

Technical Deep dive World Bank

Illustrating PPP with example in Waste Management

supporting

major societal revolutions since 1858

THE TRADE REVOLUTION



SUEZ canal inauguration

THE HYGIENE & PUBLIC HEALTH REVOLUTION



The industrial revolution leads to the development of cities in need of infrastructure for the sake of people's hygiene and health: Water and sanitation networks are built over great distances, access to safe water is provided, and modern waste collection is invented.

THE URBAN COMFORT REVOLUTION



After the war, big cities and suburbs increase their needs in water supply demand to provide a healthy water 24/7 for more people, to treat urban and industrial waste water, to collect but also store and incinerate increasing waste quantities.

THE RESOURCE REVOLUTION



At the dawn of the 21st century, a new chapter begins at the Rio Earth Summit. World leaders make the protection of the earth a priority. Cities and industries are seeking new solutions to face resource scarcity.

1858-1869

1880

1945

1990

Today

SUEZ

at a glance

A world leader in the smart and sustainable management of resources, we help cities and industries optimize water management, recycling and waste recovery.

employees

over 90,000

operating on

5 continents

industrial and
business
customers

**over
450,000**

turnover in 2016*

**€15.3
billion**

drinking water
produced
(worldwide)*

**5.3 billion
cubic meters**

drinking water
distributed
(worldwide)*

**3,162 million
cubic meters**

waste water
recycled
(worldwide)*

**882 million
cubic meters**

wastewater
depolluted
(worldwide)*

92%

people benefiting
from waste
collection services*

**34 million
people**

waste treated*

**41 million
tonnes**

hazardous waste
treated*

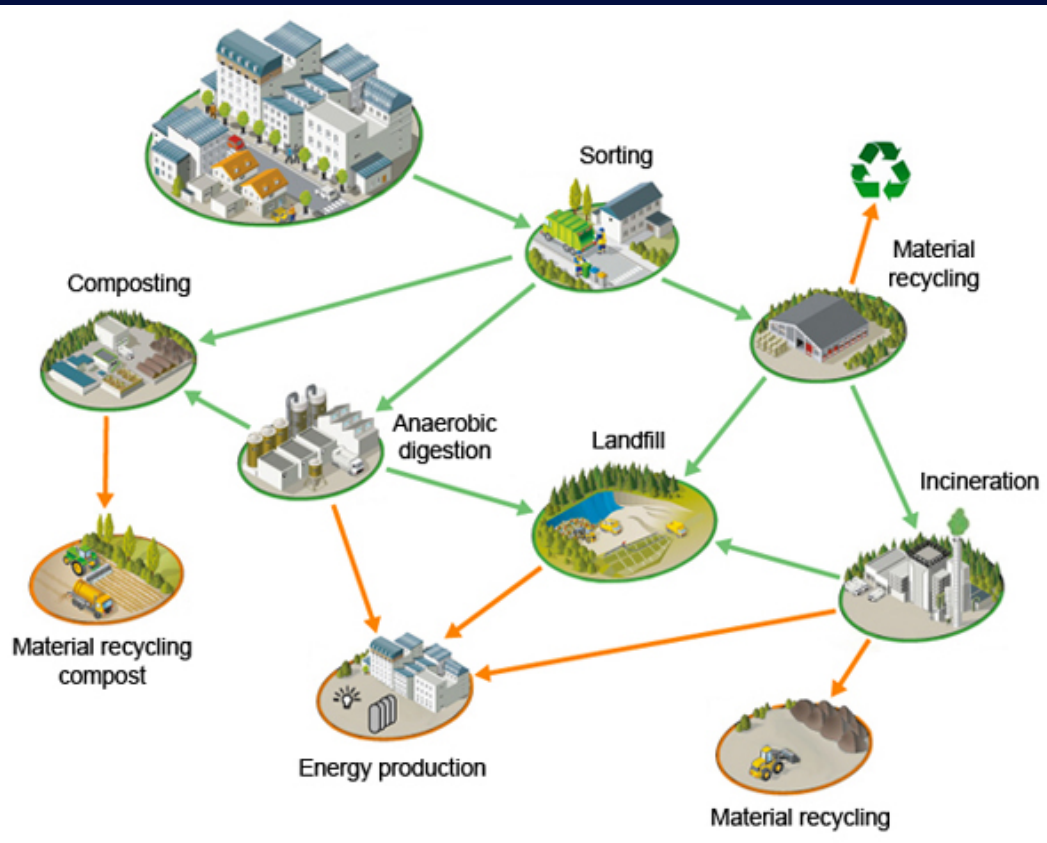
**2.9 million
tonnes**

recovered
material from
sorting centers*

**10.4 million
tonnes**

PPP a tool to support

Complexity of the Waste Management and Treatment Process





Why Public Authorities need PPPs in Waste Management



Performance Drivers

- **Improve the Quality waste management** of the Services
- **Limited capacity** for efficient management and innovation which results in risks.



