



Green Logistics & Freight Transport

Asso.Prof. Sathaporn Opasanon (PhD.)
International Business, Logistics and Transport
Thammasat Business School

September 16, 2016

This is not an ADB material. The views expressed in this document are the views of the author/s and/or their organizations and do not necessarily reflect the views or policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy and/or completeness of the material's contents, and accepts no responsibility for any direct or indirect consequence of their use or reliance, whether wholly or partially. Please feel free to contact the authors directly should you have queries.

Agenda

- Concepts of Sustainability in Logistics
- Importance of Green Transportation
- Examples in Asia
- Paradoxes

Sustainable Logistics

A Venn diagram consisting of three overlapping circles on a blue background. The top circle is labeled 'Economic'. The bottom-left circle is labeled 'Social'. The bottom-right circle is labeled 'Environmental'. The word 'Sustainability' is written in large, bold, black letters across the center where all three circles overlap.

Economic

Sustainability

Social

Environmental

Logistics

- Part of supply chain management that plans, implements and controls the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirement

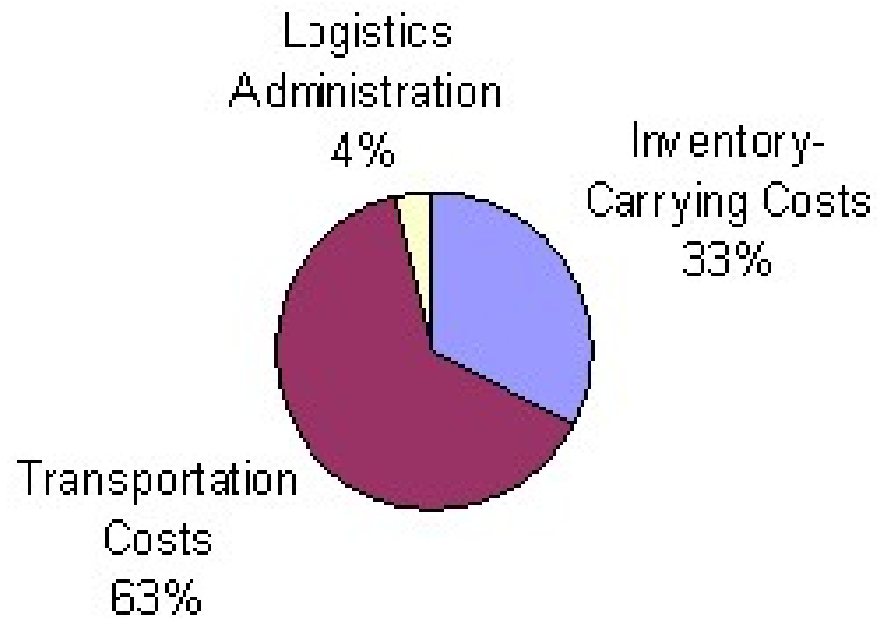
– *Council of Supply Chain Management Professionals (Council of Logistics Management, 2004)*

Logistics Activities

(Stock&Lambert, 2006)

- Customer service
- Demand forecasting
- Inventory control
- Distribution communications
- Material handling
- Order processing
- Packaging
- Parts and service support
- Plant and warehouse site selection
- Procurement
- Return goods handling/reverse logistics
- Salvage and scrap disposal
- Traffic and transportation

