

## 1-1

# The Quality and Quantity of a Changing Mobility

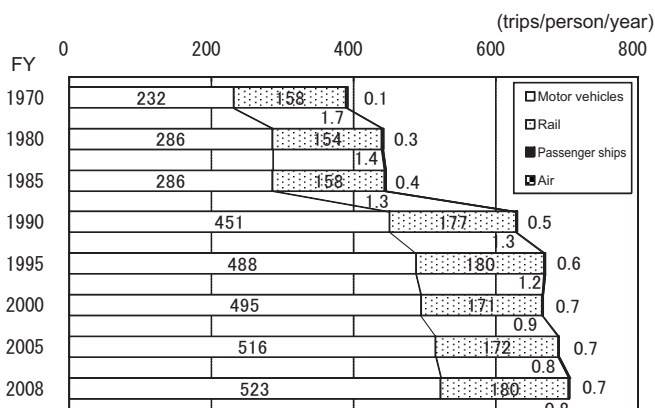
Assistant Professor, Graduate School of  
Engineering, University of Tokyo

**Kiyoshi Takami**

We now have the basic data on the movement of people and goods. In regards to the flow of people, in recent years, the number of trips per person is on an upward trend, while the distance traveled is on a gradual decrease. The data also reveals an upward trend in the motor vehicle share of trips of the elderly and women, and in the number of private trips. Regarding the flow of goods, the tonnage per person has been constantly decreasing since the latter half of the '90s; transportation in ton-kilometers has been almost flat although there some periodicity is observed. In ton-kilometers, the share of motor vehicles is increasing noticeably.

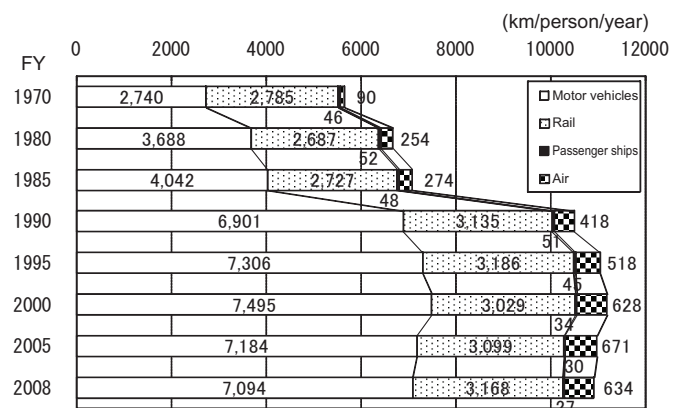
- Passenger transportation in the past 35 years. In regards to motor vehicles, the number of trips and the distance traveled per person per year have been generally increasing, although the distance traveled started to decrease from FY 1999, then became stable. Railways, after their peak in the early 90's, decreased to the lowest level in FY 2004, then began another upward trend. There has been a near-constant decrease in travel on passenger ships, and an increase in air travel, but for the past several years, both have remained almost stable. The cumulative total of all those transportation modes shows that the number of trips has been generally on an upward trend, while the distance traveled has shown a generally downward trend. (Fig. 1 & 2)

**Fig. 1 Annual number of trips (per person)**



Source: Transportation-related statistics data collection (latest edition, Ministry of Land, Infrastructure, Transport and Tourism)

**Fig. 2 Annual distance traveled (per person)**

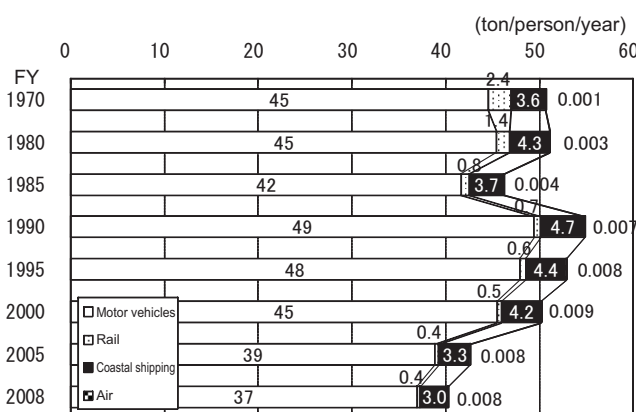


Source: Transportation-related statistics data collection (latest edition, Ministry of Land, Infrastructure, Transport and Tourism)

Note: "Motor vehicles" includes small-engine vehicles ("light motor vehicles") since 1987, which explains the noticeable change in the figures beginning around that year.

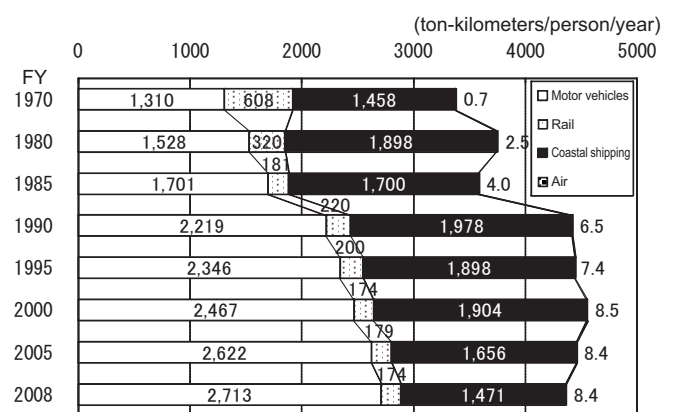
- In regards to freight transport, the annual transportation tonnage per person has been decreasing since around 1970 for railways, and since the '90s for motor vehicles and coastal shipping; for aircraft, the figures have remained flat in recent years. In annual transportation ton-kilometers per person, there is an upward trend for motor vehicles and a downward trend for coastal shipping; for railways and aircraft, the figures have been flat for the last ten years or so. (Fig. 3 & 4)

**Fig. 3 Annual freight transport tonnage (per person)**



Source: Transportation-related statistics data collection (latest edition, Ministry of Land, Infrastructure, Transport and Tourism)

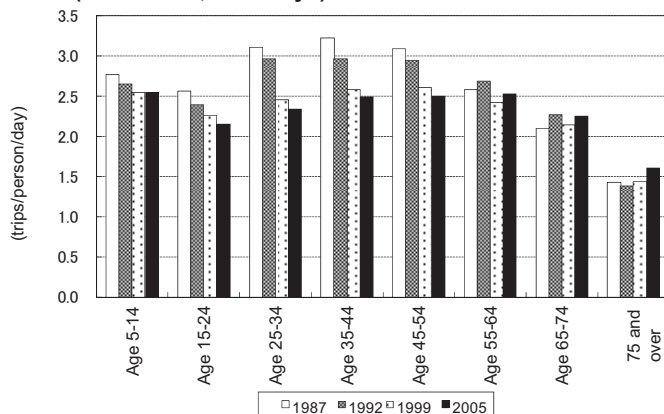
**Fig. 4 Annual freight transport ton-kilometers (per person)**



Source: Transportation-related statistics data collection (latest edition, Ministry of Land, Infrastructure, Transport and Tourism)

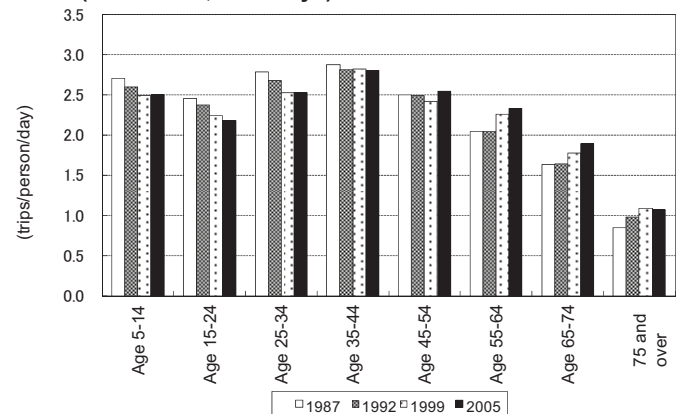
- The number of trips per person per day is decreasing for males 54 and younger and females 34 and younger, while it is increasing for the elderly. For the total of all age groups, it has been decreasing year by year until recent years, when the trend flattened out. (Fig. 5 & 6)

**Fig. 5 Changes in the number of trips per male per day (nationwide, weekdays)**



Source: 2005 Survey on Transportation Characteristics in Cities Nationwide (Ministry of Land, Infrastructure, Transport and Tourism)

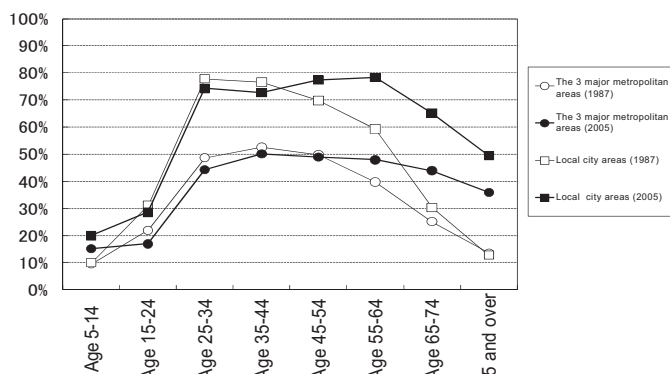
**Fig. 6 Changes in the number of trips per female per day (nationwide, weekdays)**



Source: 2005 Survey on Transportation Characteristics in Cities Nationwide (Ministry of Land, Infrastructure, Transport and Tourism)

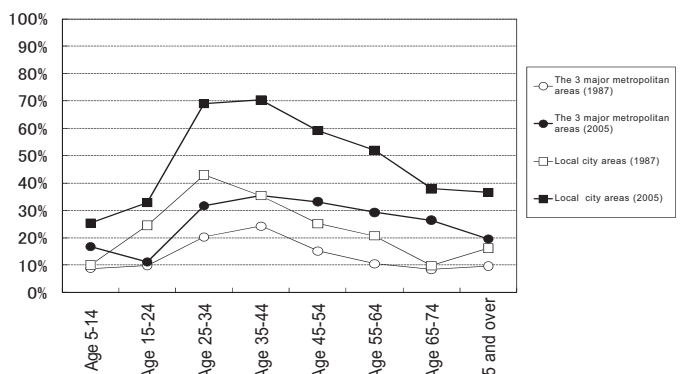
- Looking at the modal share of motor vehicle by gender and by age, we see that for males, there was a greater increase among the elderly; for females, the increase was through most age groups. This tendency is more noticeable in local city areas than in the three major metropolitan areas. The modal share of motor vehicle by females aged 25 to 44 in local city areas has increased to that of males. (Fig. 7 & 8)

**Fig. 7 Changes in the modal share of motor vehicle by males (by age, weekdays)**



Source: 2005 Survey on Transportation Characteristics in Cities Nationwide (Ministry of Land, Infrastructure, Transport and Tourism)

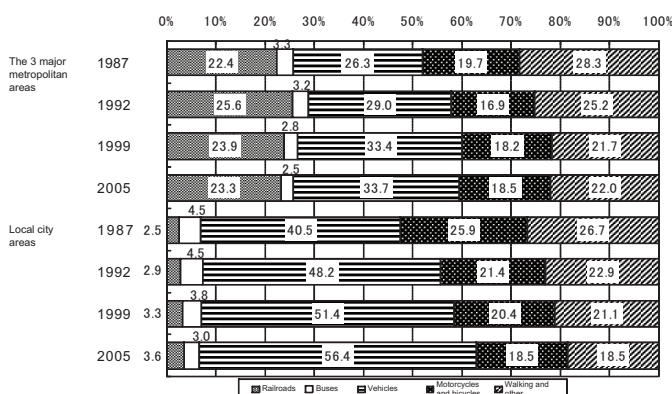
**Fig. 8 Changes in the modal share of motor vehicle by females (by age, weekdays)**



Source: 2005 Survey on Transportation Characteristics in Cities Nationwide (Ministry of Land, Infrastructure, Transport and Tourism)

**Fig. 9 Changes in the modal share (based on the main/representative mode) (weekdays)**

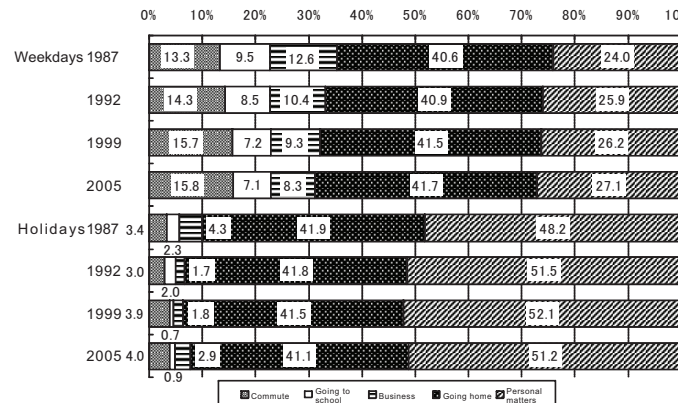
- The motor vehicle share is on an upward trend both in the three major metropolitan areas and in local city areas. Motor vehicle use is even higher on holidays than on weekdays.



Source: 2005 Survey on Transportation Characteristics in Cities Nationwide (Ministry of Land, Infrastructure, Transport and Tourism)

**Fig. 10 Changes of the trip purpose**

- As for the trip purpose, here is a downward trend for "going to school" and "business," while "personal matters" is on an upward trend.



