

Mitigation of impacts – Part 2

by Yoshi Imanishi

3. Freight vehicle transport safety

The main point

- Finding safer roads
- Formulating a set of measures to make freight vehicles use safer roads
- Then reducing the number of accidents

Part A. Freight vehicle accident study

Part B. How to reduce freight vehicle accidents

Part C. The need of the universal database

4. Recommendations

Part A. Freight vehicle accident study

Data from 6 countries were collected

1. We collected data from 6 countries:

Japan, the US, GB, Belgium, The Netherlands, Switzerland

2. We divided freight vehicle accident data into groups by

- Vehicle sizes,
- Road types,
- Area types: urban/no-urban areas,
- Roadway width,
- Density of parking vehicles,
- Means of transport: road, railways and shipping

3. We compared accident rates among groups in each country.

Part A. Freight vehicle accident study

Findings from accident analysis

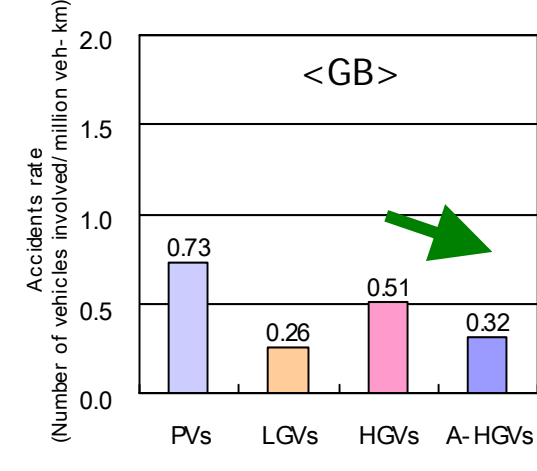
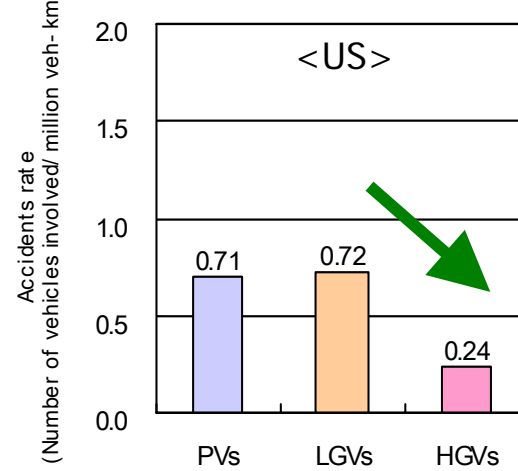
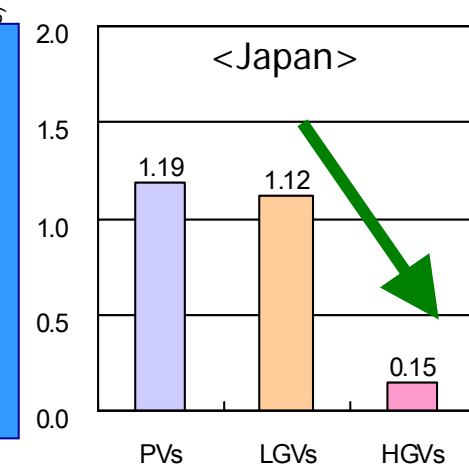
(1) Heavier freight vehicles are safer

(with the exception of Switzerland)