Governance Drivers

- Identify a responsible body with precise duties and charges
- Transparency.



Economical Drivers

- **Discrepancy** between limited revenues and strong financing needs
- Including a private partner increases the credibility of their loan demands
- Difficulties in getting access to international finance .

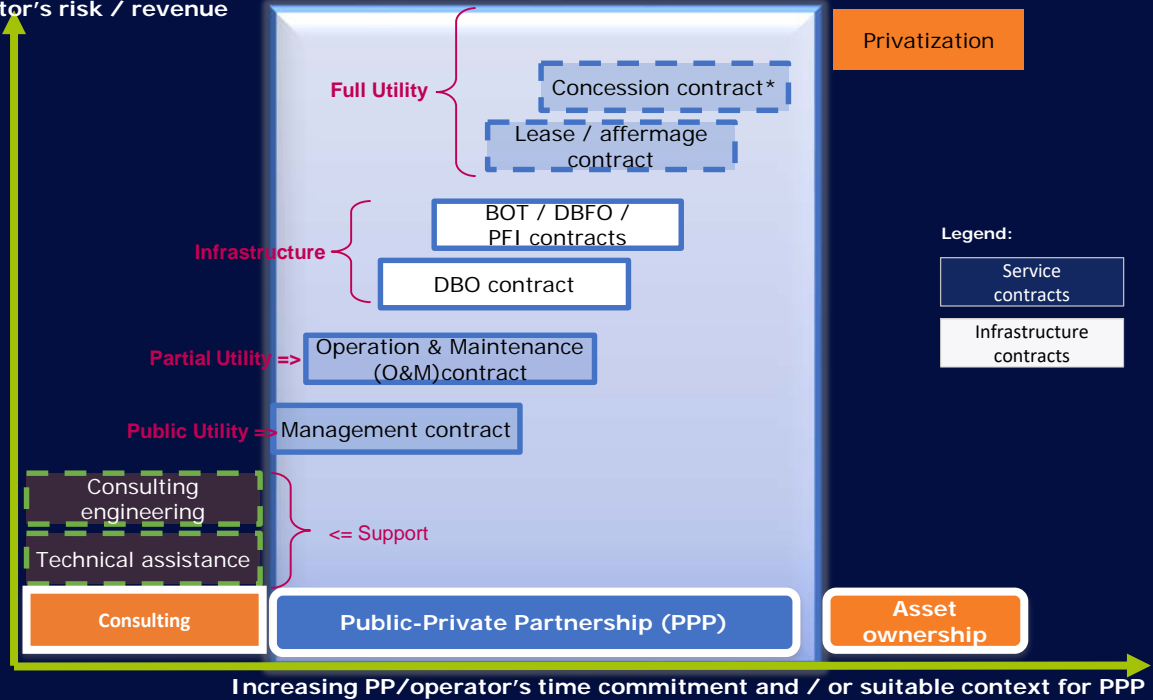


Environmental and Social Drivers

- Infrastructure in need of capital improvements to meet **environmental compliance issues**
- Difficulty in complying with **regulatory standards..**

Range of Contracts to improve clients performance

Private Sector Involvement
Value creation for the client
Contractor's risk / revenue





The contracting model should match the main clients drives



Objective drivers

- What is the **Objective** of the Client?
- Technical and management skills?
- Operational Efficiency ?
- Increase private investment ?
- Construction optimization?



Responsibility Drivers

- What part of the responsibility is the client ready to delegate?



Scope of work Drivers

- Which duration does the client want to be engaged?
- Which level of risk does the client want to transfer?
- Does the client have human resources to allocate for the project
- What is his level of **technical capacity** ?



