



Enhancing inland container traffic: The challenge for Thailand Petrochemical Export

Present to the 14th ASEAN Ports & Shipping

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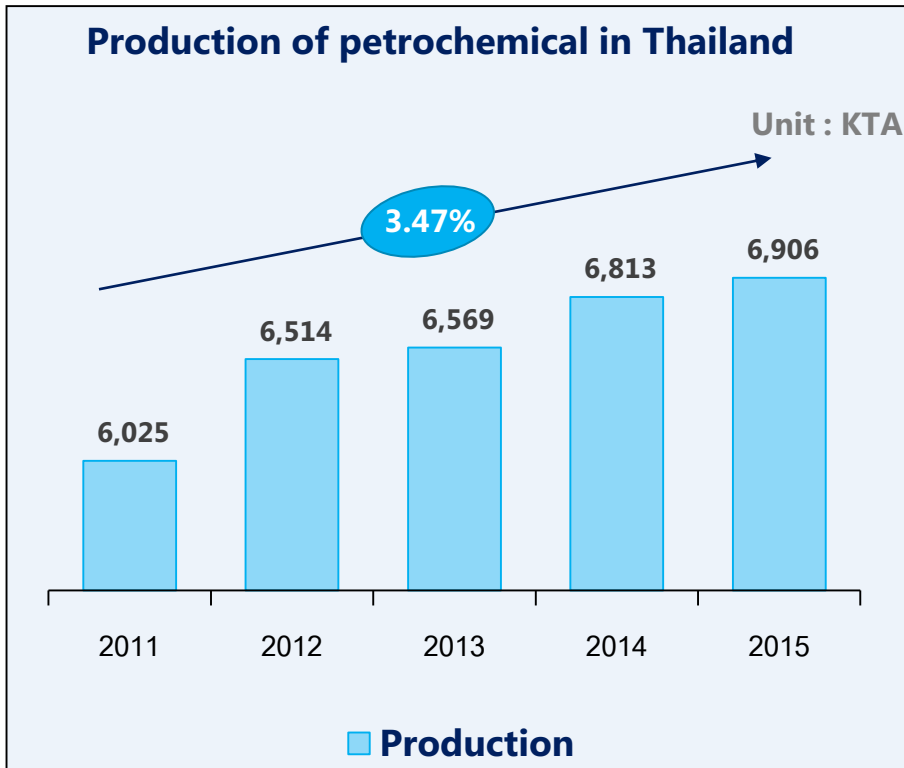
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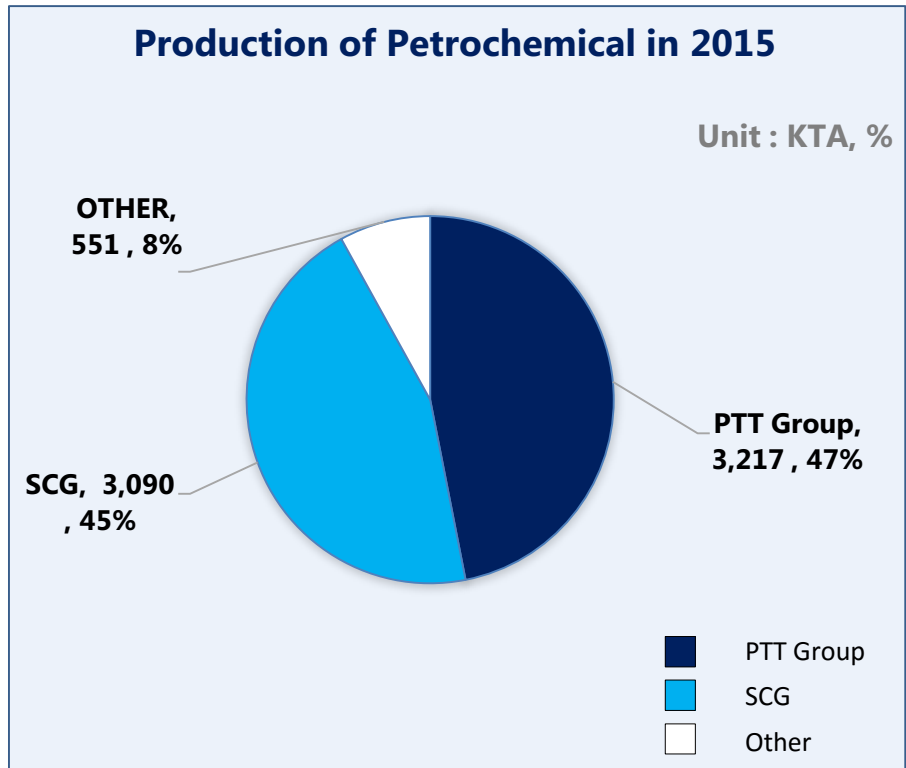
PTT Public Company Limited

- **Petrochemical logistics situation**
- Logistics strategies to minimize inland traffic

Thailand petrochemical production has continuously been increased, especially the major shifted in 2012.



