

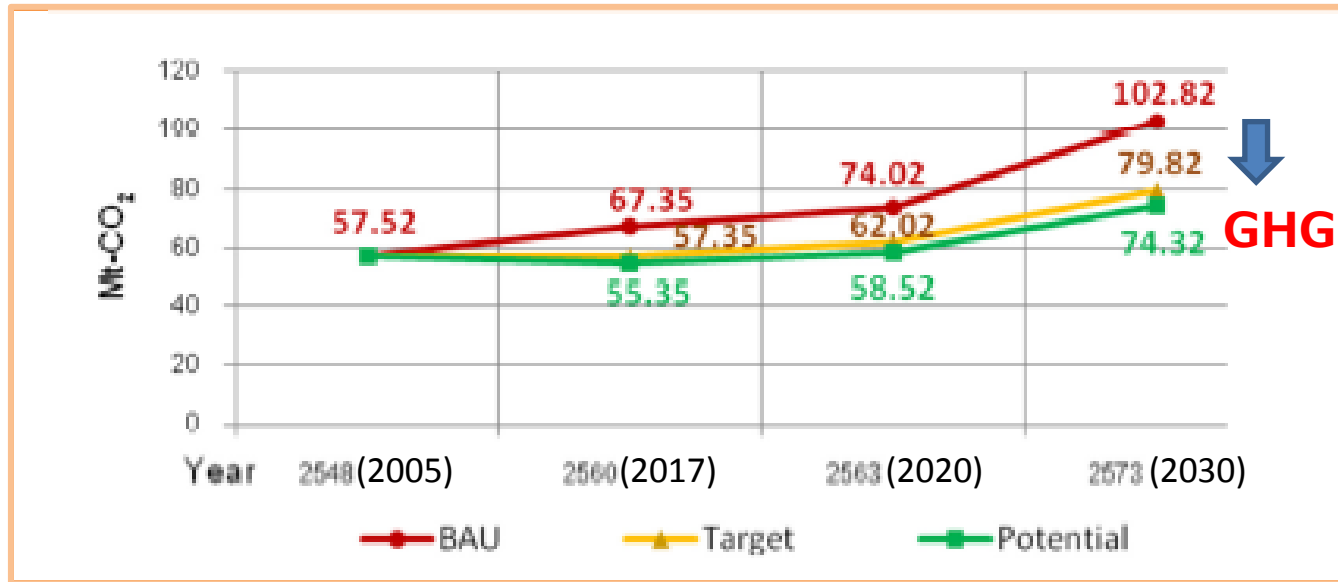
CO₂ Statistics Data for Transport Sector

Oct. 2016

Environment Committee

Japan Automobile Manufacturers Association, Inc.

OTP Target of GHG Emissions in Transport Sector



GHG reduction by measures (OTP's 120 Plans)

The Target/Potential will be set by adding the effect of 120 plans.

Plans	CO ₂ reduction estimate	Premise <example>
A	○Mton-CO ₂	Fuel economy improvement: ○%/year
B	△Mton-CO ₂	Alternative fuel introduction: △liter
C	□Mton-CO ₂	- - -
D	▽Mton-CO ₂	- - -
...	...	...

Pick up main countermeasures from 120 plans

: priority project

	Main countermeasures for GHG reduction (120 Plan)	Passenger cars	Trucks
Strategy4	Use of fuel efficient vehicles (by labeling, fuel consumption standards, tax incentives)	✓	
	Dispose old cars	✓	✓
Strategy5	Use of eco-friendly vehicles (Hybrid, EV, FCV)	✓	
Strategy5	Alternative fuels	✓	✓
Strategy3,6	Modal Shift from Passenger car to Rail, Bus	✓	
Strategy3	Construction of highways	✓	✓
Strategy5	Traffic flow improvement (information technology and smart transport systems)	✓	✓
Strategy4	Speed limits on expressways/motorways		✓
Strategy4	Reduction of trucks' empty journeys		✓
Strategy6	Eco-friendly driving	✓	✓

Necessary Statistics Data

for evaluation of Transport Sector

- (1) Evaluation for fuel consumption and CO₂ reduction
- (2) Evaluation for countermeasures of 120 plans