Financial resource Drivers

- What part of investment can the client bring
- What finance benefit is the client expecting

Which Contract

Depending on Objective driver

Increasing Private Partner's responsibilities

	Client's objectives			
Contract models	Benefit from technical and management skills	Improve operational efficiency	Increase private investment	Outsource construction to operator/PP
Management contract	Yes	Possibly	No	No
O&M	Yes	Yes	No	No
DBO	Yes	Yes	(No)	Yes
BOT/DBFO/PFI	Yes	Yes	Yes	Yes
<i>Affermage/Lease</i>	Yes	Yes	<i>Possibly</i>	<i>No</i>
<i>Concession</i>	Yes	Yes	Yes	Yes

Waste Management Activity	Type of contract
Collection/Street cleaning	Concession
Recycling	DBO/O&M
Landfill	DBO/O&M
WTE / MBT or other treatment	DBO/BOT/O&M

BOT : Transferring Risk to the private sector

Availability Risk	The risk that the quantum of service provided is less than required under the contract	Operational Risk	The risk that operating costs vary from budget, that the performances standards slip or the service cannot be provided
Construction Risk	The risk that the construction of the physical asset is not completed on time, to budget and to specification	Planning Risk	The risk that the implementation of project fails to achieve the terms of planning permission, or that detailed planning permission cannot be obtained, or if obtained, can only be implemented at costs greater than the original budget
Demand Risk	The risk that demand for the service does not match the levels planned, projected or assumed	Residual Value Risk	The risk relating to the uncertainty of the value of physical asset at the end of the contract period
Design Risk	The risk that the design cannot deliver the services at the required performance or quality standards	Technology Risk	The risk that changes in technology result in services being provided using non optimal technology
Inflation Risk	The risk that actual inflation differs from assumed inflation rates
Legislative Risk	The risk that change in legislation increase costs. This can be sub-divided into general risks such as changes in corporate tax rates and specific ones		
Maintenance Risk	The risk that the costs of keeping the asset in good condition vary from the budget		



BOT

Risk and Guarantees

Example of WTE

Guarantee by the Public Party

- Provide Land
- Definition of the Waste (MSW , Food Waste , C&I)
- Guarantee of minimum Waste Volume (ex : 1000 TPD)
- Payment Guarantee
- Terms of contract (20 years..)

Risk by the Public Party

- Demand Risk
- Change of Law
- Risk of Choosing ...

Guarantee By the Private Party

- Time to completion
- Fixed Gate Fee (with inflation revision)
- Waste Volume swallowing capacity (ex : 1000 TPD)
- Truck turn around time (ex 20 min)
- Environmental compliance (Emissions to Air , Effluent)
- Community Management

Risk taken by the Private Party

- Construction risk and project Schedule
- Fixed Gate Fee
 - O&M Cost
 - Waste Calorific Value which influence electricity production
- Availability Waste Volume swallowing capacity (ex : 1000 TPD)
- Environmental compliance (design risk , Operation Risk)
- Safety Risk , Community risk



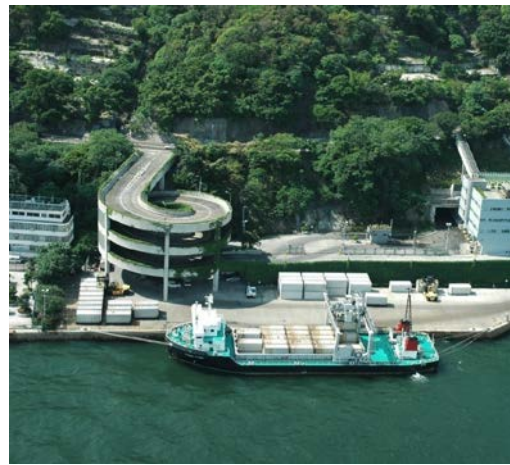
Example of PPP

**improving economic and
environmental performance**

Hong Kong The land of DBO



- All Waste management contract in HK are DBO
- Landfill , Transfer Station , Infrastructure of Treatment ...
- Each project are tender separately by EPD (Environment protection bureau) and consist of Design, Construction and then operation and management contract which terms vary depending on the project.