US's components of logistics costs



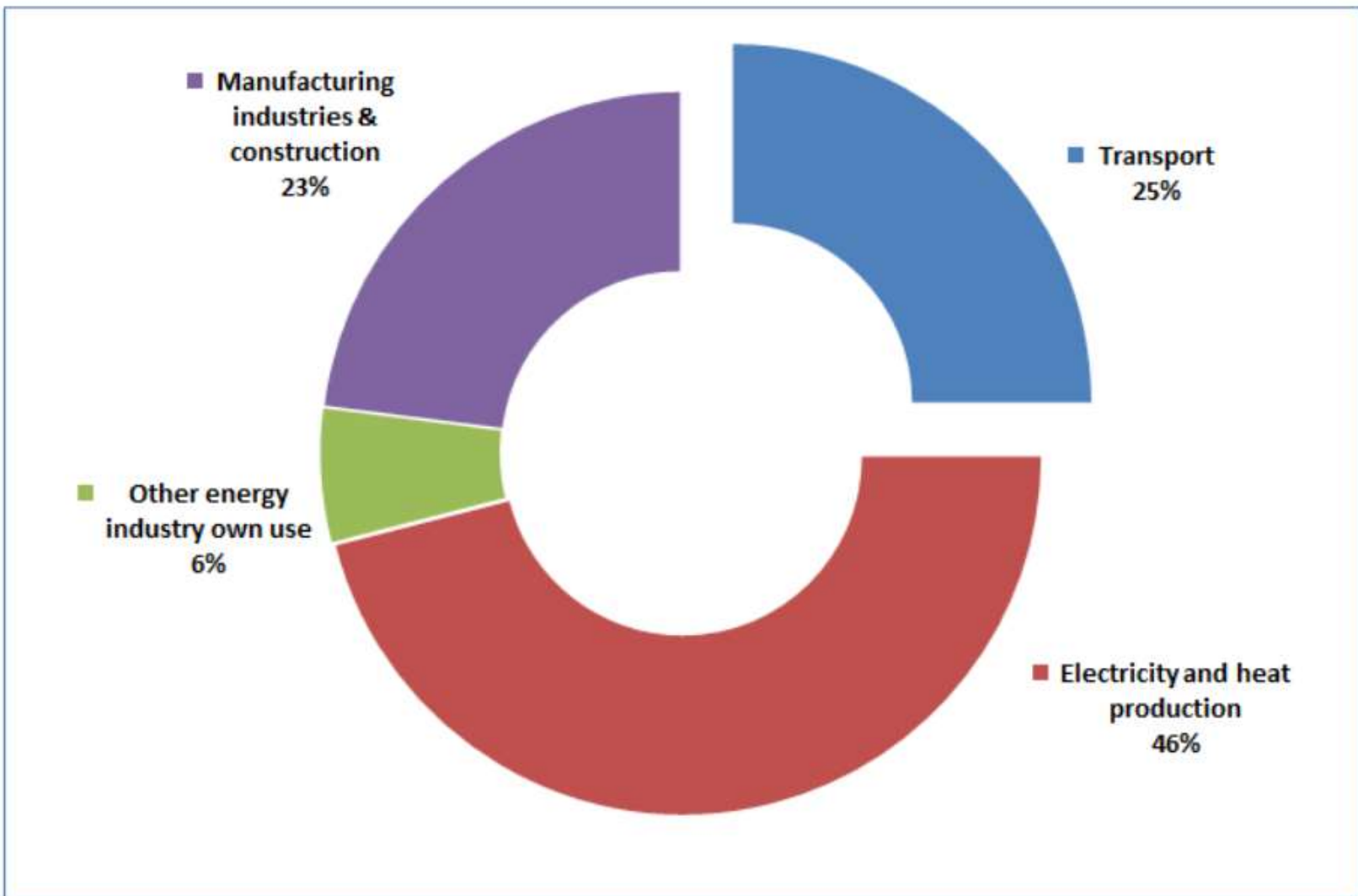
Source: https://ops.fhwa.dot.gov/freight/freight_analysis/econ_methods/lcdp_rep/