(1) Necessary Statistics Data for

Evaluation of Fuel Consumption and CO₂ Emissions

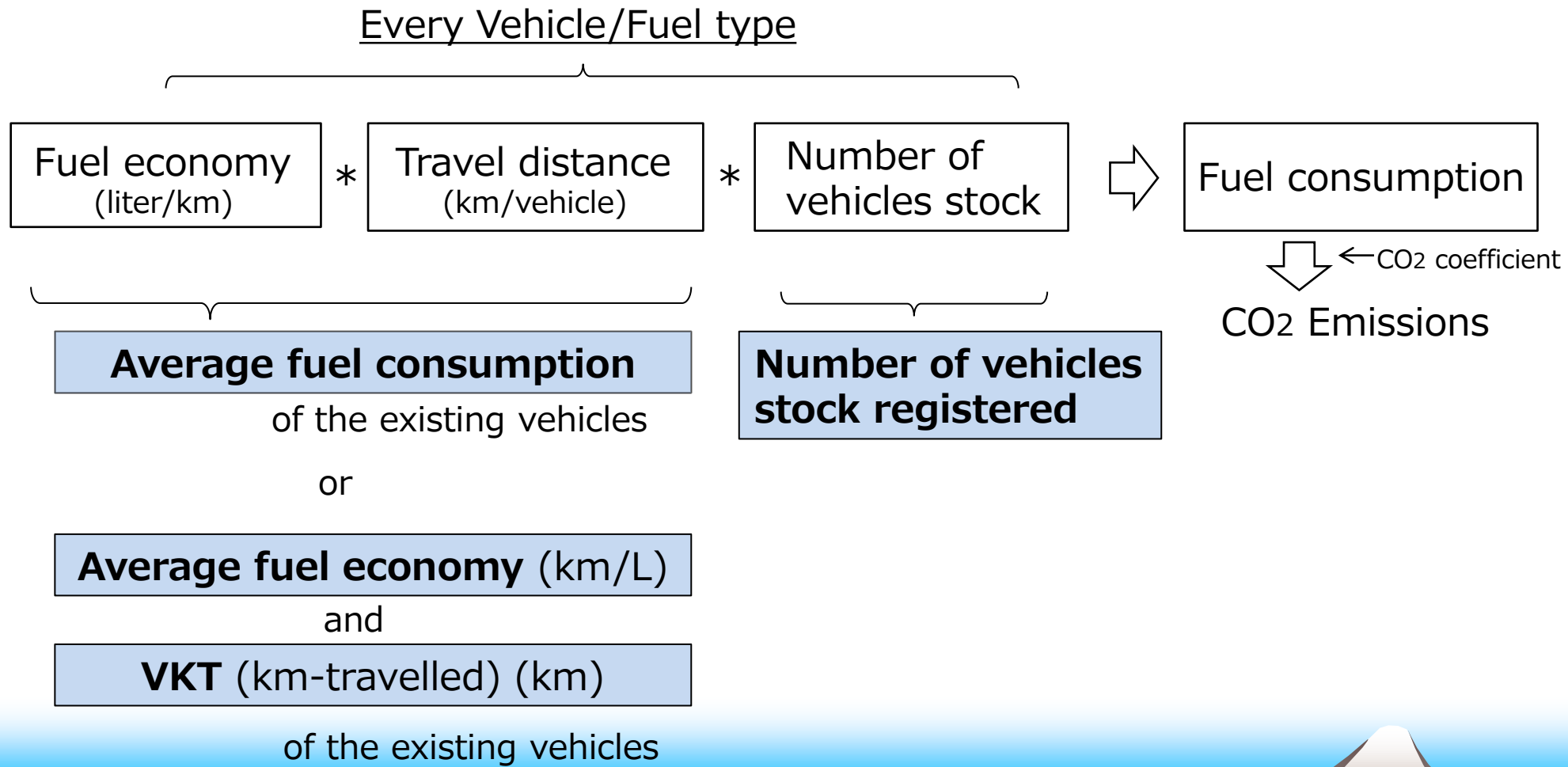
Fuels are used in various transports and sectors