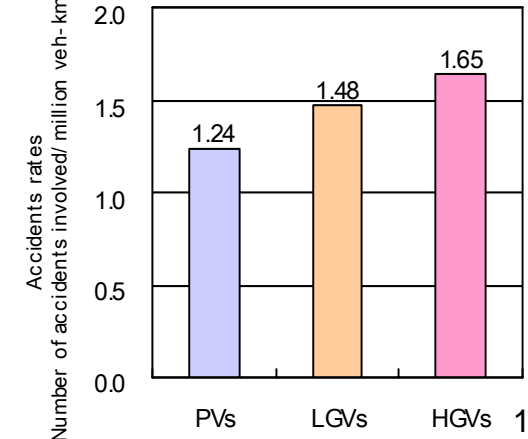
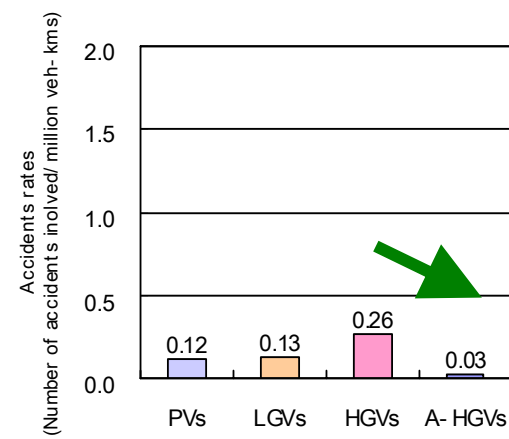
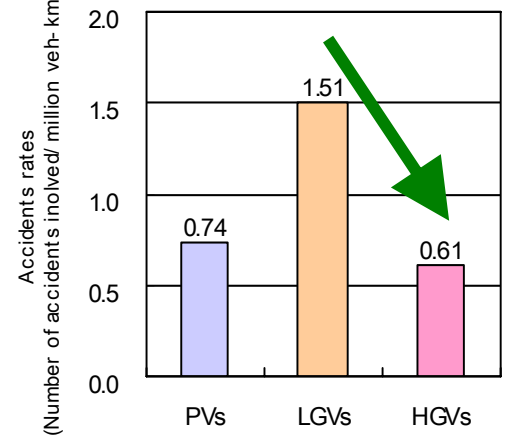
Accident rates by **vehicle type** in each country

↓
Safer
↓

↑
Accident rate
↑



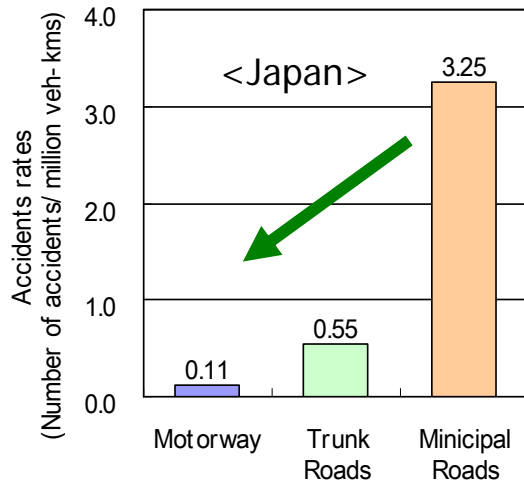
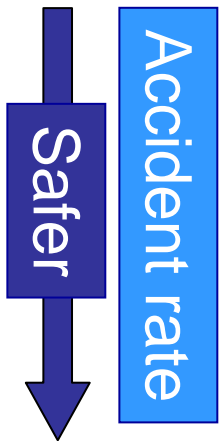
→
Heavier
→



