Workshop Material

Public-Private Partnerships in Transport Sector

Key Success Factors and Case Studies in ASEAN Countries

PART 1: BASICS OF PPP

1.1 Definition of PPP

- PPPs are a contractual means to deliver public assets and public services. PPP contracts include those intended to develop and manage new infrastructure, contracts to undertake significant upgrades to existing infrastructure (these are called infrastructure PPPs), and those under which a private partner manages existing infrastructure or only provides or operates public services (known as service PPPs).

- There is no universally accepted definition for the PPP concept as it can differ between countries according to their respective legal frameworks. In fact, the term PPP is sometimes used to mean any form of association or cooperation between the public and private sectors for the purpose of reaching a common goal.

Source: APMG International (2026) “PPP Certification Guide V2”

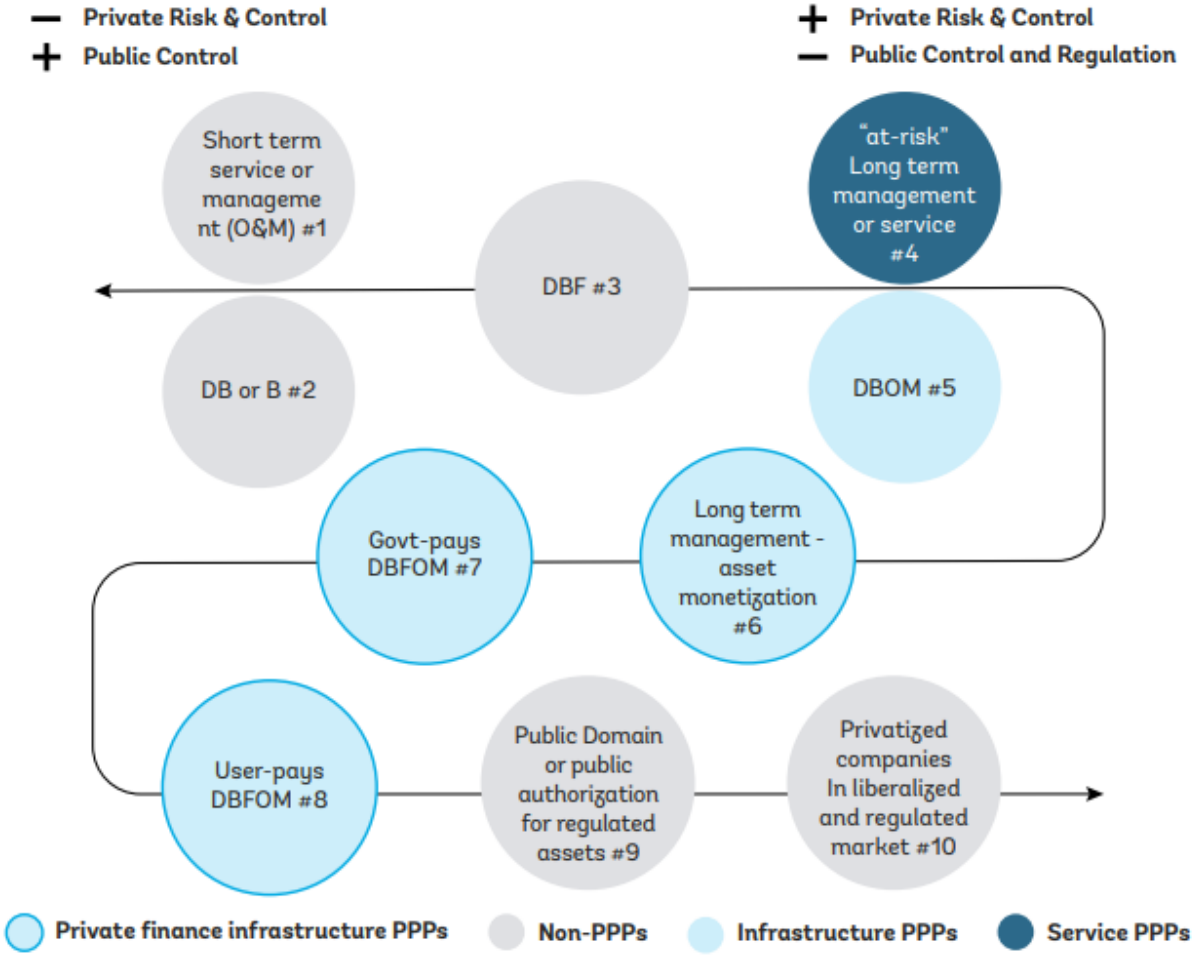
1.2 Key Features of PPP

- A long-term contract between a public-sector party and a private sector party
- Design, construction and operation of public infrastructure by the private-sector party
- Use of private-sector capital to finance all or a substantial part of the facility's construction
- Facility remaining in public-sector ownership, or reverting to public-sector ownership at the end of the PPP contract
- Some form of risk sharing between the public- and private-sector parties
- Provision of a public service

Source: E.R. Yescombe and Edward Farquharson (2018) "Public-Private Partnerships for Infrastructure: Principles of Policy and Finance"

1.3 PPPs and Non-PPPs

Spectrum of private participation in public infrastructure and services



#1 O&M two-year contract for a road.

#2 Contract for design and build, or build only, of infrastructure (for example a road, a rall track, an entire rall system).

#3 As in #2 but having the contractor pre-finance the works against future payments.

#4 10-year contract for managing a water supply service, 15-years contract to manage bus transport operations in a city, 15-years contract to manage renewals and ordinary maintenance in a road, under fixed price and quality deductions. Sometimes named lease, affermage, concessions...

#5 contracts for delivering an asset where contractor will also provide maintenance for a number of years.

#6 30-year lease or concession to operate an existing toll road against the payment of an upfront fee, or to operate a water system in a city.

#7 25 DBFOM contract to build, finance and manage a hospital facility/building, or school, a road or a WWTP, etc. Being compensated by performance/availability payments. A power purchase agreement (PPA) In an Independent Power Project (IPP).

#8 DBFOM 30-year contract of a road compensated by charges to users collected by the private partner, or a concession of water supply where extensive refurnishment and upgradings of Infrastruture and plants.

#9 A concession to use the land in a port location to develop and operate port related facilities for 99 years at the entire risk of the developer, an authorisation to develop a renewable energy IPP to be compensated according to a regulated price subsidised according to renewable energy regulations

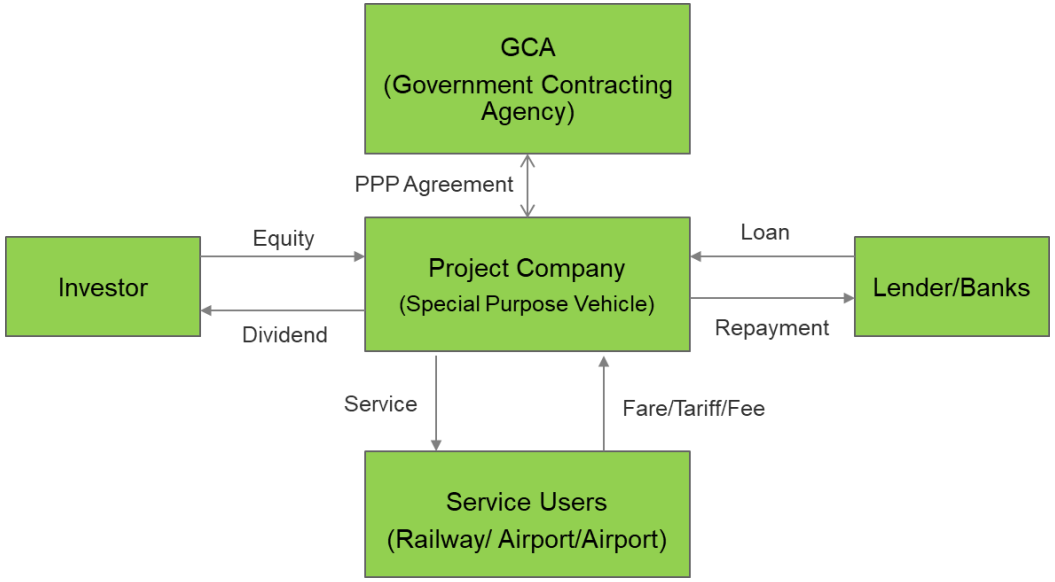
#10 A telecom operator, or electricity distributor that competes for the clients/users under some limits/regulations.