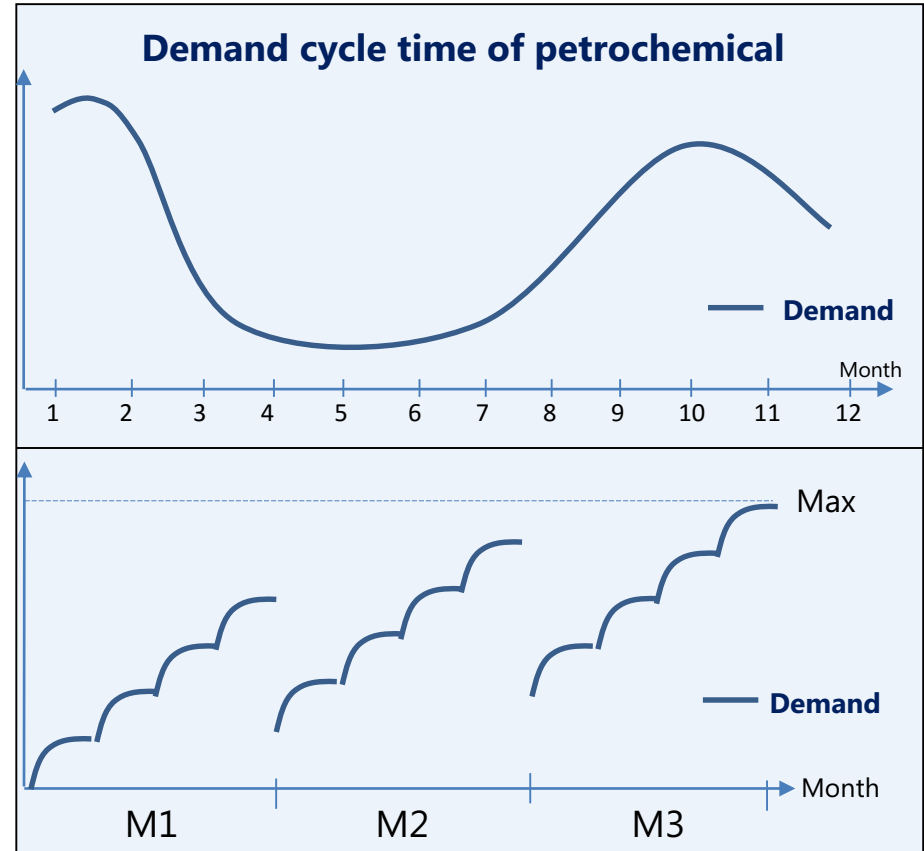
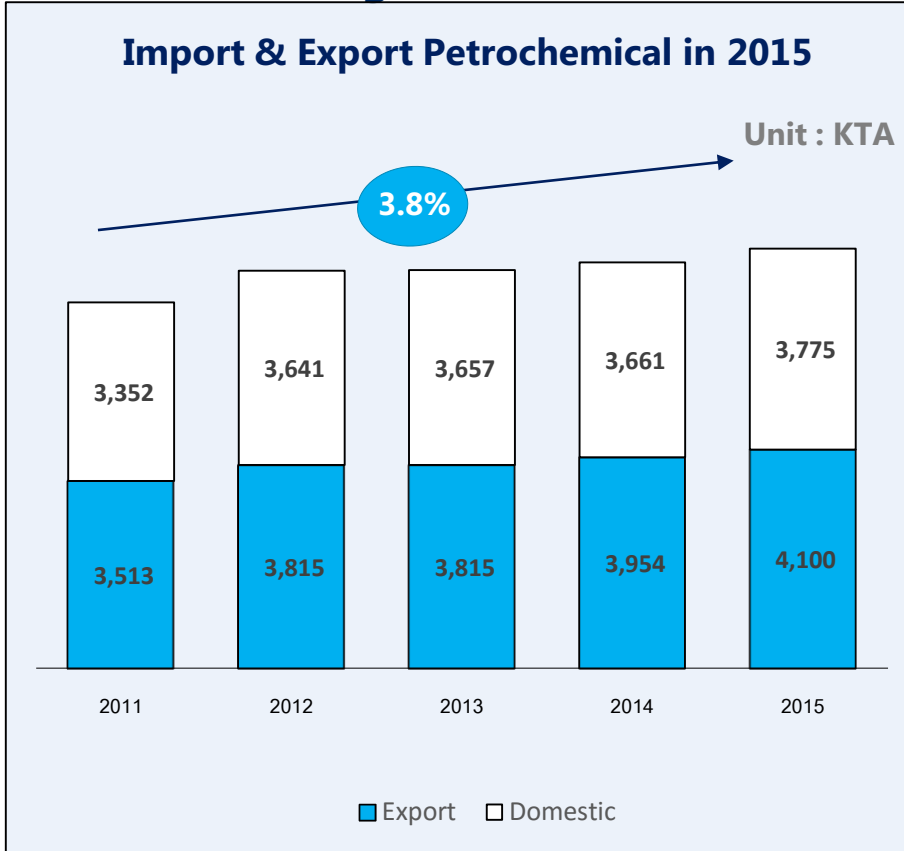
- CAGR for Petrochemical production in Thailand is at 3.47% from 2011 to 2015
- The increases in production are to serve for both demands of domestic and international markets.



- Major Petrochemical Companies have production base in **Map Ta Phut Industrial Estate, Rayong (MTP)** i.e. PTT Group, SCG, Indorama, etc.
- Total traffic originated from MTP areas and petrochemical sector contribute about 800,000 trips per year. This does not consider the traffic from the petroleum sector.

Source: Petroleum Institute of Thailand (PTIT) : Total major polymers include PE, PVC, PP, PS, EPS, and ABS/SAN

With markets in both domestic and international, demands are highly fluctuated through several factors.



- Demand of Import and Export petrochemical has increased during 2011 to 2015 about 3.8%
- Petrochemical container export account for 10% of Thailand total container export

- Weekly increase throughout the month due to sale behavior
- Monthly fluctuate throughout the year due to holiday season throughout the globe.

Source: Petroleum Institute of Thailand (PTIT) : Total major polymers include PE, PVC, PP, PS, EPS, and ABS/SAN

Like in other countries, several form of truck transportation are used for container export in Thailand.