→ It is necessary to investigate consumption of every transportation to grasp the detailed consumption in the transportation sector

	Vehicle type etc.	Fuel type						
		Gasoline w/Ethanol	Diesel w/Biodiesel	LPG	Natural gas	Jet	Fuel oil	Electricity
Transport sector	Passenger car	✓	✓	✓	✓			(✓)
	Pick-up	✓	✓	✓	✓			
	Motorcycle	✓						
	Taxi	✓		✓	✓			
	Bus		✓		✓			(✓)
	Truck		✓	✓	✓			
	Aviation					✓		
	Shipping		✓				✓	
	Railway		✓					✓
Other sector	Industry*		✓	✓			✓	✓
	Residential			✓	✓			✓
	Energy transform			✓	✓			+

* Industry contains Manufacturing, Agriculture, Fishery, Mining, Construction and Commercial industry

(1) Necessary Statistics Data for **Evaluation of Fuel Consumption and CO₂ Emissions**



(2) Necessary Statistics Data for Evaluation of Countermeasures of 120 plans ... 1

Countermeasures	Necessary statistics data	Evaluation index
Use of fuel efficient vehicles	Fuel economy of every new vehicle →Average fuel economy of all new vehicles	% improvement of average fuel economy
Dispose old cars		Number of the scrapped old cars
Use of eco-friendly vehicles (Hybrid, EV, FCV)	Number of sold/registered eco-friendly vehicles	% of the eco-vehicle in the sales of new vehicles Number of vehicles stock
Alternative fuels		Supply of alternative fuels
Modal Shift from Passenger car to Rail, Bus from Truck to Rail	PKT (Passenger Kilometer Travelled) & VKT (Vehicle Kilometer Travelled) for Passenger car, Motorcycle, and Bus, Rail TKT (Ton Kilometers Travelled) for truck and Rail	Modal share of passengers Modal share of freight

(2) Necessary Statistics Data for Evaluation of Countermeasures of 120 plans ... 2

Countermeasures	Necessary statistics data	Evaluation index
Construction of highways	Traffic volume, Average travel speed on the ordinary road	Improvement of the traffic volume, average vehicle speed
Traffic flow improvement		
Speed limits on expressways/motor ways		Number of speeding Number of trucks equipped with GPS
Reduction of trucks' empty journeys	TKT (Ton Kilometers Travelled) Transportation weight of freight and maximum freight capacity of trucks	Logistic efficiency
Eco-friendly driving	Number of drivers attending a eco-driving training Number of trucks equipped with EMS	Rate that drivers carried out

Summary of Necessary Statistics Data

1) Registration data of vehicles

Number of new vehicles and existing vehicles

Fuel economy of new vehicles

⇒ Annual average fuel economy/CO₂ emissions of new vehicles

Number of registered eco-friendly vehicles

2) Fuel consumption and Transportation data

Average fuel economy, VKT, PKT, TKT,

Transportation weight of freight and maximum freight capacity

⇒ Total fuel consumption and CO₂ emissions of vehicles

Share of every transportation, Situation of the modal shift

Logistic efficiency

3) Road traffic data

Traffic volume

Average vehicle speed on the ordinary road

⇒ Traffic flow improvement

1) Registration data of vehicles

1-1) Number of new vehicles

1-2) Fuel economy (km/L) and CO₂ emissions of new vehicles

1-3) Number of existing vehicles

About the above, the data of every vehicle type and fuel type are necessary.

These registration data are collected by DLT.

2) Fuel consumption and Transportation data

2-1) Average fuel economy (L/km) of in-use vehicles

2-2) VKT of vehicles

2-3) PKT *for Passenger car, Motorcycle, and Bus, Railway*

2-4) TKT *for Trucks, and Railway, Shipping*

2-5) Transportation weight of freight
and maximum freight capacity of trucks

2-1,2) Suggestion for Investigation Method of Average fuel economy and VKT for passenger vehicles