Source: 2005 Survey on Transportation Characteristics in Cities Nationwide (Ministry of Land, Infrastructure, Transport and Tourism)

## 1-2

## Road Network Today

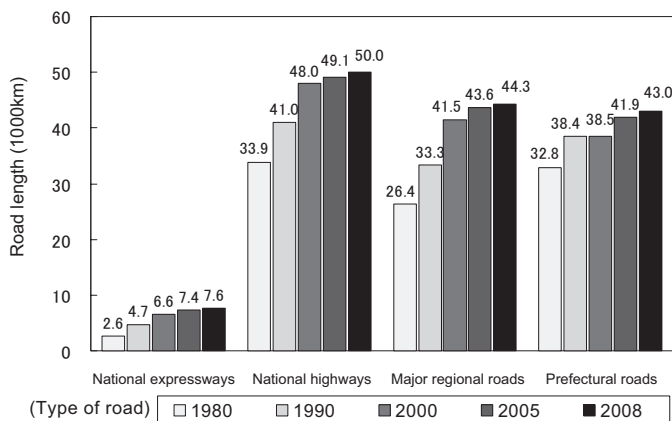
Chief Researcher, The Institute of Behavioral Sciences

**Tsutomu Yabe**

The length of our roads has been steadily extended thanks to ongoing road improvement, yet it is not still sufficient for traffic demand. As a result, the average speed on roads remains unchanged at a lower level. A case in point: in city centers such as Tokyo and Osaka, and in DID (Densely Inhabited District) areas, there is still chronic traffic congestion. Given that background, road network improvements (e.g., the ring road improvement plans that are proceeding in the three major metropolitan areas) are obviously playing a significant role.

**Fig. 1 Changes in the length of completed roads by road type**

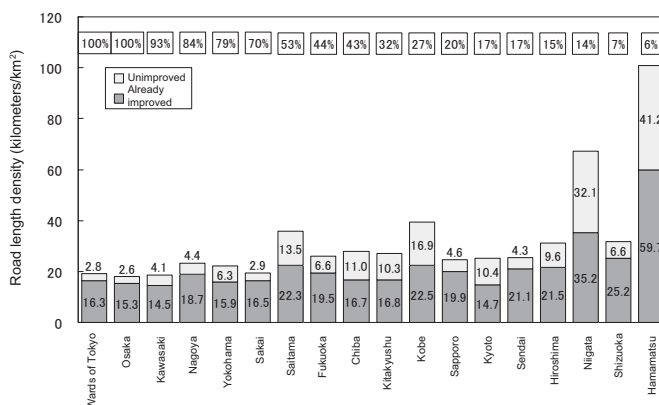
- For all types of roads, the length of completed road (i.e., with improvements completed) is increasing steadily.



Source: Road Statistics Annual Report (Road Bureau, Ministry of Land, Infrastructure, Transport and Tourism)

**Fig. 3 Comparison of road length density in ordinance-designated cities**

- The greater the area of the city the DID (Densely Inhabited District) occupies, the higher the percentage of improved (vs. unimproved) road length on the road length density scale.



\* Road length density = road length per area of DID

\* Among roads as defined by the Road Act; excludes national expressways.

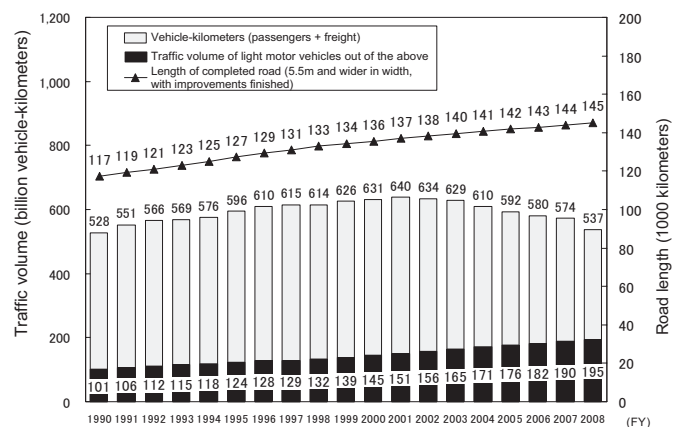
\* Number of lanes and road widths are not taken into account.

\* The figure in the square is the DID area percentage of the total city area.

Source: road length: taken from data of each municipality (Apr., 2008)  
DID area: 2005 National Population Census

**Fig. 2 Changes in traffic volume and road length**

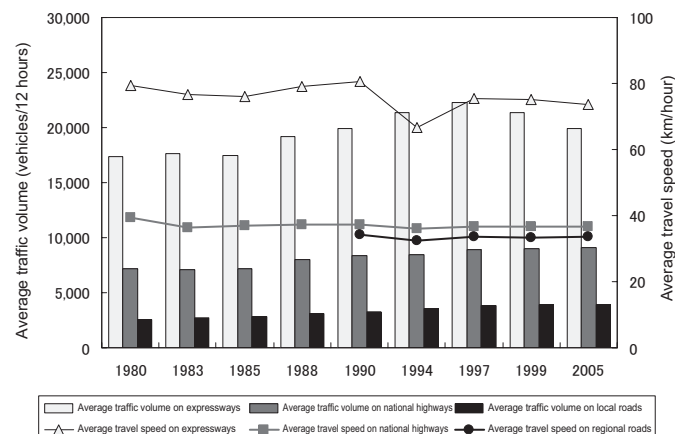
- The figure for traffic volume in vehicle-kilometers, after peaking in 2001, is on a downward trend; but the figure for light motor vehicles is on an upward trend. Road length nationwide is steadily increasing.



Source: Transportation-related statistics data collection (Transport Research and Statistics Office, Information Security, Research and Statistics Division, Information Policy Headquarters, Policy Bureau, Ministry of Land, Infrastructure, Transport and Tourism)

**Fig. 4 Changes in average traffic volume and average travel speed by type of road**

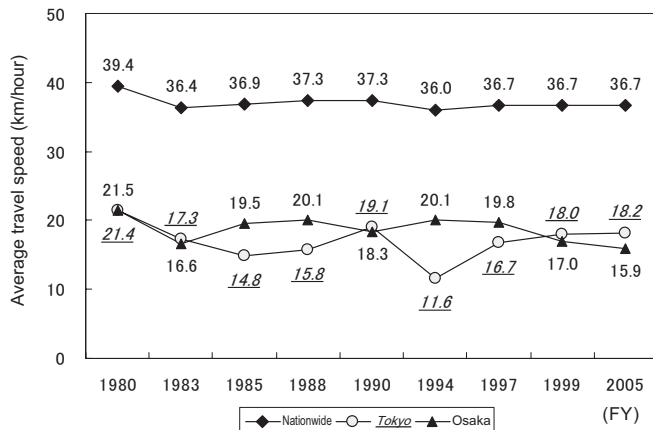
- The average traffic volume on expressways has been on a downward trend since 1997, partly because of the newly constructed ones with less traffic. However, traffic is on an upward trend for national ordinary roads and regional roads. The average travel speed for either type of road remains level or is on a slightly downward trend.



Source: Road Traffic Census (website of the Ministry of Land, Infrastructure, Transport and Tourism)

**Fig. 5 Average travel speed on national ordinary roads (Nationwide, Tokyo, & Osaka)**

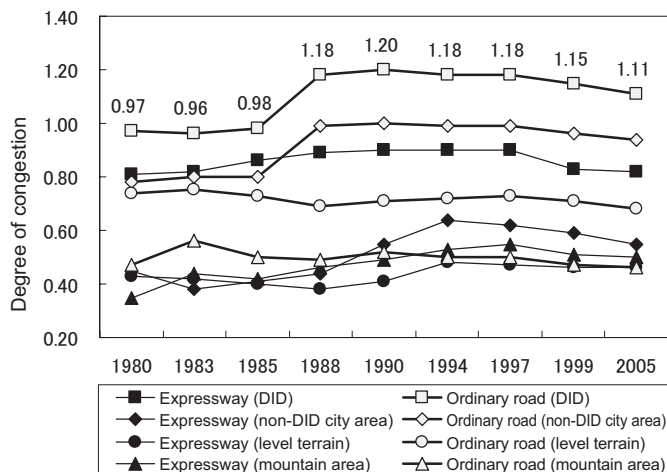
- For years there has been almost no change in the national average. The average travel speed in the wards of Tokyo and in Osaka City is about half the national average; there is still severe traffic congestion.



Source: Road Traffic Census (website of the Ministry of Land, Infrastructure, Transport and Tourism)

**Fig. 7 Degree of congestion of expressways and national ordinary roads (by roadside condition)**

- The degree of congestion exceeds 1.0 on national ordinary roads along densely inhabited areas (DID).

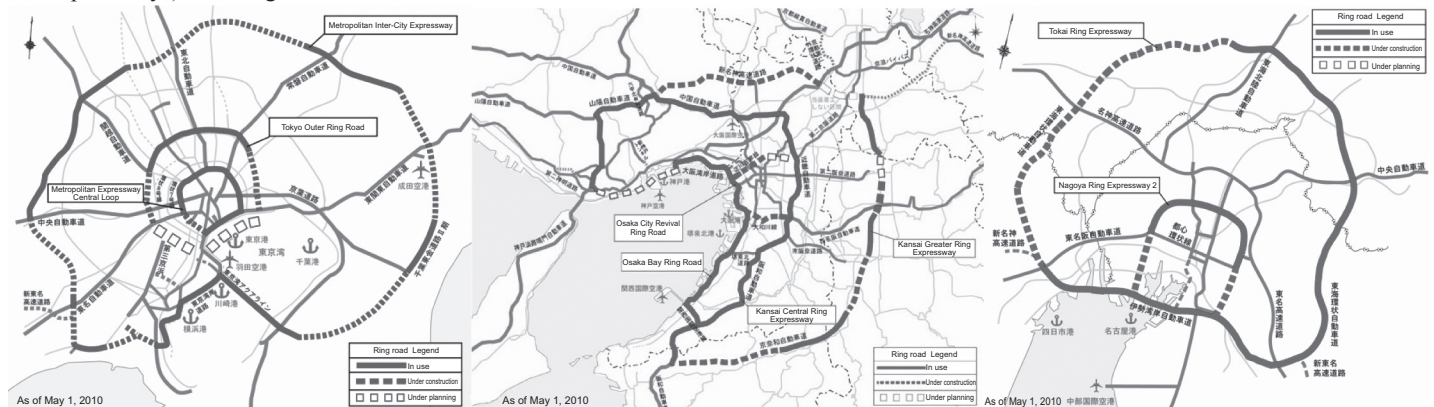


Source: Road Traffic Census (website of Ministry of Land, Infrastructure, Transport and Tourism)

Note: Congestion level is given by the traffic volume per road capacity (in daytime 12 hours).

**Fig. 9 Road network improvement plans and road conditions in the three major metropolitan areas (from left: Tokyo, Kinki, and Chukyo area)**

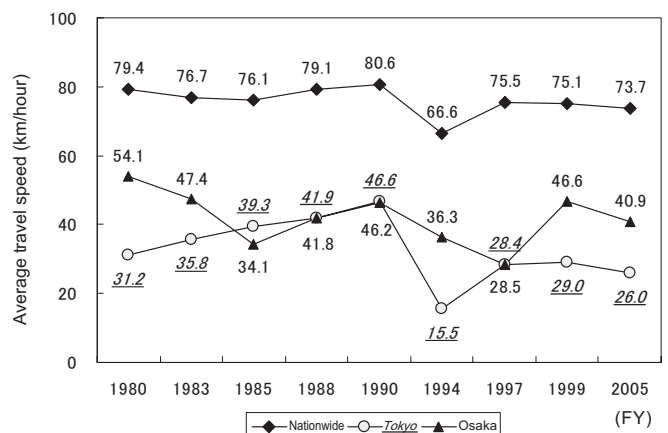
- To cope with chronic congestion in the three major metropolitan areas, road network improvement plans (e.g., ring roads and expressways) are being carried out.



Source: website of Road Bureau, Ministry of Land, Infrastructure, Transport and Tourism

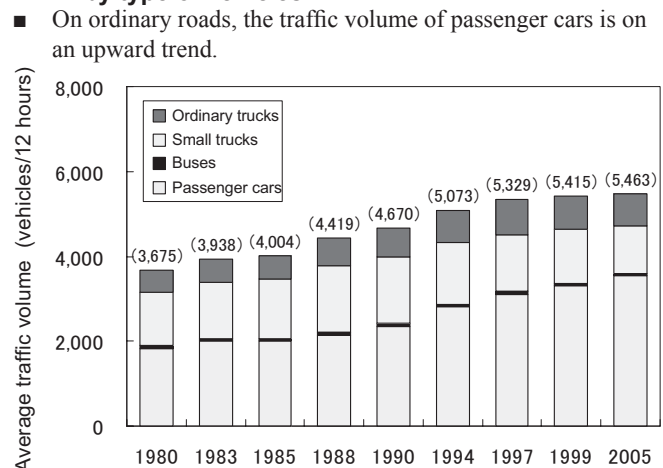
**Fig. 6 Average travel speed on expressways (Nationwide, Tokyo, & Osaka)**

- For years the national average has been on a slightly downward trend. Though there had been changes through the years in the average travel speed in the wards of Tokyo and in Osaka City, the speeds were always lower than the national average.



Source: Road Traffic Census (website of the Ministry of Land, Infrastructure, Transport and Tourism)

Note: For expressways in Tokyo and Osaka, the Metropolitan Expressway and Hanshin Expressway include segments managed by NEXCO.