Solid Petrochemical Trucking



20 Ft. Container (TEUs)



40 Ft. Container (FEUs)



Liquid Petrochemical Trucking

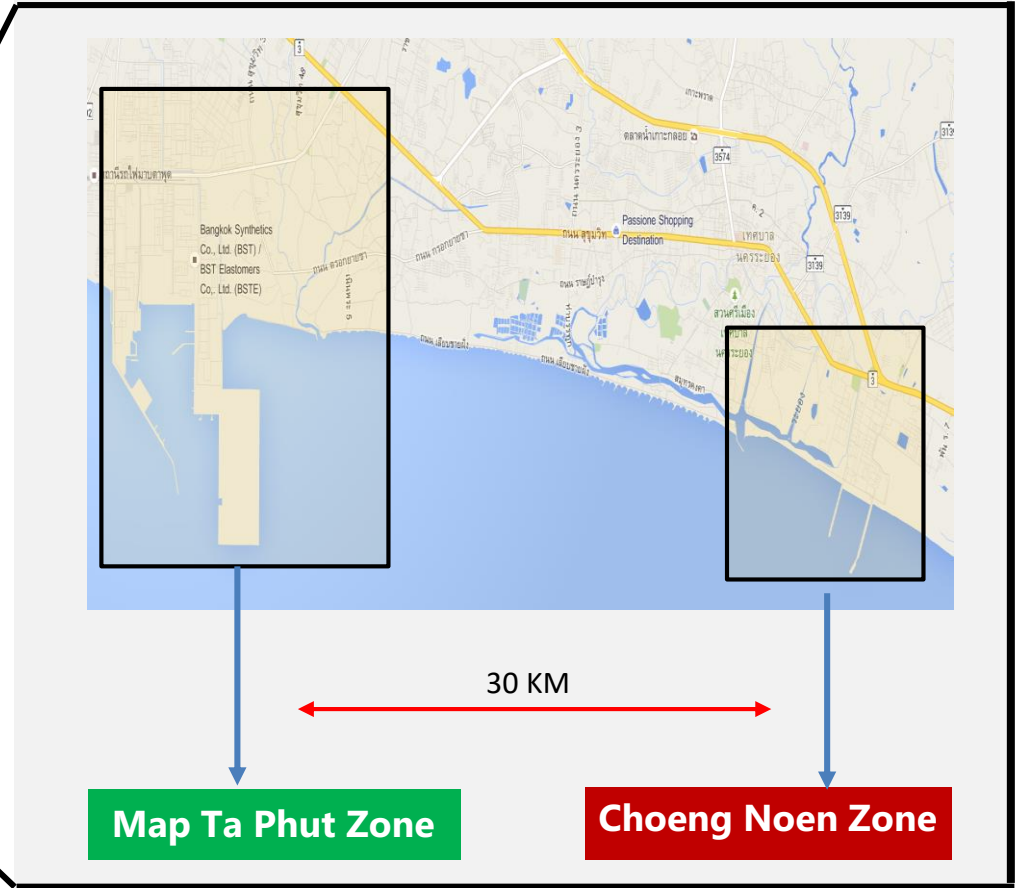
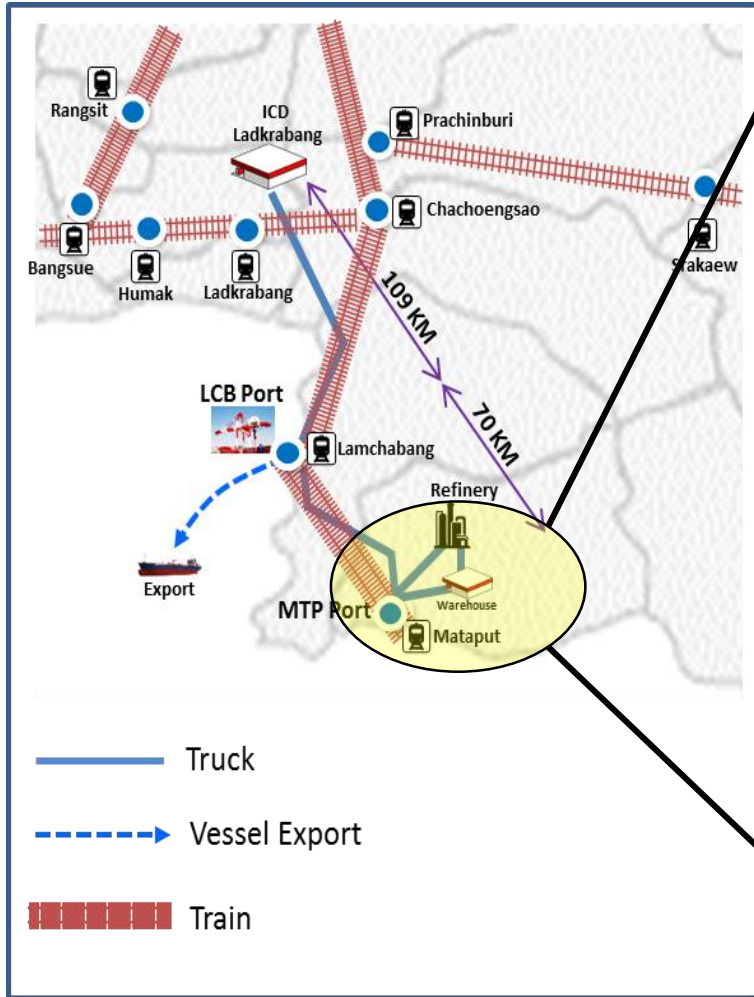


- Transport method for Petrochemical export, for example, 1-TEU for 18 ton plastic resin, 1-FEU for 26-ton plastic resin, flexi-bag on TEU, steel drum on TEU, ISO Tank.

