Recent Trends in Japanese Transportation

Masahiro Sugiyama

1. Countermeasures for Natural Disasters

2004 was a year with an unusually high occurrence of natural disasters. There were 10 typhoons from June and the country was visited by heavy rains in the Niigata/Fukushima region and Fukui region in July. The disasters led to more than 230 dead or missing and almost 170,000 homes immersed in water. In October, the Chuetsu Earthquake with an intensity of 7 rocked the country, resulting in 40 deaths and the evacuation of over 100,000 people. In December, furthermore, the Sumatra-Andaman Earthquake and ensuing tsunami, led to approximately 100,000 dead or missing in 10 countries around the Indian Ocean. Many Japanese were among the victims. Faced with such a serious situation, the annual White Paper on Land, Infrastructure and Transport in Japan 2005 published in fiscal 2004 mentions the disaster recovery countermeasures and rebuilding support offered by the national government and the Ministry of Land, Infrastructure and Transport under the title of "Aiming to Build a Country Resilient to Disasters." This attempt was made to actively respond to social needs, and discussion includes actions taken against heavy rains and typhoons, earthquakes and tsunamis.

Chuetsu Earthquake
(Collapsed lane on Kan-etsu Expressway)
(Photograph: Japan Highway Public Corporation Hokuriku Branch)

It is essential to quickly restore damaged lifelines such as transportation in affected areas as stated in the White Paper. Confirmation made through

Traffic in Japan this year

			FY2003	FY2004	Change (%)
Traffic volume	Passengers (100 million passenger kilometers)	Total	14,255	14,265	0.1
		Passenger cars, etc.	7,566	7,551	-0.2
		Buses	862	864	0.2
		Railways	3,822	3,850	0.7
		Maritime	39	40	2.6
		Aviation	839	833	-0.7
	Freight (100 million ton kilometers)	Total	5,707	5,639	-1.2
		Motor vehicles	3,120	3,219	3.2
		Railways	221	228	3.2
		Coastal shipping	2,356	2,182	-7.4
		Aviation	10	10	0.0
Number of automobiles owned* (Thousands, annual)[1]		Total	75,640	76,020	0.5
		Passenger cars	54,571	55,288	1.3
		Trucks	17,342	17,014	-1.9
		Buses	233	232	-0.4
		Other	3,494	3,486	-0.2
Driving license holders** (Thousands)[1]		Total	77,468	78,247	1.0
		Male	44,786	45,020	0.5
		Female	32,682	33,227	1.7
High-standard arterial highways*** (km)[2]			8,344	8,344	0.0
Improved national and prefectural roads (km, start of year)[1]			131,327	132,412	0.8
Traffic accidents		Accidents (Thousands)	948	952	0.4
		Fatalities within 30 days	8,877	8,492	-4.3

* Figures for end of March (Registered vehicles + light motor vehicles)
** Figures for end of preceding December
*** Figures for end of fiscal year
Note: The following sources were referred to for data.
1) Annual Report on Road Statistics
2) Road Handbook
3) Traffic Statistics

horrible incidents of disasters is not necessarily appropriate, but it creates a keen awareness of the functions and roles of transportation in an open economic society. Many people came to realize that today's social and economic lifestyle cannot be maintained without transportation services. This led to a reemergence of discussion on redundancy, but putting ideals aside, discussion on transportation infrastructure cannot be realistically carried out independently from the issue of cost burden. It is necessary to conduct investigations backed by the ability to procure financial resources for infrastructure.

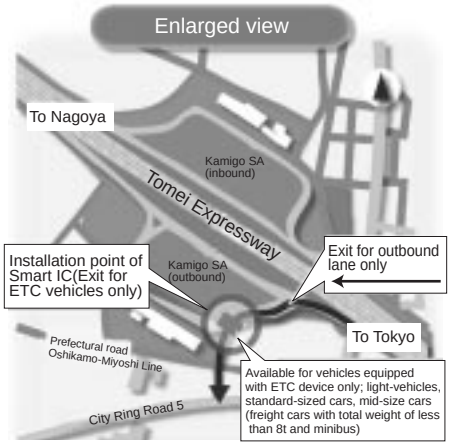
Whereas restoration of railways physically requires time, roads make up a relatively dense network including local streets, and partly due to the fact there is a high likelihood of rapid restoration, trucking services played a significant role in logistics after disasters. This was one lesson that came out of the Kobe Earthquake that occurred ten years ago. There is a detailed description on countermeasures made through road transportation during this period in a special feature in the May 2005 edition of a journal "Kosoku Doro to Jidosha *[Expressways and Automobiles]"*. As natural disasters are likely to occur in the future, it is necessary to learn from the past, and make a clear manual for people towards the future.

2. Supply of New Services

Many new services were provided in 2004. Looking at roads, attention should be paid to the expansion of the expressway network and the implementation of a variety of social experiments. In December, the implementation of four lanes was completed on the Kyushu Expressway (Hitoyoshi Interchange - Ebino Interchange), making the expressway from Aomori to Kagoshima and Miyazaki have four-lanes for its entire length. This is significant with respect to securing capacity for the artery. The Ise Coastal Expressway (Toyota Junction - Toyota-minami Interchange) was also opened in December, linking the Tomei Expressway and the Higashi-Meihan Expressway. Social experiments include nighttime long distance discounts for ETC-fitted vehicles on national expressways in April, lowering of the toll for the bridge to Kansai International Airport in July and the use of smart ICs in the Kamigo Service Area on the Tomei Expressway in October. There is great interest in how the results of these experiments will affect the tollway business in the near future. In the pricing system, approval was given for national expressway toll discounts in September and the elimination of coupon tickets for high traffic volume in the Metropolitan Expressway and the Hanshin Expressway in October. With the privatization based on the four laws related to the Four Highway-related Public Corporations issued in June, a significant amount of attention has been paid to the pricing systems and pricing levels of expressway services offered by private companies.