Benefits for HK

- Private Parties design the project based on concept from EPD , no interface between construction and O&M
- Allow deployment of technology at low risk
- Private Parties in control of the operation with stringent guarantee
- Competitivy (Lower Gate Fee) as :
 - Low cost of operation as Asset financing and shareholder return is not part of the services fee.
 - Operators is incentivize both on the construction and long term O&M

BOT in South East Asia for WTE

A Challenging Environment



Why BOT

- *Municipalities in SEA are looking at BOT as Capex for WTE is substantial and they have many others infrastructure project in development.*
- *Technology and Operation are complex , it's allow the most secure risk allocation of the public party to the private party*

The Challenges

- *Complex Legal Framework with several agencies involve and most of the time not cooperating with each other (Grid, Cities, Environment bureau..)*
- *Difficult for non-capital cities to interact at national level to ensure that the city follow all the necessary step to get PPP Approve.*
- *Stability of government decision and legal enforcement of contract.*
- *Under-estimation of the need for government guarantee and the impact of Finance industry*
- *Poor conception of project , wrong consultant (or not independent) pushing for non-proven technology . Misunderstanding of the driver*
- *Conflict inside the public party*
- *Transparency*
- *Management of tender*
- *Barrier to limit competition (language, ownership ...)*
- *Decision making..*



**PPP , the future
in smart and sustainable
management of resources**

Smart Cities Opportunity of Smart PPP



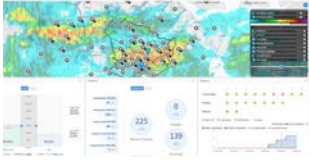
Providing access to technology

- *PPP allows implementation , fine- tuning ,improvement and ability to stay up to date to municipalities in their digital strategy*
- *PPP legal framework has to be adapt to allow this deployment especially:*
 - *Draft specification to allow technical innovation*
 - *Speed – to avoid obsolescence at launch*
 - *Allow inter-connection of interface and system – example connecting waste data and traffic data and security ...*
- *Cities need Private Parties for Development And operations.*

Exemple

- **In Barcelona :** Operate CityOS, through a public-private partnership. Barcelona’s operating system, CityOS provides a shared environment for connecting to or using the city’s data. The recovery of urban data will enable Barcelona to grow by developing new services.

- **In Singapore :**
WaterGoWhere uses smart meters to keep residents updated on your water usage. Enabling reduction of loss at the user.
SUEZ’s AQUADVANCED® Urban Drainage in tropical environments
To ensure maximum rainwater storage while preventing urban flooding with End to end water quality monitoring for a safe resource and a pleasant city



- **In France :** Just in time collection with connect bin to Optimize waste collection thanks to effective data management ,Reduce CO2 emissions ,Reduce maintenance and servicing costs: zero overflow

A photograph of a traditional stone water fountain. The fountain is made of dark, weathered stone and has several spouts. The water is flowing from the spouts into a pool. In the background, several people are bathing in the pool. The scene is set outdoors, with large rocks and some greenery visible. The overall atmosphere is one of a natural, traditional water source.

**SUEZ, a Group committed
to people and the planet**

A photograph of a park at sunset. In the foreground, there are several black park benches and a trash can. A large tree is on the left. In the middle ground, a fountain with multiple jets of water is active. A person is walking on a path near the fountain. In the background, there is a body of water and a building. The sky is a mix of orange, pink, and blue. A decorative metal lantern hangs from a pole in the foreground. A sign with the word 'BRANDS' is visible near the fountain.

Back Up Slides

Thailand Legal Framework PISA Act 2013

Process and Step for PPP Approval



- Feasibility Study conducted by an independent external consultant (compulsory)
 - Both qualitative and quantitative assessments
 - Approval from Affiliated Ministry, SEPO and PPP Committee
 - 150 days
 - Minister: 60d
 - SEPO: 30d (if no revision)
 - PPP Committee: 60d (if deadline note met: implicit approval)
 - Draft invitation to tender, draft TOR and draft PPP contract
 - Appointment of selection committee by the host agency
 - Transparent bid requirements
 - Transparent evaluation criteria
 - Nomination of preferred private bidder through the following process:
 - Issuance of Notice of Invitation
 - Announce shortlisted candidates
 - RFP
 - SEPO and Attorney General approve of Preferred Bidder and PPP contract
 - Review by responsible Minister and submission to the Cabinet for consideration
 - Enforcement of « security bond »
 - SEPO and Attorney General: 45 days
 - Responsible Minister: 30 days
 - Signing of PPP contract and financial close
 - Completed project file submitted to SEPO 30days after signing
 - Appointment of a Supervisory Committee
- Process of revision between Minister, SEPO, host agency & Committee is clearly defined**