- Petrochemical logistics situation

- **Logistics strategies to minimize inland traffic**

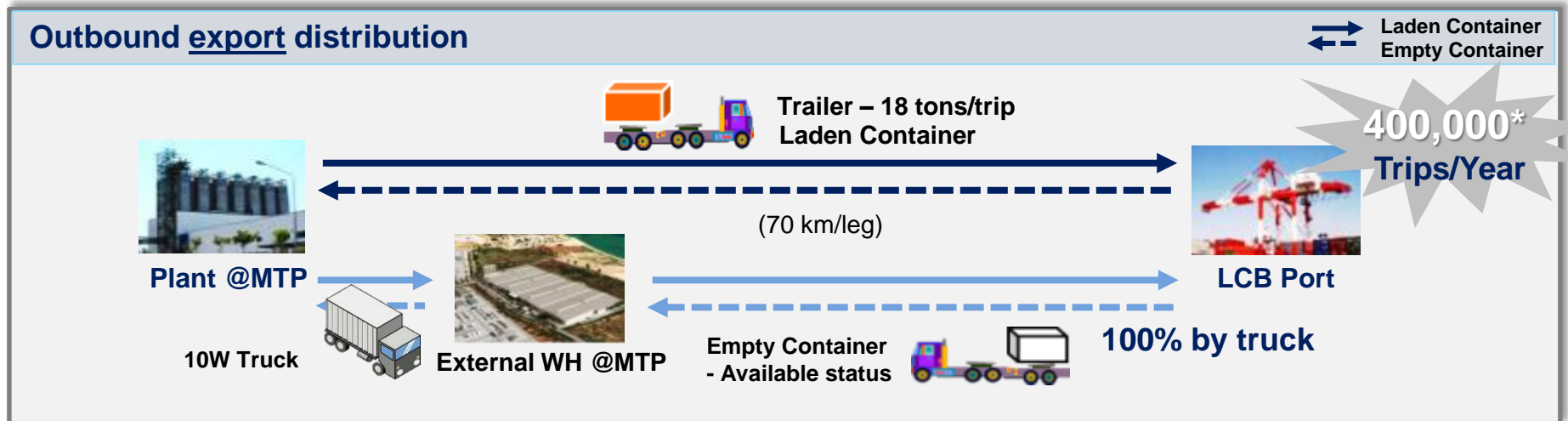
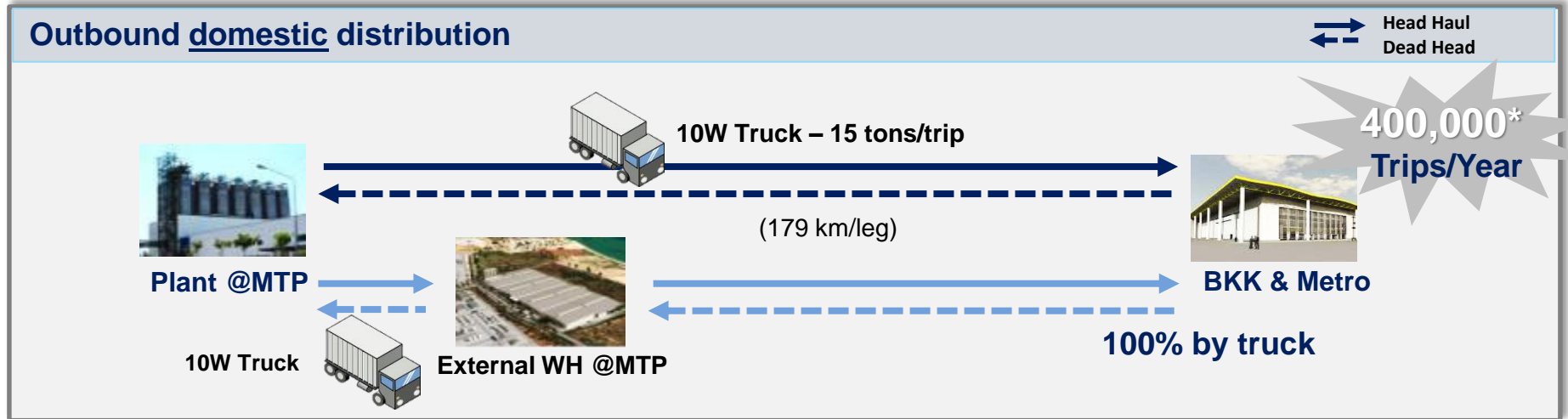
Overview linkage between Map Ta Phut and Laem Chabang Port



- Petrochemical producers mainly locate with Map Ta Phut and Choeng Noen Zones with capacity over 7 million tons per annum.
- MTP-LCB areas as part of the currently promoted **Easter Economic corridor (EEC)** under Thai Government.