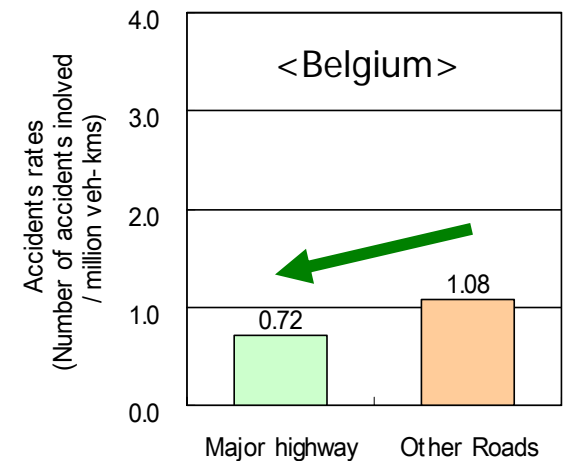
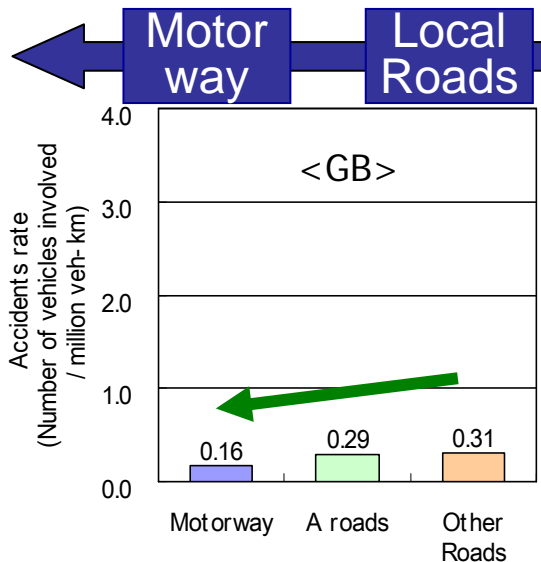
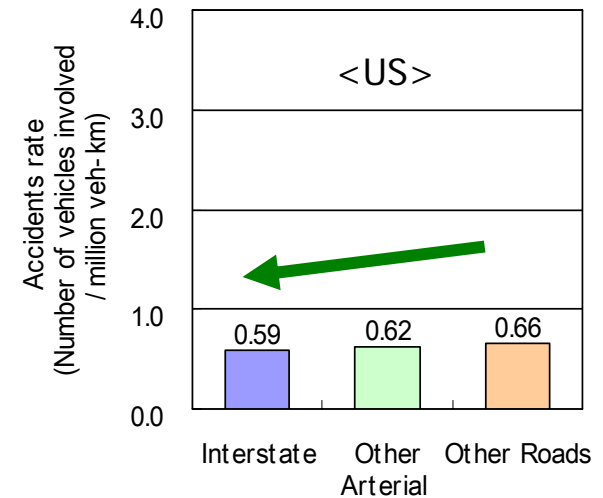
Part A. Freight vehicle accident study

Findings from accident analysis

(2) Motorways are safer than general-purpose trunk roads
Trunk roads are safer than local roads



