

# **Understanding Public-Private Partnership in Singapore: Determinants of Project Adoption, Success, and Failure**

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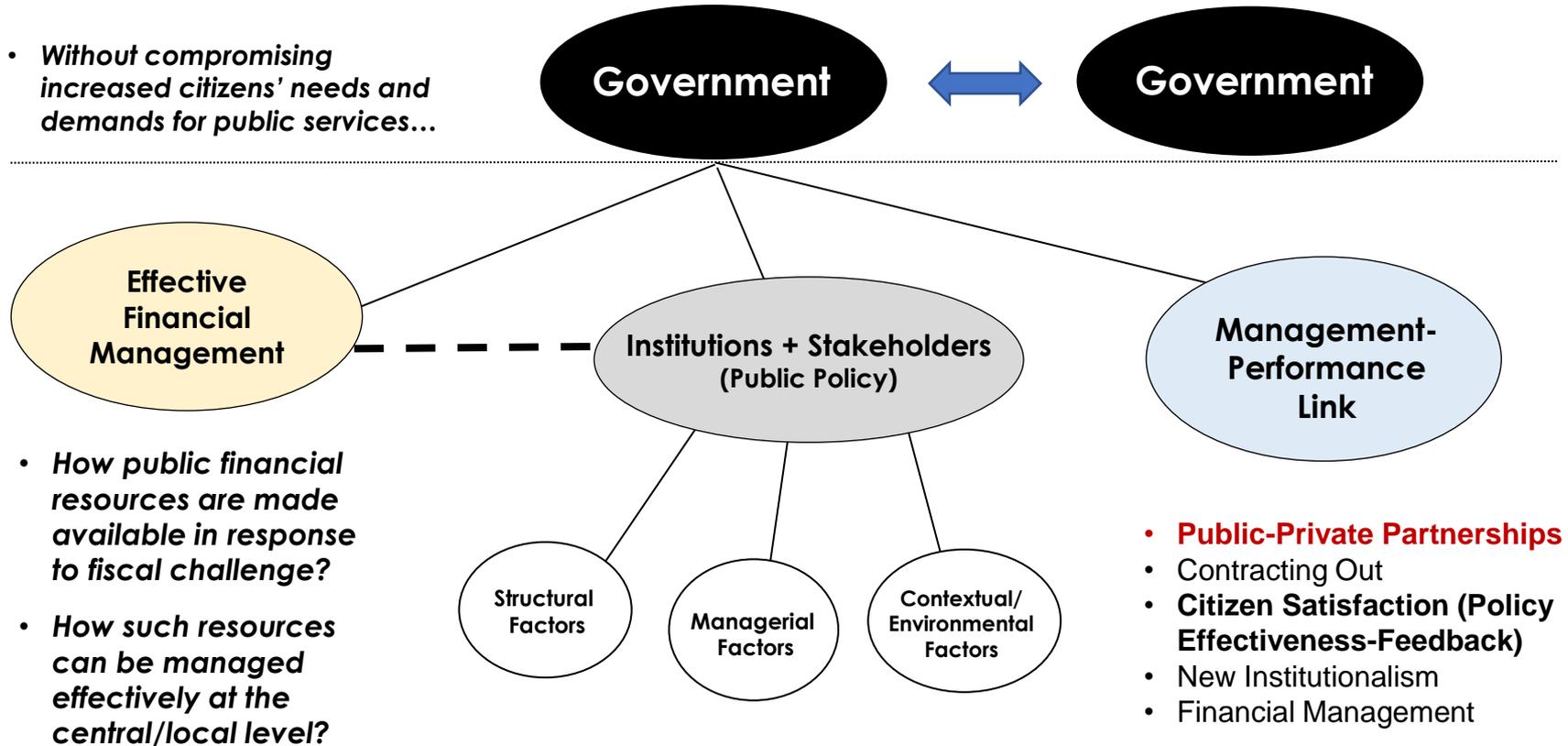
**Prepared for Colloquium, The Institute of Governmental Studies, Korea University**

# Outline

- **Why Public Private Partnerships (PPPs) – Research Interests**
- Research Gap, Motivation, Purpose & Questions
- An Overview of **PPPs in Singapore** & Literature Review
- Method: **Focused Case Studies**
- Analysis and Findings
- Discussion and Conclusion

# Research Interests

- *Without compromising increased citizens' needs and demands for public services...*



- *How public financial resources are made available in response to fiscal challenge?*
- *How such resources can be managed effectively at the central/local level?*

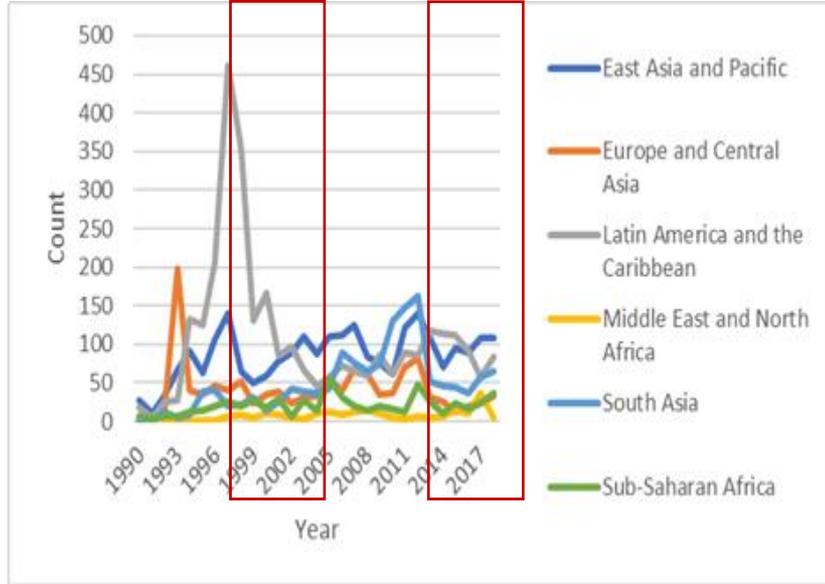
# Public-Private Partnerships (PPPs)

OECD (2012, p. 18): **PPPs** stand for

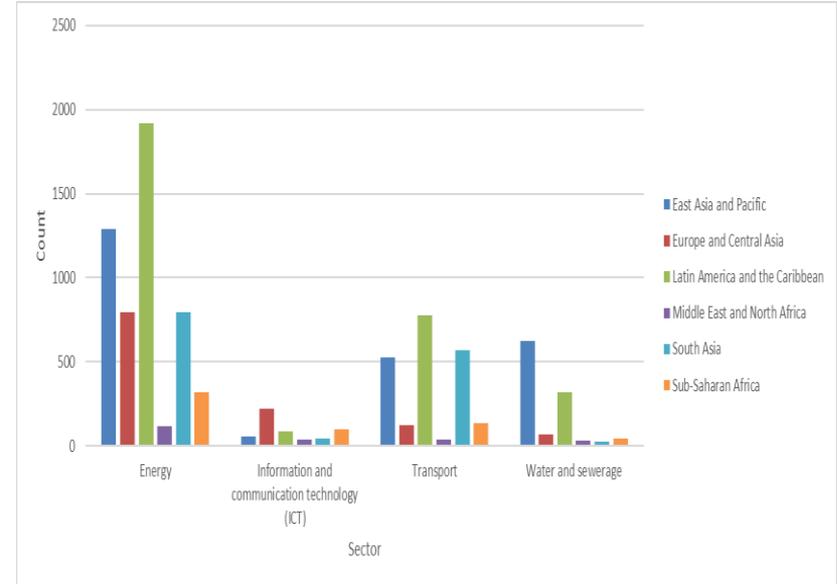
**"[L]ong term contractual arrangements between the government and a private partner whereby the latter delivers and funds public services using a capital asset, sharing the associated risk"**

- ❑ **Long-term large-scale (mega) public projects in infrastructure** contracts & urban public services → **Innovation gains based on private resources + Cost-savings ... Economic efficiency (value for money)** (i.e., (re)build bridges, highways, tunnels, sport stadiums, airport, (waste)water treatment)
- ❑ "Business-like Public Reforms" from the West (**NPM-inspired** policy initiatives) due to public choice critique of Big & Inefficient Governments – **UK's Private Finance Initiative (PFI) in the early 1990s** → AU, NZ, EU, USA → developing countries having transitional economies

## Historical Trend of PPI Projects by Region (over the period 1990-2018)



## PPI Projects by Sector (Disaggregated by Region)



\*Source: World Bank. (n.d.). Private participation in infrastructure (PPI) project database. Retrieved June 30, 2019, from <https://ppi.worldbank.org/en/ppidata>

PPP



## CHANGI AIRPORT TERMINAL 5



Singapore

# Research Gap & Motivation

What Do We Know So Far in the PPP Literature?