**Fig. 8 Average 12-hour traffic volume on ordinary roads by type of vehicles**

Note: Figures in parentheses are the average traffic volume of all types of vehicles.

Source: Road Traffic Census (website of Ministry of Land, Infrastructure, Transport and Tourism)

## 1-3

## Freight Road Transport Today

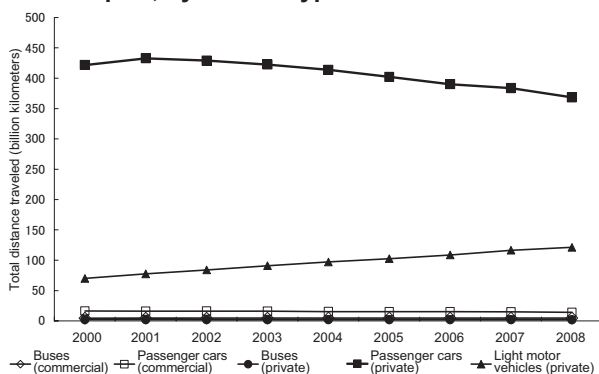
Associate Professor, School of Commerce,  
Senshu University**Eiichiro Iwao**

Freight road transport today has several features. For ordinary trucks in commercial use, there has been almost no change in distance traveled, but total cargo weight is on a downward trend. At the same time, for ordinary trucks in private use, the distance traveled and the weight transported are both on a downward trend. In the number of trucks owned, there has been a constant decrease of private trucks and an increase in commercial trucks. Such data would indicate that freight transport is shifting from private trucks to commercial trucks.

Also, the fact that package and mailing handling, as well as regular parcel post delivery, are increasing indicates that small-lot freight transport is on the rise.

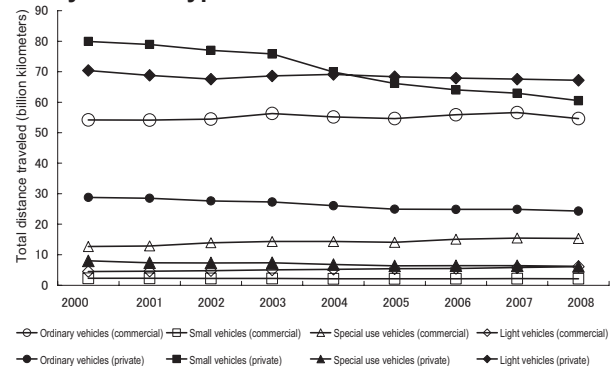
- Distance traveled by vehicles: For passenger transport, there has been a downward trend since 2001 for passenger cars (private use). For freight transport, there has been a continuous decrease for small vehicles (private use). However, almost no change has been seen for other types of motor vehicle.

**Fig. 1 Changes in distance traveled in passenger transport, by vehicle type**

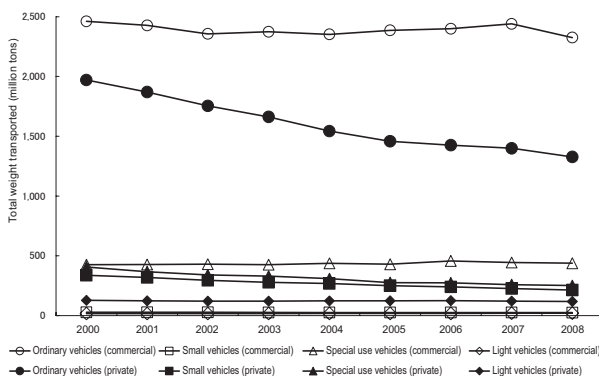


Source: Annual Statistical Report on Motor Vehicle Transport (Information and research Department, Policy Bureau, Ministry of Land, Infrastructure, Transport and Tourism); Transportation-related statistics data collection (Information Policy Headquarters, Ministry of Land, Infrastructure, Transport and Tourism)

**Fig. 2 Changes in distance traveled in freight transport, by vehicle type**

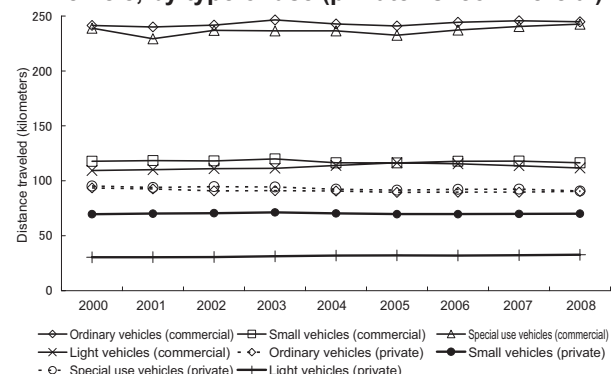


**Fig. 3 Changes in cargo weight, by vehicle type**



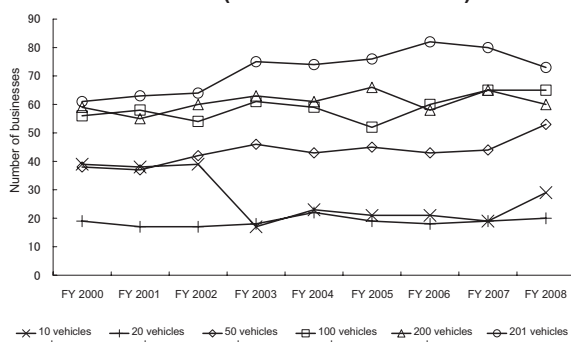
Source: Annual Statistical Report on Motor Vehicle Transport (Information and research Department, Policy Bureau, Ministry of Land, Infrastructure, Transport and Tourism)

**Fig. 4 Changes in distance traveled per working day per vehicle, by type of use (private vs. commercial)**



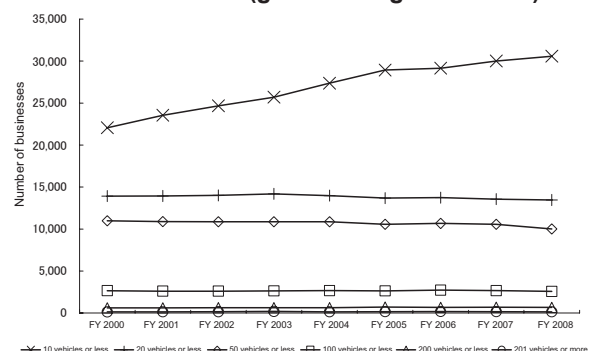
Source: Annual Statistical Report on Motor Vehicle Transport (Information and research Department, Policy Bureau, Ministry of Land, Infrastructure, Transport and Tourism)

**Fig. 5 Number of freight businesses, by number of vehicles owned (mixed load services)**



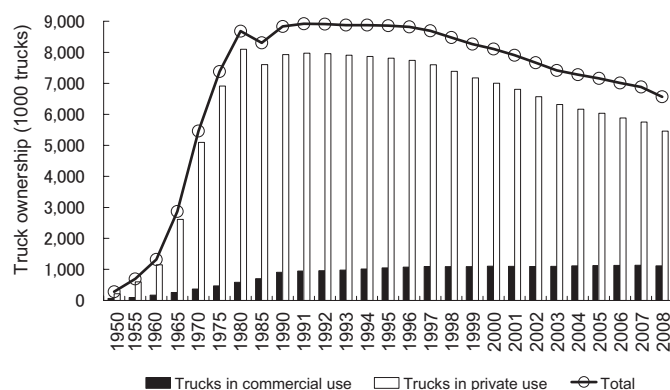
Data: assembled from data of Cargo Transport Division, Road Transport Bureau  
Source: Transportation-related statistics data collection (Information Policy Headquarters, Ministry of Land, Infrastructure, Transport and Tourism)

**Fig. 6 Number of freight businesses, by number of vehicles owned (general freight services)**



Data: assembled from data of Cargo Transport Division, Road Transport Bureau  
Source: Transportation-related statistics data collection (Information Policy Headquarters, Ministry of Land, Infrastructure, Transport and Tourism)

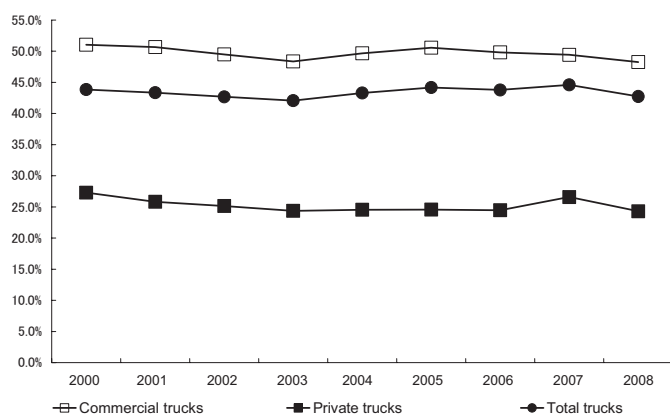


**Fig. 7 Changes in private and commercial truck ownership**

Source: Annual Land Transport Statistics (Information and Research Department, Ministry of Land, Infrastructure, Transport and Tourism); Transportation-related statistics data collection (Information Policy Headquarters, Ministry of Land, Infrastructure, Transport and Tourism)

**Fig. 9 Changes in percent of capacity loaded (trucks)**

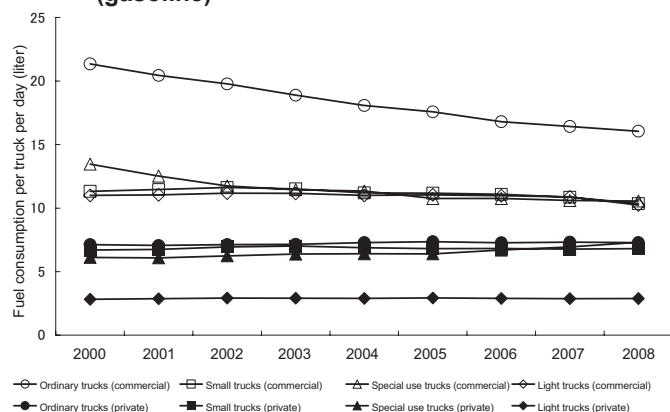
- The percentage loaded on trucks was on a downward trend until 2003; since then, it continues to fluctuate. The percentage is higher for commercial use than for private use.



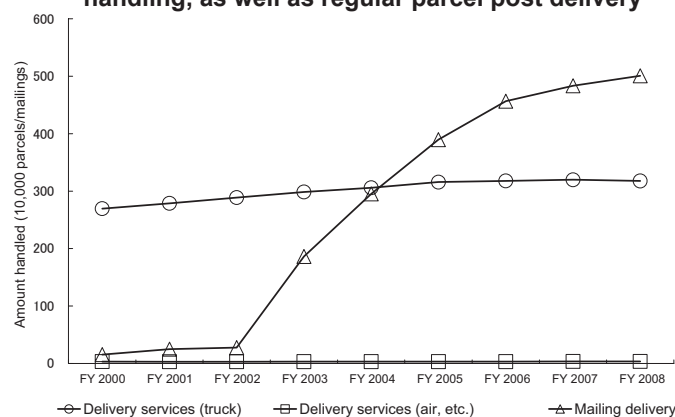
Source: Annual Statistical Report on Motor Vehicle Transport (Information and research Department, Policy Bureau, Ministry of Land, Infrastructure, Transport and Tourism)

Note: Percentage of capacity loaded is derived from transported ton-kilometers per capacity ton-kilometers. Excludes vehicles for special use.

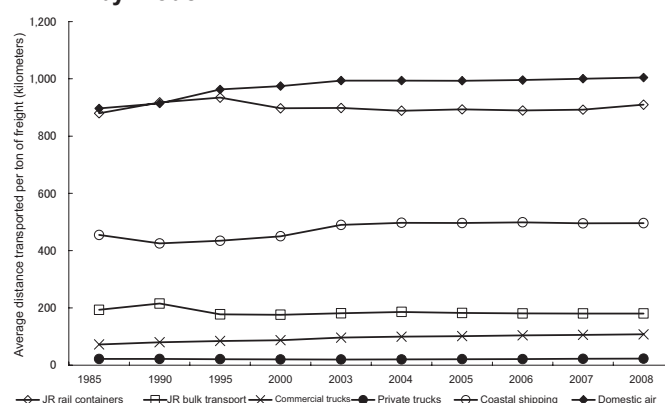
- Fuel consumption per ordinary truck (commercial) per day is on a downward trend regardless of fuel type.

**Fig. 11 Changes in fuel consumption per truck per day (gasoline)**

Source: Annual Statistical Report on Motor Vehicle Transport (Information and Research Department, Policy Bureau, Ministry of Land, Infrastructure, Transport and Tourism); Transportation-related statistics data collection (Information Policy Headquarters, Ministry of Land, Infrastructure, Transport and Tourism)

**Fig. 8 Changes in the amount of package and mailing handling, as well as regular parcel post delivery**

Source: website of Ministry of Land, Infrastructure, Transport and Tourism; statistics data of Japan Post Service Co., Ltd.