Source: APMG International (2026) “PPP Certification Guide V2”

1.4 Two Basic Models of PPP

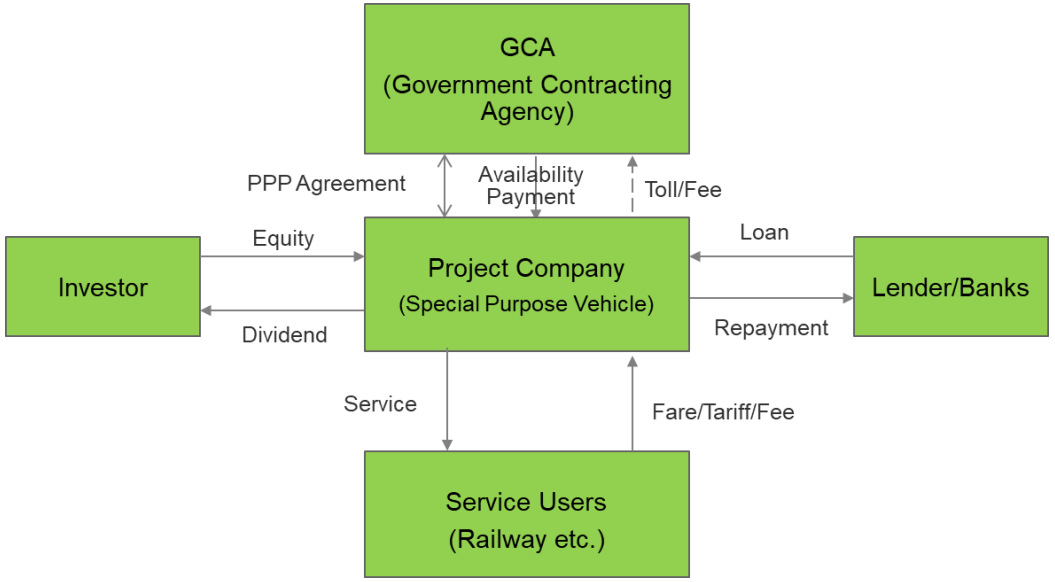
Concession Model

A concession model is a PPP structure where a GCA grants a private party the right and obligation to finance, build/expand, operate, and maintain an infrastructure or public service for a fixed term, and to recover its costs primarily from users via tariffs or fees.



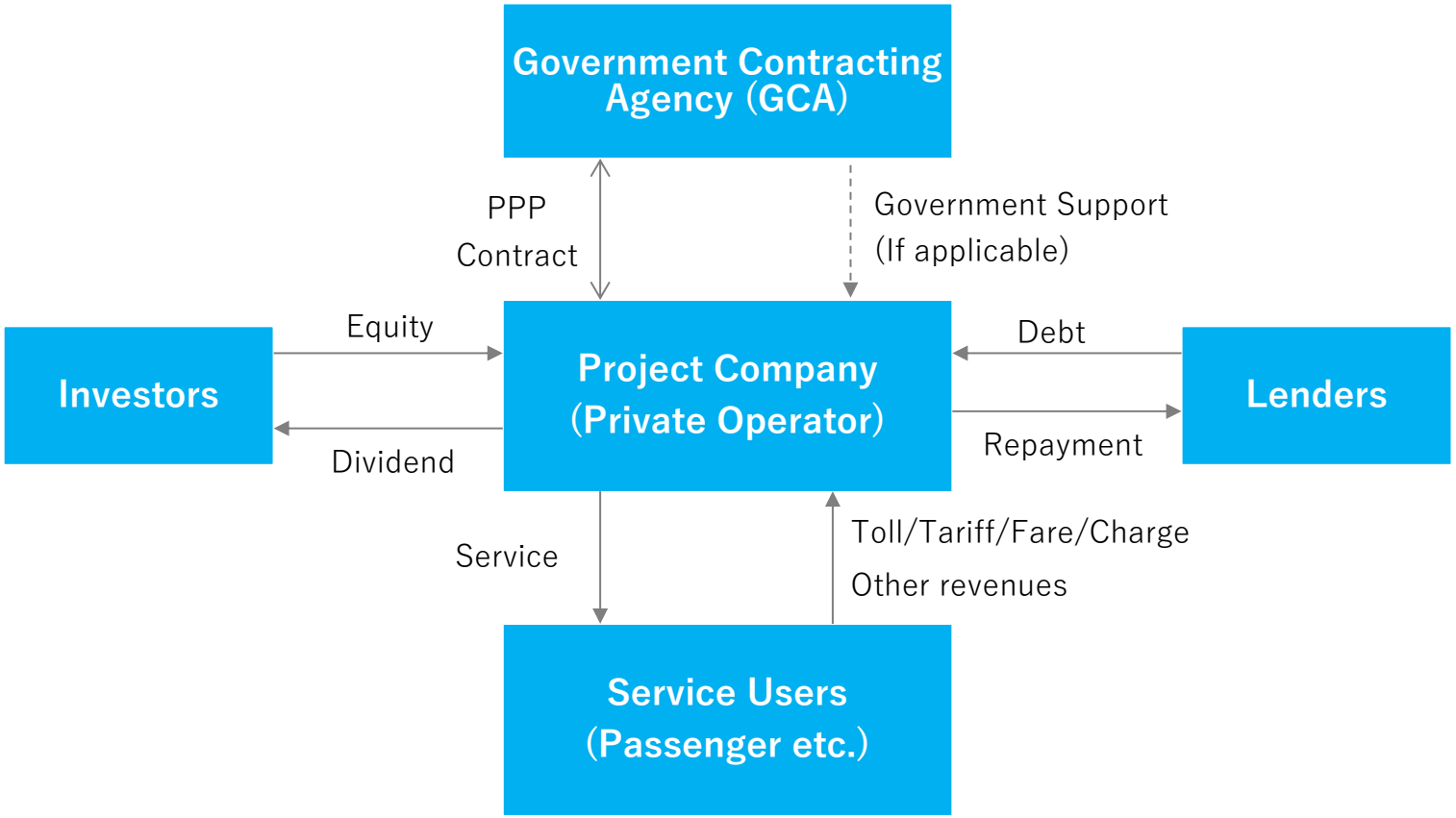
Availability Payment Model

An availability payment model is a PPP structure where the GCA pays the private partner regular, budget-funded payments for making an asset or service “available” at agreed performance levels, rather than letting the private partner earn mainly from user fees.



1.5 Basic Schemes of Transport PPP Project

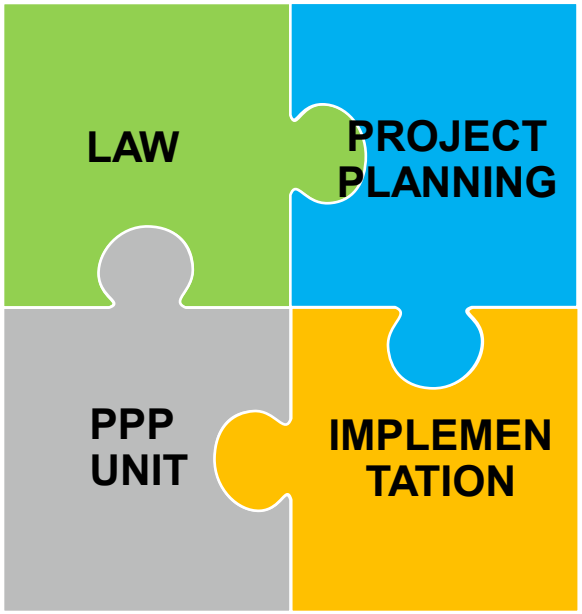
A Government Contacting Authority (GCA) tenders a “PPP Concession” to a private company that raises debt and equity, signs EPC and O&M contracts, builds the transport asset, and operates/maintains it to meet KPI standards. Revenues come from tolls/tariffs/fares and others.