- **Scholarly attention in the field of PA and Policy still seems to be *lacking***, compared to other areas (e.g., business administration, engineering, health, or medicine)

- To date, most studies (e.g., water, wastewater, transportation) have tended to **focus on cases in Western countries** (UK, AU, U.S.) and recently in East Asian countries (mostly China).

- **Perspective of international policy diffusion (transfer) from the West to the East**; from national to regional; neighboring influences (external factor-focused)

- Much of the analysis centered on **success factors rather than failure or termination of PPPs** in the long run

# Policy Diffusion: From the West to the East

- **Policy Diffusion** is defined as **one gov't's policy choices being influenced by the choices of other gov'ts** (Shipan & Volden, 2008, 2012)



# Research Questions

- **What can explain (promote) the adoption/diffusion of PPP projects in Singapore?**
  - Beyond a neighboring, regional factor (competition, learning, mimicry, coercion), **little is known about internal (domestic) factors** that present political, economic, and social characteristics of a state's policy environment in the context of Southeast Asia.
- **How and Why PPPs fail?**
  - In practice, PPPs are **not always cost-effective** in implementing gov't projects!
  - **Factors** related to **project success and failure** are **“not necessarily (simply) opposite or contradictory”** (Baker et al., 1988; Uluocak, 2013)
  - **“There is no unified global formula for project success**, and focusing on critical success factors **(CSFs) alone does not necessarily lead to successful project implementation”** (Biygautane et al., 2019)

ROUTLEDGE FOCUS

EXPLORING  
PUBLIC-PRIVATE  
PARTNERSHIPS IN  
SINGAPORE

The Success-Failure Continuum

Soojin Kim and  
Kai Xiang Kwa



Asian Journal of Political Science



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A closer look at risk factors for public-private  
partnerships in Singapore: six case studies

Soojin Kim & Kai Xiang Kwa

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# Part I.

## Understanding Public-Private Partnership in Singapore: *Determinants of Project Adoption, Success, and Failure*

# An Overview of PPPs in Singapore

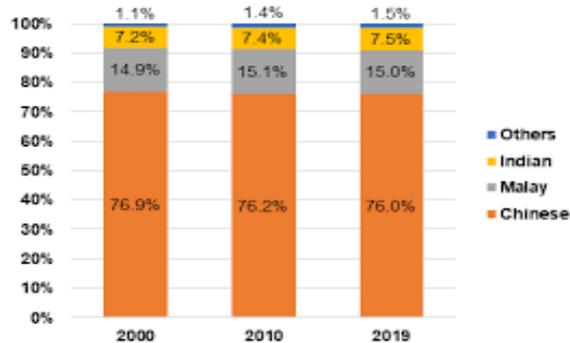
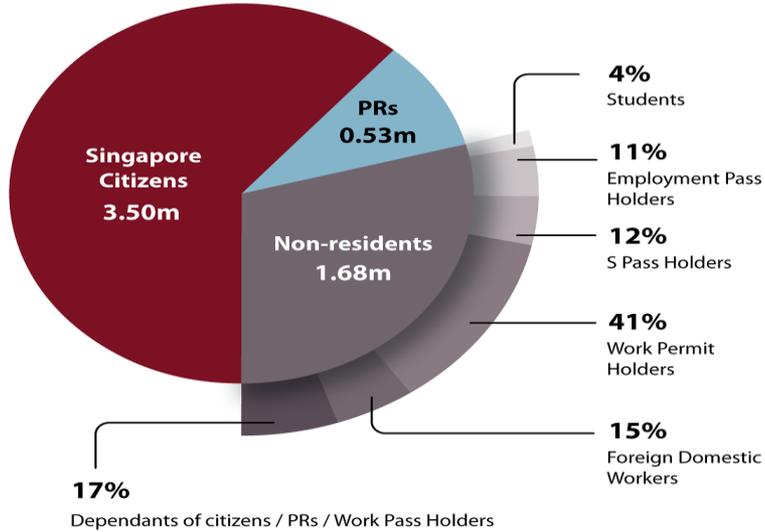


## A small-sized city-state government in Southeast Asia

- **A British colony** since the 19<sup>th</sup> century → occupied and ruled by the Empire of **Japan (1942-45) during WWII** → **returned to British colonial rule** on 12 Sep, 1945 → September 16, 1963, **SG gained independence from the British and then merged with the Federation of Malaysia** → **conflicts ('Malay Malaysia' vs. 'Malaysian Malaysia'**; United Malays National Organisation (UMNO) of Malaysia vs. People's Action Party (PAP)-led gov't in SG) + different political ideology; racial riots → **Separation of SG from the Federation of Malaysia in 1965**

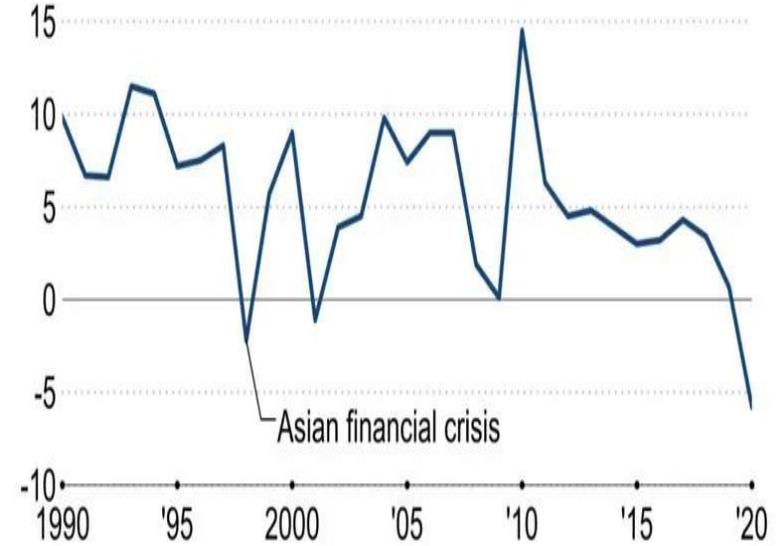


## TOTAL POPULATION



## Singapore suffers worst GDP contraction in 2020

(Growth rate, in percent)



Source: Singapore's Department of Statistics

# Main Determinants of Project Adoption

*State-led Economic and Social Sector Development/Top-down Approach*



One of the First Southeast Asian Countries to adopt PPPs for Economic/Social Infrastructure

- **1st Prime Minister Lee Kuan Yew's legacy of *Authoritarian Pragmatism***
  - **People's Action Party (PAP)**; "accept the heavy ties with the West for economic programme"; attracted many multinational corporations from the US, Europe, and Japan; Later, followed the British-style approaches (e.g., UK's Private Finance Initiative in 1991)
- **Toward the so-called '*Global City*' plan in the 2000s (new millennium)**
  - *Trade-dependent economy* → 1997 Asian Financial Crisis → 2001-03 Global Recession + in the early 2003, fear of the SARS virus in Asia → **Increased spending on infrastructure**
  - (*Globalization + Financialisation*) To improve global economic competitiveness; To maintain its status as an Asia-Pacific Financial Hub (an international hub of air and sea transport) (Woo, 2016); "Renaissance city," "Global city for the arts"; To attract more tourists & world-class talents

**Table 1.** Public-Private Partnership (PPP) Projects in Singapore (2000–2019).

Project Name	Service Area	Start Date (Year)	End Date (Year) <sup>a</sup>	Public Stakeholder	Private Stakeholder(s)	Budget (SGD)	Success (S) /Failure (F)
MRT PPP	Public Transport	1998	2016	Singapore Government	Singapore Mass Rapid Transit Corporation Limited	-	F
Sing Spring Desalination Plant	Water	2001	-	Public Utilities Board	SingSpring	-	S
Transport Winged Course	Military	2003	-	Republic of Singapore Air Force	Singapore Technologies Aerospace Ltd	-	S
Keppel Seghers Ulu Pandan NEWater Plant	Water	2004	-	Public Utilities Board	Keppel Seghers	-	S
Fifth Incineration Plant	Waste	May-05	-	National Environment Agency	Keppel Seghers	-	S
Basic Wings Course	Military	Aug-05	-	Republic of Singapore Air Force	Pilatus Aircraft Ltd and Lockheed Martin	-	S
Premiere @ Tampines	Residential	Oct-05	2009	Housing Development Board	Sim Lian Land Pte Ltd	Approximately 82 million	S
Rotary Winged Course	Military	Nov-05	-	Ministry of Defence	Singapore Technologies Aerospace Ltd	Approximately 120 million	S
National Service Portal	Military	Dec-05	2010	Ministry of Defence	NCS Group	-	S
TradeXchange	Trade and Logistics	Dec-05	2017	Singapore Customs	Crimson Logic Pte Ltd	-	S
Next Generation National Broadband Network	Internet	Feb-06	-	Info-communications Development Authority of Singapore	Open Net Consortium, Nucleus Connect	-	S
ITE College West	Education	Jul-06	-	Institute of Technical Education	PricewaterhouseCoopers, Gammon Capital, DP Architects	Approximately 400 million	S
City View @ Boon Keng	Residential	Mar-07	2012	Housing Development Board	Hoi Hup Realty Pte Ltd, Sunway Concrete Products (S) Pte Ltd, Oriental Worldwide Investments Inc.	Approximately 170 million	S
NUS UniversityTown @ Warren	University Accommodation	Jun-07	Sep-07	National University of Singapore	-	Approximately 500–600 million	F
Sembcorp Changi NEWater Plant	Water	Aug-07	-	Public Utilities Board	Sembcorp NEWater Private Limited	-	S
Park Central @ AMK	Residential	Dec-07	2012	Housing Development Board	Great earth Developments Pte Ltd	Approximately 134 million	S
Natura Loft @ Bishan	Residential	Dec-07	2012	Housing Development Board	Qingdao Construction Group Corporation (Singapore Branch)	Approximately 135 million	S
SMU Hostel	University Accommodation	-	2008	Singapore Management University	-	-	F
Flying Instruction Project	Military	2008	-	Ministry of Defence	ST Aerospace	105 million	S
Parc Lumiere @ Simei	Residential	Apr-08	2012	Housing Development Board	Sim Lian Land Pte Ltd	Approximately 52 million	S
The Peak @ Toa Payoh	Residential	Aug-08	2012	Housing Development Board	Hoi Hup Realty Pte Ltd, Sunway Developments Pte Ltd, Hoi Hup JV Development Pte Ltd	Approximately 198 million	S