Accident rates by **road type** in each country

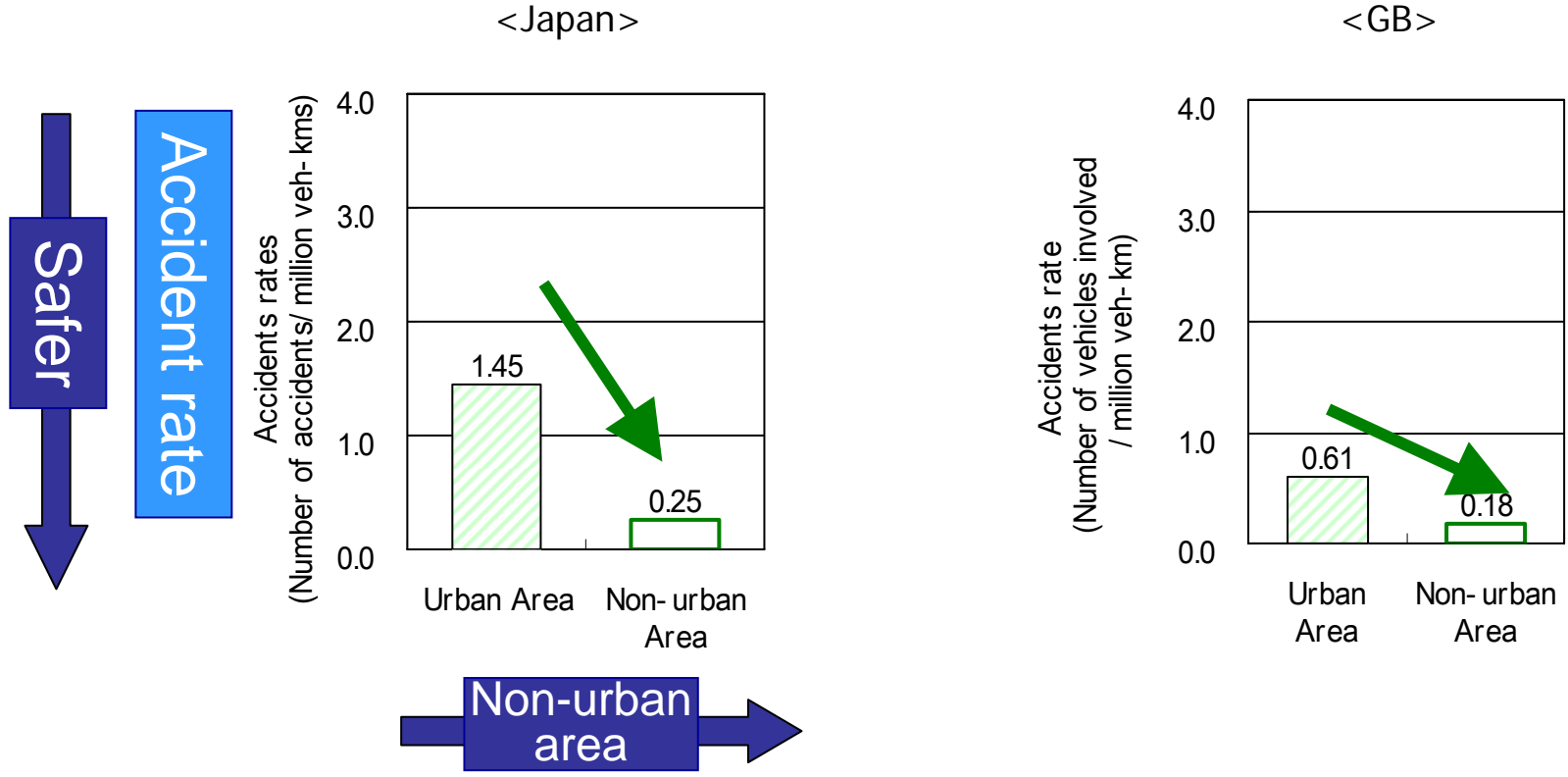


Part A. Freight vehicle accident study

Findings from accident analysis

(3) Non-urban areas are safer than urban areas

Accident rates by **Urban area/Non-urban area** in each country