Freight Transport Growth



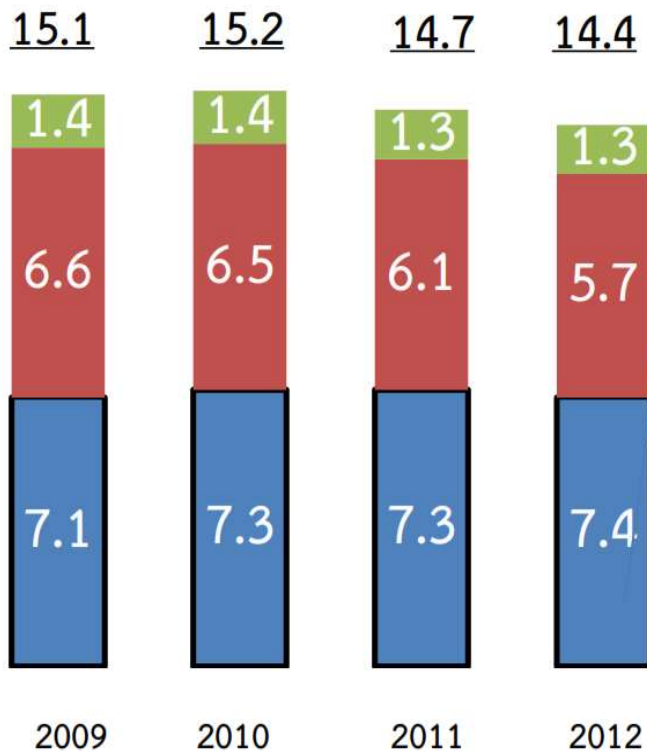
Source: UNCTAD Review of Maritime Transport 2015

World CO2 emissions from fuel combustion by sector, 2011

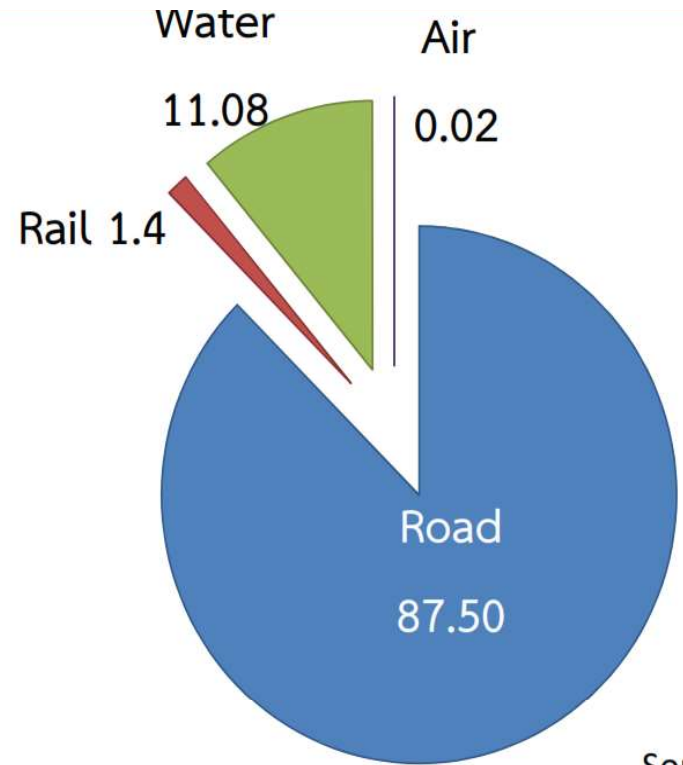


Source: OECD/IEA (2014) *CO2 Emissions from Fuel Combustion Highlights 2014*.

- Estimated cost of logistics is about 14.4% of GDP (2012)
- Transport Cost is the majority of Total Logistics Cost (7.4% of GDP)



The Ministry of Transport is responsible for freight costs



Source: OTP

Transport costs (baht per tonne-km) (2013)