Changi Motorsports Hub	Sports Entertainment	2009	2011	Singapore Sports Council	SG Changi	Approximately 380 million	F
Rifle Range Management	Military	2010	-	Singapore Armed Forces	Several Private Operators	-	S
Adora Green	Residential	Mar-10	2014	Housing Development Board	Guthrie (DBP) Pte Ltd, SK Land Pte Ltd	Approximately 148 million	S
Tuaspring Integrated Water and Power Plant	Water	Mar-11	2019	Public Utilities Board	Tuaspring, Hydrochem	Approximately 1.05 billion	F
Centrale 8 @ Tampines	Residential	Jun-10	2015	Housing Development Board	Sim Lian Land Pte Ltd	Approximately 178 million	S
Belvia	Residential	Sep-10	2015	Housing Development Board	CEL Development Pte Ltd	Approximately 112 million	S
Singapore Sports Hub	Sports	Sep-10	2014	Singapore Sports Council	Singapore Sports Hub Pte Ltd	1.33 billion	F <sup>b</sup>
Parkland Residences	Residential	Oct-10	2015	Housing Development Board	Kwan Hwee Investment Pte Ltd	Approximately 155 million	S
Lake Vista @ Yuan Ching	Residential	Nov-10	2015	Housing Development Board	Hoi Hup Realty Pte Ltd, Sunway Developments Pte Ltd, SC Wong Holdings Pte Ltd	Approximately 131 million	S
Trivelis	Residential	Jan-11	2016	Housing Development Board	EL Development Pte Ltd	224 million	S
Pasir Ris One	Residential	Mar-11	2016	Housing Development Board	Singxpress Land (Pasir Ris) Pte Ltd, Kay Lim Holdings Pte Ltd	Approximately 123 million	S
Advanced Remanufacturing & Technology Centre (ARTC)	Research and Development	Jun-12	-	Agency for Science, Technology and Research	Nanyang Technological University	-	S
Community Health Assist Scheme	Medical	2012	-	Ministry of Health	Several Private Medical Clinics	-	S
Emergency Care Collaboration BEWG-UESH NEWater Plant	Medical Water	Dec-14 2014	- -	Ministry of Health Public Utilities Board	Raffles Medical Group BEWG International Pte Ltd, UES Holdings Pte Ltd	- Approximately 170 million	S S
Ulu Pandan Wastewater Demonstration Plant	Water	2015	-	Public Utilities Board	Black and Veatch + AECOMUES Holdings Pte Ltd and Mitsubishi Heavy Industries	-	S
Thomson Celebrating Life programme	Medical	2017	-	Health Promotion Board	Thomson Medical Group	-	S

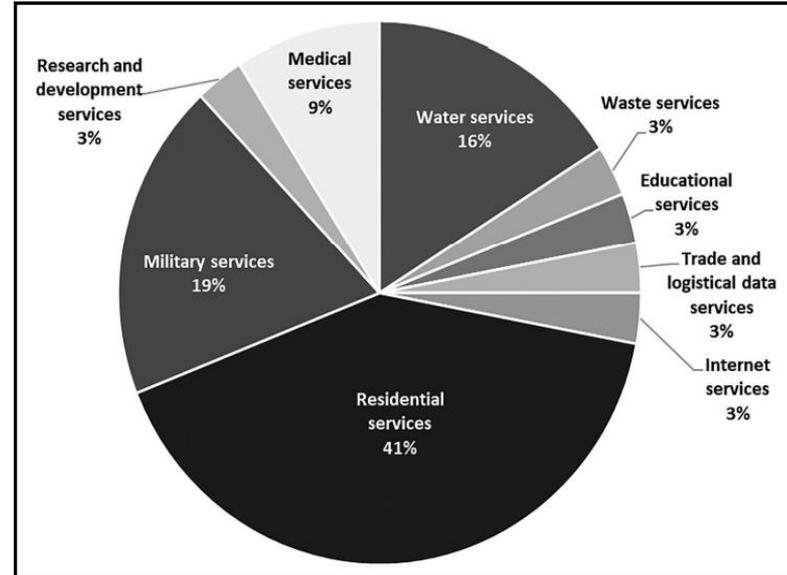
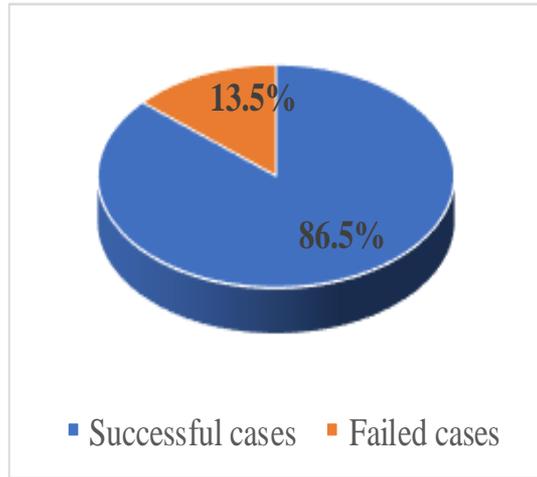
Notes: Most of data on the end date of PPP projects and budget were not available (-).

<sup>a</sup>The end date refers to date for successfully completed projects or termination/completion date for failed projects (year).

<sup>b</sup>Although the project is still operational under the PPP arrangement, this study posited that it can be classified as a failed case due to the numerous problems plaguing its construction and operation stages (e.g. funding difficulties, faulty grass pitch and roof, and high rental costs).

\*Source: Kim & Kwa (2020b)

- (2000-2019) SG has implemented **38 projects**, of which 32 seem to have been, or are being successfully implemented; **however, the remaining 6 have failed/been terminated or are deemed to be displaying signs of PPP failure** (see charts below):



\*Sources: (1) Kim, S. & Kwa, K. (2020a). *Exploring Public-Private Partnerships in Singapore: The Success-Failure Continuum*. Abingdon: UK; New York, NY: Routledge. The *Routledge Book Series – Focus on Public Governance in Asia*. (ISBN: 9780367259457);  
(2) Kim, S. & Kwa, K. (2020b). A Closer Look at Risk Factors for Public-Private Partnerships in Singapore: Six Case Studies. *Asian Journal of Political Science*, 28(2), 142-163.

# Between Two Research Questions

## ➤ **What can explain (promote) the adoption/diffusion of PPP projects in Singapore?**

- Beyond a neighboring, regional factor (competition, learning, mimicry, coercion), **little is known about internal (domestic) factors** that present political, economic, and social characteristics of a state's policy environment in the context of Southeast Asia.
- Focus on **"Water Services"**

## ➤ **How and Why PPPs fail?**

# Why PPPs for “Water Services”?

- ❖ **Water is an essential prerequisite for human life.**
- ❖ **Managing water resources, including waterworks (dam), supply, sewage and wastewater treatment, has long been one of the gov’t responsibilities to meet citizens’ basic needs and welfare.**
- Water-related infrastructure is a social overhead capital that has the nature of public goods.



PPP

\*Sources: Berry & Berry (1990, 1992);  
Eom et al. (2017)

# Policy Choice/Adoption

## Internal Determinants/Factors

Internal  
Actors

Other Actors Potentially  
Influencing Local  
Adoption Decisions

Top-down  
Go-  
betweens

Epistemic  
Go-  
betweens

Political, Economic, & Social  
characteristics embedded in gov't

## External/Regional Factors

Neighbors  
(Other Governments)

External Actors that have *already*  
(previously or recently) adopted a policy

# Who is involved?

- Main Factors (Actors) Shaping the Local Policy Diffusion Process -

## 1) Internal Factors/Actors:

: *People within gov'ts pursuing an innovation* (mostly leaders, officials/policy makers).