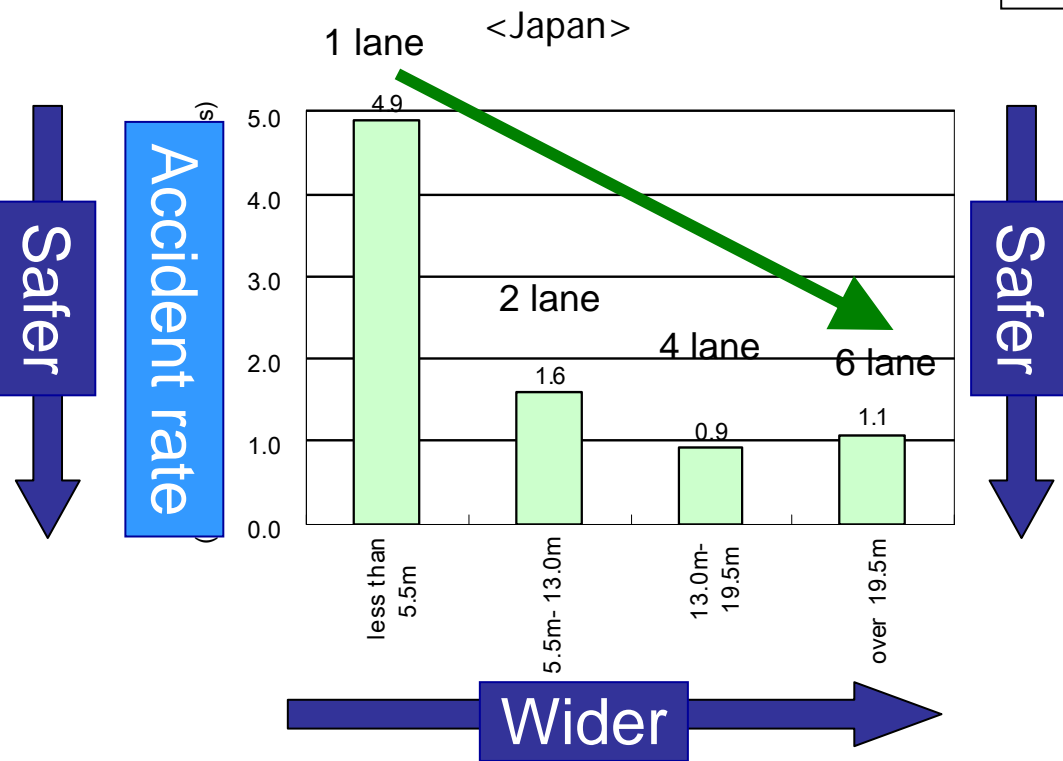


Part A. Freight vehicle accident study

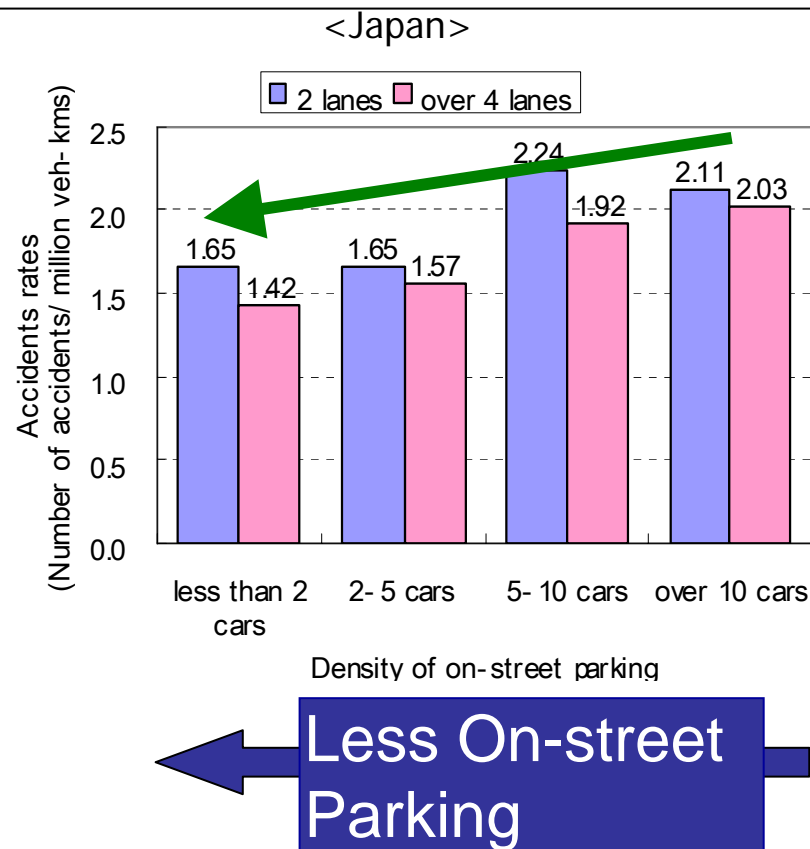
Findings from accident analysis

- (4) Wider roads are safer than narrower roads
- (5) Roads with less on-street parking is safer