Road	2.12
Rail	0.95
Water	0.65
Air	10.0

Source: NESDB, 2012

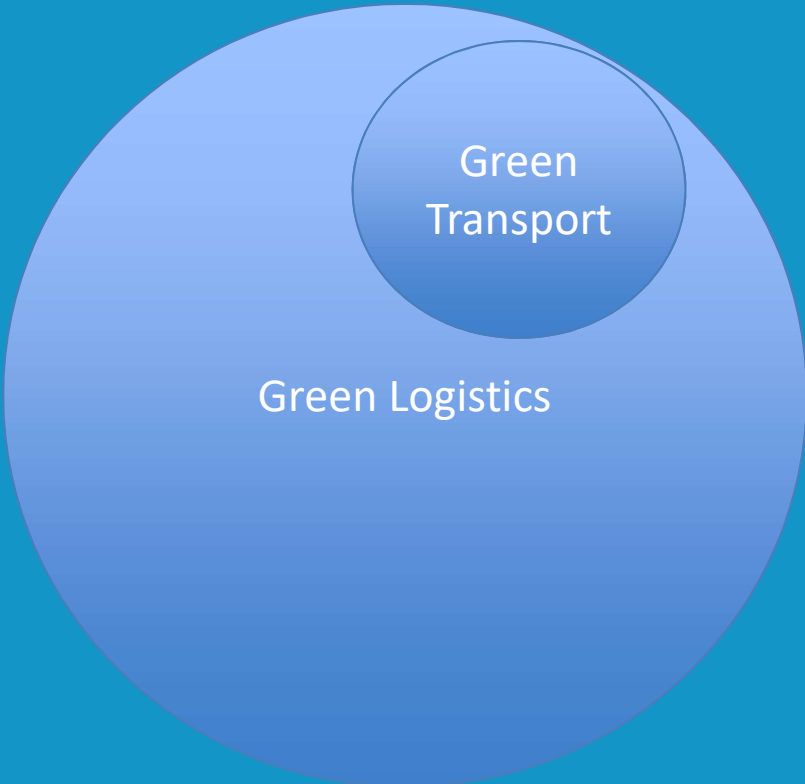
Thailand's freight transport situation



Green Logistics

Benefits of Green Logistics

- Energy and environmental impacts
 - Reduce public health impacts from diesel emissions
 - Reduce climate change
 - Improve energy security
- Social and economic impacts
 - Lower transportation fuel costs
 - Mitigate infrastructure and congestion problem
 - Improve of roadway safety



Green
Transport

Green Logistics

Government Initiatives

- Reduction in CO2 emissions and oil dependency
 - Shipping emissions
 - Sustainable low-carbon fuel
 - Energy-efficient modes of transport
- China aims to improve fuel efficiency, reduce CO2 and air pollutant emissions from road freight transport, adopt cleaner technologies and smarter freight management

Government Initiatives

- Dept. of Land Transport and GIZ Thailand signed MoU on collaboration on promoting sustainable freight transport and logistics in the Mekong region (Aug 24, 2016)
 - improve the truck freight transport system
 - develop quality transport operators with standards and regulations
 - implement fuel efficiency measure for transport operators
 - enhance regulatory system for the transport of hazardous goods

