Urban Freight in China and Asia Pacific

Leading the way to a smart, efficient and sustainable freight

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Urban population and GDP

Share of Urban Population

Population % Residing in Urban Areas

AFRICA | ASIA | WORLD | OCEANIA | EUROPE | LATIN AMERICA AND THE CARIBBEAN | NORTHERN AMERICA

2015 | 2050

Population % Residing in Urban Areas

Share of GDP in Urban Area

% of GDP in urban agglomerations of 500,000 inhabitants and above

LAC | China | India

2010 | 2030 | 2050

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Booming freight and logistics in China

- Chinese freight volume turnover increase 14% to 15% annually. 87 times comparing with 1980 in ton-km.

- Chinese road freight increase 6.3% annually from 1980 to 2017.
Large amount of investment in Asia transport infrastructure
Expanding Chinese Highway Network
Chinese high-speed rail 2/3 of the World

Railway map of People's Republic of China
Colored lines showing CRH and other high speed rail services
Last update: 2018-01-15

Railway network map with conventional lines upgraded or built to accommodate CRH shown in orange (160–250 km/h (99–155 mph)), secondary high-speed lines in green (200–299 km/h (124–186 mph)), and blue (above 300 km/h (190 mph)).
Infrastructure second to no one
Urban freight face challenges

Large shippers often don’t feel ownership of an outsourced service

Sector is considered complex and fragmented involving too many suppliers

Lack of harmonized approaches and leadership

Efforts and initiatives are scattered and lack coordination

Limited awareness, knowledge, capacity and funding

Priorities for sustainability is given to passenger transportation

Difficult to translate high level goals to practical implementation

Overcapacity and Over competition
Freight Transport Externalities

Road Freight Transport ~ Disproportionate environmental and social impacts

Source - UNCTAD, Sudhir Gota
Asia Logistics in Glance

- Logistics costs as a percentage of GDP range from 15-25% in Asia
- Freight transportation, with 35 to 60% of logistics costs in Asia, is the main contributor.
- Trucks constitute about 9 of the vehicle population in Asia but emit 54 of road transport CO2 emissions
- Asia also accounts for nearly one in two commercial vehicles sold worldwide mostly trucks
- 90% of trucks owned by individual owners, 0.1% are companies with more than 100 trucks in Asia

Source - Green Freight Asia
Urban freight movement in GMS countries

- Urban freight in South East Asian countries constitute only 16% of surface freight activity but generate 47% of CO2 emissions
- Bangkok and Ho Chi Minh have been ranked 28 and 35 among top cities with transport-related air-pollution deaths

Source - UNCTAD, Sudhir Gota
Freight a big portion of CO2 emission

Urban Freight Share in Surface Transport (2013)

- **World**: 40%
- **OECD**: 46%
- **non-OECD**: 34%
- **ASEAN**: 16%
- **Brazil**: 47%
- **China**: 46%
- **European Union**: 42%
- **India**: 55%
- **Mexico**: 56%
- **Russia**: 38%
- **South Africa**: 41%
- **United States**: 41%

Surface Tonkm Share (2013)

2013 - Surface Freight CO2 Share

IEA ETP 2016 & Sudhir Gota
Urban Freight in China

Currently (2018)
Chinese trucks take 7.8% of the auto vehicles, but 78% of PM and 57% of NOX.

Mobile source pollutants take 31.1%, 29.2%, 28.0%, 41% respectively in Beijing, Shanghai, Hangzhou and Shenzhen’s pollutions.