Accident rates by **road width**



Accident Rates by **number of lanes** and by **density of on-street parking** in Urban areas



Notes:

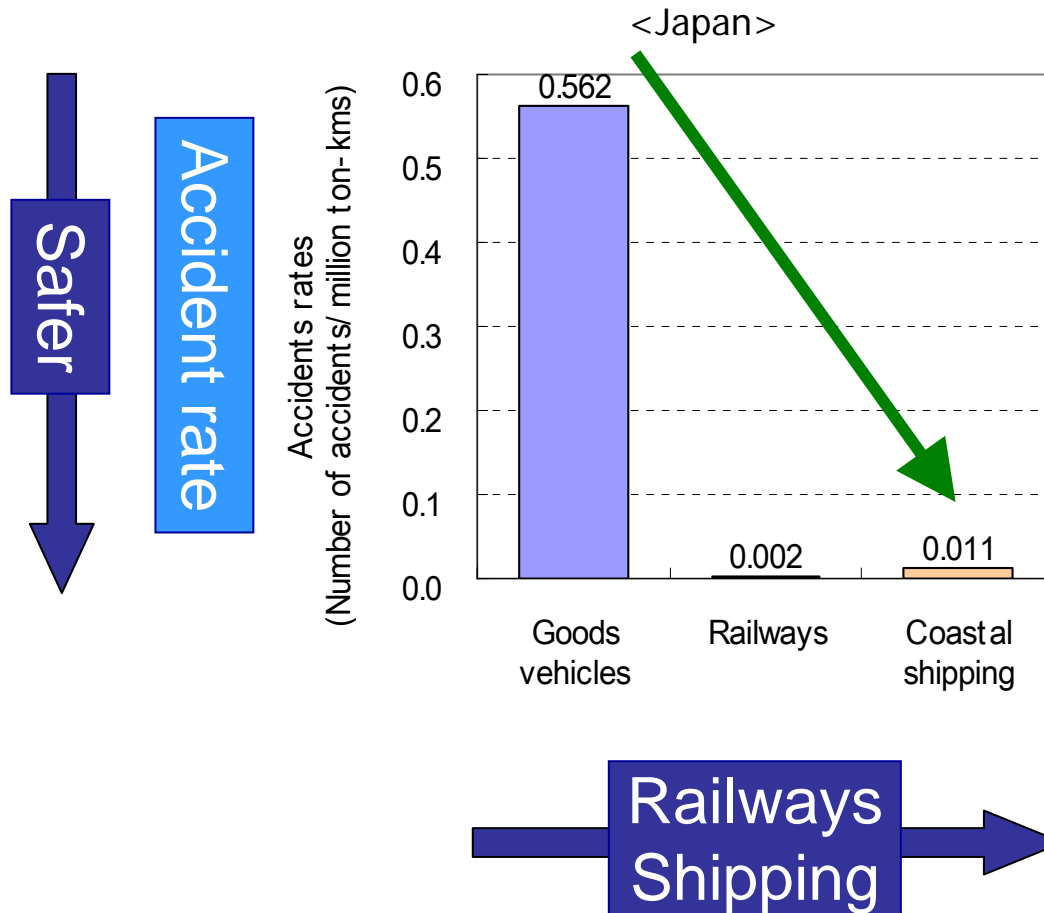
1. "Trunk roads" include national highways and Prefectural roads
2. Based on Japanese traffic accident database.