1.6 Success Elements of PPP Projects

Law is essential for PPPs because it provides a predictable, enforceable framework for roles and approvals, competitive procurement, risk allocation, tariffs, and dispute resolution—making projects bankable. It also governs government support and fiscal commitments, land and permitting, and environmental/social safeguards, and embeds transparency and anti-corruption controls.

A PPP unit concentrates expertise, standardizes processes and contracts, and coordinates across government to deliver a consistent, transparent, bankable pipeline and a one-stop interface for investors. Without it, responsibilities fragment, documents and risk allocation vary, approvals slow, and costs and fiscal risks rise.



Disciplined project planning makes PPPs bankable and deliverable by clarifying scope, demand, service levels, budgets, and risk allocation, aligning procurement and timelines with market appetite and affordability, and securing land, permits, and safeguards. Without it, mispriced risks, delays, cost overruns, and disputes are far more likely.

Effective project implementation turn PPP contracts into reliable services by coordinating parties, controlling scope, schedule, cost, quality, and securing permits, land, and environmental-social compliance. They monitor KPIs and payments and manage changes and claims to keep risks where intended, avoiding delays, overruns, and disputes and protecting bankability, value for money, and service continuity.

1.7 Possible Pitfalls of PPP

- Bankruptcy of the Project Company and discontinuity of public service provision
- Delay of land acquisition, construction works and commencement of service provision
- Insufficient quality of services which does not meet KPI (Key Performance Indictors) which is designated in the PPP contract
- Substantial gap between projected and actual usage/ridership
- Unexpected Toll/Fare/Tariff hike due to low performance of private operator
- Miscommunication between the Project Company and the Government Contracting Agency (GCA)

1.8 Key Issues in Transport PPP

Land Acquisition

In general, transport projects require large-scale land acquisition: There are risks such as unclear titles, compensation disputes, resettlement, right-of-way/utility relocations, and environmental or cultural constraints can cause delays, litigation, and cost overruns, jeopardizing permits, raising financing costs, and undermining bankability

Demand Forecast

Accurate demand forecasts are critical in transport PPPs because they drive revenue and financing structures (tariffs or availability payments, debt/equity sizing, contract tenor) and guide capacity, phasing, and demand risk allocation; poor forecasts lead to mispricing, over/underbuilding, funding gaps, renegotiations, and fiscal exposure.

KEY ISSUES

Cost and Time Management

Cost and time control is critical because revenue starts only at operation, so delays inflate financing costs and threaten debt service, while overruns erode equity and trigger claims. Disciplined EPC contracting, permitting/utility coordination, and change control reduce liquidated damages and renegotiations and protect bankability and Value for Money.

Safety and Security

Safety and security are critical in transport PPPs because incidents can shut services, trigger penalties and lawsuits, raise insurance, damage reputation, and even cause default—directly hitting availability and revenue. Proactive design and robust cybersecurity reduce incidents and costs, meet ESG and regulatory KPIs, and protect demand, bankability, and public trust.

PART 2: CASE STUDIES

2.1 Case Study of Thailand

2.1.1 Regulatory Framework and Organizations

Regulatory Framework

To promote PPPs, the Thai government has established relevant legislation and subsequently revised it twice (or enacted new laws). The main developments are as follows:

- 1992: Enactment of the Private Participation in State Undertakings Act, 1992
- 2013: Enactment of the Private Participation in State Undertakings Act, 2013 (revision of the previous Act)
- 2019: Enactment of the Public-Private Partnership Act, 2019 (new PPP law)

The new law enacted in 2019 was intended to improve (overcome) the following issues in the previous law.

The new PPP law is especially targeting to address the following themes related with PPPs.

- Facilitate both domestic &international investors
- Align with International PPP concepts
- Explicit PPP process & cooperation b/w government agencies
- Information disclosure for transparency & verification

Organizations

SEPO (State Enterprise Policy Office)

Within the government, overall PPP promotion is overseen by SEPO of the Ministry of Finance's. SEPO supports the preparation and implementation of PPP projects by the agencies responsible for individual projects (GCA). It also operates a PPP Promotion Fund that partially finances the costs of conducting feasibility studies and tendering.

OTP (Office of Transport and Traffic Policy and Planning)

In Thailand, the agency responsible for promoting PPP projects in the transport sector is the OTP of Ministry of While individual line departments plan and implement specific projects, OTP's role is to support PPP initiatives across the Ministry. In the aforementioned PPP Project Delivery Plan, 81 of the 139 planned projects (78%)* are in the transport sector, underscoring its importance.

* source: The State Enterprise Policy Office (SEPO), Thailand (May 2025)

2.1 Case Study of Thailand

2.1.2 Laem Chabang Port

(1) Project Overview

Laem Chabang International Port is located approximately 130 km east of Bangkok Port and is being developed as a major logistics hub for the Eastern Economic Corridor (EEC), the core area of the Thai government's Thailand 4.0 initiative. Through Phase 2, four terminals were developed with support including Japanese ODA, and cargo throughput has increased significantly. As it is anticipated that accommodating future growth in cargo volumes and larger vessels will be challenging, the ongoing Phase 3 development aims to deepen the port and construct new terminals to improve logistics efficiency and strengthen international competitiveness. PPP (concession model) is applied to several terminals within the Laem Chabang Port.

Terminals	Status of Application of PPP (as of February 2026)
A-Terminals*	● A0 & A3: Existing PPP concessions under full operation ● A5: New PPP project under preparation following PPP Act 2019 process
B-Terminals (Priority Cluster)	● B1–B4: Interim operation under MOU; MOU; preparing consolidated PPP program ● B5: Contract extension approved; PPP transition planning underway ● Being handled as a unified PPP program for efficiency and operational continuity
C & D-Terminals	● C0: Concession under the 2556 BE PPP framework/ Transitioning to current ● C1–C3: Existing PPP concessions under operation ● D1–D3: Existing PPP concessions under operation

* A2 terminal has been operated as non-PPP form since 2002.