2050
Freight volume is expected to expand 4 times by 2050. CO2 emission will increase from 4% to 16% on China’s overall CO2 emission.
Cities in Asia Pacific are threatened by congestion

- In 2016, 10 of the 25 most congested cities in the world were in mainland China*\(^1\)
- Travel Activities of heavy and medium truck in Asia is expected to increase by 645% from 2000 to 2050 (compared to 241 globally) and will then make up 29% of the global truck activities, compared 13% in 2000*\(^2\)

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*1 - Chongqing, Chengdu, Beijing, Changsha, Guangzhou, Shenzhen, Hangzhou, Shijiazhuang, Shanghai and Tianjin (Source: TomTom)
*2 - Page 6, GIZ SUTP Sustainable Urban Freight in Asia
Logistic Sector Highly Inefficient

Source - Rocky Mountain Institute
Current status of Logistics China

- Structural Imbalance between freight service supply and demand
  - Transport overcapacity
  - Illegal retrofit
  - Large number of oversized trucks
  - Under developed driver skills and social welfare

- Low efficiency in logistic organization
  - Highly fragmented transport supply, lacking of consolidated logistic organization and strong leadership
  - Inefficient transport modal and poor interoperability

- Market rule, standards and procedure far from established
  - Contradiction and challenges between new sale and traditional transport
  - Industry safe operation facing great challenges
  - Poor enforcement of policy and regulation implementation, poor governance
Fragmented and high competition
Smart solutions already exist

- These solutions combined can reduce emissions by >80% by 2050

Smart Freight Centre. Solutions based on Alan McKinnon ‘Decarbonizing Logistics’ 2018
### Solutions proposed for urban policy makers

#### Market access and regulations
- Access to railway network
- Homologation requirements (emission standards)
- Harmonised rules on vehicle dimensions
- Abolishment of cabotage

#### Regulatory measures
- CO₂ targets for vehicles
- Weekend/night lorry ban
- Environmental zones
- Speed limits
- Obligatory in-job training (e.g., eco-driving)
- Advantages for user of low emission vehicles

#### Economic measures
- Fuel and vehicle taxes
- CO₂ taxes
- Road user charges or tolls (for roads or areas)
- Train path prices
- Public private partnership (PPP)
- Emission trading system

#### Financing of extension or new infrastructure
- Extension of railway network (and waterways)
- Building of new terminals for intermodal traffic
- Extension of railway sidings
- Segregation of freight and passenger rail traffic

#### Integrated land use and transport planning
- Federal transport planning
- Strategic planning for freight distribution centres and intermodal terminals
- Alignment of roads
- Air pollution and noise protection plans

#### Subsidy programmes
- Subsidies / low interest rate for advanced introduction of new emission standards or for purchase of new trucks
- Funding of alternative fuelled vehicles
- Subsidies schemes for scrapping old vehicles
Government Policy and Regulations in China

- Scrappage of Yellow Label Vehicles, GB1589
- Tighter "Action Plan on Air Pollution Control"
- Tight vehicle and fuel standards
- Banning of heavy duty vehicles downtown areas
- Structural change of transport mode
- Electrification of urban freight vehicles
- Promotion of "cargo exchange platform" emphasizing logistic organization
- Urban freight strategy to streamline urban freight
Increasing Restrictions

Driving ban in Yangon

Myanmar apparel makers have warned that trucks to seaport terminals through Yangon's commercial capital Yangon has plagued the country's growing clothing sector.

Dr U Aung Win, a factory owner and Garment Manufacturers Association hard for bigger companies with the complicated logistics requirements.

Factories located in industrial zones persuading labourers to work at night shifts, although it is somewhat easy in villages. His Maple Trading Co Ltd.

Night-time operations "also decrease transport", says Win, whereas a 6am makes them less adaptable.

Costs have increased as a result, with shipments.

The idea of the ban, instituted by the government, is to try to prevent traffic congestion.

Bangkok Metro Police Commissioner Pol Lt-General Chaiyapat Singtong was pressed to say in the city.

All 88 police stations in Bangkok created the plan to stop trucks in order to prevent traffic congestion.

According to the ban, all 10 or more vehicles are banned from entering inner Bangkok on certain routes.

Violators are subject to a fine of Bt 1,500.

Authorities in Ho Chi Minh City are considering limiting the number of mini trucks allowed in downtown areas.

The municipal People's Committee has tasked the Department of Transport with planning to reduce the number of trucks driving through downtown Yangon. On the first day of the ban, traffic was majorly impacted with some drivers abandoning their vehicles. Businesses are adapting to the rises, logistical problems and night-time traffic jams remain.