: A policy is likely to be chosen by “*Real People*” with different views, preferences, capabilities, and goals (Graham et al., 2013).

- Broadly, they may include chief executive, legislative bodies, courts, gov't agencies, interest groups, other levels of gov't, news media, general public opinions, policy communities, and individual citizens.

## 2) External Factors (Regional Influences)

: Presence/Influences of *Neighboring Gov'ts* that are in close geographic proximity and have already (previously or recently) made the policy choice

- Partly a result of citizen pressure, communication among the members of a system, social learning, competition, leadership, etc.

# Who is involved?

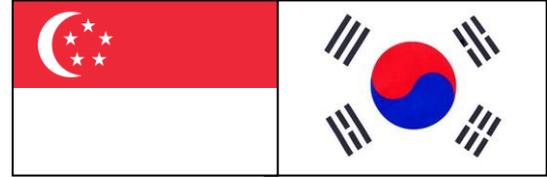
- Main Factors (Actors) Shaping the Local Policy Diffusion Process -

(3) **Top-down Go-betweens**: A federal (central) or state gov'ts' pressures on lower level jurisdictions, which demonstrate the **coercion** mechanism ("carrot & stick" approach) toward the policy diffusion.

(ex) Statewide *positive* inducements: **A coordinated assessment program** (sharing an assessor or using the same assessment schedule in the property tax management; **Excellence in Equity Awards or Fiscal Assistance**)

(4) **Epistemic Go-betweens**: **Professional associations/network** (i.e., national organizations, conferences, think tanks) that help share each other's experiences when adopting the policy, as well as **interest groups and newspapers** that help obtain the policy-related information.

# Data and Methodology



## Data

- Unit of Analysis: **Scenarios of PPPs in Water Services**
- **South Korea vs. Singapore: The Asian Tigers, Modern Welfare State, Globally innovative hub cities in Asia**
  - Both have commonly experienced economic crises (*Asian Financial Crisis in 1997*), globalization, and multiple public reforms, despite different governance contexts (e.g., political systems, democratization, history, culture)
  - **Top Infrastructure Ranking of 26 Developing Asian Economies** (Singapore: #2, Korea: #3) (World Economic Forum, 2017) + **Both “Stable Second-Wave Adopters” of Water PPP in Asia** (Jensen, 2017)

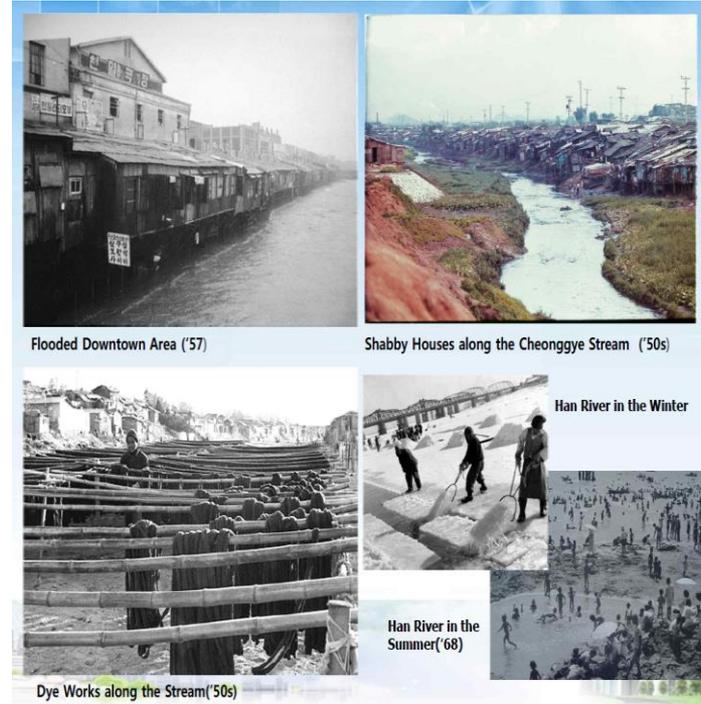
## Methodology

- **A Exploratory Study based on Cross-Case Comparison/Synthesis**  
(History-focused Content Analysis + Explanation Building + Comparative Analyses)

# Korea: **Wastewater Service**

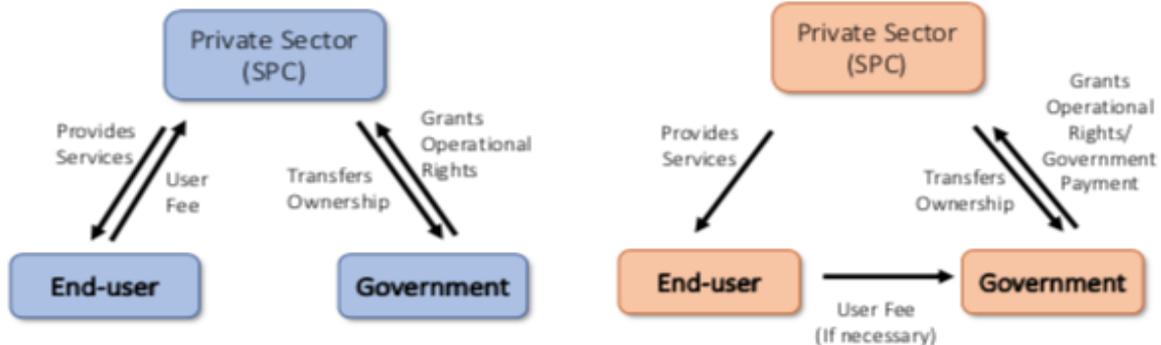
## Rapid Modernization/Urbanization

- **Concentration of Population in cities** along with more industrial facilities (aggravated water conditions in major rivers) + **Local Resident's complaints due to localized torrential downpours/seasonal floods** (the pipes in each drain area)
- In the 1980s, "**Environment Rights**" of Residents inside the Constitution + **Interest groups** + the 1988 **Seoul Olympics** (foreign loans available)
- **Increased demand** for the expansion of basic environmental infra (e.g., sewerage system) **in the 1990s**
- The Ministry of Environment declared **the year 2002 as the First "Year of sewage (sewer pipeline) maintenance"**



# Procurement Methods in Wastewater Service

	<i>build-transfer-operate(BTO)</i> 수익형 민자사업	<i>build-transfer-lease(BTL)</i> 임대형 민자사업
Facilities	<b>Sewage treatment plant</b>	<b>Sewage culvert (pipe)</b>
Investment return	User fee	Government payment
Project risk	Relatively high	Relatively low
Project return	Relatively high	Relatively low
Risk taker	Private investor	Government



\*Source: KDI(2015,2017)

# Korea: Wastewater Service

## Financial Crises + Limited Local Fiscal Capacity

- **Asian Financial Crisis in 1997 + Global Financial Crisis in 2008**
  - **Increased Role of the Private Sector in Wastewater Service (Facilities)**
    - Korea began to **open the sewage sector to PPP in 1994 by enacting the Act on promotion of private capital** into social overhead capital investment - 1994년 “사회간접자본시설에 대한 민간투자법” 제정
    - **The Ministry of Strategy and Finance** (기획재정부) as a central agency
    - The government announced **the PPP revitalization initiative in 2009** (easing regulations such as decreasing the equity capital requirement) – 2009년 이전 운영수입의 일정 비율을 정부가 보장해주는 “최소운영수입보장제도” (민간투자사업의 운영위험을 정부가 분담)
    - **Approximately 100 water-PPPs awarded b/w 1998 and 2008; in 2018, total number of public sewage facilities was 4,111 and the national sewage distribution rate was 93.9% (Statistics Korea, 2018)**

# Korea: **Wastewater** Service

## Climate Change & Aging Infrastructure

- Efforts to improve the water quality and aquatic ecosystem; to be compatible with the level of OECD countries
- **PPP-driven sewerage-related management**  
(ex) Jungnang (1970-97); Nanji (1984-97); Tancheon (1983-98); Seonam (1984-99) water reclamation centers in Seoul to build treatment facilities
- \*Seoul sewerage treatment systems - a benchmarking suite in Southeast Asia (e.g., Vietnam, Indonesia, Brunei)
- **Led to a systematic legal framework and clearly-organized institutional arrangements**
  - Previously fragmented acts for fundamental public facilities (e.g., Road Act, Port Act, and the Sewage Act in 1982) → **more comprehensive, systematic legal approaches**