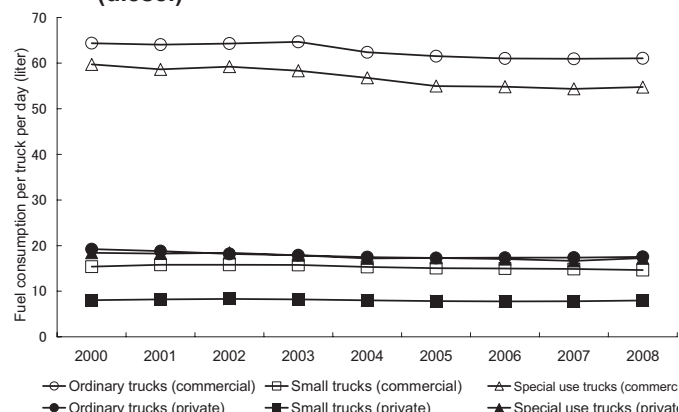
**Fig. 10 Changes in average distance transported per ton by mode**

Source: Transportation-related statistics data collection (Information Policy Headquarters, Ministry of Land, Infrastructure, Transport and Tourism)

Note: 1) Coastal shipping includes private ships.

2) Figures for Japan Railway are the total transport distance with fee and without fee before 1986, and (since 1987) with fee only.

3) Figures for domestic air (regular flights only) include figures for overweight checked baggage and mail.

**Fig. 12 Changes in fuel consumption per truck per day (diesel)**

## 1-4

## Public Transport Today

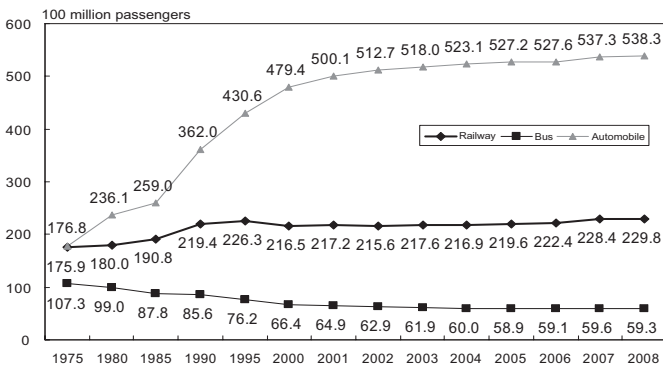
Chief Researcher, Institute of Transportation Economics

**Kazuya Itaya**

In general, automobile passenger-kilometers are decreasing; while railways and buses have been increased slightly since around 2002. The passenger moving between cities on public transport is increasing, and there is a particularly noticeable increase in the number of passengers of Shinkansen lines. The role of public transport is increasing, especially for long distance travel. In the three metropolitan areas, the railway congestion rate continues to decrease; then too, many new lines have been built. Trough – operation of railway service using tracks of different company's railway line is also being taken. By contrast, the bus industry in general is becoming unprofitable; nevertheless the number of businesses is increasing. Finally, the total number of traffic fatalities with public transport is very small; public transport is safe transport.

**Fig. 1 Number of passengers of railways and buses**

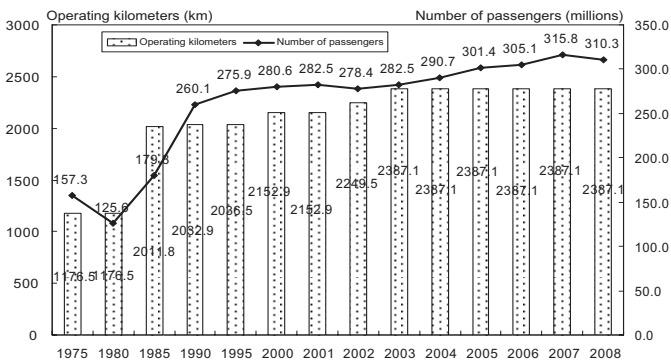
- In recent years, the use of railways is gradually increasing; but the use of buses is almost unchanged.



Source: Annual Statistical Report on Motor Vehicle Transport;  
Annual Statistical Report on Railway Transport

**Fig. 3 Operating kilometers and number of passengers of Shinkansen**

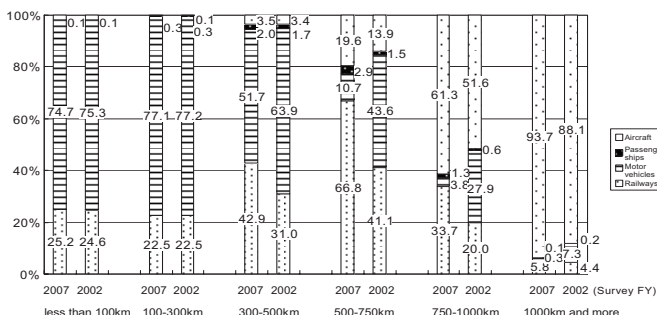
- Use increased over a long period, then decreased in 2008.



Source: Before 1985: Railways 2008: the numbers.  
After 1990: Annual Statistical Report on Railway Transport

**Fig. 5 Modal share by distance traveled**

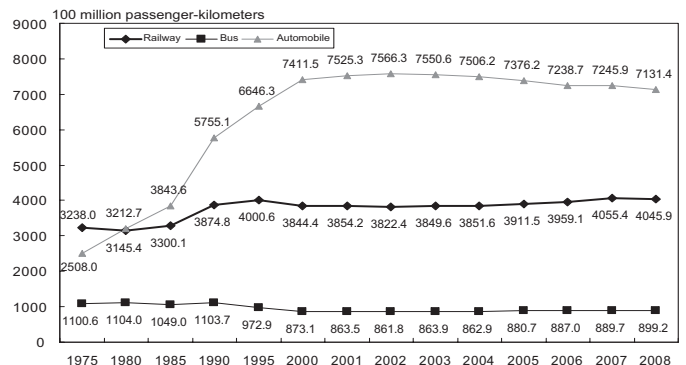
- Comparing 2002 with 2007, on the whole the transport share of motor vehicles decreased while the share of public transport increased.



Source: Analytical data from Survey on Flows of Freight and Passengers (2007 edition)

**Fig. 2 Railway and bus passenger-kilometers**

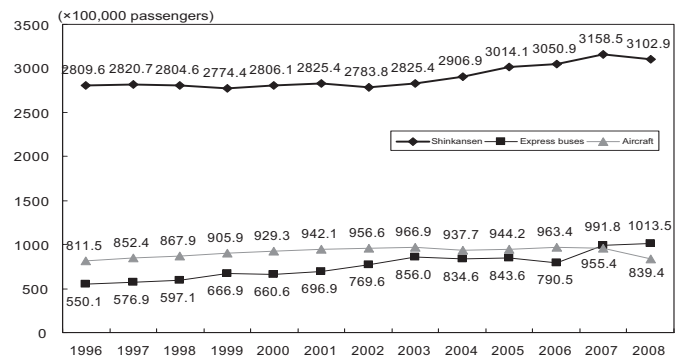
- While automobile passenger-kilometers are gradually decreasing, railway and bus passenger-kilometers are gradually increasing, after having reached their lowest level in 2002.



Source: Annual Statistical Report on Motor Vehicle Transport;  
Annual Statistical Report on Railway Transport

**Fig. 4 Number of intercity passengers, by mode**

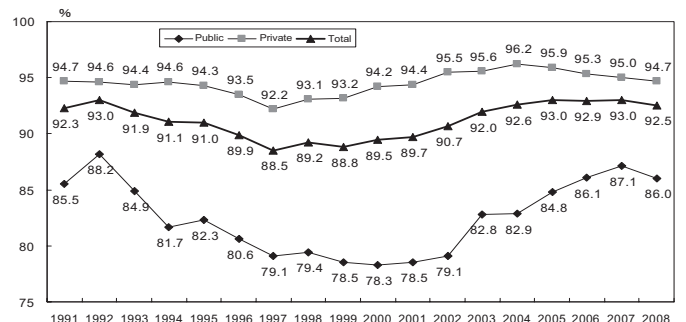
- In 2008, the use of Shinkansen and aircraft decreased; but the use of express buses continues to increase.



Source: Annual Statistical Report on Railway Transport; Railways 2008: the numbers; Annual Statistical Report on Air Transport (each year)

**Fig. 6 Bus industry income vs. expenditures**

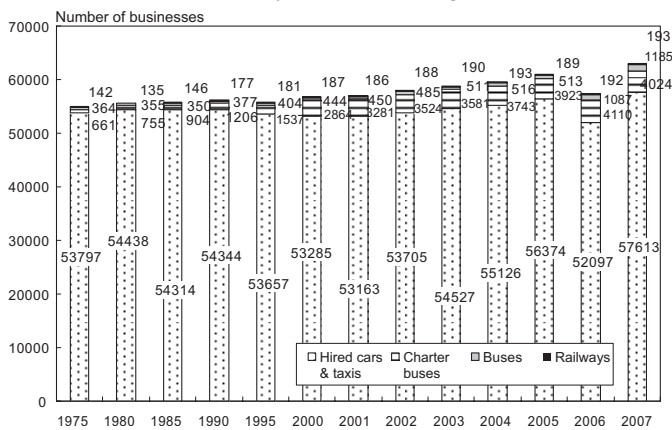
- In the past 18 years, the balance ratio overall has never exceeded 100. [Balance ratio = (current income / current expenditure) × 100]



Source: Bus industry income and expenditures - FY2008

**Fig. 7 Number of businesses engaged in public transport**

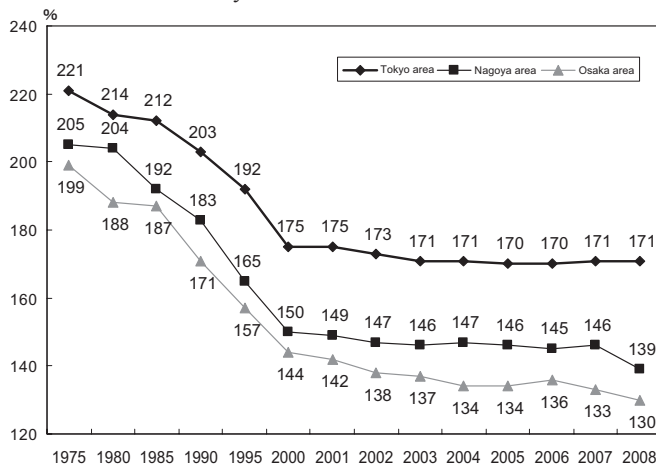
- In recent years, the number of businesses has been on an upward trend. The number of charter bus businesses had been noticeably increasing, but it decreased in FY 2007. In FY 2006, the number of taxi companies and hired car businesses decreased markedly; however, in FY 2007, they were on the rise again.



Source: FY 1975 to FY 2005: Annual Land Transport Statistics (2006 edition)  
FY 2006-: Transportation-related statistics data collection

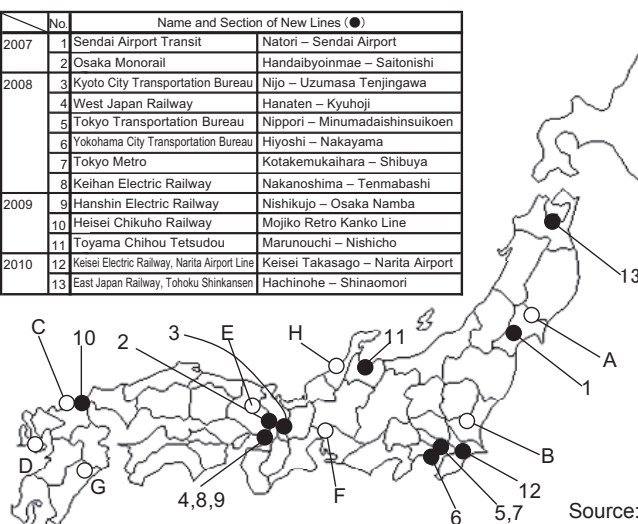
**Fig. 9 Railway Congestion rates in the three metropolitan areas**

- Railway congestion rates kept decreasing in all three areas; in the Tokyo area, however, the rate has flattened out in recent years. On the other hand, in the Nagoya and Osaka areas, it decreased noticeably even in 2008.

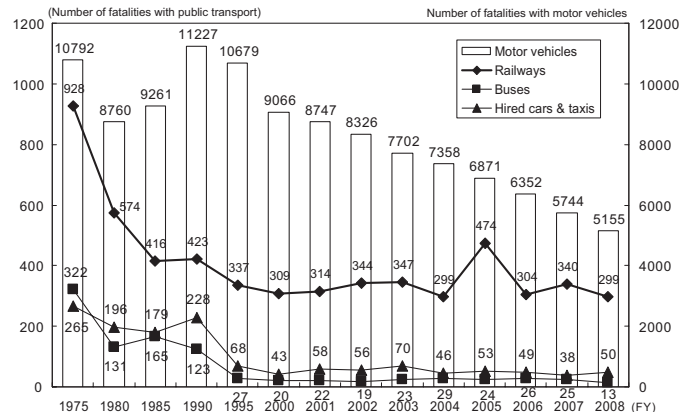


Source: Railways 2009: the numbers

No.	Name and Section of New Lines (●)
2007	1 Sendai Airport Transit Natori – Sendai Airport
	2 Osaka Monorail Handaibyoimae – Saitonishi
2008	3 Kyoto City Transportation Bureau Nijo – Uzumasa Tenjingawa
	4 West Japan Railway Hanaten – Kyuhoji
	5 Tokyo Transportation Bureau Nippori – Minumadaishinsuikoen
	6 Yokohama City Transportation Bureau Hiyoshi – Nakayama
	7 Tokyo Metro Kotakemukaihara – Shibuya
	8 Keihan Electric Railway Nakanoshima – Tenmabashi
2009	9 Hanshin Electric Railway Nishikujo – Osaka Namba
	10 Heisei Chikuhou Railway Mojiko Retro Kanko Line
	11 Toyama Chihou Tetsudou Marunouchi – Nishicho
2010	12 Keisei Electric Railway, Narita Airport Line Keisei Takasago – Narita Airport
	13 East Japan Railway, Tohoku Shinkansen Hachinohe – Shinanomori

**Fig. 8 Number of traffic fatalities with public transport**

- Numbers of fatalities with buses, hired cars, and taxis continue to decrease. Compared to the number of traffic fatalities with motor vehicles (5155 in FY 2008), public transport safety is outstanding.