Investigation method		FE or FC	VKT	Comment
1) Questionnaire with the letter or on-line system	Extract vehicles from vehicle registration data Data: Odometer(km) and fuel consumption during two times of refueling, fuel type	✓	✓	Japan method
2) Collect data at SS	SS staff fills out a questionnaire Data: vehicle data/NO plate, other questions are same as 1)	✓	✓	
3) Administrative system	Submit the mileage at the tax payment		✓	Already carried out ?
	Shorten the car inspection from 7 years		✓	Not easy ?
4) Measurement of fuel economy	Request the FE measurement of the period of time to users	✓		All vehicle models are estimated by the data investigated in the representative car models or taxi
5) Smart phone	Request input mileage data in application of smartphone to users		✓	Registration of the user Need to operate the application at the time of ride and getting off to the vehicle

Reference) Example of Japan MLIT's questionnaire for fuel consumption and VKT

秘 一般統計調査 第3号様式 整理番号

Questionnaire for fuel consumption and VKT
自動車燃料消費量調査
(自家用小型自動車調査票)
Passenger car for private use 国土交通省

1. 自動車の主な用途 Main use
1. 主にマイカーとして使用 My car
2. 主に業務として使用 Business
2. を選択した場合には、次の1~4のうち、該当する番号1つをご記入ください。 Purpose of use in case of business
1. 人員の輸送用 2. 貨物の輸送用
3. 作業用(特種車のみ) 4. その他

2. 調査期間中の燃料消費量
調査期間中の燃料消費量をご記入ください。
注: 燃料の単位がリットル以外の場合は[]の中に単位をご記入ください。
[liter]

3. 調査開始日・終了日と調査期間中の走行キロ
①最初の燃料補給日と、燃料補給時の走行メーターの数字をご記入ください。
1st fuel refueling day
月 日 (ア) 万 千 百 十 一 km
②次の燃料補給日と、燃料補給時の走行メーターの数字をご記入ください。
2nd fuel refueling day
月 日 (イ) 万 千 百 十 一 km
③調査期間中の走行キロを
Travel km
ご記入ください。 (イ)-(ア) 万 千 百 十 一 km

秘 一般統計調査 第2号様式 整理番号

Questionnaire for fuel consumption and VKT
自動車燃料消費量調査
(営業用旅客自動車調査票)
Passenger car for business use 国土交通省

1. 自動車の主な用途 Main use
自動車の主な用途について、次の1~7のうち該当する番号1つをご記入ください。
1. 乗合バス Bus 2. 高速路線バス 3. 貸切バス
4. 特定バス 5. ハイヤー・法人タクシー
6. 個人タクシー 7. その他 taxi

2. 休車日数 The rest car days
調査期間中に自動車を使用しなかった日数をご記入ください。 日

3. 調査期間中の燃料消費量
調査期間中の燃料消費量をご記入ください。
注: 燃料の単位がリットル以外の場合は[]の中に単位をご記入ください。
[liter]

4. 調査開始日・終了日と調査期間中の走行キロ
①調査開始時のメーターの数字を
1st fuel refueling day
→ (ア) 万 千 百 十 一 km
②調査終了時のメーターの数字を
2nd fuel refueling day
→ (イ) 万 千 百 十 一 km
③調査期間中の走行キロを
Travel km
ご記入ください。 (イ)-(ア) 万 千 百 十 一 km

2-3,4,5) Suggestion for Investigation Method of PKT / TKT and Freight weight and capacity

Investigation method		PKT	TKT	Freight capacity	Comment
Questionnaire with the letter or on-line system	for Bus Submit data for all bus company Data: Transportation number of people, Travel distance	✓			Japan method
	for Rail Submit data for all rail company Data: Transportation number of people, Travel distance	✓			
	for Trucks Submit data for major company Data: Transportation weight of freight Travel distance, Maximum freight capacity (Random sampling for small company or Request to private organizations)		✓	✓	
	for Rail and Shipping Submit data for all rail company and major shipping company Data: Transportation weight of freight Travel distance		✓		

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Reference) Example of Japan MLIT's Questionnaire for Truck

調査票 (第1号様式の2)

事業所コード:

第1号様式の2(第6条関係)