Part A. Freight vehicle accident study

Findings from accident analysis

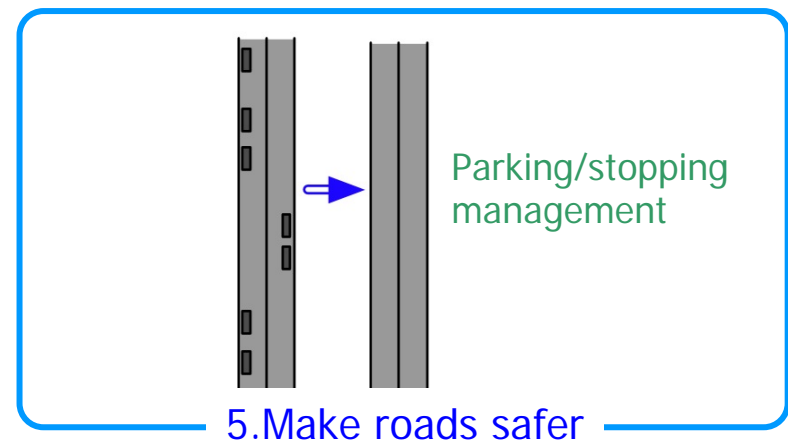
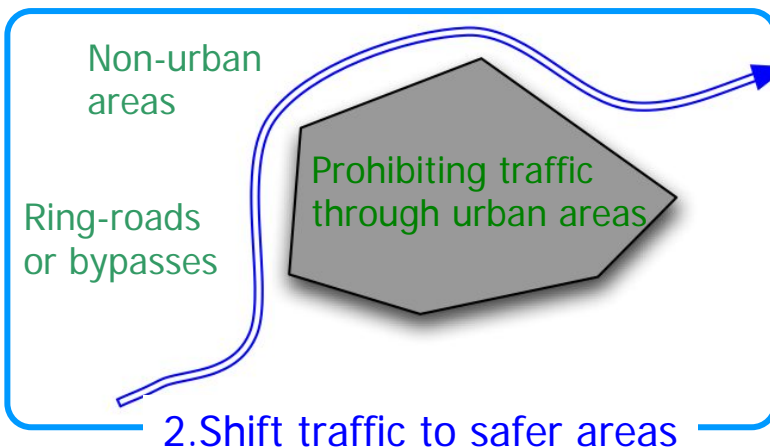
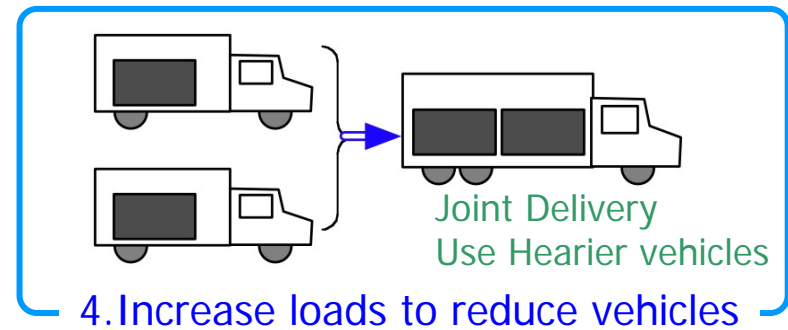
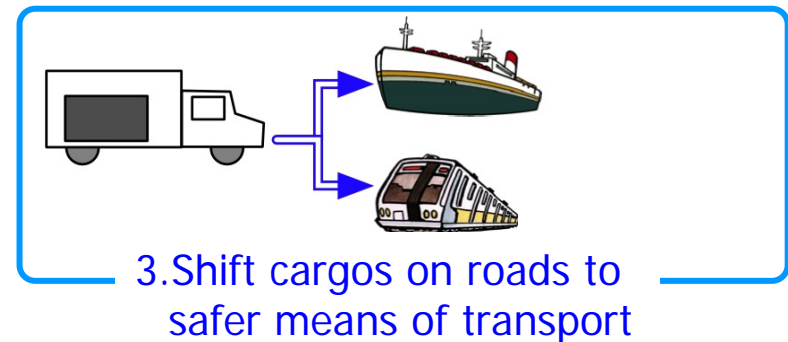
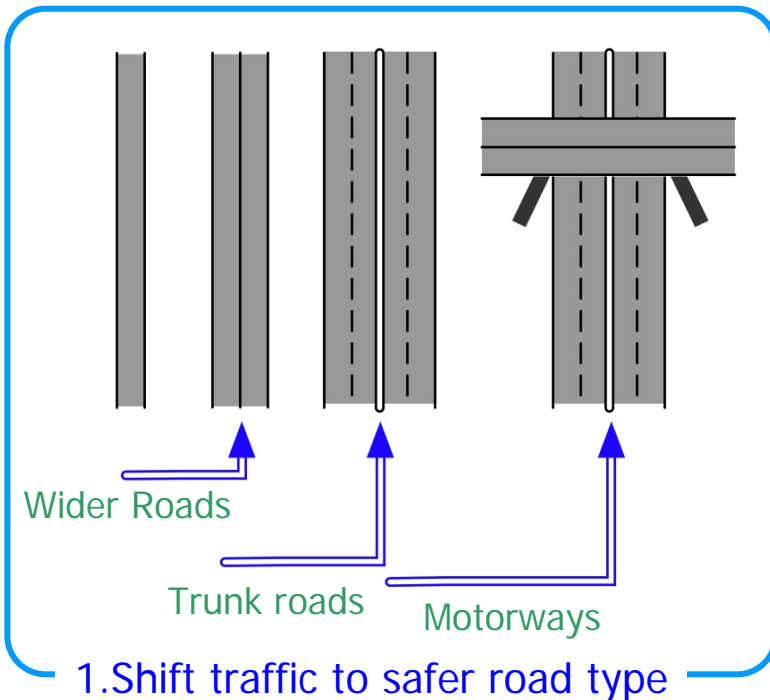
(6) Railways and Coastal shipping are safer than Goods vehicles