(a) Jungnang

(b) Nanji



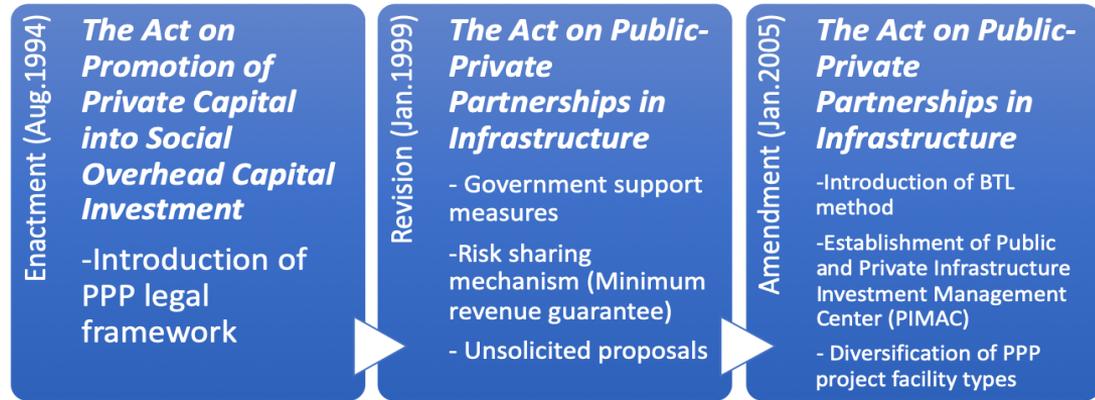
(c) Tancheon

(d) Seonam

〈Figure 4-2〉 Seoul Sewage Treatment Plants (Water Reclamation Centers).

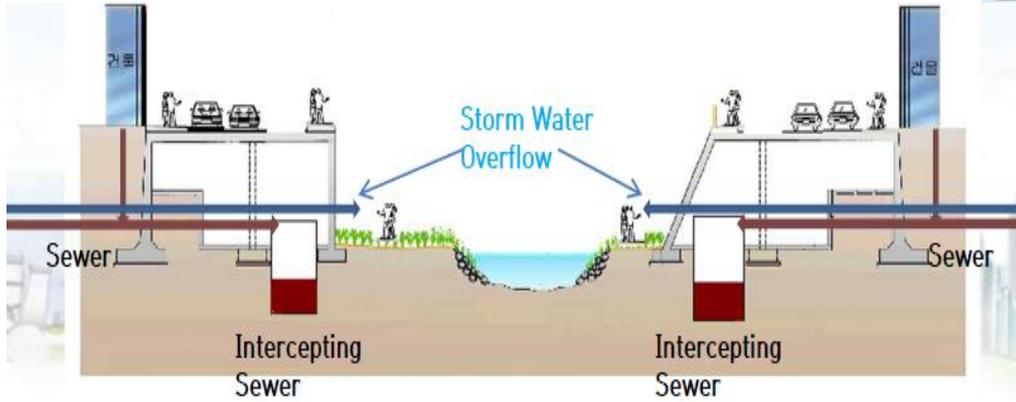
# A Systematic Legal Foundation of PPPs

- **The Act on Public-Private Partnerships in Infrastructure (PPP Act in 2005)**  
사회기반시설에 대한 민간투자법



- **(+) PPP Act Enforcement Decree;** Ministry of Strategy and Finance; PIMAC (KDI)
- **The PPP Act as a Special Act that takes priority over other acts**
  - Exempts from strict government regulation
  - Allows a special purpose company (SPC) to play the role of competent authority

# Inter-local Competition (“ecological space”)



Dorim Stream



Tancheon Park



Seonam Environment Park (in Seonam Center)



# Which Factors are most influential in making the “local” diffusion of PPPs for Wastewater services– **Korean Case**



- **Increased demand on sewage infrastructure** for modernizing sewerage system
  - A large amount of funding was required to expand basic environmental infrastructure to improve water quality compatible with OECD
- **Emerging needs of efficient and environment-friendly sewage system**
  - recycling sewerage sludge and treated wastewater to protect environment by adopting technology advancement from private sector

- **Clear legal and regulatory frameworks**
  - Korean government utilized PPP as a key strategy to provide the needed investment for infrastructure development → PPP Act enactment in 1994
- **Central role of Ministry of Strategy and Finance**
  - suggest policy directions for the PPP system and infrastructure investments by publishing annual PPP master plans
  - provide general guidelines and project implementation procedures
  - review and approve nationally managed PPP projects and summons the PPP review committee when necessary

- **Decentralization with limited local fiscal autonomy**
  - Given limited fiscal autonomy, local governments seek extra funding source to respond to different localities
- **Expansion of resident-friendly underground sewage treatment plant across local governments**
  - Preferred as a solution to transform from NIMBY to PIMFY

# Singapore: *Desalination & NEWater* Services

## Political Tensions with a neighboring state, Malaysia

- Since its days as a British colony in the 1920s, SG had heavily relied on water import from the state of Johor in Malaysia
- **[Political/Security Issue]** MY used **water as a political leverage over/diplomatic weapon against SG** during times when relations between the two countries are strained.
- **Government-led project** to develop two new sources of water through filtration/treatment technologies (**NEWater and desalinated water**) by working with local and international private water/energy corporations.



# Singapore: *Desalination & NEWater* Services

## A small-sized city-state tropical climate + Strong Pragmatism

- A smallest nation in Southeast Asia with limited land space
- Annual tropical climate (average b/w 32°C (max) and 25.6°C (min) in 2016)
- **Originally focused on “capturing storage water”:** challenge to find sufficient water catchment areas to collect and store rainwater
- Project: Singapore’s total water demand is likely to almost double by 2060 (intensifying climate change)
- Increased demand for high-grade water resources ← → A **relative lack** of **in-house gov’t expertise** in terms of technology and building/running plants
- **The first PPP contract** was awarded by the **Public Utilities Board (PUB)** (환경부 산하 법정위원회) for **“a desalination plant” using water seashore** (Gunawansa, 2010) in the early 2000s, **to secure a resilient water supply, including tapping on private sector expertise and financing.**

## Successfully completed 6 water PPP projects

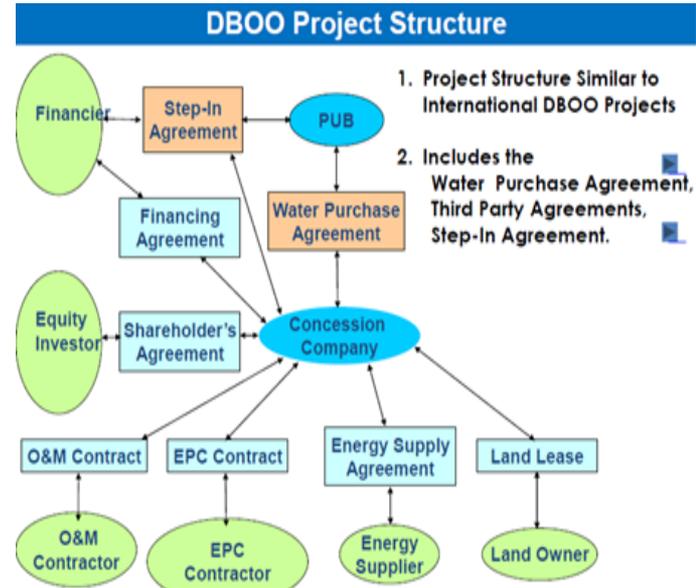
<b>Launch Year</b>	2001	2004	2007	2010	2014	2015
<b>Completion Year(s)</b>	2005	2007	2010	2013, 2014	2017	2017
<b>Project Details</b>	SingSpring Desalination Plant	Keppel Seghers Ulu Pandan NEWater Plant	Sembcorp Changi NEWater Plant	Tuaspring Integrated Water and Power Project	BEWG-UESH NEWater Plant	Ulu Pandan Wastewater Demonstration Plant

## Ongoing PPP water service/treatment facilities

1. Tuas Water Reclamation Plant [Expected completion year: 2025]
2. Marina East Desalination Plant [Expected completion year: 2020]
3. Jurong Island Desalination Plant [Expected completion year: 2020]

# A PPP Handbook by the Ministry of Finance

- The 1<sup>st</sup> version of PPP handbook (guideline) was developed in 2004; then revised in 2012 as the 2<sup>nd</sup> version
- **No Specific PPP Act exists**
- All water PPP projects are based on PUB's Design, Build, Own, Operate (DBOO) Model
- **MOF (a central government agency)**
  - “Best Sourcing Framework” PPP Model: Guiding and operating the all PPP procurement process and contracts
  - All planned infrastructure projects that cost over SGD 50 million are required to assess their ‘suitability’ before proceeding with the PPP model
  - **“Without losing the state control over the regulatory aspects of service delivery”**



\*Source: Public Utilities Board (2013)

# Which Factors are most influential in making the “local” diffusion of for Water services – **Singapore Case**

## Environment

- Singapore (SG) as a small nation has **very limited natural resources, especially water**. Located in the tropics (32°C (max) & 25.6°C (min) in 2016), high humidity, total rainfall of close to 2,000 mm in 2016 (Department of Statistics Singapore, 2017).
- **High demand for water partly due to its hot climate**, which is getting higher.