基幹統計調査
自動車輸送統計調査

自動車輸送統計調査票
一貨物営業用一

国土交通省

この統計調査について

1. この調査票は、自動車輸送統計を作成するためにだけ使われ、取扱いや提供の資料として使われることは絶対にありません。
2. 別添の「調査票の記入のしかた」に従って、枠の部分に記入してください。
3. この調査票についてわからないことがあれば、問い合わせ先(0000-000-000)に問い合わせてください。

調査期間は 月 日()から 月 日()までの 日間です。

提出期限は 月 日()です。

調査する自動車

最大積載量 kg

1. 自動車について

(1) 主な用途 ☐ 1. 特定貨主専用車 2. 特別適合貨物車 3. 一般貨物車 4. 乗配車 5. その他

(2) 調査期間中の走行距離
自動車の調査期間中の走行距離を記入してください。

調査開始時のメーターの数字(A)

調査終了時のメーターの数字(B)

調査期間中の走行距離(C) = (B) - (A)

トリップメーター等で、調査期間中の走行距離が正確に把握できる場合は、(C)欄にその数値を記入しても結構です。
(この場合、(A) (B)欄は空白で結構です。)

(3) 休車日数
調査期間中のうち、自動車を使用しなかった日数

Company code

Questionnaire for TKT

Year Month

Investigation period

General use: 7 days
Industry use: 1 month

Deadline of submit

Registration number

Maximum freight capacity

Purpose of main use

Odometer at the start of investigation

Odometer at the end of investigation

Mileage

Days that did not use the bus

調査票 (第1号様式の2)

輸送区間

Month Day 月 日

Place loaded freight onto

Month Day 月 日

Place that took down freight

1. 走行距離(キロメートル)

輸送貨物品目コード

重量(kg)

品名

数量

単位

輸送回数(回)

2. 走行距離(キロメートル)

輸送貨物品目コード

重量(kg)

品名

数量

単位

輸送回数(回)

3. 走行距離(キロメートル)

輸送貨物品目コード

重量(kg)

品名

数量

単位

輸送回数(回)

4. 走行距離(キロメートル)

輸送貨物品目コード

重量(kg)

品名

数量

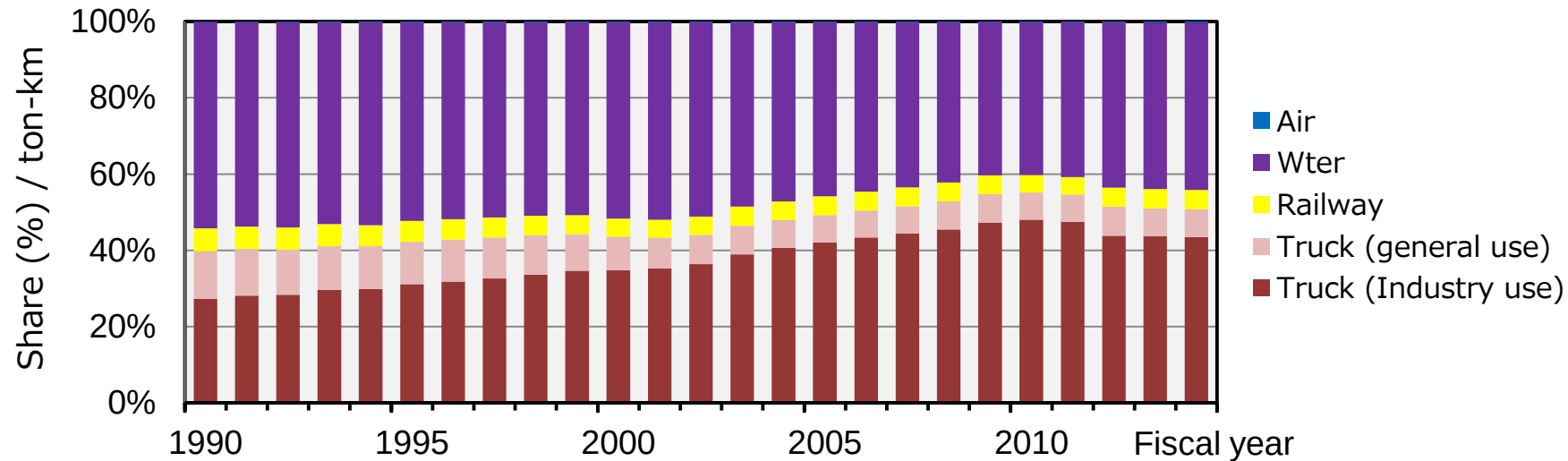
単位

輸送回数(回)