Source: White Paper on Traffic Safety in Japan 2010.; Statistics on Traffic Accidents of Motor Vehicles for Business Use (2008)

**Table 1 History of through – operation of railway service using tracks of different railway companies in the three metropolitan areas**

- In Japan, some railway companies operate suburban railway service directly connecting to lines in the central area using tracks of other company based on a mutual agreement for the sake of passenger convenience. The table shows the history of such practices between metro lines in the city centers and major private railways in the three major metropolitan areas.

Year of start	City area	Lines involved
1960	Tokyo	Toei Asakusa Line, Keiyo Line, Keiyo Line, Hokusai Line, Shibayama Railway Line
1962	Tokyo	Tokyo Metro Hibiya Line, Tokyu Toyoko Line, Tobu Isesaki Line
1966	Tokyo	Tokyo Metro Tozai Line, JR Chuo Line & Sobu Line, Toyo Rapid Railway
1968	Osaka	Hankyu Kobe Main Line, Hanshin Main Line, Sanyo Main Line
1969	Osaka	Osaka City Sakaisuji Line, Hankyu Kyoto Main Line, Hankyu Senri Line
1971	Tokyo	Tokyo Metro Chiyoda Line, JR Joban Line, Odakyu Odawara Line & Tama Line
1978	Tokyo	Tokyo Metro Hanzomon Line, Tokyu Denentoshi Line, Tobu Isesaki Line & Nikko Line
1979	Nagoya	Nagoya City Tsurumai Line, Meitetsu Toyota Line, Mikawa Line, Inuyama Line
1980	Tokyo	Toei Shinjuku Line, Keio Line
1983	Tokyo	Tokyo Metro Yurakucho Line & Fukutoshin Line, Seibu Yurakucho Line, Tobu Tojo Line
1986	Osaka	Osaka City Chuo Line, Kintetsu Keihanna Line
1988	Osaka	Kyoto City Karasuma Line, Kintetsu Kyoto Line
2000	Tokyo	Tokyo Metro Namboku Line, Toei Mita Line, Tokyu Meguro Line, Saitama Railway
2009	Osaka	Hanshin Main Line & Namba Line, Kintetsu Nara Line

Note: Lines with short distances have been omitted. Lines are those involved as of July, 2010.

Source: based on The Facts about Major Private Railways (2009)

**Fig. 10 Newly-established / discontinued lines of railways**

- New lines in the Tokyo and Osaka areas are quite noticeable. At the same time, the number of discontinued lines has been on a downward trend over the past several years.

Examples between 2007 and 2010

Newly-established lines : ● Discontinued lines : ○

No.	Name and Section of Discontinued Lines (○)
2007	A Kurihara Denen Railway Ishikoshi – Hosokura Mine Park Mae
	B Kashima Railway Ishioka – Hokota
	C Nishi-Nippon Railroad Nishitetsu Shingu – Tsuyazaki
2008	D Shimabara Railway Shimabaraigaiko – Kazusa
	E Miki Railway Yakujin – Miki
	F Nagoya Railway Inuyamayuen – Dobutsuen
	G Takachiho Railway Makimine – Takachiho
2009	H Hokuriku Railroad Tsurugi – Kaga Ichinomiya

Source: Author's investigation



## 1-5

## Recent Trends in New Urban Transport Systems

Professor, Graduate School of Engineering, Yokohama National University

**Fumihiko Nakamura**

In response to the ever diversifying transport demand, various forms of new technology have been developed and introduced into urban transport systems. Utilization of the DMV (Dual Mode Vehicle) on a pilot basis; amphibious motor vehicles; the battery-powered LRV (Light Rail Vehicle); trial operation of the electric-powered mini-bus; getting the lithium-battery LRV into mass production; car sharing systems, and so on — new transport concepts and different ideas for using existing public transport (trams, buses, etc.) are typical of various developments that can be seen both inside and outside the country. At the same time, it is worth noting that new legislation promoting local public transport has been enforced, and financial aid programs have been established.

**Table 1 Recent trends in new urban transport systems**

- A variety of new urban transport systems have been gaining nationwide attention.

Targeted demand	Road-based system	Guideway system
Short-distance trip inside the community	Community cycles Velotaxi Park & Cycle	Inclined elevator Sky rail LRT (Light Rail Transit)
Inside the city overall	Car sharing On-demand bus Shared taxi service BRT (Bus Rapid Transit) Articulated bus	LRT (Light Rail Transit) Wireless tram
	Guided bus, IMTS (Intelligent Multimode Transit System), DMV (Dual Mode Vehicle)	

**Fig. 1 Inaugural ceremony for the electric community bus in Toyama City**

- New electric low floor community bus was introduced.



**Fig. 2 Lithium-ion LRV manufactured by Kinki Sharyo (from the website of Kinki Sharyo)**

- This tram can run with or without a catenary. Production started in 2010 for use in North America.



**Table 2 Trends in public transport**

- New ideas are being tried for various problems in urban public transport.

Field of improvement	Typical examples in recent years
Vehicles	Low floor articulated bus, domestically produced low floor streetcar
Station/stop	Shelter covered with advertisements; bus terminal shelters provide more information
Access	Transfer between LRT and bus on the same platform (system used in Toyama, etc.) Bicycle-loading bus (used in Chigasaki)
Services	Flexible fare, discount for transfer (used in Fujisawa, Yokohama, etc.)
Environmental improvement	Electric vehicles, low gas emission vehicles
Systems improvements	Public response test programs (e.g., "free day" on city train in Kagoshima), Local Public Transportation Revitalization Act

**Fig. 3 DMV trial run (Akechi Railway) (website of Ena City)**



Night trial run of JR Hokkaido's new DMV, moving from the rails to the road.

**Fig. 4 Transfer between streetcar and bus (Hiroshima Electric Railway, Hatsukaichi-shiyakusho-mae Station)**



Transfer to the feeder bus on the same platform. Also operates in Toyama City and Nagasaki City.

**Fig. 5 Twin Liner in Atsugi City (articulated bus made by Benz)**

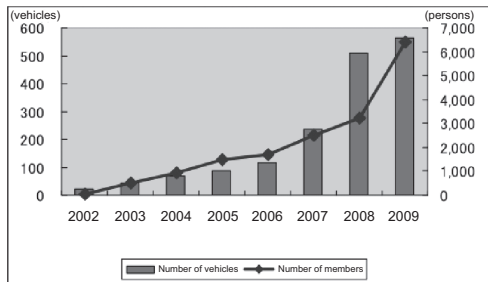


The bus is over 2.5 meters wide. Despite being oversized, it is operated by special exception. Chiba City followed this example, and Gifu City soon will.

**Fig. 6 Changes in the number of car sharing systems**

- In the past ten years or so, both the numbers of systems and users have been expanding tremendously.

Changes in numbers of car sharing vehicles and members in Japan



Source: website of Foundation for Promoting Personal Mobility and Ecological Transportation

**Fig. 7 Car sharing pictogram (Germany)**

- Car sharing that can be found at stations is gaining popularity. A pictogram points to the access point. The photo is from the central station in Freiburg.

**Fig. 8 Outline of the Integrated Project for Local Public Transport Revitalization, and its progress to date**

- In order to reconstruct and revive local public transport from the ground up through a united and efficient effort, we need to determine the following: (1) the basic policies determined by the responsible Minister; (2) integrated cooperative plans for local public transport made by the municipalities, which are based on local citizen involvement; (3) special provisions in respective laws in order to expedite specific local public transport projects; and (4) required exceptions in order to permit ordinal Railway Business Act procedures that ensure smooth operations for new local passenger transport projects, and enable a company to provide, using the same vehicle or ship, direct transport service through areas devoted to multiple types of passenger transport system. As of August, 2009, 115 research projects and 251 planning projects have been designated nationwide.

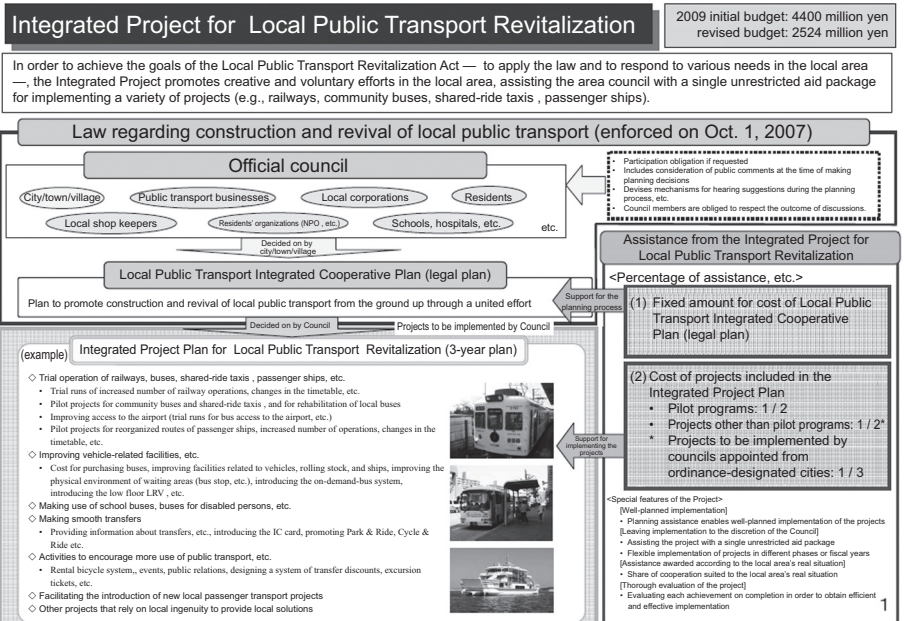
Source: website of the Ministry of Land, Infrastructure, Transport and Tourism/Ministry of Land, Infrastructure, Transport and Tourism

**Table 3 Recent examples of car sharing businesses(as of January 2010)**

- The trend in the past several years is for various types of businesses (e.g., railroads, rental car companies) to get involved.

Operating organization, related organization, etc.	Name (name of business / system / operation)	Date of start	Operating area	No. of stations	No. of vehicles	No. of members
Car Share Kanazawa [Hokusei Sangyo Inc. / Tsuji Shoji, Co., Ltd. / Onix Auto Corporation (cooperation in joint business)]	Car Share Kanazawa	Nov., 2006	Kanazawa City, Nonouchi Machi, Nomi City (Ishikawa)	11	12	93
Eco village Tsurukawa Kinokanoie (vehicle section)	Kinokanoie VS club	Apr., 2007	Machida City, Tokyo	1	2	6 households
Eburika K.K.	Eburika Car Sharing	Oct., 2007	Osaka City	4	4	50
Toyota Motor Corporation / Toyota Tokyo Rental & Leasing Co., Ltd. / Toyota Rent-A-Lease Aichi Co. Ltd. / Toyota Rent-A-Lease Shin Osaka Co., Ltd.	Toyota Car Share Club	Nov., 2007	Wards in Tokyo / Nagoya City / Toyonaka City, Osaka	5	15	95
Eki Rentacar Shikoku Company	Car Share Shikoku	Mar., 2008	Takamatsu City, Kagawa City, Osaka City, Nagoya City	6	6	158
Nippon Parking Development Co., Ltd.	Ecoloca Car Sharing	Mar., 2008	Tokyo, Osaka City, Nagoya City	22	29	500
Dism Inc.	QuiCar	May, 2008	Setagaya Ward, Itabashi Ward, Shinjuku Ward, Bunkyo Ward, Koto Ward (Tokyo)	6	9	55
Car Sharing Japan Co., Ltd.	careco car-sharing club	Jan., 2009	Wards in Tokyo, Yokohama City, Kawasaki City	105	110	1100
Be-R Inc.	Wilca	Jan., 2009	Osaka City	3	3	70
Cleaty Co. Ltd.	Withree	Mar., 2009	Osaka Ward, Shinagawa Ward, Koto Ward (Tokyo)	9	12	120
JR East Rental & Lease Co. Ltd.	eco.renta	Mar., 2009	Chiyoda Ward, Tokyo / Hachioji City / Kawasaki City	3	6	Recruiting
comuca Inc.	Comuca	Mar., 2009	Setagaya Ward, Meguro Ward (Tokyo)	21	21	400
Gulliver International Co., Ltd.	Gulliver Car Share Mate	Apr., 2009	Ichikawa City, Urayasu City (Chiba)	9	9	162
	Leo Gulliver Car Sharing	Nov., 2009	Tokyo, Kanagawa, Saitama	117	117	Recruiting
Nissan Car Rental Solution, Co., Ltd.	Nissan Rent-a-car Sharing Club	Jul., 2009	Yokohama City	1	2	Recruiting
Rhyme Auto Lease Inc.	Car Sharing Osaka	Aug., 2009	Osaka City	1	1	5
Aktio Corporation	Aktio Car Sharing (AKTIO e.DRIVE)	Oct., 2009	Edogawa Ward, Tokyo	2	2	9
Japan Car Sharing Inc.	i.share	Oct., 2009	Setagaya Ward, Koto Ward, Katsushika Ward, Shinagawa Ward, Ota Ward, Adachi Ward (Tokyo) / Yokohama City / Kawasaki City	9	9	100
Shares Inc.	Ekiexpress	Nov., 2009	Shinjuku Ward, Setagaya Ward, Suganami Ward (Tokyo)	5	10	150
Meitetsu Kyosho Co., Ltd.	Meitetsu Kyosho Car Share	Nov., 2009	Nagoya City	13	17	Recruiting
Sanpuku Sogo Fudosan K.K.	Sanpuku Car sharing department	Nov., 2009	Matsuyama City, Ehime	3	3	19
Showa Shell Sekiyu K.K.	Machinonkun	Dec., 2009	Nerima Ward, Suganami Ward, Setagaya Ward (Tokyo)	4	5	Recruiting