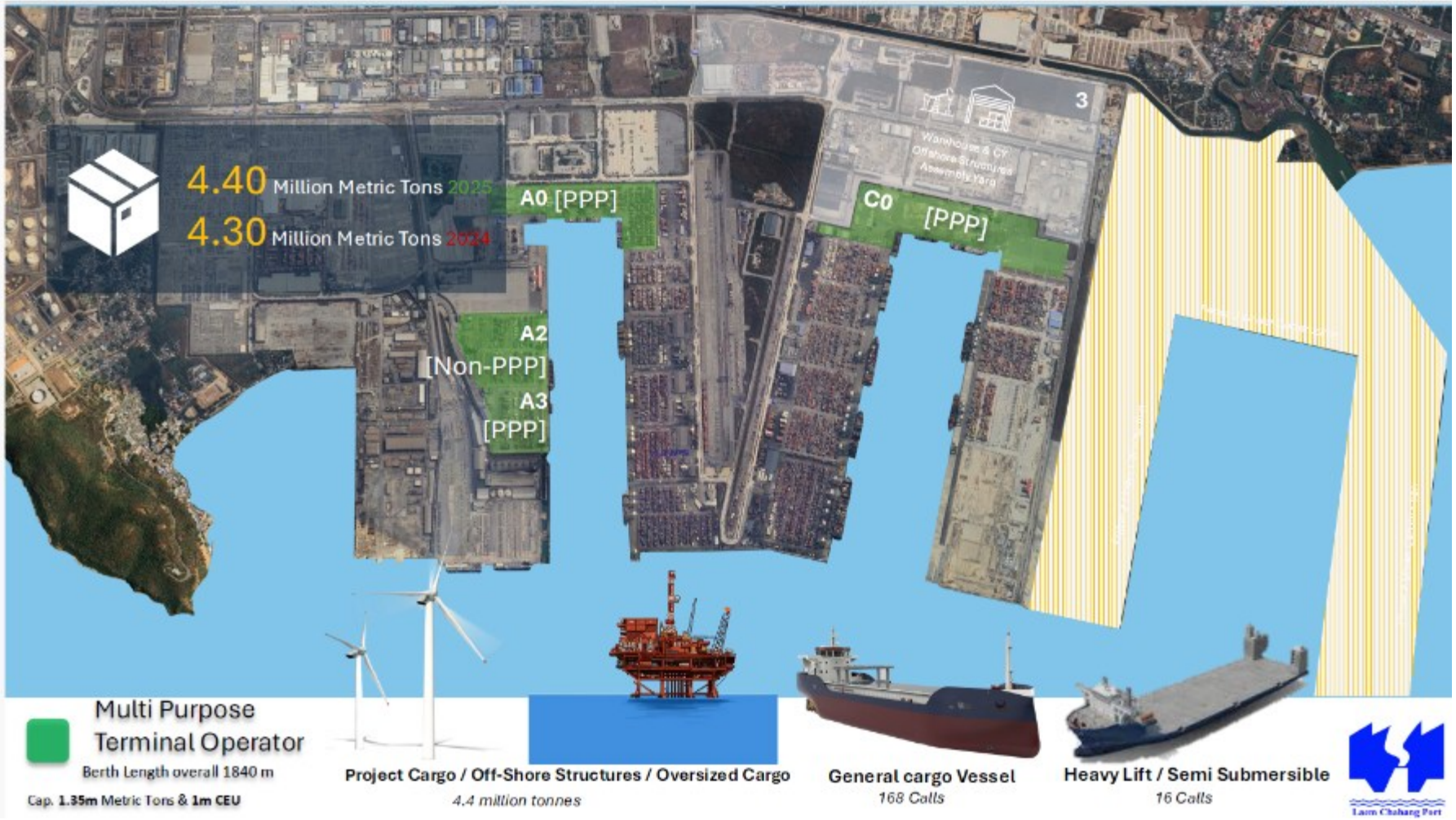
2.1 Case Study of Thailand

2.1.2 Laem Chabang Port: Phase1-3

Source: Port Authority of Thailand

2.1 Case Study of Thailand

2.1.2 Laem Chabang Port: PPP Terminals



Source: Port Authority of Thailand

2.1 Case Study of Thailand

2.1.2 Laem Chabang Port

(2) Project Performance and Key Learnings

(1) Co-Competition among Operators

PAT (the Port Authority of Thailand) considers the port's overall performance is high. The reason is that the port hosts multiple private operators who, while competing and collaborating with one another, collectively enhance the port's overall value—it is sometimes called as "Co-Competition."

(2) Design Features of the PPP Scheme

A distinctive feature of the PPP scheme is a revenue-sharing arrangement between the private operator and PAT. The division of roles between the public and private sectors is also clearly and rationally defined, with the public side responsible for such matters as constructing breakwaters and quay walls, dredging, and supplying utilities within the port.

(3) Effective Use of Technologies and Equipment

Technologies and equipment have been introduced as appropriate to improve efficiency of operation. Such technologies include remote operation of gantry cranes, rubber-tired gantry cranes (RTGs) and automated guided vehicles (AGVs). Cyber-Security is also strengthened by operators in recent years.

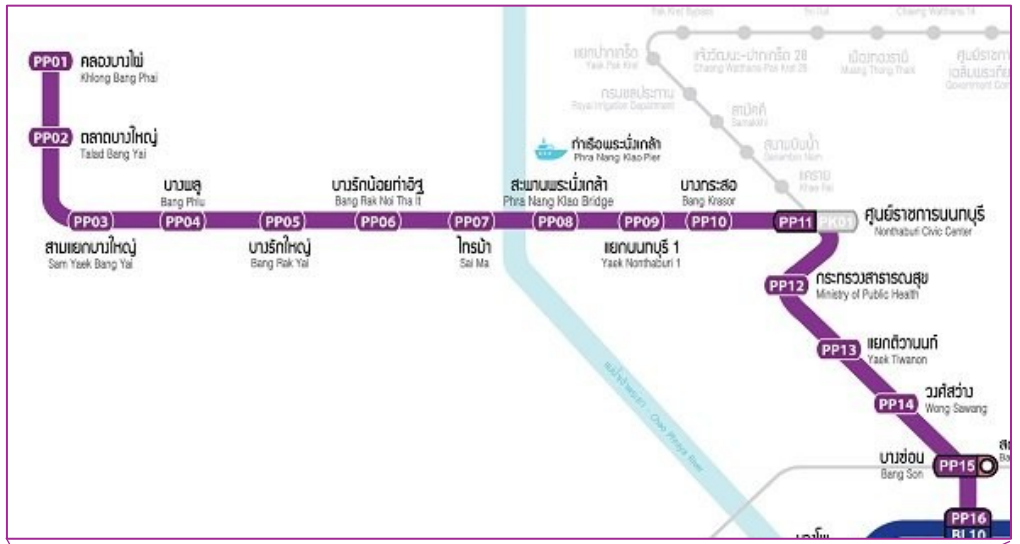
2.1 Case Study of Thailand

2.1.3 Bangkok Purple Line

(1) Project Overview

Company	Japan Transportation Technology (Thailand) Co., Ltd.(JTT)
Establish	2013
Paid Capital	313 million Thai Barts
Shareholder	East Japan Railway Company , Marubeni and Toshiba
Scope of Works	• A turnkey, lump-sum contract for the comprehensive maintenance and overhaul of the Bangkok MRT Purple Line, covering its rolling stock, depot maintenance equipment, power supply and distribution system, and trackwork. • The scope includes the implementation of preventive maintenance (periodic inspections and major overhauls), failure analysis, and spare parts management to ensure the safety and reliability of the system.



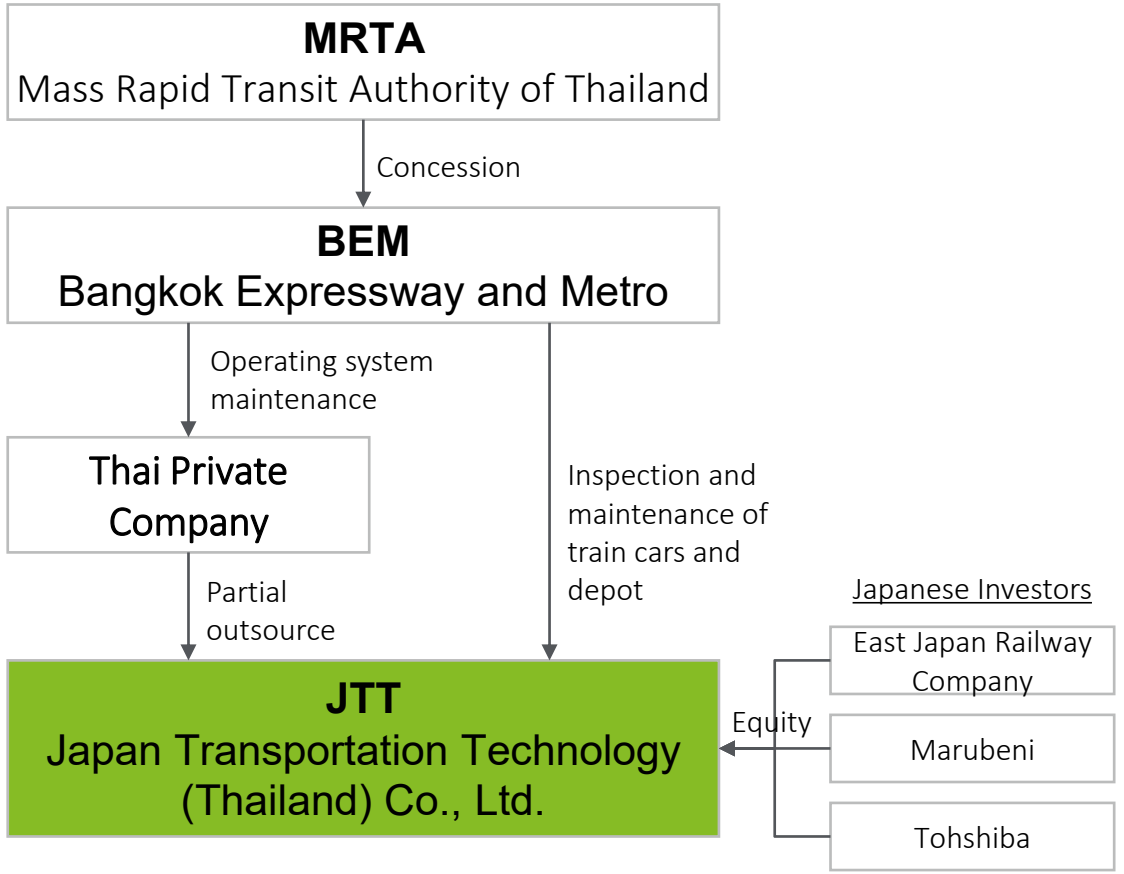
Source: MRT Bangkok

2.1 Case Study of Thailand

2.1.3 Bangkok Purple Line

(1) Project Overview

Source: Japan Transportation Technology (Thailand) Co., Ltd.(JTT)