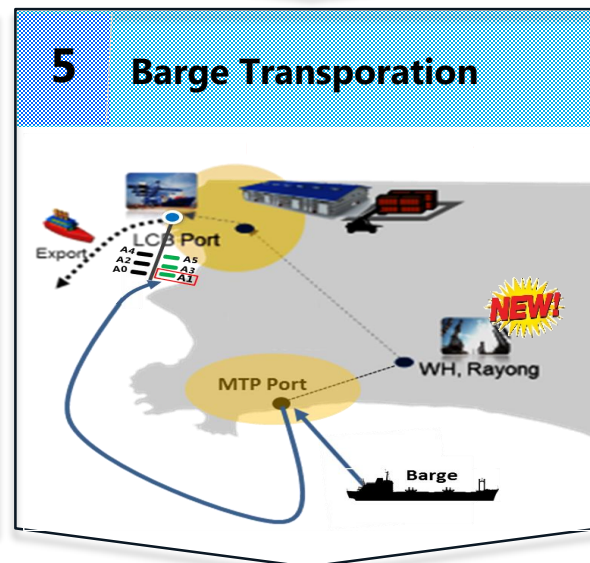
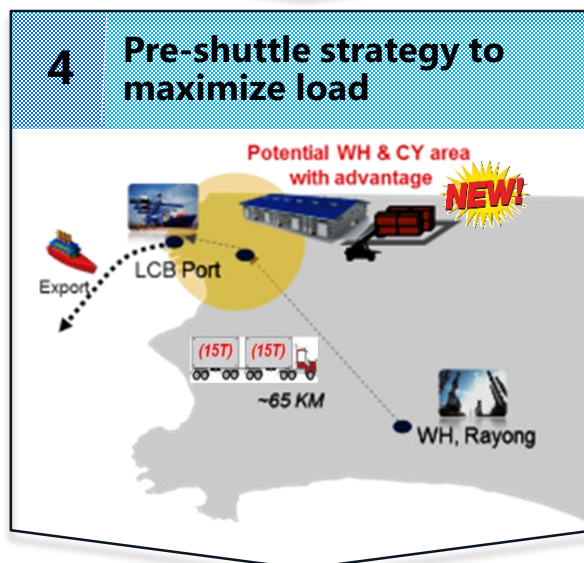
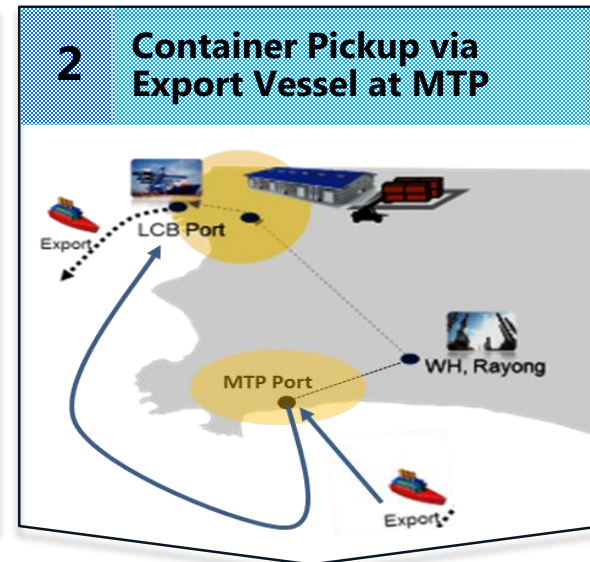
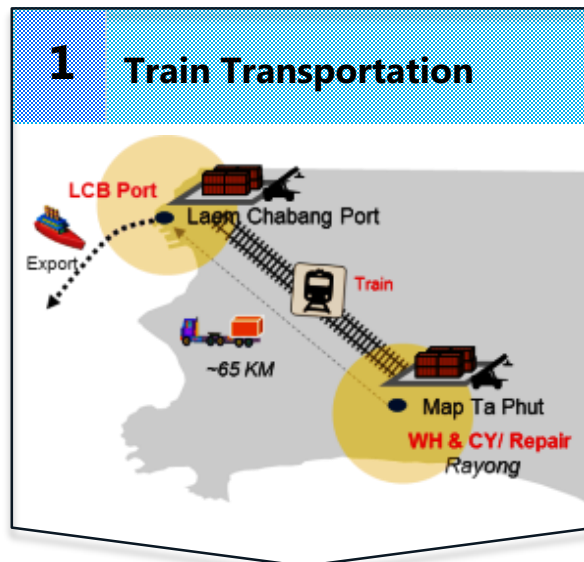
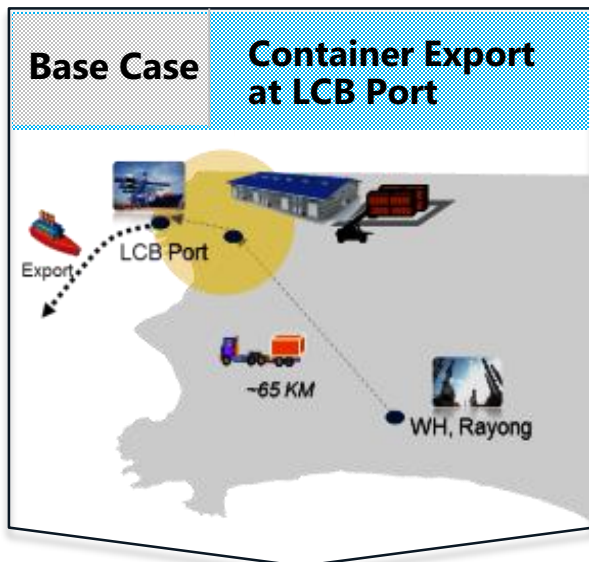
Majority of petrochemical transportation to both domestic or export port are via truck mode.

Present – From Map Ta Phut, Rayong to Laem Chabang Port, Chonburi/ Bkk & metro



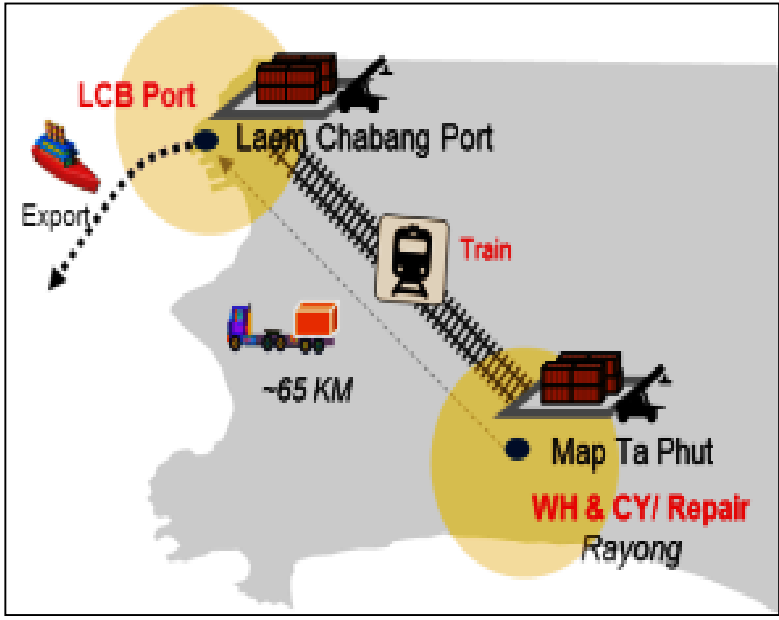
Source: *Petroleum Institute of Thailand (PTIT)

With highly condensed traffic between MTP and LCB port, several approaches has been established to alleviate the traffic congestion out of MTP and into LCB.