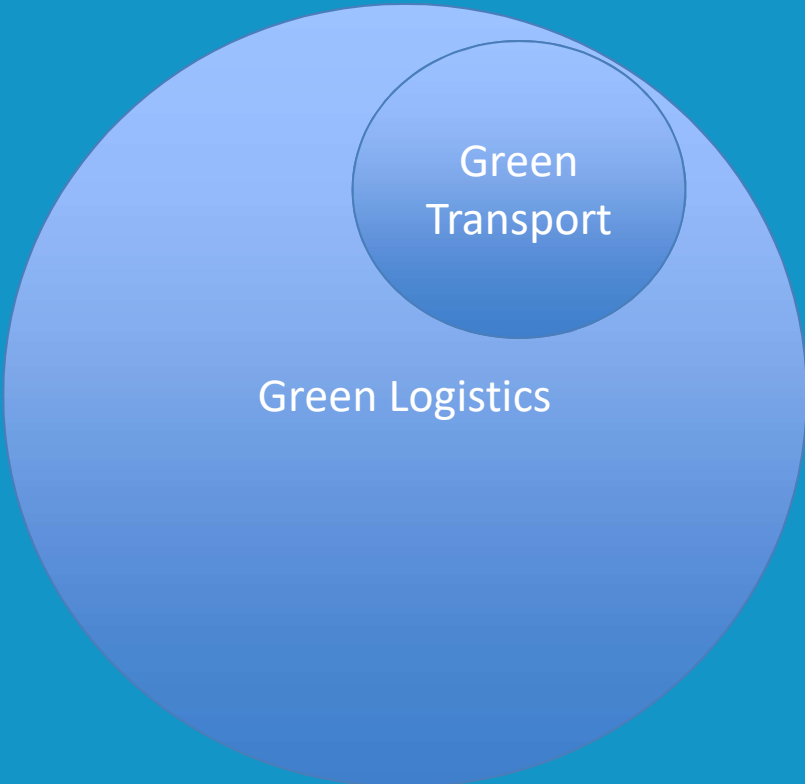
Thailand's Railway Development



Network	Distance (km.)		
	Existing	Strategy (8 yrs)	Total
Meter Gauge			
Single Track	3,685	-	1,156
Double Track	251	2,529	2,780
Triple Track	107	-	107
Total	4,043	2,529	4,043
Standard Gauge			
Double Track	-	1,060	1,060
Total of Double Track	251	3,589	3,840

Industry-led Initiatives

- Driven by regulation and customers' pressure
 - Reverse Logistics
 - Green Logistics
- Green logistics aims to minimize the ecological impact of logistics activities.
 - manufacturers and retailers (e.g. Wal-Mart, Nike, Starbucks, HP and Apple) have implemented packaging reduction initiatives.



Reverse Logistics

- Like forward logistics, just driving the trucks in the opposite way?
- “The process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal”
(Reverse Logistics Executive Council, 2007)
- Customer/Demand Driven

Types of items requiring reverse logistics

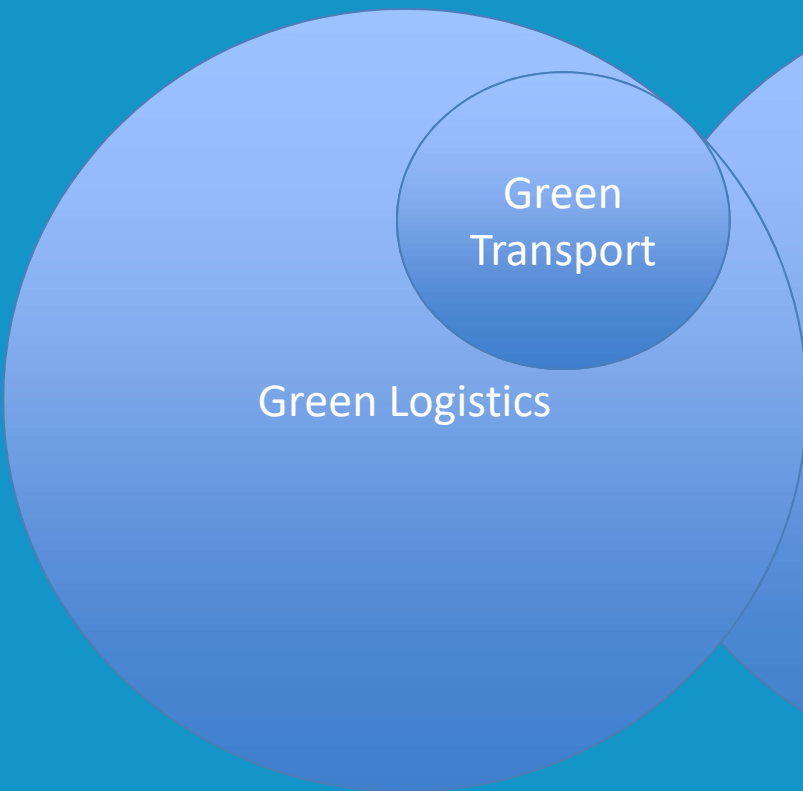
- Product returns
- Product recalls
- End-of-lease equipment
- End-of-life products
- Old/obsolete items
- Packaging materials
- Hazardous materials

Why Reverse Logistics?