## Top-down Go-between

- **In 2001, SG brought its water, sewerage and drainage functions under Public Utilities Board (PUB), which is a statutory board under the Ministry of Environment and Water Resources.**
- **The launch of NEWater in 2003** was a pivotal milestone in systematic approach for water services. **The Ministry of Finance (MOF) published the PPP Handbook (scheme) in 2004**, which provides the public & private sectors with the guidelines of PPP projects.

## Neighboring Gov't

- **Early Adoption of PPPs: MY vs. Stable Second-Wave Adopters: SG** (Jensen, 2017)
- Since SG's days as a British Colony, it has heavily relied on water imports from the state of Johor in Malaysia (Singapore's northern neighbour).
- Water is a key strategic issue in SG-MY relations. MY has used such an issue as a **political and diplomatic leverage** → **It is important for SG to ensure a reliable, efficient and sufficient supply of potable water.**

# Similarities and *Differences*



## Korean Case

## Singapore Case

Wastewater (sewage) focused	<b>Main Projects</b>	Desalination & Water Reuse
Environment-friendly (Resident-friendly) sewerage systems <b>(Decentralization and Local Democracy Development)</b>	<b>Intercity (local-local) Competition over Capital and Infrastructure</b>	<b>NA</b>
<b>PPP Act (Law) and decree</b> Annual PPP basic plans by the Ministry of Strategy and Finance (MOSF), PIMAC	<b>Institutional Factors</b>	<b>PPP Handbook (MOF) + Agreement</b> (PUB as a statutory board) under the Ministry of Environment and Water Resources
BTO vs. BTL (시설 vs. Pipe)	<b>PPP Type (Model)</b>	DBOO

# Similarities and Differences

Korean Case	Gov't: Property Owner	Singapore Case
Japan's economic success	<b>Neighboring State</b>	Malaysia's Political Pressure
Floods during Rainy Season (Monsoon); Drainage problem	<b>Geographic &amp; Climate Conditions</b>	Small-sized with limited land space, tropical (hot) weather - Drought and Floods
Demand toward Modernization/Financing Issue (Asian economic crisis of 1997)	<b>Internal Factor</b>	Asian economic crisis of 1997; In favor of British-Approach
<i>Internal actors'</i> (political leaders – President Kim Young Sam – Kim Dae Jung - Two Administration period) “ <b>Top-down</b> ” approach toward infrastructure projects + Interest groups' “ <b>bottom-up</b> ” approach	<b>Political Support /Gov't Commitment</b>	Gov't-led projects ( <b>de facto top-down approach</b> ; strong pragmatism) by Lee Kuan Yew (previous PM)

# Discussion and Conclusion

- PPP diffusion process from the West to the East is *a combination of voluntary (local-led projects) and coercive forces (top-down)*
- Overall... Interplay b/w “External Factors + Internal Factors”: **Financial and Political challenges** worked as **main motivators** for the gov’t’s willingness **to adopt the PPP policy** for water services

## (Korea Case)

- **From top-down go-between factor .... To inter-departmental cooperation and communication** (MOE, 환경청, 지방자체단체, PIMAC, 환경시민단체)
  - **(epistemic go-betweens)** Managing downward, upward, outward + Inter-local Competition + Learning

## (Singapore Case)

- **(Neighbors + top-down go-betweens)** NPM-inspired pragmatism + National Agenda in a VERY *top-down* manner

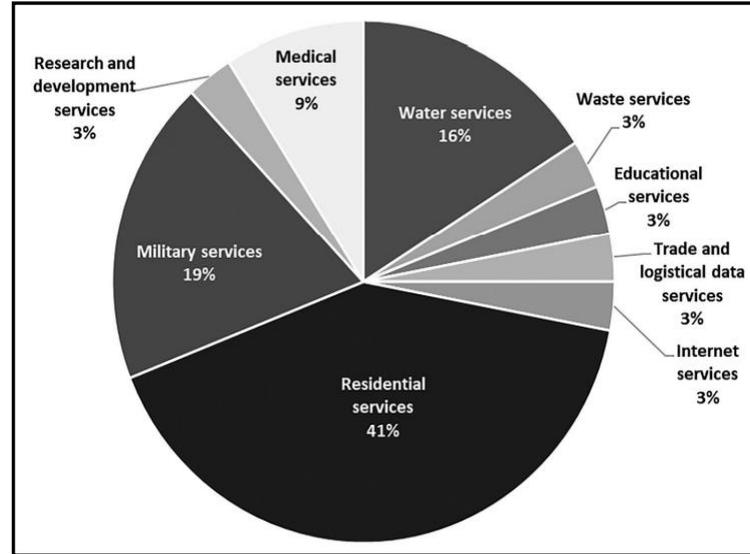
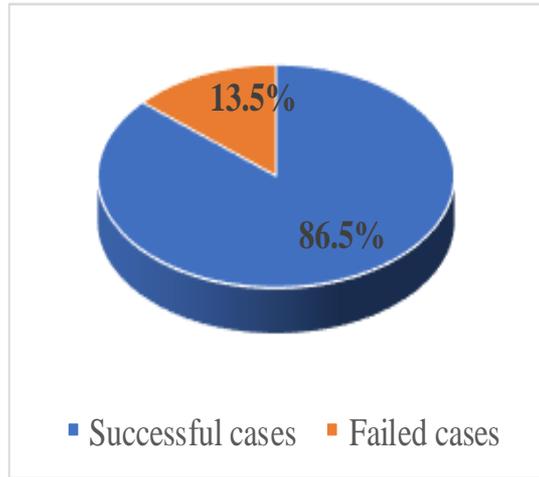
## Part II.

# Understanding Public-Private Partnership in Singapore: Determinants of Project Adoption, Success, and *Failure*

# Between Two Research Questions

- **What can explain (promote) the adoption/diffusion of PPP projects in Singapore?**
- **How and Why PPPs fail?**
  - In practice, PPPs are **not always cost-effective** in implementing gov't projects!
  - **Factors** related to **project success and failure** are “**not necessarily (simply) opposite or contradictory**” (Baker et al., 1988; Uluocak, 2013)
  - Focus on **6 failed cases**: “**What are the critical risk factors (CRFs) driving PPP failure in the context of Singapore?**”

- **(2000-2019)** SG has pursued 38 projects, of which 32 seem to have been, or are being successfully implemented; **however, the remaining 6 have failed/been terminated or are deemed to be displaying signs of PPP failure** (see charts below):



**\*Sources:** (1) Kim, S. & Kwa, K. (2020a). *Exploring Public-Private Partnerships in Singapore: The Success-Failure Continuum*. Abingdon: UK; New York, NY: Routledge. The Routledge Book Series – Focus on Public Governance in Asia. (ISBN: 9780367259457);  
(2) Kim, S. & Kwa, K. (2020b). A Closer Look at Risk Factors for Public-Private Partnerships in Singapore: Six Case Studies. *Asian Journal of Political Science*, 28(2), 142-163.

# Existing Research on Critical Risk Factors of PPPs

(Bae & Joo, 2016; Grimsey & Lewis, 2002; Hwang et al., 2013; Ke et al., 2013; Ng & Loosemore, 2007; Soomro & Zhang, 2013, 2015; Zhang, 2005)



- **Broad-level CRFs (external/internal)**
  - Global risks vs. elemental risks; Economic risks; Social, political and legal risks; Institutional risks
- **Project stage-level CRFs (drivers developed simultaneously or causal relations)**
  - Feasibility stage (unrealistic demand predictions); Procurement and tendering stage (non-competitive tendering); Project construction stage (slow and hindered project progress); Operation stage (conflicts between partners)
- **Public sector-focused CRFs**
  - Corruption; gov't's unreasonable intervention, nationalization, immature judicial system, poor political decision-making; a lack of financial independence at the local level, politicians' rent-seeking behaviors
- **SG-context:** Hwang et al. (2013): based on a comprehensive literature review, a total of 42 risks were identified. The top 5 risks – lack of support from gov't; availability of finance; construction time delay; inadequate experience in PPP; unstable gov't (change in policies)

# Case Study Method – **Six** Failed Cases

## Definition of a 'Failed' PPP

**Building on Soomro and Zhang's (2013, 2015) perspective on failed PPPs, we narrow our focus** to cases with unachieved VFM (value-for-money), cancelled concessions in the middle of project proceedings, long-term halted projects, project nationalization, and suspended contracts (e.g., private-sector partners' concession rights become void).

## Case Selection

**Secondary data** obtained through extensive database searches (Nov 2018 - August 2019): publicly available materials (i.e. major local newspaper articles, related gov't agency and industry reports, and a few recently published journal articles).