Prepared by Deloitte Tohmatsu LLC

2.1 Case Study of Thailand

2.1.3 Bangkok Purple Line

(2) Project Performance and Key Learnings

(1) Quality Infrastructure and Safety

JTT prioritize 5s (Sorting, Setting-in-Order, Shining, Standardizing, Sustaining the Discipline) in its operation. The Purple Line remained zero-accident occurred in 2023 and 2024 and proved Quality Infrastructure.

(2) Gross-Cost" type PPP Scheme

The Purple Line adopts "Gross-Cost" type PPP that public sector undertakes demand risk and private sector is free from ridership risks. Consequently the PPP scheme attracts private sector. Whereas, the gap between prediction and the actual number of passenger heavily places significant financial burden on the public sector.

(3) Strengthening Resilience

Thailand had not set rules against earthquake. The Purple Line immediately suspended all services upon the great earthquake hit Myanmar and Thailand in 2025, and conducted inspection of the entire line which enabled operations to resumed from the next morning. The experience has served as a catalyst for ongoing discussions for establishment of seismic safety guidelines.

2.2 Case Study of Lao PDR

2.2.1 Regulatory Framework and Organizations

Regulatory Framework

As of March 2026, Laos does not yet have a law specifically dedicated to PPPs. However, a Prime Minister's Decree on PPP and its implementing regulations exist and, together with the Investment Promotion Law, provide the legal basis for PPPs.

Below are the typical key elements set out in the Prime Minister's Decree on Public–Private Partnership (PPP) in Lao PDR, as reflected in the decree and its implementing regulations in force alongside the Investment Promotion Law.

- Sets the PPP framework (aligned with the Investment Promotion Law)
- Assigns roles (MPI policy/screening; line ministries implementation; MoF fiscal oversight)
- Mandates a screened, competitively tendered project cycle with risk-allocated contracts, limited government support under fiscal controls, and safeguards on land/E&S, transparency, dispute resolution, and asset hand back.

Organizations

MPI（Ministry of Planning and Investment）

The agency promoting PPPs in the country is MPI, which has departments responsible for PPPs/concessions and investment promotion. MPI oversees PPP policies and systems, and carries out screening of PPP projects, pipeline management, and the development of guidelines.

MPWT (Ministry of Public Works and Transport)

In Laos, the organization responsible for PPPs in the transport sector is MPWT. As a rule, PPPs for transport infrastructure—such as roads, bridges, urban transport, inland water transport, airports under its remit, and railways—are planned, procured, and contract-managed by MPWT as the line ministry. Within the ministry, departments such as the Department of Roads, Department of Transport, Department of Civil Aviation, the unit in charge of railways, and planning/coordination departments become involved depending on the project. The existence of a PPP-dedicated unit within the ministry has not been confirmed.

2.2 Case Study of Lao PDR

2.2.2 Wattay Airport

(1) Project Overview

At Wattay Airport, independent concessions have been granted to Lao-Japan Airport Terminal Services Co., Ltd. (L-JATS) for the international terminal and to Airport Terminal Service (ATS) for the domestic terminal. For the international terminal, L-JATS was established in April 1999 and entered into a concession agreement with DCAL for terminal operations. After three extensions of the concession, the current concession period runs until May 2029. For the domestic terminal, ATS began operations in 2013, and the terminal continues to be operated by the company.

The specific scope of L-JATS's operations is as follows:

- ✓ Ground handling services
- ✓ Passenger services and check-in
- ✓ Airport lounge services and VIP rooms
- ✓ Restaurants and snack bars
- ✓ Retail outlets (duty-free shops, kiosks, souvenir shops)
- ✓ Fixed leased retail units/counter booths
- ✓ Parking facilities
- ✓ Airport cargo terminal operations (operation, office leasing, cargo handling, security screening)
- ✓ Advertising business
- ✓ Aircraft line maintenance
- ✓ Airport security services, and other related services as determined by the Board of Directors

2.2 Case Study of Lao PDR

2.2.2 Wattay Airport

(1) Project Overview (continued)

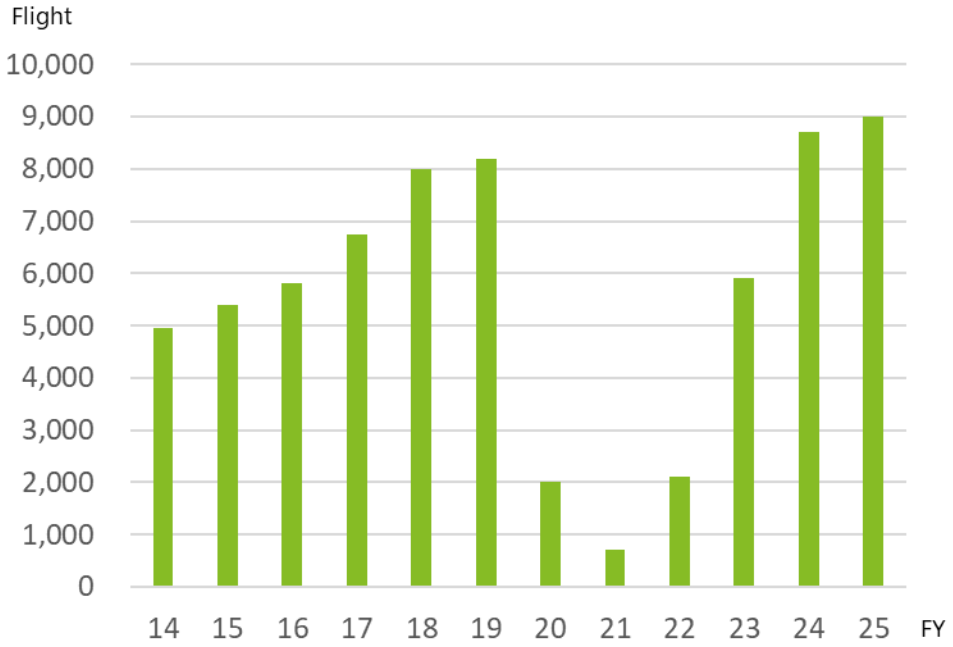
Source: Wattay Airport Homepage (https://www.vientianeairport.com/)