Accident Rates per ton-kilometers by **transport modes**



Part B. How to reduce freight vehicle accidents


Freight vehicle transport management is the set of measures which change the freight vehicle movement and loading ---> Making Traffic Safer



Part B. How to reduce freight vehicle accidents

Reduction in Traffic Accidents

Estimating the effect of Freight Vehicle Transport Management Measures

Objective	Measures	Accident reduction	
(1) Shifting Traffic	Improving motorway network	*14%	
	Building ring roads	**17%	
	Prohibiting freight vehicle through-traffic		
	Developing of urban trunk road networks	**8%	
	Promoting intermodality of transportation	*5%	
(2) Increasing Loads	Developing truck terminals	**2.5%	
	Supporting joint delivery	**4%	
(1) + (2)	Upgrading road networks to carry heavy Goods vehicles	*1%	
		***3%	
(3) Making Traffic Safer	Urban parking/stopping management	**10%	

*: accident reduction rates nationwide, **: accident reduction rates in urban areas only, ***: reduction rates of deaths

How are Heavy Goods Vehicles Defined?

Japan: 8+ ton GVW

US: 4.5+ ton GVW

Netherlands: 3+ ton GVW

GB and Belgium: 3.5+ ton GVW

Switzerland: 3.5+ ton Max. Laden Weight

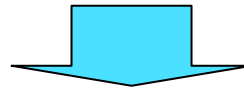
How are Accidents Counted and Classified?

Japan: Count accidents by type of vehicle mainly responsible

US and GB: Count the number of vehicles involved

Belgium, Netherlands & Switzerland: Count accidents by vehicle types involved

Calculating Accident rates requires vehicle-km data.



Due to above differences, finding common trends is limited
Need for a Universal Freight Transport Accident Database

Implement Freight Vehicle Transport Management

1. Implement Freight Vehicle Transport Management measures
2. Specific freight vehicle transport administration is needed
 - *installation of a department office in federal or local governments or PPPs organizations to implement Freight Vehicle Transport Management measures with PPP*

Need of Universal Database

3. A universal traffic accident database is needed for countries to share information

Thank you very much

For more information

“Freight vehicle traffic safety assessment”
in the July issue of the PIARC magazine
ROUTES/ROADS