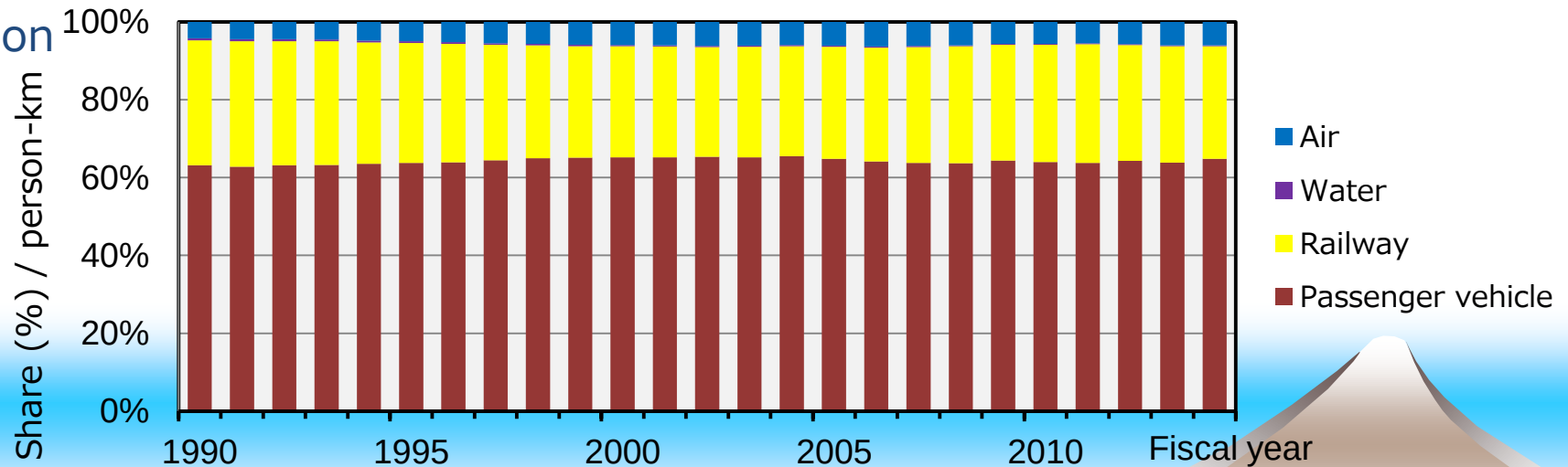
Example of Statistics Data Analysis (Japan case)

~ Trends in share of transportation

Freight



Passenger transportation



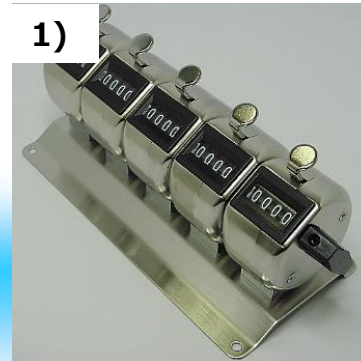
3) Road traffic data

3-1) Traffic volume

3-2) Average vehicle speed

3-1,2) Suggestion for Investigation Method of Traffic volume and Average vehicle speed

Investigation method		Traffic volume	Vehicle speed	Comment
1) Investigation by a person	Count the number of vehicles at the roads and the intersections	✓		Japan method (Road Transport Census) every 5 years
2) Investigation with the vehicle detector	Count the number of vehicles at the roads and the intersections Detector; fixed to a road or removable	✓		
3) Video shoot	Count the number of vehicles	✓		Confirmation of data is possible
4) Investigation by a car	Measure the trip speed of a section by a car (time and distance)		✓	Japan method
	Measure the trip speed of a section by the GPS		✓	Taxi is equipped with GPS ?



ขอบคุณ ครับ
Thank you !