PPP 5-Year Plan (2015-2020)

Table 1: PPP implementation time-frame

	Operation period											Remark
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
Group 1: Projects which must have private investment												
Development of rail transit system in city area												Started from 2011
Development of toll road in city area												-
Development of shipping port												Started from 2010
Development of high speed rail system												Expected to be completed in 2049
Development of telecommunication network												-
Development of high speed internet												Expected to be completed in 2030
Group 2: Projects for which the state should encourage private investment												
Development of logistics and distribution centre												Expected to be completed in the concession period
Development of toll road between cities												-
Management and maintenance of common ticket system												No information
Business development and management of airport area												No information
Development and management of water quality management system												-
Development and management of irrigation system												-
Development of solid waste disposal system												Started in 2013 and expected to be completed in 2035
Development of public school												-
Development of infrastructure for science, technology and innovation												-
Development of public health infrastructure												Expected to be completed in 2038
Management of medicines and medical devices												-
Development of convention centre												Started in 2015
Development of airport under supervision of government agency												No information
Development and management of shelter for poor, elderly and disadvantaged people												No information
Development related to digital economy												No information

Note: Information is subject to change after the hearing.

Source: SEPO

Table 2: Estimated investment amounts under the strategic plan for 2015-19

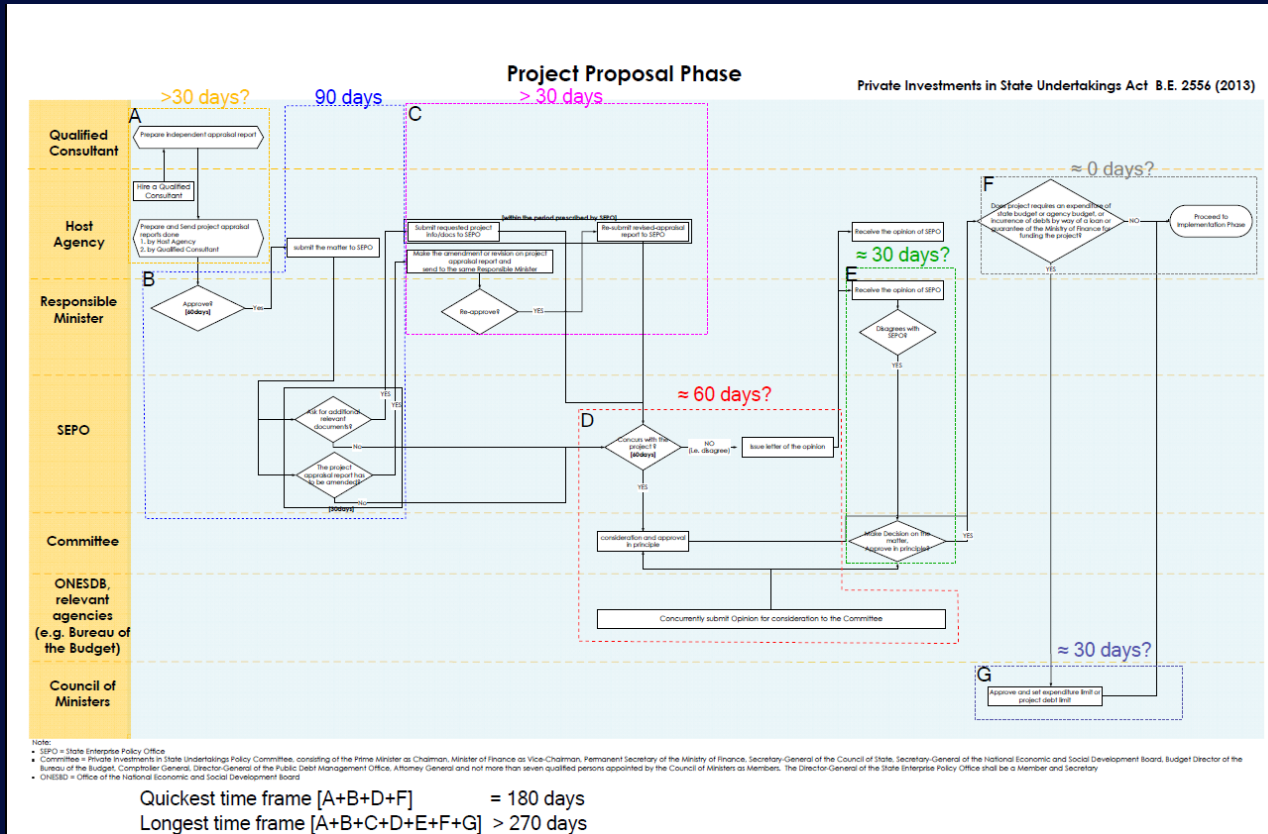
Project	Value (million baht)
Development of rail transit system in city area	567,928
Development of toll road in city area	3,035
Development of shipping port	124,435
Development of high speed rail system	389,492
Development of telecommunication network	28,000
Development of high speed internet	19,537
Development of logistics and distribution centre	14,584
Development of toll road between cities	451,078
Management and maintenance of common ticket system	600
Business development and management of airport area	No information
Development and management of water quality management system	31,080
Development and management of irrigation system	No information
Development of solid waste disposal system	3,504
Development of public school	5,000
Development of infrastructure for science, technology and innovation	40,650
Development of public health infrastructure	1,000
Management of medicines and medical devices	195
Development of convention centre	26,000
Development of airport under supervision of government agency	No information
Development and management of shelter for poor, elderly and disadvantaged people	No information
Development related to digital economy	No information
Total	1,706,158