Source: website of Foundation for Promoting Personal Mobility and Ecological Transportation



## 1-6

# Transport Services for Everyone

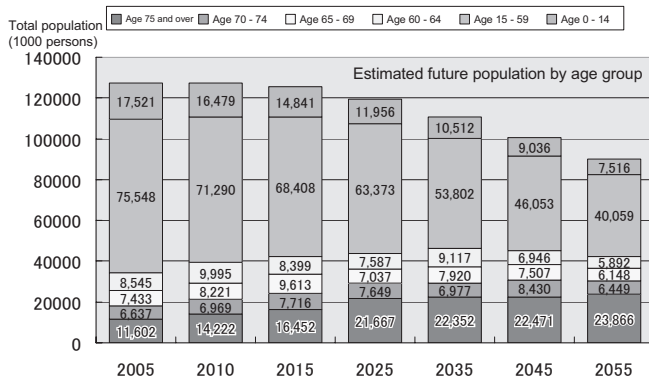
Technical Chief, Oriental Consultants Co., Ltd.

**Atsushi Matsubara**

Social conditions have changed to the point where we need to approach transport problems by considering the elderly, the disabled, children, pregnant women, and nursing mothers as a collective majority, rather than as individual minorities. Thanks to the Transport Accessibility Improvement Act (Transport Barrier-free Act), the improvement of facilities is steadily progressing. However, an improvement project is often limited to a single transport mode or facility. Now that care giving and rehabilitation activities are provided more and more outside the home, the provision of transport services can stimulate not only more mobility, but also the vitality of entire neighborhoods where many people can live to even more advanced ages. Various transport services for disabled persons (e.g. social welfare transport services, electric wheelchairs etc.) are expected to be employed. Furthermore, enactment of the basic transport legislation that would be the backbone of the above is being considered. It is now time for our society, too, to get serious about the right to access transport — the right to move around.

**Fig. 1 Future population by age group**

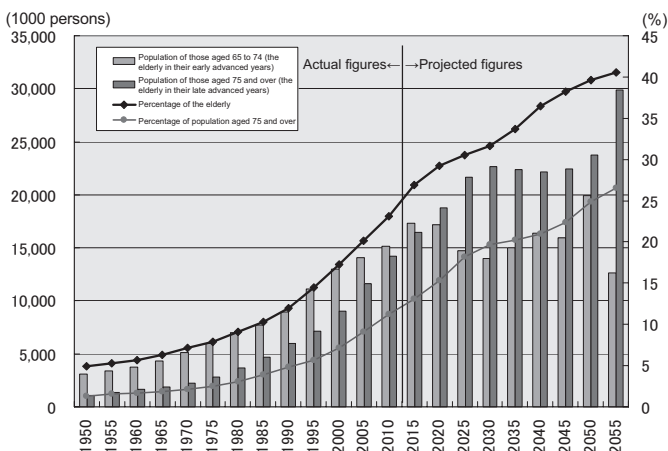
- The total population of our country is decreasing. It is estimated that the numbers for children in particular (14 and younger) and working people (15 to 59) will decrease noticeably.



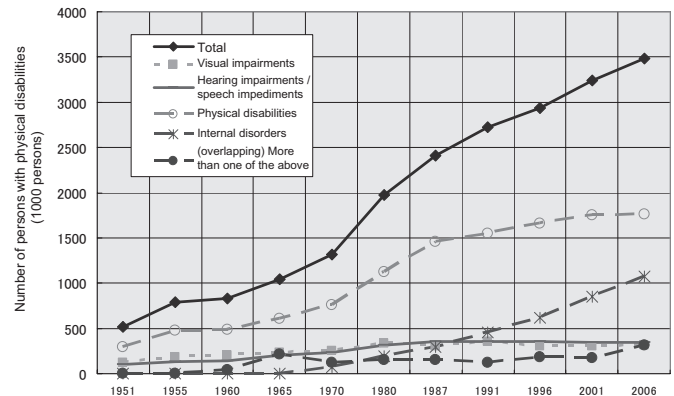
Source: Annual Report on the Aging Society (2010 edition)

**Fig. 2 Changes in the number of the elderly**

- The percentage of the elderly keeps increasing. In 2013, an estimated 25.2% of the population will be elderly (65 and over), turning the country into a “super aging” society. In particular, the population aged 75 and over will continue to grow; in 2017, the number of elderly in their late advanced years will become more than the number of the elderly in their early advanced years. The over-75 age group will occupy an even greater percentage of the elderly than it does now.



Source: Annual Report on the Aging Society (2010 edition)

**Fig. 3 Changes in the number of persons with physical disabilities**

Source: 2006 Survey on persons with physical disabilities (Ministry of Health, Labour and Welfare)

**Table 1 Number of disabled people who stay at home**

- Not enough services have been provided to people with intellectual disabilities and mental disorders. The percentage of those who are staying at home is low; obviously, most of them have been institutionalized.

	Total	Persons who are staying at home	Persons who are institutionalized
Persons with physical disabilities	3,660,000	3,580,000	90,000
Persons with intellectual disabilities	550,000	420,000	130,000
Persons with mental disorders	3,230,000	2,900,000	330,000

Source: Survey on persons with physical disabilities (2006), Survey on persons with intellectual disabilities (2005), Survey on Social Welfare Institutions (2005), Patient Survey (2008) (Ministry of Health, Labour and Welfare)

**Table 2 Getting out of the house, by type of impairment**

- While 30 to 40 percent of persons with disabilities go out almost every day, about 10% of them only go out a few times a year; and 3 to 7 percent of them do not go out at all.

Type of disabilities	Going out					Do not go out	No answer
	Almost every day	2 to 3 times per week	2 to 3 times per month	Several times per year	Sub total		
Total	35.6	29.9	16.1	9.7	91.3	5.5	3.2
Visual impairments	29.3	29.8	21.9	10.6	91.6	6.3	2.1
Hearing impairments / speech impediments	41.7	27.4	14.0	7.4	90.5	5.2	4.3
Physical disabilities	31.5	29.9	16.5	11.9	89.8	7.0	3.2
Internal disorders	42.3	30.6	14.4	6.5	93.8	3.0	3.2

unit: %

Source: 2006 Survey on persons with physical disabilities (Ministry of Health, Labour and Welfare)



- In accordance with the new Transport Accessibility Improvement Act (Transport Barrier-Free Act), passenger facilities and vehicles whose average number of users per day exceeds 5000 have been steadily improved toward barrier-free, but it is still not enough.

**Table 3 Barrier-free passenger facilities**

	Eliminating uneven flooring	Installing textured paving blocks for people with visual impairments	Installing toilets for the disabled
Rail/tram station	71.3%	93.2%	66.3%
Bus terminal	83.7%	76.7%	58.1%
Ferry/ship terminals	87.5%	75.0%	50.0%
Passenger airport terminal	90.5%	100%	100%
Total of passenger facilities	71.6%	92.9%	66.5%

Source: Ministry of Land, Infrastructure, Transport and Tourism

**Table 4 Situation of vehicles that conform to the accessibility standard**

	Goal	End of FY 2008
Rail/tram vehicle	ca. 50% by 2010	41.3%
Bus	Low-floor bus	100% by 2015
	Of the above, non-step bus	ca. 30% by 2010
Taxi with access for persons with disabilities	ca. 18,000 vehicles by 2010	10,742 vehicles
Passenger ships	ca. 50% by 2010	16.4%
Aircraft	ca. 65% by 2010	64.3%

Source: Ministry of Land, Infrastructure, Transport and Tourism

**Table 5 Changes in the number of driver license holders by age and by gender**

- The number of elderly people with driver's licenses is increasing. By contrast, the number of young license-holders is markedly decreasing.

Age	End of 2008		End of 2009		Increased/decreased rate	
	Male	Female	Male	Female	Male	Female
Age 16-19	716,653	465,342	680,811	447,224	-5.0	-3.9
Age 20-24	3,052,839	2,594,417	2,927,832	2,478,844	-4.1	-4.5
Age 25-29	3,713,648	3,321,218	3,635,774	3,250,888	-2.1	-2.1
Age 30-34	4,443,926	4,039,182	4,261,076	3,872,819	-4.1	-4.1
Age 35-39	4,814,245	4,400,236	4,874,986	4,461,714	1.3	1.4
Age 40-44	4,183,171	3,799,126	4,272,559	3,894,514	2.1	2.5
Age 45-49	3,794,949	3,369,503	3,854,374	3,447,041	1.6	2.3
Age 50-54	3,743,794	3,182,712	3,708,580	3,200,120	-0.9	0.5
Age 55-59	4,510,870	3,548,875	4,201,984	3,371,396	-6.8	-5.0
Age 60-64	4,067,659	2,858,349	4,342,694	3,155,591	6.8	10.4
Age 65-69	3,394,506	1,900,568	3,524,617	2,086,622	3.8	9.8
Age 70-74	2,524,169	966,419	2,566,794	1,053,333	1.7	9.0
Age 75-79	1,577,860	369,185	1,637,311	414,411	3.8	12.3
Age 80-84	772,285	103,559	814,278	122,898	5.4	18.7
Age 85 and over	207,011	11,566	235,749	15,111	13.9	30.7
Total	45,517,585	34,930,527	45,539,419	35,272,526	0.0	1.0

Source: Driver's License Statistics (2009 edition, National Police Agency)

**Table 6 Characteristics of driving behavior of the driver with dementia**

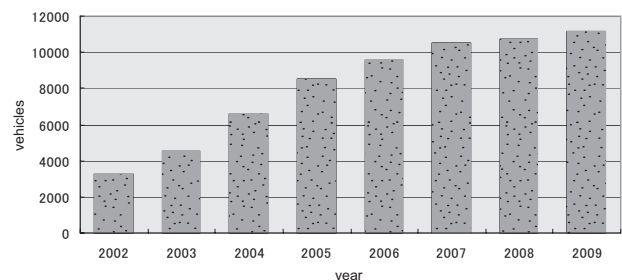
- The number of driver's license holders with senile dementia is estimated to be about 300,000, based on the percentage of elderly with licenses and the percentage of elderly with dementia.

	Alzheimer's disease	Pick's disease	Vascular dementia
Understanding of whereabouts	Impaired	Unimpaired	Sometimes impaired
Driving manner	<ul style="list-style-type: none"> <li>• Forgets destination while driving</li> <li>• Becomes not very good at parking or pulling over</li> </ul>	<ul style="list-style-type: none"> <li>• Ignores traffic rules</li> <li>• Lack of attention to road</li> <li>• Drives too close to car ahead</li> </ul>	<ul style="list-style-type: none"> <li>• Distracted while driving</li> <li>• Slower reactions (steering, gear shifting, braking)</li> </ul>

Source: Study on Social Support for the Elderly Drivers with Dementia (research leader: Yumiko Arai)

**Fig. 4 Number of taxis with access for persons with disabilities**

- Besides buses for persons with disabilities, various transport services are being provided, such as for-fee transport for persons with disabilities, shared taxi service, care-giving taxis, taxis for persons with disabilities, and childcare support taxis.



Source: Road Transport Bureau, Ministry of Land, Infrastructure, Transport and Tourism

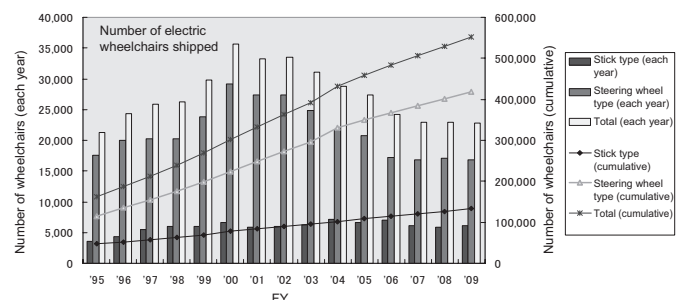
**Table 7 Types of for-fee passenger transport service using private vehicles**

- The number of organizations (NPOs, etc.) operating for-fee handicap transport service was 2305 in 2008; the number of vehicles was 13,753.

(1) Transport services operated by municipalities	Transport services where there is no transport Municipalities' transport services for persons with disabilities
(2) For-fee transport services for persons with disabilities	
(3) For-fee transport services in depopulated areas	

**Fig. 5 The Number of electric wheelchairs**

- People who use an electric wheelchair (the so-called "senior car") are increasing; there are various types of them. The number of these electric wheelchairs shipped so far is over 550,000 (cumulative) nationwide. It should be noted that some of these are used by people who do not have driver's licenses or who do not keep to the sidewalk.