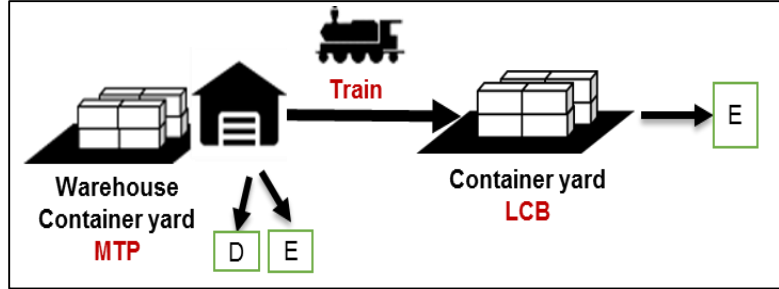


Alternative 1 : Train Transportation

Case Study Model

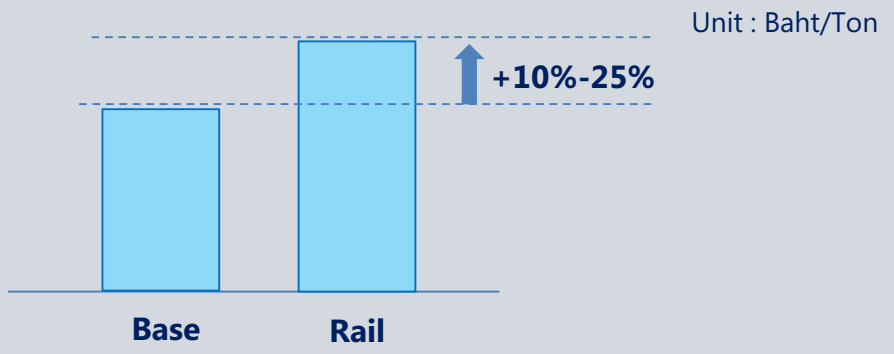


Note : Every single trip have to carry minimum 200 TEUs



Description & Results

Comparison of Logistics Cost between Base case and rail



Key Observations

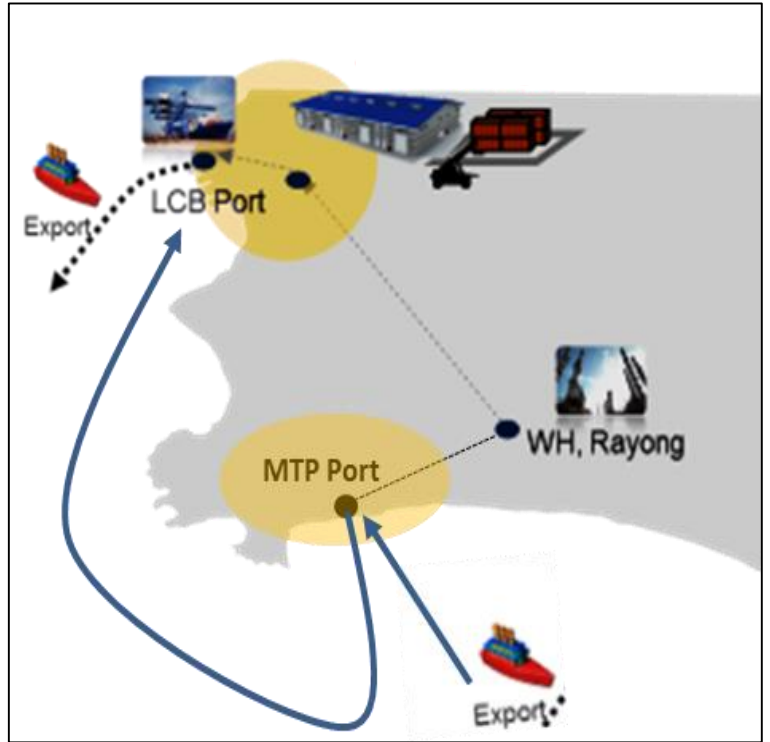
- Train operator requires minimum guarantee for train utilization, while sale pattern of petrochemical product is fluctuated
- There is exiting the rail network but it's not economic for rail since it's quite short distance
- Unreliable rail transportation service causing from accidents, labor union, etc.

Short Term Opportunities

- Save Logistics Costs
- Reduce air pollution and traffic congestion

Alternative 2 : Container Pickup via Export Vessel at MTP

Case Study Model

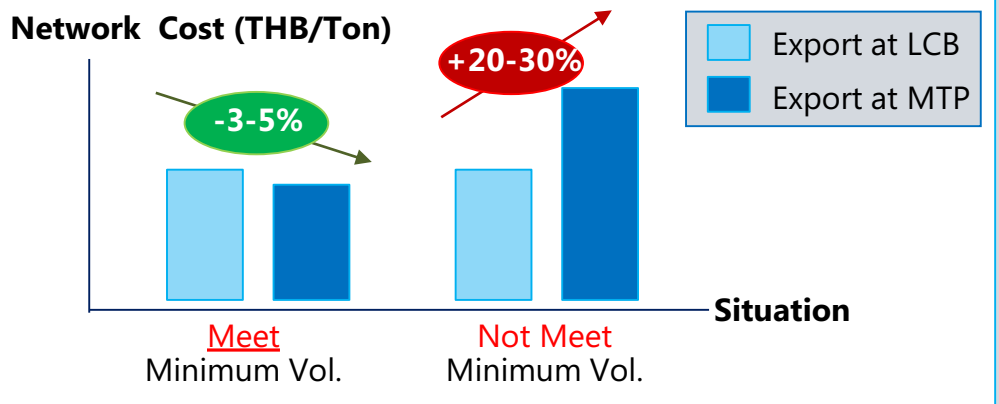


Note : PTT has been using MTP port to export products with SCG, but now the project has been cancelled



- Expected to ship 250 TEUs/week
- (PTT 125 TEUs, SCG 125 TEUs)