Mini trucks travel on Tran Hung Dao Street in District 1, Ho Chi Minh City. Photo: Tuoi Tre News

By Jeremy Mullins | 19 April 2011

By Tuoi Tre News | Wednesday, October 4, 2017, 14:18 GMT+7
Develop an Urban Freight Plan

Developing a Sustainable Urban Freight Plan – a review of good practices
A review of worldwide policy good practice, with 5 supporting case studies

Developing a Sustainable Urban Freight Plan – a guide
Considerations based on worldwide good practice, with specific reference to freight planning in Beijing
Take lessons from other cities
Study solutions and measures but tailor made to Asia cities

<table>
<thead>
<tr>
<th>Strategy/Initiative</th>
<th>Type of Strategy</th>
<th>Time</th>
<th>Type of Instrument</th>
<th>Investment</th>
<th>Implementation by</th>
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<td>Co-operative</td>
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Off-Peak Deliveries

- improve traffic conditions and lower travel times for road users during daytime hours,
- decrease environmental impacts,
- increase competitiveness for transportation companies,
- increase deliveries reliability for receivers,
- increase safety by reducing the conflicts between trucks, passenger cars, cyclers, and pedestrians, and
- enhance a city’s livability and attractiveness

“The possibility of achieving reductions in the range of 45 – 67% in the case of a Full-OHD (7 PM – 6 AM), and about 13% for a Partial-OHD program (6 PM – 10 PM)”
Industry hold the key to changes

Only through the collaboration of businesses, governments, research and civil society can a sector transformation be realized.

However, in this highly commercial sector, the trigger lies predominantly with businesses, especially multinationals with global brands and value chains. As buyers or suppliers of freight services, they have the power to take action across their extensive supply chains.

We believe that increased transparency and collaboration will mobilize companies to reduce the climate and pollution impact and achieving efficient and sustainable freight sector.
Smart Freight Alliance Drive the Change

- **Our vision** is ‘Smart Freight’: an efficient and sustainable Chinese freight and logistics sector.

- **Our mission** is to bring together and work with the logistics community towards this vision – contributing to China’s Commitment on Paris Climate Agreement targets, Sustainable Development Goals and Chinese government objective of achieving “Beautiful China”.

- **Our role**: Bridge shippers and their logistics partners with government policy implementation and provide input to the industry related policy and standardize, catalyze and accelerate their adoption of efficient logistic solutions, and collaborate with other shippers.
Linking industry with government and other key partners
Make MNCs take smart freight leadership
Conclusions and Take-aways
Make careful assessment and balance
Linking actions to policies

**ACTIONS**

- Cleaner fuels/oils/lubricants
  - Low Sulfur diesel
  - Alternative fuels
  - Low viscosity lubricants
  - Oil by-pass filtration system
- Cleaner and efficient technologies
  - Tires
  - Aluminum wheels
  - Aerodynamics devices
  - Idling reduction technologies
- Cleaner and efficient vehicles
  - Truck replacement
  - Lighter weight trucks
  - Hybrid/Electric/LNG/CNG trucks
- Inspection and maintenance

**GOVERNMENT INTERVENTIONS**

- Standards
  - Vehicle emissions
  - Fuel economy
  - Fuel quality
  - Alternative fuels
- Legislation
  - Import restrictions
  - Technology mandates
- Programs
  - Inspection & maintenance
  - Technology verification
  - Emission labels
  - Truck replacement schemes
  - Driver / fleet manager training
- Economic instruments
  - Fines, faxes, fees, subsidies, rebates
And Team UP!

- Stakeholder engagement
- Building on existing efforts
- Balance quick gains and long term objectives
- Links with government recognition scheme
- Develop KPI, monitoring

- Urbanization and freight will evolve with economic growth
- Urban freight will increase with the externalities, health and pollution, emission, noise, congestion, etc.
- Climate change and pollution will drive change
- Diesel emission are causing increasing concerns
Join our journey towards zero-emissions freight

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