2.2 Case Study of Lao PDR

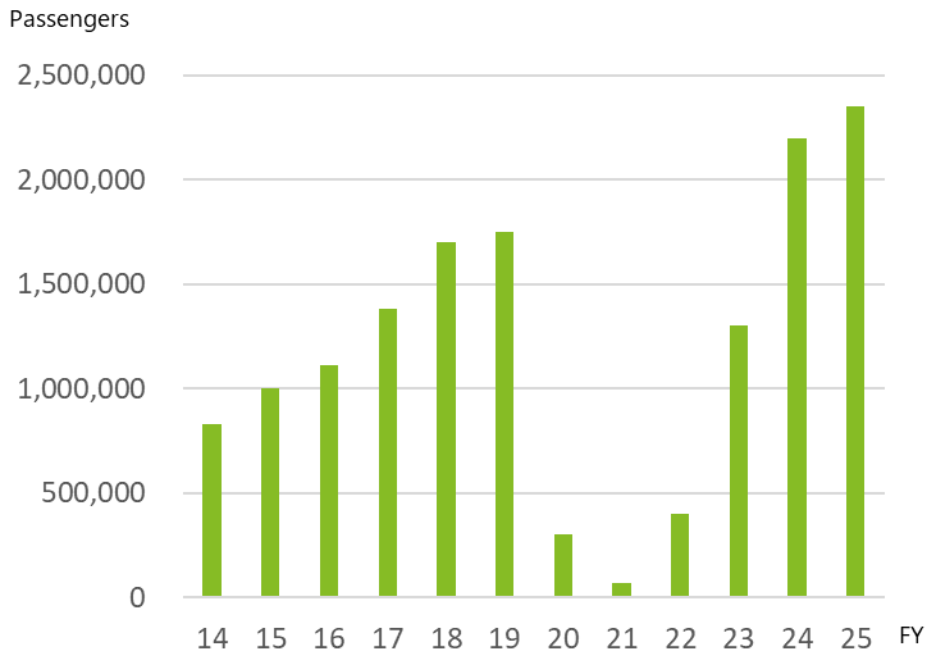
2.2.2 Wattay Airport

(2) Project Performance

Regarding international operations, despite the impact of the COVID-19 pandemic, both passenger numbers and international flights are on an upward trend.



Trend of Number of Flight



Trend of Number of Passengers

Source: J-LATS

2.2 Case Study of Lao PDR

2.2.2 Wattay Airport

(3) Key Learnings

(1) Active utilization of private-sector know-how

Prior to the start of PPP, the country did not have sufficient experience or know-how in operating an international terminal. The involvement of a private company with overseas experience and expertise contributed to achieving efficient operations.

(2) Appropriate division of roles between the public and private sectors

The public sector undertakes elements such as basic infrastructure development and introduction of environmental technologies as public goods, while the private sector is responsible for ensuring project profitability and financial sustainability. This model is functioning effectively. Flexible judgment and response in emergencies when the COVID-19 pandemic impacted operations.

(3) Roles of support and involvement by foreign public and private actors

In this project, Japanese companies participated on the private side, while the Government of Japan provided support in various forms. Expansion and renewal of facilities and equipment through loan and grant assistance. Technical cooperation for developing the project investment plan and for capacity building (including training in Japan)

2.2 Case Study of Lao PDR

2.2.3 Chao Anouvong Stadium Renovation

Reference Case

(1) Project Overview

A stadium renovation plan to enable hosting top-tier matches and tournaments in Laos in line with international standards, including parasports, athletics, football (soccer), and rugby. Implemented as an ODA project through JICA Grant Aid, with AZUSA SEKKEI responsible for design, and a joint venture of Ando Hazama and TOA ROAD Corporation awarded the contract.

Source: JICA Homepage (https://www.jica.go.jp/information/seminar/2024/1565932_52234.html)

(2) Key Learnings

Although the construction work itself is not a PPP, the ODA project was designed with subsequent operations by the private sector in mind, incorporating paid, revenue-generating facilities to support financial viability and profitability.

2.3 Case Study of Viet Nam

2.3.1 Regulatory Framework and Organizations

Regulatory Framework

Vietnam's adoption of Public-Private Partnerships (PPPs) for infrastructure development began in the 2010s and a comprehensive legal framework was established with Decree No. 15 in 2015.

Further legal consolidation was achieved with the enactment of the Law on PPP in 2020. While this law enhanced the framework by clarifying risk-sharing mechanisms and abolishing the corruption-prone BT model, it also introduced significant impediments the legislation restricted PPPs to traditional infrastructure sectors and imposed a high minimum investment threshold of VND 200 billion (approximately USD 8 million), which led to the stagnation of the PPP market.

The Government of Vietnam is currently reviewing amendments to improve the current PPP Law including:

- Expansion of eligible sectors for PPP projects
- Abolition of the minimum investment requirement
- Expansion of authority for local governments
- Exemption from the investment policy approval step
- Refinement of the risk-sharing mechanism

Organizations

Ministry of Finance (ex-Ministry of Planning and Investment)

The organization for promoting Public-Private Partnerships (PPPs) in Vietnam was formerly the Ministry of Planning and Investment (MPI), but it was merged into the Ministry of Finance following a government reorganization in March 2025. The purpose of this reorganization is to centralize fiscal and investment planning to promote efficient financial planning and investment.
Prior to the merger, the "PPP Office" within the Public Procurement Agency was the responsible body at the MPI. Based on Decree No. 15, its roles included the overall management of PPP projects, support for procedures and appraisals, project monitoring, and the development of a related database.

Other Ministries and provincial/local governments

Other ministries such as ex-Ministry of Transport (currently merged into Ministry of Construction), Hanoi City and Ho Chi Minh City have PPP promotion units.

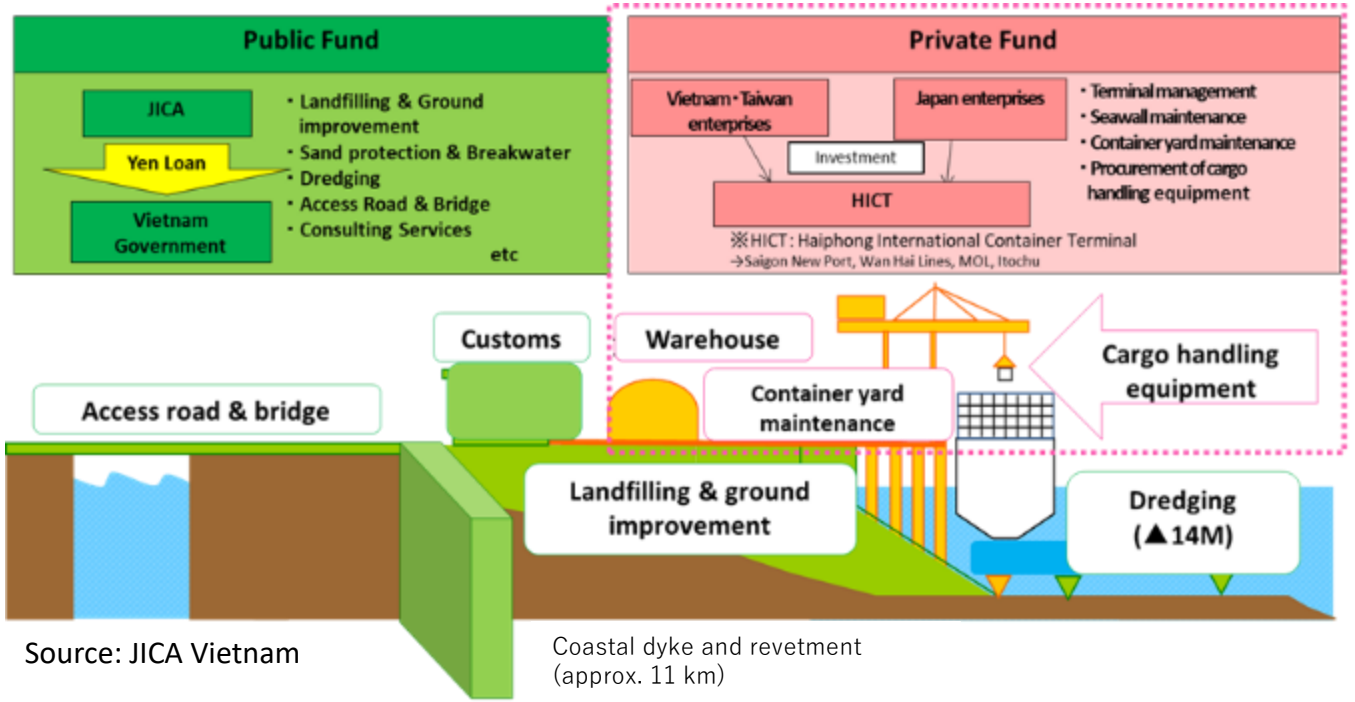
2.3 Case Study of Viet Nam

2.3.2 Lach Huyen Port

(1) Project Overview

Lach Huyen Port, a major deep-water port located approximately 130 km east of Hanoi. The port was originally developed with support of Japanese ODA Loan and the container terminals are operated by different companies: Berths 1 and 2 are operated by TC-HICT, Berths 3 and 4 by HTIT, and Berths 5 and 6 by HHIT, a joint venture between Hateco and Maersk. Berths 7 and 8 are currently being developed by SNP and CMA of France.