- Direct financial benefits
 - Cost savings
 - Profitability
- Indirect financial benefits
 - Competitive market advantage
 - Improved corporate image
- Environmental concerns
 - Recapturing value (resell, reuse, refurbish, remanufacture, recycle)
 - Proper disposal (environmental laws/hazardous materials)

Reverse vs. **Green** Logistics

- **Why is reversed logistics not necessary green?**
 - fail to capture holistic system (reverse flow only)
 - ignore energy efficiency mode of transport, clean energy
 - increase transportation



Green Logistics

Green
Transport

Reverse Logistics

GREEN Wal-Mart

- Initiated in 2006 in accordance with Al Gore's move.
- Energy Saving
 - Use 30% less energy in new stores
 - Make existing ones 20% more energy efficient
- Fish Friendly
 - Buy shrimp from non-polluting farms
 - Buy fish from fisheries certified sustainable

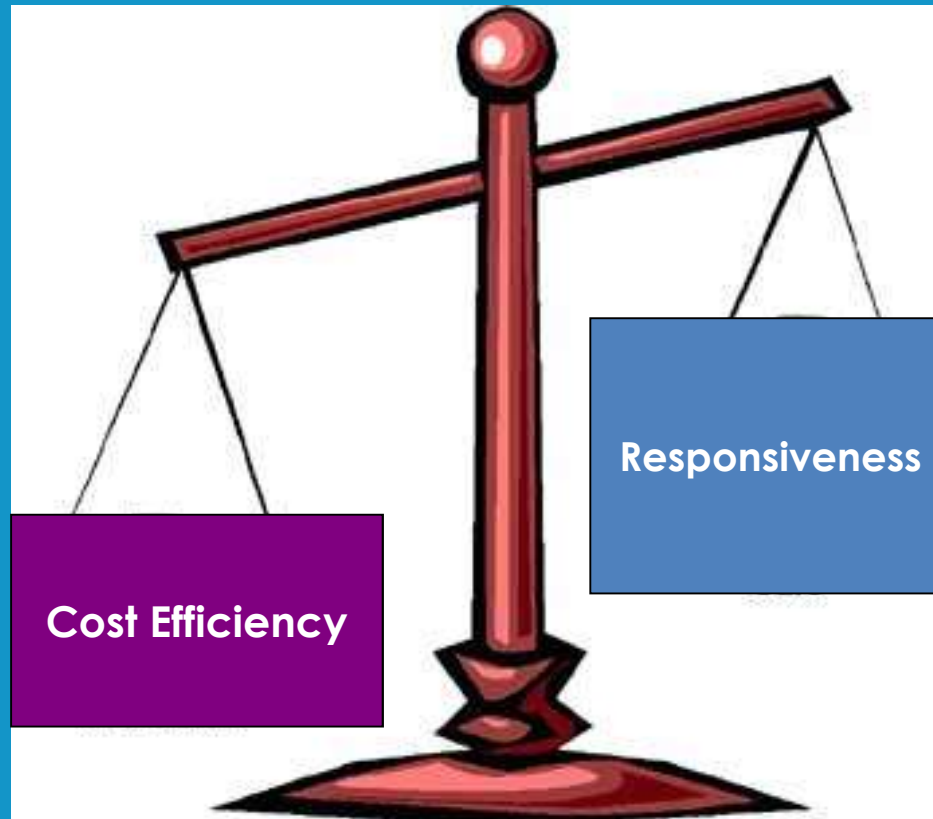
GREEN Wal-Mart

- Less Packaging
 - Cut total packaging by 5%
- Fuel-Efficient Fleet
 - Increase efficiency by 25%
- Making Sustainability More Affordable
 - Make compact fluorescent light bulbs more affordable
- Preserving the Forest
- Supporting organic products
- Spreading the word

The Paradoxes of Green Logistics

Objectives of Logistics Management

Green ?



Green Logistics (Paradoxes)

- Cost Efficiency
 - JIT
 - DTD
 - Hub & Spokes
- Market Responsiveness
 - Air transport
- Reliability
 - Air and road transport
- Green
 - Cleaner technologies



Thank you!

Asso.Prof. Sathaporn Opasanon (PhD.)
International Business, Logistics and Transport
Thammasat Business School

opasanon@gmail.com