Note: Information is subject to change after the hearing.

Source: SEPO

Thailand Legal Framework PISA Act 2013

Process and Step for PPP Approval



DBO

Design Built operate

- The Design-Build-Operate (DBO) is a contract where the Private Partner provide assets and on-going operation and maintenance services in respect of the assets.
- But the Public Partner pays for the asset on completion and for services when provided.

Client's scope of work	Contractor's scope of work
Legal ownership and regulatory responsibilities	Design & Construction (performance based)
Project finance for new or existing works	Operation (performance based)
Setting and collecting tariffs	Provision of staff (+ transfer of existing staff)
	Managing renewals and finance (depending on contract duration and client's requirement)

Characteristics:

- Contract of results seeking for performance
- Construction part pre-dominant on short term DBO and balanced on long term DBO
- CAPEX owned by Client
- Operator's investment responsibility limited to renewal as defined in the contract depending on duration and client's will
- Design, Performance and O&M risks are transferred to DBO contractor
- Duration : 2 to 30 years
- Opportunity for some transfer of technology and good practices in long term DBO only
- Long term DBO appropriate for client willing to build and operate an infrastructure with performance objectives and able to finance the investment
- Short term DBO appropriate for clients willing to build an infrastructure and train its operators

BOT

Build Own- Operate Transfer

- The BOT for Build-Operate-Transfer (also BOOT for Build-Operate-Own-Transfer) is a form of a public partnership for the development of treatment facilities (transfer stations/sorting and recycling centres/ EfW plants).
- The private Party takes the responsibility for the “Financing”, “Design”, “Construction” and “Operation& Maintenance” of the facilities during the term of the BOT contract”
- The project is often developed by a Single Purpose Company(SPC) specially incorporated for this purpose (design, construction, financing and O&M)
- The SPC has the possession of the assets during the term of the contract and hand them back to the Client (Public Authority) at the end of the contract duration

Characteristics:

- Contract seeking for performance & results
- Construction and operation risks transferred to Operator = high risk transfer (integrated risk management)
- Payment for investment and operations over whole contract life, which must be long enough to enable asset amortization (20 to 30 years)
- Operation by field experts => guarantee for financiers (particularly when non recourse financing)
- Single Client – Single Contractor => Single Contract
- Particularly suited for new infrastructure entrusted by Public Sector



STRENGTHS	WEAKNESSES
<ul style="list-style-type: none">• Private operator has full control of the operations and investments.• High turn-over and income for the Operator with long-term partnership.• Socio-economical role of the Operator who becomes a major player in the country.• Ability to generate side business or spot new opportunities• Off-balance sheet financing; leverage effect.	<ul style="list-style-type: none">• Bid costs considerably higher.• High degree of risk transferred to private operator.• Capital-intensive business model.• Capital-intensive model• Client insolvency and affordability risk

A Lawyer's dream

BOT

Typical Structure