Source: Deloitte Tohmatsu LLC



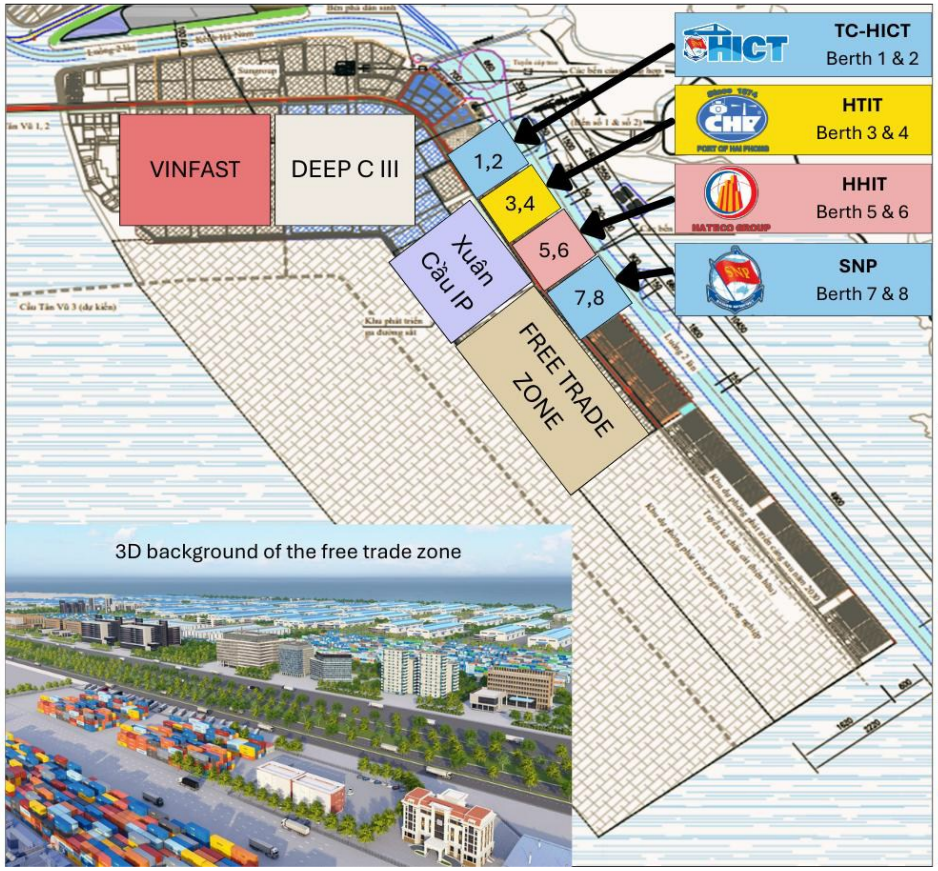
Source: JICA Vietnam

Coastal dyke and revetment
(approx. 11 km)

2.3 Case Study of Viet Nam

2.3.2 Lach Huyen Port

(1) Project Overview



Investor/ Berth No.	Main Berth length	STS Crane	Transfer Crane in CY	Designed capacity p.a	Open (plan)
TC-HICT (SNP/MOL/WHL/ITO) B1-B2	750m	outreach 65m x 6 units lift above rail 46m	eRTG 24 units 6+1 lanes x 5 tires	1,100,000 TEU	May 2018
HTIT (HP Port/MSC) B3-B4	750m	outreach 65m x 6 units lift above rail 46m	eRTG 24 units 6+1 lanes x 5 tires	1,100,000 TEU	Apr 2025
HHIT (Hateco/Maersk) B5-B6	900m	outreach 68m x 9 units lift above rail 50.5m	eRTG 27 units 7+1 lanes x 6 tires	1,500,000 TEU	Apr 2025
(SNP/CMA) B7-B8	900m			1,500,000 TEU	(2027)

Source: TC-HICT

2.3 Case Study of Viet Nam

2.3.2 Lach Huyen Port

(2) Project Performance and Key Learnings

(1) Public Private Partnership for Expansion and Development of the Port

Corresponding to the increased volume of containers, the operators have commenced study and works toward development of the ports while the government of Vietnam officially prioritized Lack Huyen Port as the priority port.

(2) Cutting Edge Technology

Full automation has not yet been achieved at Lach Huyen Port. However, some automated systems have already been implemented, such as the automatic identification of containers at the truck entrance gates. Additionally, there is a stated goal to transition the yard trucks operating within the terminal to electric vehicles (EVs) potentially using Joint Crediting Mechanism（JCM）.

(3) Abandoned Cargo

Prolonged container dwell times can arise when cargo becomes undeliverable, typically due to circumstances such as consignee insolvency or untraceability. The disposal of these containers at the discretion of port operators is often impeded by complex legal issues of ownership. Consequently, such units inevitably remain within the yard for an extended period.

PART 3: ROLES OF DEVELOPMENT PARTNERS IN PPP

3.1 Roles of Development Partners (DPs) in PPP

- **As a Lender**
  DPs may provide lending to Private Operator or GCA who build a part of infrastructure.
- **As a Grant Provider**
  DPs may provide grants to GCA who builds/expands/upgrades/renovates infrastructure.
- **As a Technical Assistance Provider**
  DPs may provide various Technical Assistance and other services such as capacity building and transaction advisory services whish support PPP project procurement.
- **As a Co-Investor**
  DPs may be a co-investor who provide equity to private operator.

TOT (Toll-Operate-Transfer) Model

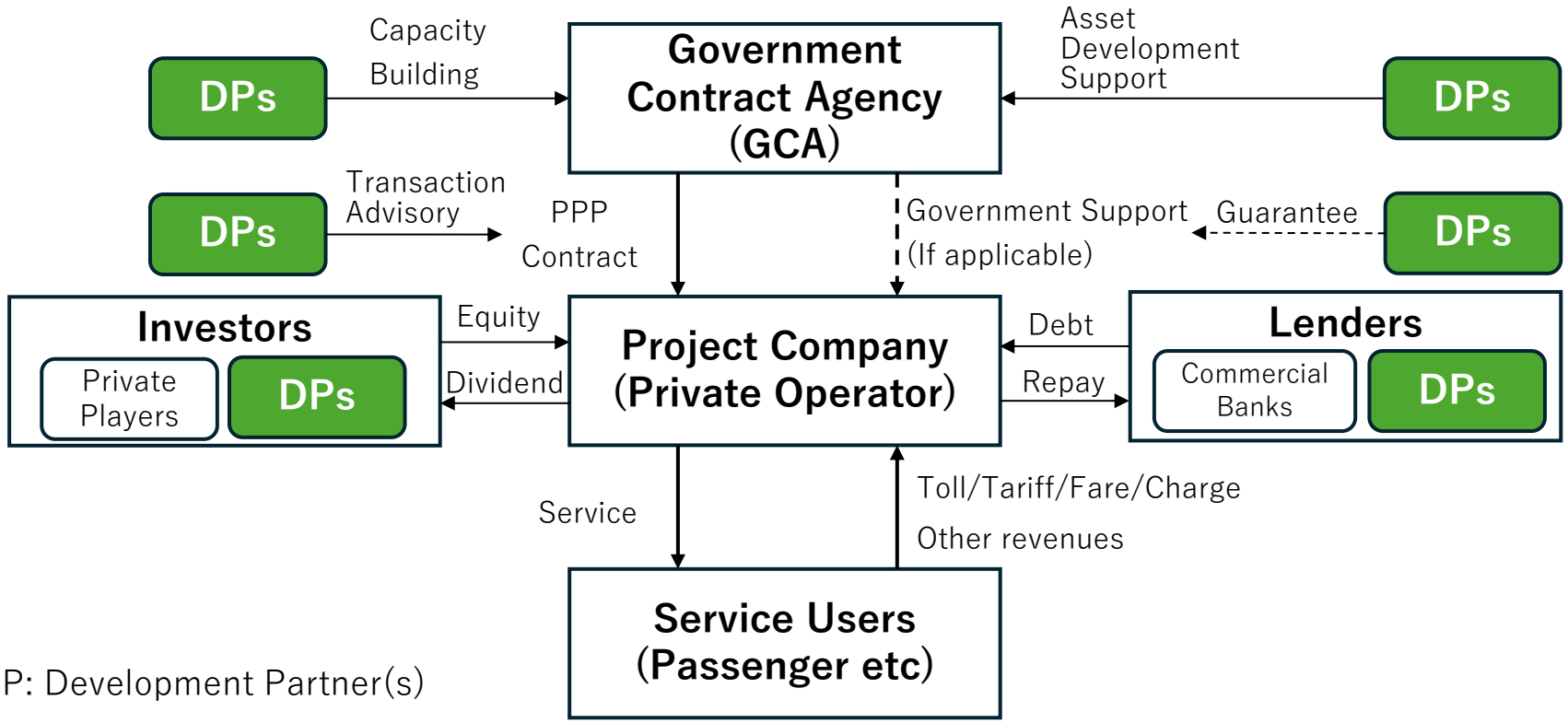
TOT is one of PPP models where a private concessionaire pays an upfront fee for the right to operate, maintain, and collect tolls on existing transport assets for a fixed term, then hands the asset back.