## Analytical Technique

Given multiple case studies, we employ **a pattern matching analytical technique** consistent with Yin (2009) to create categories, identify emerging (predicted) patterns within each category, and then compare the patterns across all categories.

# Case #1: The Mass Rapid Transit (MRT) Network

- From 1987, the major public transportation system in SG, the MRT network, was owned, operated, and financed solely by the Gov't (Land Transport Authority).
- Since 1998, however, its ownership & operation, along with its financing, have been separate.
- In 2002, the gov't's emphasis on cost-efficiency & high-quality services → A leadership change in SMRT Corporation (i.e. private agency)

## [Mismanagement; Issue of population forecasting]

- The newly appointed CEO, whose expertise came in the retail and commercial industries, focused on more profitable ways (e.g., by renting out underutilized spaces at stations);
- Failed to account for rapid growth in resident population → **Overcrowding in MRT trains and longer wait times during the peak hours**
- SMRT saw major **service breakdowns** in 2011 ~ **more than 40 instances of intermittent yet salient service disruptions** over the years 2014-2015



- **PPP cancelled; Gov't did take over & operate the SMRT directly**
  - In 2016, LTA would pay SMRT SGD 1.06 billion for its rail operating assets and SMRT was delisted from the SG stock exchange

# Cases #2 & 3: University Accommodation Services



- **National University of Singapore (NUS)- University Town @ Warren**
    - **Project launched in June 2007**; Design-Build-Finance-Own model; a hostel with 6,200 bed capacity; 25 years long contract; worth about SGD 500-600 million
    - **In September 2007, NUS halted this PPP-driven initiative and decided to directly provide new student housing and auxiliary services using gov't grant.**
  - **Singapore Management University (SMU) Hostel**
    - *Project on hold since 2008; the concession company faced unsupportive policies from its public partners and political pressure to withdraw*
- [Absence of a clear reason of PPP cancellation]**  
[The University is a 'core' public goods – education – provider; **speculated that it was due to huge public regulation over accommodation pricing to avoid transferring additional financial burdens to its current and future students]**

# Case #4: Changi Motorsports Hub

- **In 2009, SG Changi (private agency) was awarded the tender bid by the Singapore Sports Council (public agency) to construct a permanent motor race-track** (e.g., F1 car racing event)
- Design-Build-Finance-Operate (DBFO) Model;  
Projected cost of SGD 380 million

**[Unfair bidding/awarding process without a regular schedule]**

- **SG's Corrupt Practices Investigations Bureaus** opened an investigation, and most investors engaged in the project decided to withhold their funding
  - **In turn, SG Changi was unable to pay the mounting costs of the Changi Motorsports Hub** (about SGD 50 million)



- **It led to a delay in construction and eventually the termination of the PPP in 2011.**

# Case #5: Tuaspring Integrated Water & Power Plant



**[Huge liabilities left in the balance sheet – Low profitability; risk mismanagement in response to unanticipated economic conditions]**

- **Public Utilities Board (PUB)** (public water agency) + **Tuaspring** (private water company which is a subsidiary of Hyflux) **partnership**
  - **Project launched in March 2011**; Design-Build-Own-Operate model; 25 years long contract;
  - **To build and operate** a so-called **hybrid power generating system** and **to desalinate seawater at the same time**; to provide a sustainable and adequate supply of clean drinking water to its population.
- **From 2017 onwards, Hyflux ran into huge debt amidst falling electricity prices** (due to significant electricity market oversupply; falling crude oil prices in the Middle East – the Arab Spring uprisings) **and losses from desalination operations**
- **Gov't decided to terminate the agreement of water purchasing in May 2019**
  - *The PUB took control of the desalination plant from Hyflux at 0 dollars and to run it directly*

# Case #6: The Singapore Sports Hub



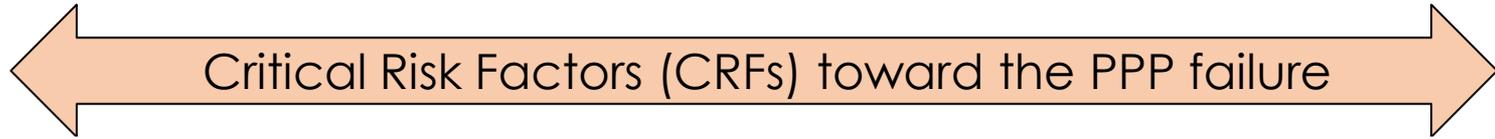
- **PPP completed in June 2014, but still controversial issues continued...**

- **Singapore Sports Council** (public sports agency) + **SG Sports Hub Pte Ltd** (consortium of private companies) partnership; 25 years long contract; Design-Build-Finance-Operate (DBFO) Model

**[Funding difficulties; Technical and Maintenance problems; High booking and rental fee issue]**

- **The 2008 global financial crisis** caused numerous delays of the project.
- **Ongoing management problems**
  - **A leaking roof** in the aftermath of a heavy rain
  - **Problems of the quality of hybrid grass pitch**, which was critical for sporting events inside the stadium (in turn, major events were re-scheduled because the pitch was replaced)
  - **SHPL tended to charge high booking and rental fees for retail-shop tenants inside the complex; users (citizens) of its national stadium**

# Analysis and Findings



## Private sector-centric and –driven risks

MRT network case  
& Tuaspring Integrated Water  
and Power Plant Projects

## User-centric yet private-sector risks

Social Infrastructure PPPs  
– Changi Motorsports Hub  
project Sports Hub Projects

## User-centric yet public-sector risks

NUS University Town  
& SMU Hostel Projects

Unstable financial  
capacity during the  
execution period

*Force majeure*  
unforeseen problems  
that arise

Poor corporate  
management (e.g.,  
delays in construction and  
poor-quality service delivery)

A lack of technical  
and/or financial foresight

**An unfavorable  
investment environment  
stemming from the lack  
of a clear and supportive  
governance framework**

# Discussion and Conclusion

- **Most risks are likely to appear *at the pre-operation (construction) and operation stages of PPP projects; mostly managerial and technical problems***
- **Such risks seem to drive the operational failure and subsequent contract termination** of multiple unsuccessful PPPs, **simultaneously (and sometimes sequentially) rather than in isolated fashion.**
- Unlike Western-focused analyses in the existing literature (risks from **the private-sector side**), **this study further provides evidence that CRFs can stem from the public-sector side.**
- **Public and Private-sector Partners have tended to “act alike” – in that neither is apolitical or risk-averse without compensation – when facing uncertainty** (Hodge & Greve, 2019; Vining & Boardman, 2014)

# Discussion and Conclusion

- **Lessons Learned – Consider “*Spillover Effects*”**  
(ex) reduced participation from potential (competent/responsible) private-sector partners in current or future PPPs; a general loss of public confidence in PPP-driven infrastructure projects; may induce negative consequences for the trustworthiness of gov't
- ***For the effective micro-management of PPPs* that results in satisfactory performance in the long-term, “*risk management*” decisions based on clearly defined responsibilities and roles should be made in the early phases of the project, as well as on a ‘project-by-project basis’** (Hwang et al., 2013; Kim & Kwa, 2020a; Ng & Loosemore, 2007)
- ***One of the first of its kind*** to present evidence on CRFs from Singapore's recent PPP experience in the field of PA and Policy
- **Generalizability Issue** – ‘The size and scope of risk factors may vary across service areas, as well as from country to country’ (Kim & Kwa, 2002a).

## Part III.

# Understanding Public-Private Partnership in Singapore: *[Revisited] Determinants* of Project Adoption, *Success*, and Failure

# One (Preliminary) Experimental Study

- *Where does citizen blame lie in service delivery failure?*  
*: How much blame to place on public or private actors and how the actors should be held accountable?*
- **Online Survey Experiment** – A 2 X 2 between-subjects experiment: PPP models (the Design-Build-Finance-Operate (DBFO) model or the Design-Build-Operate (DBO) model) and **service areas (social welfare vs. economic development such as urban transportation)** are manipulated in the wording of the vignettes.
- **102 PPGA students** (30 March – 6 April, 2021 @ NTU)

### Treatment A: DBO & social infrastructure

Local government politicians have pledged to improve community well-being. In an attempt to meet the various well-being needs of the community, the city of Newford adopted a *public-private partnership model* to build a Sports and Wellness Hub in the central area. Drawing on the private actors' expertise, the city aimed to improve the efficiency and better meet the needs of the public.

Three years ago, a local sports and entertainment company, SKAI, and the city of Newford launched the project to build the Sports and Wellness Hub with the format of the Design-Build-Operate (DBO) model: the private firm takes the leading role in designing, building, and operating the facility, while the city government funds the project with local tax dollars.