Description & Results



Key Observations

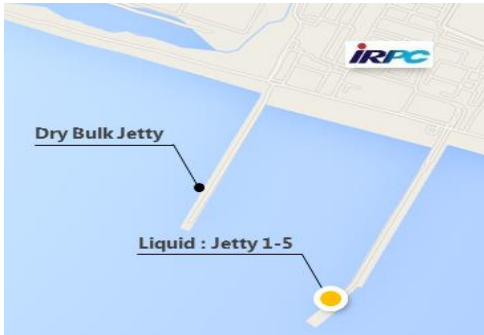
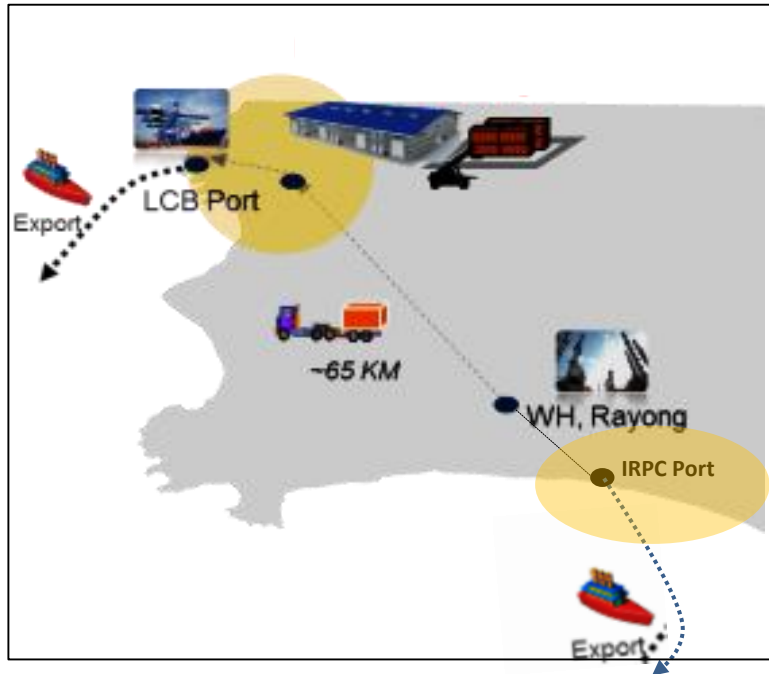
- Liner requires stable of utilization, while sale pattern of petrochemical product is fluctuated
- Every single trip have to carry minimum 250 TEUs/week
- Each liner can provide delivery service to limited ports (7-8 ports)
- Existing network cost for transferring product to LCB port by truck and export via vessel **is LOWER** than export from MTP

Short Term Opportunities

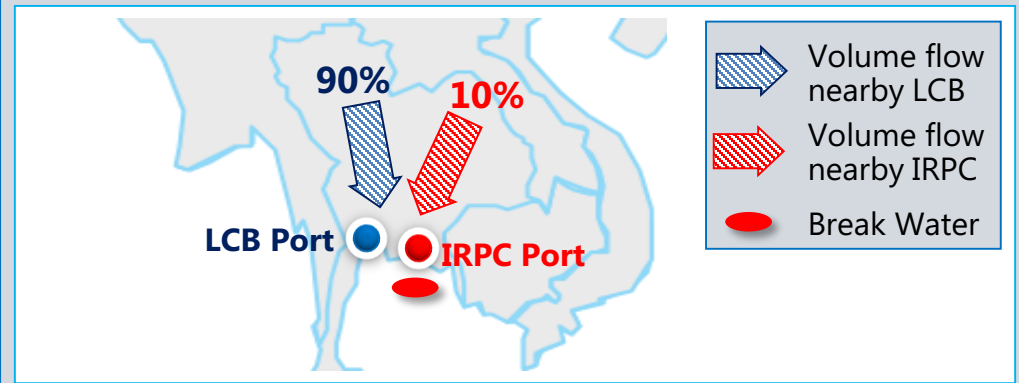
- Increase MTP port utilization
- To reduce traffic congestion on road

Alternative 3 : Promote Near by Port for Exporting

Case Study Model



Description & Results



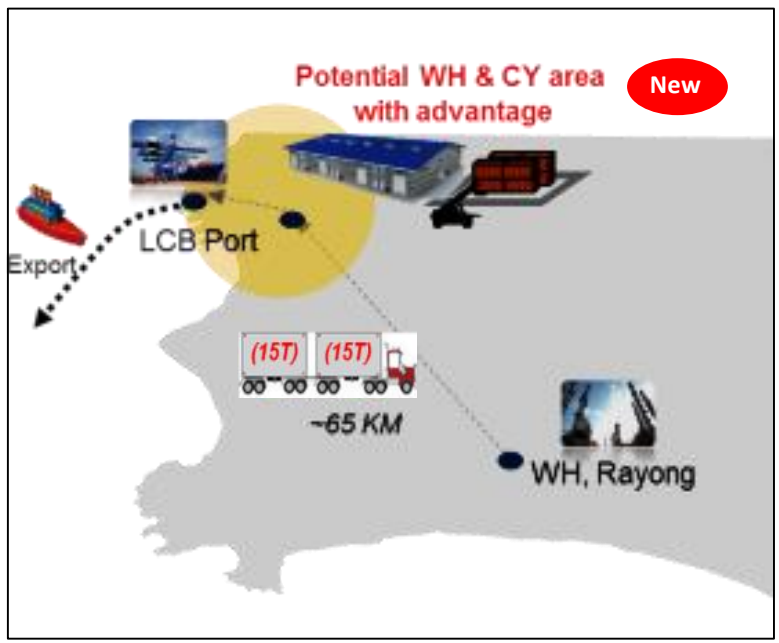
Key Observations

- IRPC facility is the open sea which required high investment for constructing water breaker
- Volume of Export in LCB port has 90% and MTP has 10% which is not significant to export products at IRPC Port

- Increase MTP port utilization
- To reduce traffic congestion on road

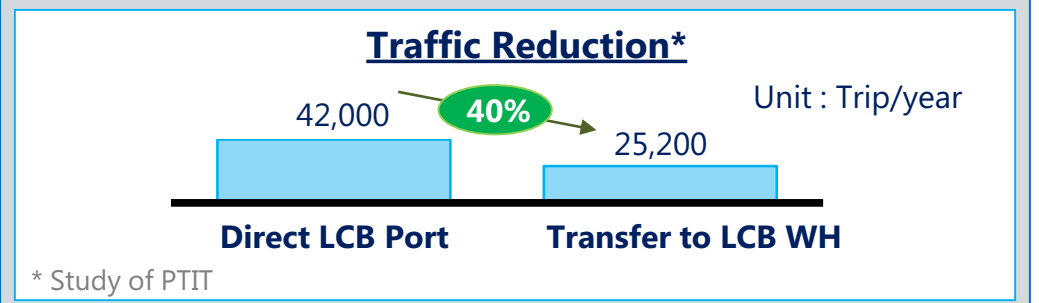
Alternative 4 : Pre-shuttle Strategy to Maximize Load