Source: Electric Wheelchair Safety Information Association

**Table 8 Overseas cases for transport access right — the right to move**

- In many developed countries, the transport access right is defined in a basic law, similar to decentralization of power, together with the basic transport policy principles. Individual transport policy measures are proceeded under them.

Country	Name of Law	Enactment
France	LOTI (Loi d' Orientation des Transports Intérieurs)	1982
U.K.	Transport Act	1985
U.S.A.	Americans with Disabilities Act	1990

## 1-7

# The Future of the Transport Infrastructure

Associate Professor, Graduate School of Engineering, Yokohama National University

**Toshiyuki Okamura**

In the course of national land use planning, the Comprehensive National Development Act was revised and became the National Spatial Strategy. The decision was made by the Cabinet in July, 2008 to replace the old National Development Plan with the new "National Strategies" plan (National Plan). In August, 2009, the Regional Plans (with regional blocks as units) were adopted. In the course of national planning for social infrastructure improvement (pursuant to the 2003 Act Regarding the Priority Plan for Social Infrastructure Improvement), conventional long-range plans for each sector based on administrative set up were united so that sector boundaries were transcended; the result was the Social Infrastructure Improvement Priority Plan (projected time frame: five years). Emphasis is placed on implementation of the improvement plans, which are to be effectively and efficiently expedited.

## 1. History of the Comprehensive National Development Plans

Pursuant to the Comprehensive National Development Act, postwar national land use planning was carried out from 1962 with the Comprehensive National Development Plan as its focus.

**Table 1 Outlines of Comprehensive National Development Plans**

Development Plan	Outline and goals
Comprehensive National Development Plan (1962 -)	Balanced development of all areas: aimed at balanced development by preventing urban sprawl, by correcting growth inequality between areas, and by appropriately distributing capital, labor, and technology among all regions. The concept was one of dispersed economic development of new areas.
New Comprehensive National Development Plan (1969 -)	Creation of affluent environments: aimed at preserving natural areas permanently; balancing development on a nationwide scale; reviewing nationwide land use; providing safer, more comfortable conditions suited to the cultural environment; and improving transport and communications networks. The concept was one of developing large-scale projects.
Third Comprehensive National Development Plan (1977 -)	Improving comprehensive living environment: aimed at achieving balanced land use nationwide and creating a comprehensive living environment. Harmonizing natural environments, living environments, and production environments. The concept was one of "settling down."
Fourth Comprehensive National Development Plan (1987 -)	Converting land use nationwide into a multi-polar dispersed type: to achieve well-balanced development of the national land, the basic goal was to implement multi-polar, dispersed land use; introduced the concept of regional networking to achieve that goal.
Grand Design for the 21st Century (1998-)	Building a foundation of multi-axial land use: land development with stakeholder involvement and regional cooperation; does not specify aggregate investment sums, instead shows priority areas for investment and policy direction for efficient land development.

## 2. Outline of National Spatial Strategy

The National Spatial Strategy plan aims at developing the nation's land by having various regional blocks do their own developing; it also aims at shaping the land into a beautiful and comfortable place to live. Characteristics of the plan are: (1) shifting from quantitative expansion and development to planning for a "mature society"; and, (2) shifting from state leadership to a two-layered planning system ("separation of powers"). The National Spatial Strategy unites the National Plan with the Regional Plans in which policies are made for each regional block. The National Plan is the plan to guide land development generally for the next ten years; it was adopted at the Cabinet meeting in July, 2008. After that, councils for regional plans, etc. were officially established in each regional block; in August, 2009, the Regional Plans for eight blocks nationwide were adopted.

**Table 2 Strategic goals: the new vision for use of the nation's land under the National Spatial Strategy (National Plan)**

1) Smooth interactions and cooperation with East Asia	For example, expansion projects of corporations targeting East Asian markets; building transport and information communications networks that cover land, sea, and air; promoting Japan as a tourist destination
2) Creating a sustainable area	For example, restructuring of urban areas into a function - intensive compact form; regional management (to maintain functions of medical treatment, etc.); developing local industries using new scientific technology; creating beautiful farm/mountain/fishing villages that are comfortable places to live; making use of personnel from outside (who have residences in two areas); providing for areas with severe conditions
3) Formation of resilient land use for withstanding disasters	For example, promoting comprehensive counter-disaster strategies that include both "hard" and "soft" measures; preparing for disaster through intelligent land use; making it possible for transport and communications networks to be rerouted; strengthening the area's disaster preparedness (improving evacuation training, etc.)
4) Maintaining the beauty of the land for future generations	For example, creating and maintaining healthy natural cycles and ecosystem; proper use and preservation of sea areas; passing on and further generating the unique culture of the area; getting people involved in managing the land
5) Creating new concepts of what local "government" is	For example, improving living conditions with the cooperation of local communities, non-profit organizations, corporations, and local administration; exploitation and use of area resources through exclusively local initiatives and action; providing for marginal villages that are on the verge of collapse, and forming a consensus on a vision for the quality of life in the future

Data provided by Ministry of Land, Infrastructure, Transport and Tourism

**Table 3 The three basic transport and information communications policies found in the National Spatial Strategy (National Plan), with examples for improving transport**

Building comprehensive and international transport and communications systems	Improving strategic airports and ports to strengthen their competitive abilities as international transport hubs (Asia Gateway concept) Taking steps to promote direct interactions with East Asia [using local airports/ports, standardizing the ITS (Intelligent Transport Systems), etc.]
Building arterial transport systems that facilitate interaction and cooperation among areas	Creating comprehensive land transport networks (regional expressways, access roads to airports/ports, Shinkansen, Central magnetic levitation train) Creating efficient sea transport networks (promoting coastal shipping, improving hinterlands of ports as bases of transport networks for multiple modes of transport) Creating domestic air transport networks (expanding Haneda Airport, reinforcing means of disaster prevention at the airport, improving local airports as a base for their area development)
Building systems for local area transport and communications	Creating a transport system that fosters an area where the quality of life is sustainable and comfortable (compact cities, well-maintained public transportation) Creating a transport environment that sustains life and daily living (minimizes isolation of the area in the case of emergency, etc.)

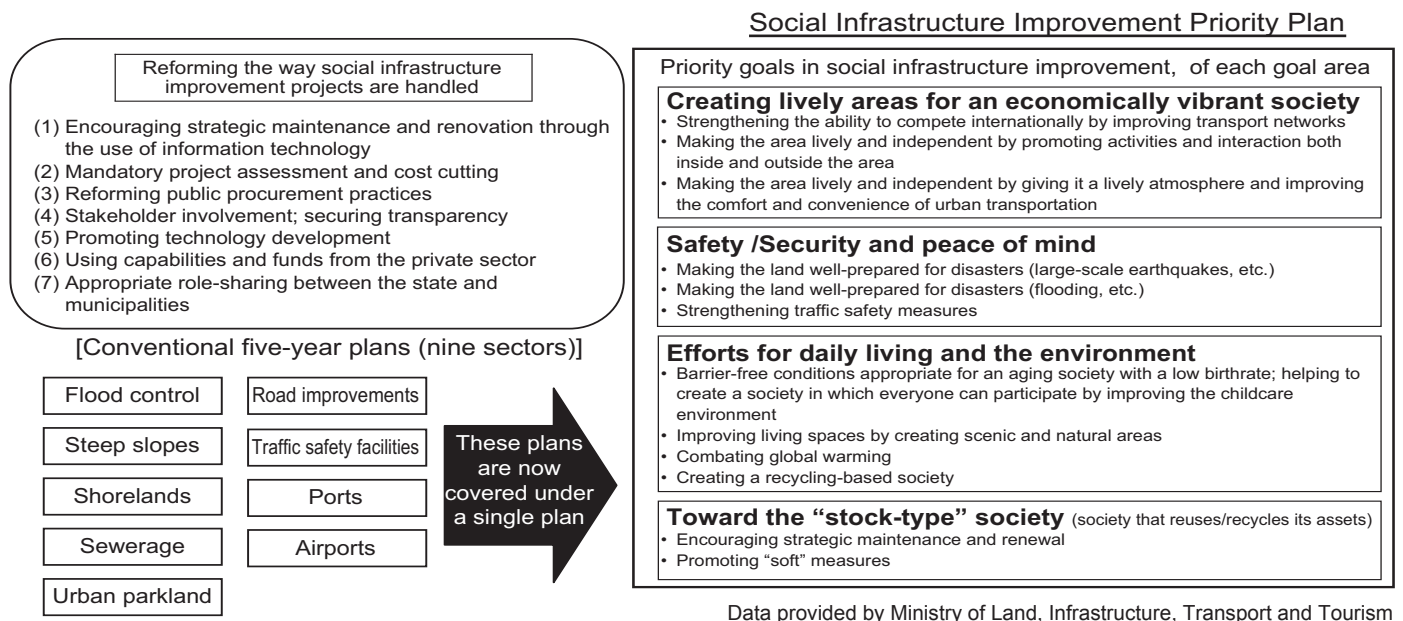
Data provided by Ministry of Land, Infrastructure, Transport and Tourism



### 3. Social Infrastructure Improvement Priority Plan

Pursuant to the Act Regarding the Priority Plan for Social Infrastructure Improvement, the Social Infrastructure Improvement Priority Plan was adopted. In that plan, the conventional five-year plans by each sector were replaced with a single plan that united previous thirteen plans (including the nine conventional long-range plans for roads, ports, airports, etc.); the contents of the plan range from “project budgets” to “outcomes to be achieved.” The current plan (2008-2012) was adopted at the Cabinet meeting of March, 2009. At the same time that the regional plans in the National Spatial Strategy were adopted (August, 2009), the regional priority social infrastructure improvement plans for ten regional blocks (including Hokkaido and Okinawa) were adopted under the Social Infrastructure Improvement Priority Plan.

**Fig. 1 Outline of the Social Infrastructure Improvement Priority Plan (2008-2012)**



In regards to road improvement projects, the new five-year mid-range plan (included in the Social Infrastructure Improvement Priority Plan) was announced on December, 2008 and was approved by the Cabinet in March, 2009. This plan presents standards for selecting and focusing, including efforts to minimize costs and eliminate waste. Based on this mid-range master plan, the regional mid-range plans for roads were put together in August, 2009.

**Table 4 Social Infrastructure Improvement Priority Plan (2008-2012): Priority goals for road improvement projects, numerical goals for assessment indexes, and factual figures**

Policy direction	Policies	Indexes	Numerical goals for assessment indexes	
			2007	2012
Vitality	Improving arterial networks	■ Completion rate for planned ring roads in the three major metropolitan areas	53%	69%
	Solving chronic congestion	■ Time lost at railroad level crossings that are almost never open	ca. 1.32 million person-hours per day	about 10% reduction
Safety	Improving traffic safety	■ Rate of road traffic casualties	109 cases per 100 million vehicle-kilometers	about 10% reduction
Road transport safety & security for an aging society with a low birthrate	Encouraging measures to solve pedestrian & bicycle problems and residential road problems	■ Rate of preventing pedestrian/bicycle accidents that cause casualties inside the “safe walking area.”	Prevent about 20% of accidents	
	Encouraging safety measures t on arterial roads	■ Rate of preventing accidents that cause casualties in dangerous traffic locations	Prevent about 30% of accidents	
		■ Number of prevented accidents with an advanced signals, etc.	Prevent about 40,000 accidents	
Quality of life & environment	Improving living environment	■ Barrier-free rates on major local route in residential areas with respect to traffic signals, etc.	83%	100%
		■ Barrier-free rate on specific roads	51%	75%
	Countermeasures against global warming	■ CO <sub>2</sub> emissions amount from the transport sector	254 million tons	240 to 243 million tons
Achieving smooth road transport while combating global environmental problems	Promoting smooth flow of traffic	■ Less time required due to advanced control of traffic signals	About 220 million hours saved	
		■ Amount of CO <sub>2</sub> emissions eliminated due to advanced control of traffic signals	Eliminate about 460,000 t- CO <sub>2</sub> per year	
		■ Time lost at railway crossings that are almost never open	ca. 1.32 million person-hours per day	ca. 10% reduction
Using existing road stock	Safe, secure, and well-planned road management	■ Plans decided on for repair of roads and bridges nationwide to give them a longer life	28%	ca. 100%
	Effective use of the existing expressway networks; reinforcing their functions	Rate of use of on-board ETC (Electronic Toll Collection units)	76%	85%

Data provided by Ministry of Land, Infrastructure, Transport and Tourism

## 1-8

# Revenue Sources and its Use for Roads

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Sciences

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Pursuant to the Law Enacting Provisional Measures Regarding Revenue Sources for Road Improvement, which was enacted in 1953 in response to an urgent need to improve the outdated road system, road improvements in our country were conducted under the special funding system for road works, and through tolls. However, since the autumn of 2005, with the financial situation growing ever more severe, many discussions were held, and in April, 2009, the Act to Revise in Part the “Act Regarding Government Special Financing of Road Construction and Improvement” was adopted. Starting with fiscal year 2009, the special tax fund earmarked for road works was abolished and was transferred to the general revenue fund. Also, for social infrastructure improvement implemented by municipalities, conventional individual financial assistance was abolished in principle starting in fiscal year 2010; in its stead, it was decided to establish a block grant for social infrastructure improvement, which would give municipalities a higher degree of freedom. As for the fee system on expressways, free sections (targeting about 20% of all expressways) were to be opened as pilot projects starting June 28, 2010.

