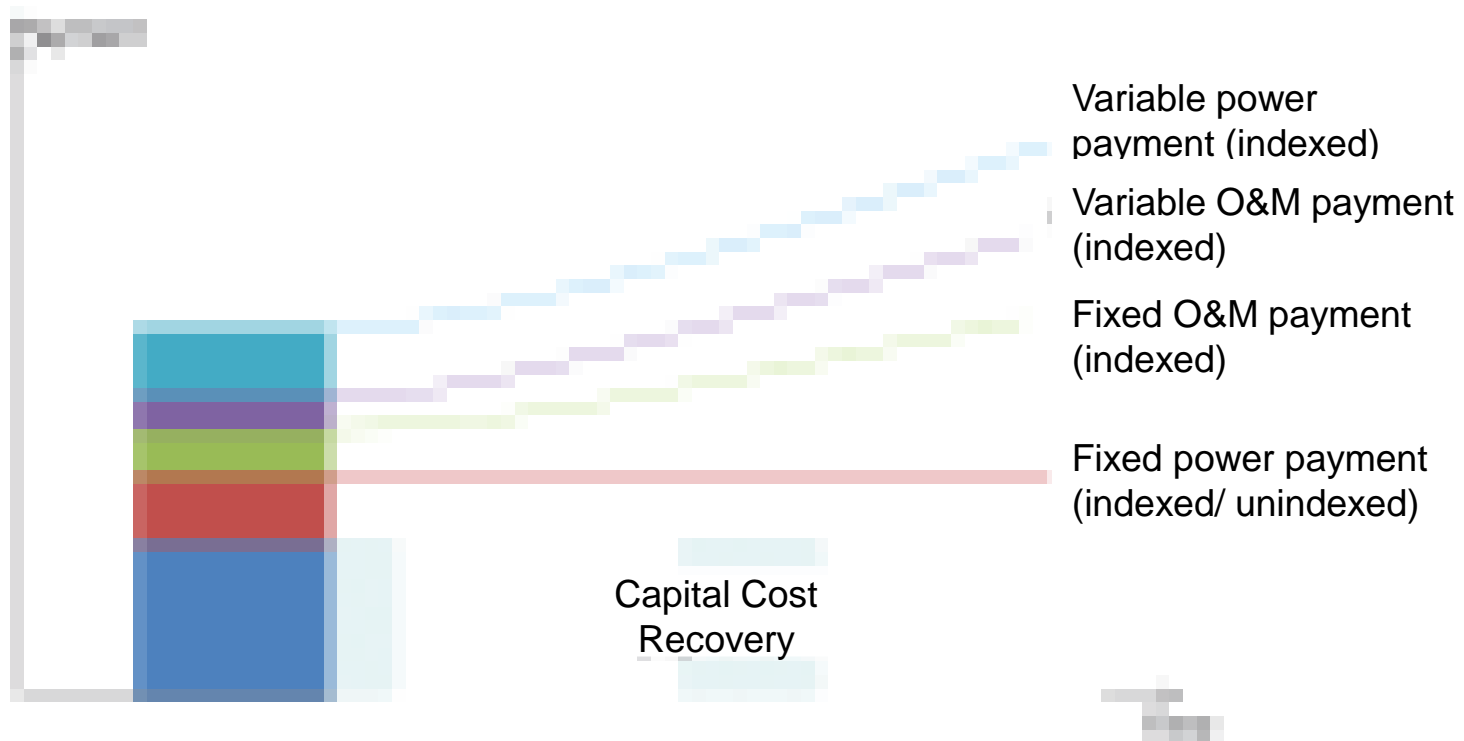
# Case Study – Water Category

## Singapore Changi New Water - Paymech



# Case Study – Water Category

## Singapore Changi New Water - Paymech



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Seng-Chee Lee is a Partner of PricewaterhouseCoopers (Singapore) and he provides financial advisory services to support complex transactions in particular in the Capital & Infrastructure projects

He has more than 17 years of experience in financial structuring, finance raising and M&A activities in both buy and sell side, government and private sector advisory roles, including expertise in Public Private Partnerships (“PPP”), Private Finance Initiatives (“PFI”) frameworks.

He has advised in the development of a number of milestone infrastructure projects and transactions in Singapore, Asia and Europe covering sectors including power, water/waste water treatment, transport infrastructure (toll roads, bridges, ports, mass rapid transport, airport etc). Seng-Chee has worked with many government agencies, major projects finance institutions, infrastructure funds, strategic investors (eg developers) and multilaterals/bilaterals donor agencies on infrastructure development, investments and divestments.

In Singapore, he has supported many government agencies (including Public Utilities Board, Singapore Sports Council, Ministry of Education, Ministry of Trade & Industry, Singapore Cooperation Enterprise, IE Singapore) in many projects involving the promotion of Public Private Partnership to attract private sector expertise and investments into Singapore’s public infrastructure. Seng Chee has also advised private sector consortiums in selected PPP projects tenders in Singapore including wastewater, desalination, transportation, and education campus.

Seng Chee graduated from the London School of Economics (UK) and is a Fellow of the Institute of Chartered Accountants in England and Wales.

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# *Thank you!*

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