Case Study Model



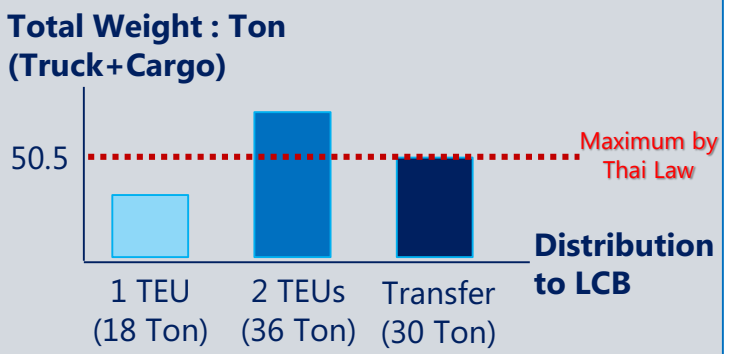
Note:
 Generally truck mover + trailer flat base = 17.5 tons, therefore, 1 TEU 05 18 tons would total Of 17.5+18 =35.5 tons.
 However, if use 2 TEU would be over than the limitation of truck trailer in Thailand at 17.5+36 =53.5 tons.

Description & Results



* Study of PTIT

Key Observations

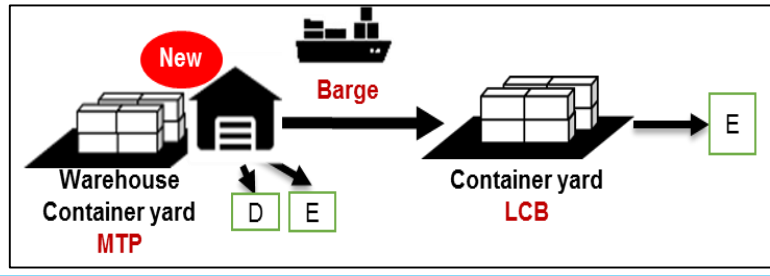
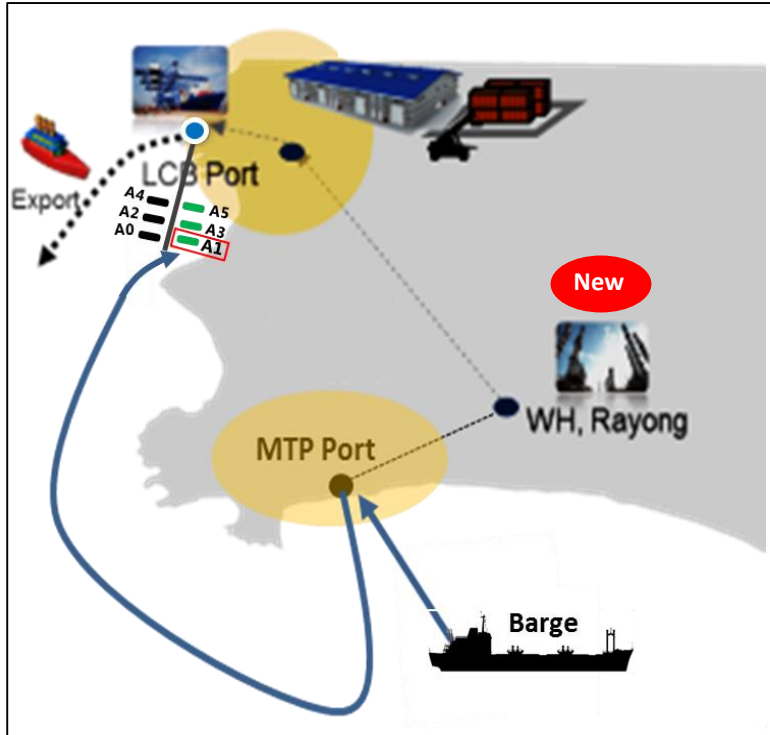


Short Term Opportunities

- Due to weight limitation of truck trailer in Thailand, 50.5 tons, without considering the axel payload like other developing country
- New Warehouse has high rental fee and Land is already occupied
- Increase truck utilization
- To reduce container traffic

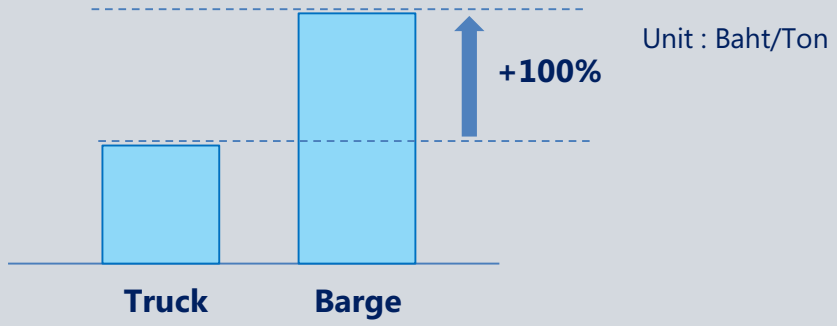
Alternative 5 : Barge Transportation

Case Study Model



Description & Results

Comparison of Logistics Cost between truck and barge



Key Observations

- Barge Transportation cost is higher than truck
- New Warehouse has high rental fee and Land is already occupied

Short Term Opportunities

- Reduce traffic on road
- Reduce logistics costs

01 | Social & Environment

- Help to improve environment at MTP and LCB
- Reduce traffic congestion, air pollution and accident on road
- Build up relationship among community between MTP and LCB Area.

Need Support : Each company in that area should help to support community to get better life

02 | Logistics

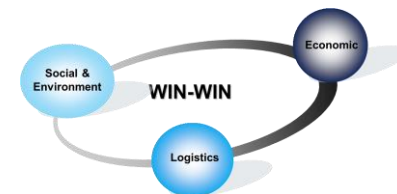
- Reduce Logistics costs and find more alternatives for exporting route
- Expand new logistics service that related to export business

Need Support : Each company awareness logistics costs and mode of transportation

03 | Economics

- The growth of petrochemical have to support Thailand Exportation
- Support SRTO (route MTP – LCB) to improve transportation system in Thailand

Need Support : Each company should concern logistics costs that effect to GDP of country



Q & A