#### Responsibilities for each party in the partnership

	City government	Private company
Design	Review the company's decisions	Develop construction-ready design specifications
Build	Review the company's decisions	Construct the asset and install equipment
Finance	Finance the necessary capital expenditure	Implement the budgeting process
Operate	Review the company's decisions and scrutinize the company's commitments to the partnership	Provide the service and maintain the facility

Last year, the Sports and Wellness Hub finally opened. However, a recent study shows that the facility usage among community members is very low: 10%, much lower than the expected rate of 55%. Residents' satisfaction with the facility is low, with many citing that the overall condition of the equipment is poor, and the services and programs do not reflect the community's various needs.

Local government politicians and the spokesperson of the private company refused to comment for the failure of the partnership-based project.

#### Treatment D: DBFO & economic infrastructure

Local government politicians have pledged to improve economic growth. In an attempt to meet the various industry development needs of the community, the city of Newford adopted a *public-private partnership model* to build a Sports and Wellness Hub in the central area. Drawing on the private actors' expertise, the city aimed to improve the efficiency and better meet the needs of the public.

Three years ago, a local sports and entertainment company, SKAI, and the city of Newford launched the project to build the Sports and Wellness Hub with the format of the Design-Build-Finance-Operate (DBFO) model: the private firm takes the leading role in designing, building, financing, and operating the facility, while the city government reviews the company's decisions and ensures the project is implemented.

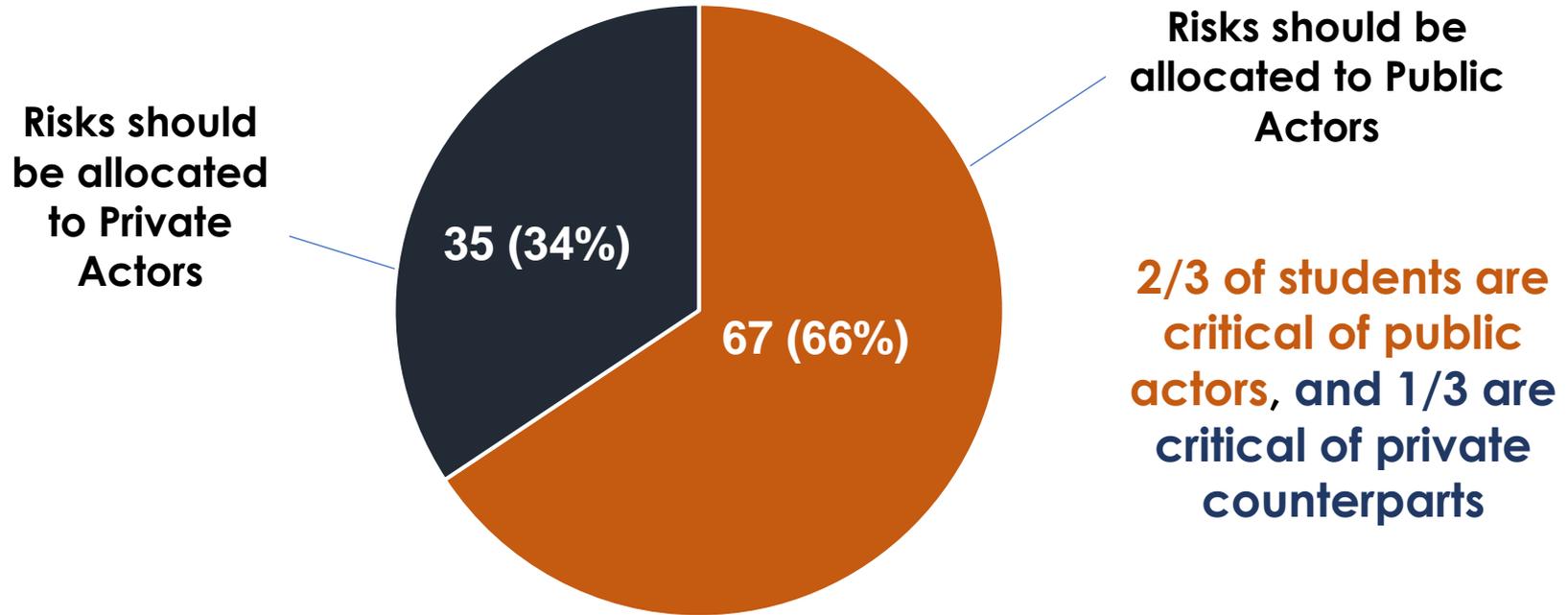
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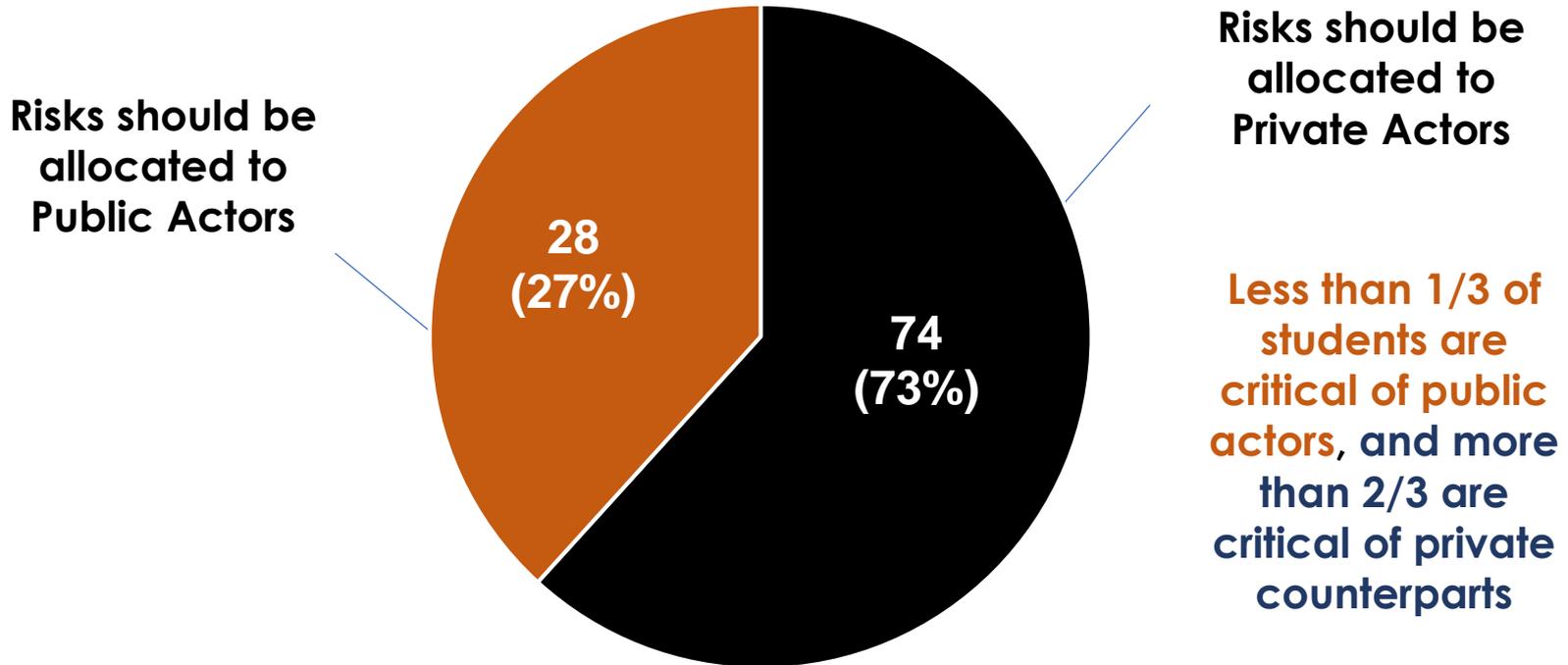
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Local government politicians and the spokesperson of the private company refused to comment for the failure of the partnership-based project.

# Q1. (**Social Service**) How much blame to place on public or private actors?



## Q2. (**Economic Service**) How much blame to place on public or private actors?



# Conclusion

## ❖ For a “Holistic” Understanding of Successful PPP Arrangements and Management in the long term...

Policymakers need to focus on the way for **better risk allocation** and proper, mutual coordination between two partners:

- 1) **Project management perspective** (service quality, time, and cost)
- 2) **Contract management perspective** (a contract itself; process and results)
- 3) **Stakeholder perspective** (the perceptions of public, private actors, and users)

## ❖ “What citizens think about the PPP projects” (e.g., real problem behind the numbers and quality of the public services they receive) can be **an important indicator in the diagnosis and evaluation of processes and outcomes** pertaining to public organizations (bureaucracy) and other aspect of gov’t performance

# Conclusion

- ❖ A Combination of Description and Prescription Approaches
- ❖ **“PPP policy reform is still in a kind of experimental stage” in many developing countries.** (Appuhami et al., 2011)
- ❖ **Conduct more cross-country comparisons of PPP Cases**
  - : (Limitation) A lack of publicly available data + Generalization Issue
  - : (Learning-based) Need to understand the variations of and the common factors of CSFs and CRFs with the Asian context
    - **A mixed-methods design including survey, experiments, and focus group interviews...**

Thank You.