The private party takes O&M, major maintenance and rehabilitation, and traffic or revenue risk under performance and toll indexation rules, with little construction risk.

Governments use TOT to monetize mature assets and recycle capital into new projects. Financing by DPs might be used for construction of the infrastructure.

3.2 Hybrid Model of ODA and PPP

PPP projects are principally ventures established through cooperation between the public and private sectors. Private sector may be either domestic or international players. The strategic integration of ODA and PPP represents a pivotal measure, designed not only to enhance project viability but also to alleviate the fiscal burden upon the host nation.



DP: Development Partner(s)

Examples of Hybrid Model

1. **Bangkok Purple Line in Thailand**
   Yen Loan was used to cover civil works, M&E facility, and rolling stocks.

2. **Lack Huyen Port in Viet Nam**
   Yen Loan was used to cover civil works, drainage, reclamation, breakwater, access road and bridge

PART 4: Supply Chain Resilience

4.1 Supply Chain Vulnerability in ASEAN

- ASEAN countries' imports are largely dependent on China while the share of the USA recently increase in export.
- In recent years, cybersecurity and climate change have emerged as severe risks. Furthermore, trends such as decarbonization and digital transformation (DX) have also become critical factors.
- The COVID-19 pandemic, U.S. tariffs, the war in Ukraine, and conflicts in Iran have starkly revealed the profound vulnerability of supply chains.
- In recent years, corporations have been strategically re-evaluating their highly fragmented supply chains, fortifying against the risk of raw material disruptions while actively diversifying their global production and procurement systems.

Export

Country/Region	2005	2010	2015	2020	2024
ASEAN	25.3	25.2	24.5	21.3	22.5
USA	14.3	9.5	10.7	15.1	16.0
China	8.1	10.7	12.4	15.7	14.9
EU27	—	—	9.4	9.3	8.5
Japan	11.2	9.8	8.7	7.4	6.2
Hong Kong	5.5	6.9	6.7	6.9	5.7
Korea	3.8	4.3	3.9	4.2	4.1
Total (Billion USD)	649	1,049	1,172	1,397	1,953

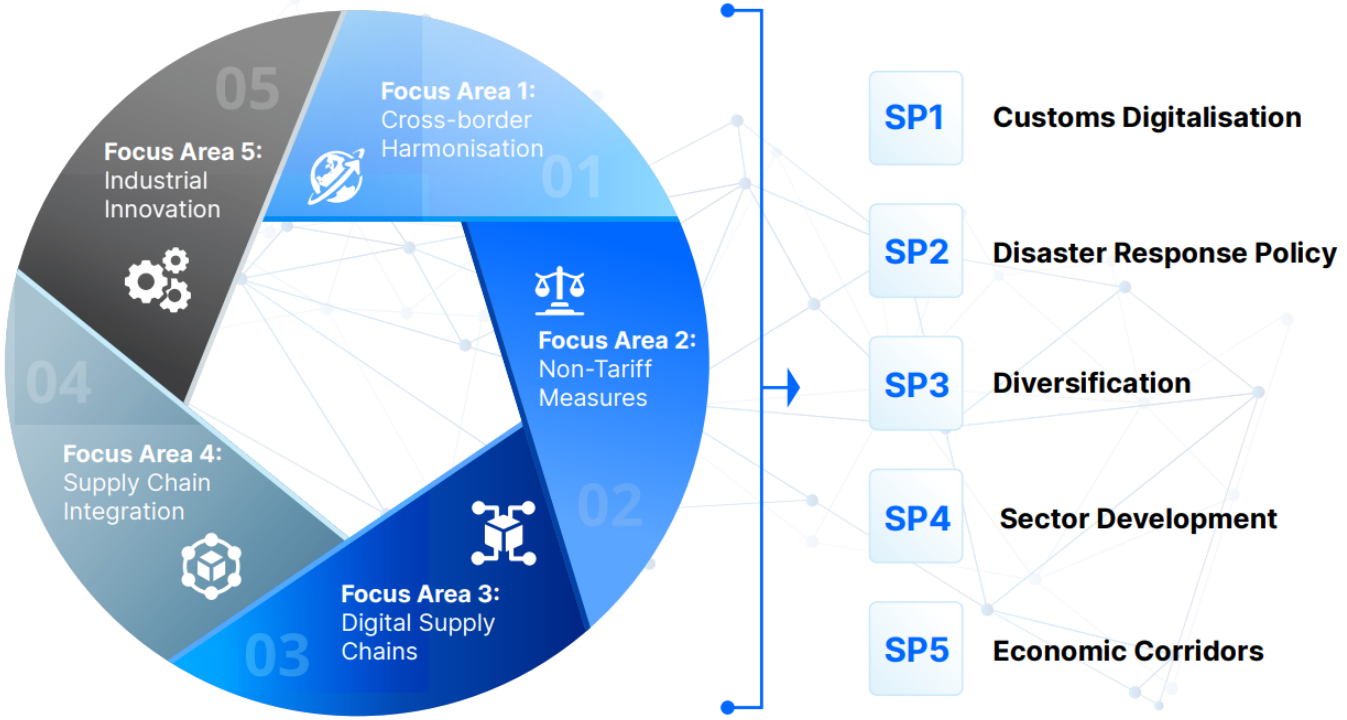
Import

Country/Region	2005	2010	2015	2020	2024
China	10.6	12.9	19.8	23.5	25.4
ASEAN	24.5	25	22.5	21.1	20.3
USA	10.6	8.5	7.7	7.7	7.5
Korea	4.1	6	6.8	7.6	6.8
EU27	—	—	8.3	7.6	6.7
Japan	14	12.2	9.2	8	6.1
Hong Kong	1.7	1.7	1.3	1.3	1.1
Total (Billion USD)	577	952	1,101	1,273	1,891

Source: ASEAN STATS

4.2 Strengthening Supply Chain

The Framework on ASEAN Supply Chain Efficiency and Resilience emphasizes five focus areas, five strategic priorities, with corresponding priority actions, initiatives and activities and three enablers; formulated based on a comprehensive supply chain analysis and validated through extensive consultations with AMS and ASEAN stakeholders.



Infrastructure Development

- Port
- Airport
- Road
- Railway
- Cold Chain
- Digital/Cyber Security

Enablers

1. Coordinated Investment
2. Technological Adoption
3. Continuous Upskilling

Source: Framework on ASEAN Supply Chain Efficiency and Resilience, ASEAN (2024)