**Table 1 Steps taken toward the transfer of the tax fund earmarked for road works to the general revenue fund**

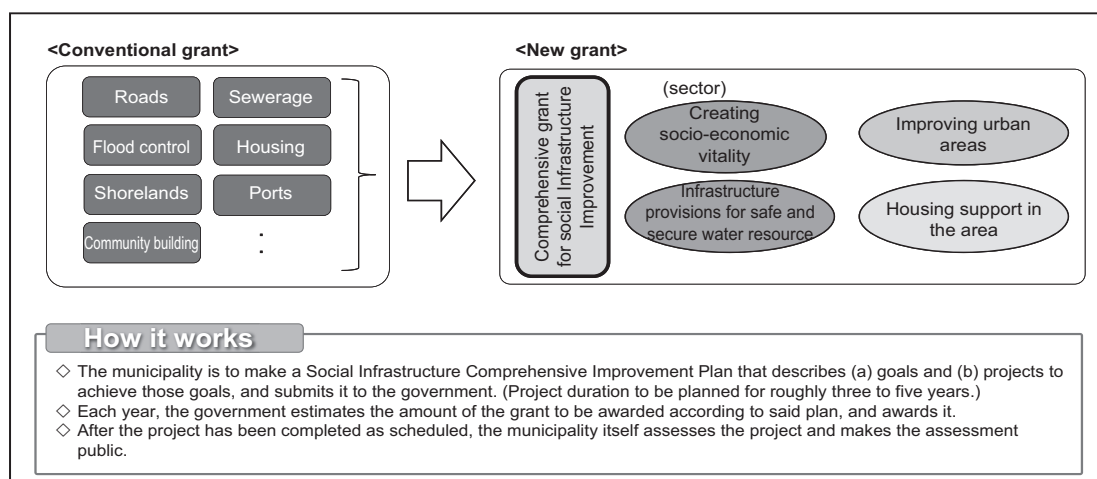
- Beginning in the autumn of 2005, opinions about the special tax fund earmarked for road works, etc. were submitted from all sectors, and various discussions were held. Subsequently, in April, 2009, the Act to Revise in Part the “Act Regarding Government Special Financing of Road Construction and Improvement” was adopted, and the decision was made to abolish, from fiscal year 2009 onward, the practice of generally allotting an amount equivalent to the estimated amount of the income from the gasoline tax, etc. to road improvement.

Order of Prime Minister Koizumi (Nov. 4, 2005)
• Regarding the review of the tax earmarked for road works: transfer the revenue to the general revenue fund, without reducing the tax rate. Make basic policies accordingly.
Basic policies regarding the review of the tax revenue earmarked for road works (by the government and the ruling party, Dec. 9, 2005)
• The current tax rate, including the amount added as a provisional tax rate, will be maintained. Details of plans are to be based on the transfer of the tax revenue earmarked for road works to the general revenue fund.
Act regarding Promotion of Administrative Reform to Achieve Simple and Efficient Government (proclamation Jun. 2, 2006)
• The 164 <sup>th</sup> Diet adopted the Promotion of Administrative Reform Act that included basic policies regarding the review of the tax revenue earmarked for road works.
Detailed plans regarding the review of the tax revenue earmarked for road works (approved at the Cabinet meeting on Dec. 8, 2006)
• Based on the transfer to the general revenue fund, the current governmental system of tax revenue earmarked for road works is to be revised.
Regarding the review of the tax revenue earmarked for road works (by the government, and the ruling party, Dec. 7, 2007)
• Review of the tax revenue earmarked for road works, maintenance of the current tax rate level, etc.
Basic policies regarding the tax revenue earmarked for road works (approved at the Cabinet meeting on May 13, 2008)
• The tax revenue earmarked for road works is to be abolished at the time of the fundamental reform of the tax system this year. Starting from fiscal year 2009, it is to be transferred to the general revenue fund.
Regarding the transfer of the tax revenue earmarked for road works to the general revenue fund (by the government, and the ruling party, Dec. 8, 2008)
• The abolition of the tax revenue earmarked for road works: how to treat the tax rate in the relevant tax system be treated in view of the transfer to the general revenue fund.
Act to Revise in Part the “Act Regarding Government Special Financing of Road Construction and Improvement” (proclamation Apr. 30, 2009)
• The 171 <sup>th</sup> Diet approved the Act that included repealing the mandatory practice of using revenue from the gasoline tax, etc. for road improvements.

Data provided by Japan Automobile Manufacturers Association, Inc.

**Fig. 1 Outline and basis of the Comprehensive Grants for Social Infrastructure Improvement**

- In principle, conventional individual financial assistance to municipalities implementing social infrastructure improvement has been abolished. Instead, the Comprehensive Grants for Social Infrastructure Improvement were established in order to assist not only with the implementation of key projects, but also with improvements to the related social infrastructure, and with projects that will enhance the effects of the key projects. The grants, in other words, offer municipalities a higher degree of freedom to manage the projects and their effects.



Source: data of Road Bureau, Ministry of Land, Infrastructure, Transport and Tourism

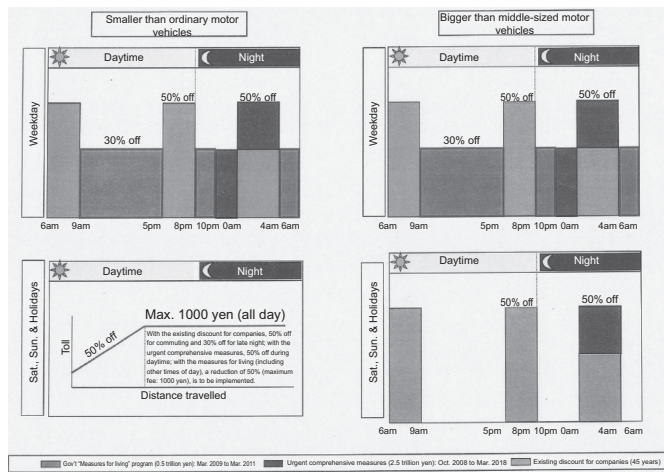
**Table 2 Outline of road-related budget for fiscal year 2010**

- The budget for projects under direct government control was cut by about 20% from last fiscal year's budget. For government-assisted projects, individual financial assistance was abolished in principle; instead, the Comprehensive Grant for Social Infrastructure Improvement was established.

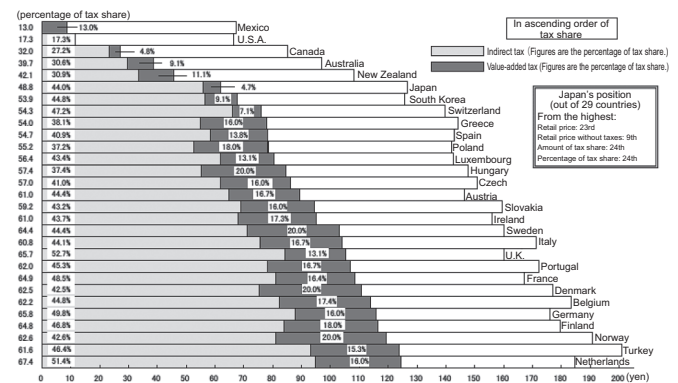
(unit: 100 million yen)

Project type	Project budget	Relative change from last fiscal year	Government budget	Relative change from last fiscal year
Projects under direct government control	15,048	0.84	11,394	0.90
Projects receiving government assistance	1,418	0.22	937	0.25
Toll road projects, etc.	14,633	1.02	1,027	0.97
Total	31,099	0.80	13,357	0.76

- Includes loan redemption, etc. (government budget: 89.3 billion yen)
  - Besides items in the table, there are expenses for temporary loans for local road improvements (gov't. budget: 80 billion yen), free expressway projects (gov't. budget: 100 billion yen), and administrative costs (gov't. budget: 1.1 billion yen).
  - Some of the subsidiary road projects, the vitality grants, and other subsidiary projects are to be abolished; instead, the Comprehensive Grants for Social Infrastructure Improvement (tentative name) (gov't. budget: 2 trillion 200 billion yen) are to be established.
- Various expressway toll discounts had been implemented due to (1) cost savings when expressway corporations were privatized, and (2) the driver convenience enhancement plan. Furthermore, in order to reduce freight transport costs and commodity prices and to improve the area's economy, as well as to conform to the policy that expressways should be free in principle, the free expressway pilot project started on June 28, 2010 targeting about 20% of all expressways. The economic impact it would have on the area, as well as the impact on congestion and the environment, are to be evaluated.

**Fig. 3 Reduction of expressway toll vs. projected revenue sources (NEXCO rural areas)**

Source: data of Road Bureau, Ministry of Land, Infrastructure, Transport and Tourism

**Fig. 2 Price with tax of one liter of gasoline in OECD countries**

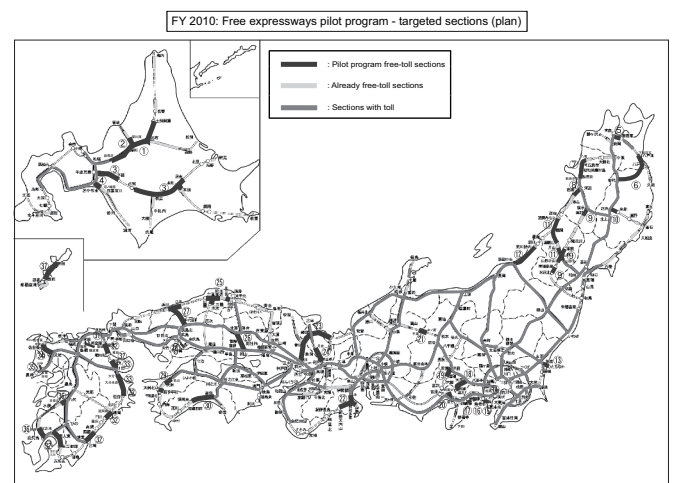
Source: Energy Prices and Taxes (the fourth quarter of 2009, IEA)

Note: 1. Japan's consumption tax is included in the value-added tax.

The sales tax in the U.S.A. is not shown in the above graph.

2. Indirect taxes in Japan are the gasoline tax, local road tax, and oil and coal tax.

3. The exchange rates for yen are average exchange rate figures between July, 2009 and September, 2009.

**Fig. 4 Free expressways pilot program in FY 2010**

Source: data of Road Bureau, Ministry of Land, Infrastructure, Transport and Tourism

**Table 3 Systems in Western countries for road revenue sources**

	U.S.A.	Germany	Italy	France	U.K.
Special funding source systems for road works and how they work	<p>Special funding source for roads (Highway Trust Fund)</p> <p>•1956 Special funding started when the federal highway system was established</p> <p>•1983 Public transportation account established</p> <p>Highway Trust Fund consists of road account &amp; public transportation account.</p>	<p>Special funding source for roads</p> <p>•1955 Special funding source was implemented; parts of the mineral oil tax, transport tax, and motor vehicle tax would be used for road improvements.</p> <p>•2002 Law to charge large vehicles on the Autobahn adopted.</p> <p>•2005 Imposition of charge on large vehicles on the Autobahn nationwide</p>	<p>Partly special funding source (15% for roads, the rest, general revenue fund)</p> <p>•1961 Article 26, Law 59 provided that the road budget for fiscal year 1962 would be 12% of motor vehicle-related taxes.</p> <p>•1962 That share was supposed to be increased by 2% every year, but in effect, it has remained at 15% up to now.</p>	<p>All from general revenue fund</p> <p>•1951 Established road improvement special account with part of the gasoline tax as a revenue source</p> <p>•1959 Transferred to general revenue fund in accordance with the budget law</p> <p>•1981 Abolished road improvement special account</p>	<p>All from general revenue fund</p> <p>•1920 Established road fund (special funding source) using the National Treasury, driver's license tax, etc. as revenue sources; it was used as subsidiary money for municipalities to build &amp; manage roads.</p> <p>•1955 Officially abolished road fund</p>
Breakdown of special funding source systems for road works	<p>◊National tax (1997 to up to now)</p> <p>◊Fuel tax (84% for roads, 16% for public transportation)</p> <p>◊Tire tax (all for roads)</p> <p>◊Truck &amp; trailer selling tax (all for roads)</p> <p>◊Tax for heavy motor vehicle use</p> <p>◊State tax</p> <p>Different from state to state, but about the same amounts are taxed to fuel &amp; motor vehicles; most of the states specify the use for roads.</p>	<p>◊National tax</p> <p>◊Fuel tax (mineral oil tax) (2003 to up to now) (15% for roads, 22% for environment tax, 4% for transport assistance for municipalities, 19% for financial aid for German Railways, 39% for general revenue fund)</p> <p>◊Autobahn heavy truck charge (2007 to up to now) (50% for roads, 38% for railways, 12% for waterways, excl. cost to collect fees)</p> <p>◊State tax</p> <p>The motor vehicle tax (ownership tax) is a state tax. Some states (Freistaat Bayern, etc.) limit its use of it for road improvements; but most states put it into the general revenue fund.</p>	<p>◊National tax</p> <p>◊Fuel tax (revised on Jan. 1, 2007) (15% for roads, 85% general revenue fund)</p>		

Source: data from research of each country