Railway services included the opening of the Minato Mirai 21 Line (Yokohama - Motomachi/Chinatown) in February, the Kyushu Shinkansen (Shin-Yatsushiro - Kagoshima Chuo) and the Hisatsu Orange Railway (Yatsushiro - Sendai) in March, Joetsu Shinkansen Honjo Waseda Station also in March, the Line No.4 (Nagoya Daigaku - Aratamabashi) of the Nagoya

Kamigo Smart Interchange Experiment
Photographed by Motohiro Yamazaki,TTRI



Kamigo Smart Interchange
(Materials: Toyota City Transportation Policy Section)

Central Japan International Airport (Centrair) Access

Opening of Central Japan International Airport (Centrair)
Photographed by Motohiro Yamazaki,TTRI

Subway in October, the Kyoto Tozai Line (Rokujizo - Daigo) in November and the Tokyo Monorail Haneda Line (Haneda Airport Terminal 1 - Haneda Airport Terminal 2) in December. Looking at freight transportation, service of Super Rail Cargo began in March and high-speed freight trains were allowed to operate on the Tokaido Line. Expansion of the IC card usage including the interchangeable use of JR East's SUICA and JR West's ICOCA in August, and the implementation of the common PiTaPa card for use with railway companies such as Keihan and Hankyu.

Regarding airports, paving work on runways, taxi ways and aprons was completed at Chubu International Airport in March, and after the passenger terminal was completed in October, the airport was opened in February 2005. Before this, the Central Japan International Airport Railway (Rinku-Tokoname - Central Japan International Airport) started its service under separation system of operation and infrastructure. The Narita International Airport Corporation was established in April 2004, and the name of the airport was changed from Shin-Tokyo International Airport to Narita International Airport. The total cumulative number of passengers that have used the airport recorded over 500 million in September. In December, Passenger Terminal 2 became available at Tokyo International (Haneda) Airport. At the end of December, it was decided to extend the runway at the New Ishigaki Airport. With regard to airlines, it was decided to provide assistance to Skynet Asia Airlines from the Industrial Revitalization Corporation of Japan, which came into question for the management of new airline companies.

Although there were essentially no new services in ports, in July, Keihin Port, Ise Bay and Hanshin Port were designated as Super Core Ports with the aim of lowering port costs by 30 percent and reducing lead time to around one day. In the same month Super Liner Ogasawara became the first Techno Super Liner to be put into use when it was named and a launching ceremony was conducted. The ship was scheduled to operate on the Ogasawara route in 2005, but this is feared to be postponed to April 2006 or later due to the national government's assistance policy.

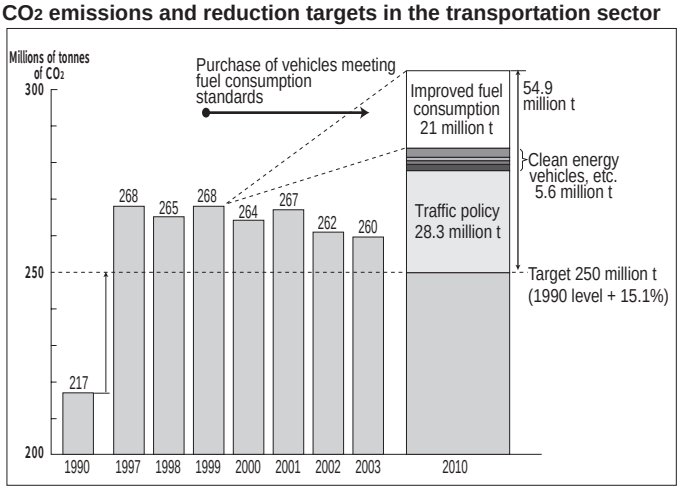
3. Efforts for Preventing Global Warming

As is commonly known, the Kyoto Protocol obligates Japan to reduce greenhouse-effect gas emissions to six percent less than 1990 levels during the first stage from 2008 to 2012. The most recent data available shows the 2003 figure to be 1.339 billion tonnes (CO_2 conversion, same applies below), exceeds the base level of 1.237 billion tonnes and significantly exceeds the target of 1.163 billion tonnes. Assuming a BAU(Business as Usual) case of only the current policies being implemented, this is expected to be 1.311 billion tonnes in 2010, but based on the current volume of emissions, there are difficulties in achieving the target. Ratification by Russia in November 2004 provided the impetus for the Kyoto Protocol being brought into force in February 2005, over 7 years after it was adopted. Japan responded with the Kyoto Protocol Target Achievement Plan, following on from the Guideline for Measures to Prevent Global Warming, Action Program to Arrest Global

Warming, Basic Policy on Measures against Global Warming, further accelerating concrete steps toward the reduction of greenhouse-effect gases.

Looking at the transportation sector, it has been confirmed that the CO_2 emissions that make up a large part of greenhouse-effect gases have decreased since 1997. Decreases in 2002 and 2003 are notable, and tax breaks for low emission vehicles and the demand shift from commercial to private trucks have been proven beneficial. These deserve considerable praise. Even though the figure for 2003 is 10 million tonnes over the 250 million tonnes target for 2010, additional policies are required. In May 2004, the Environmental Subcommittee of the Council of Transport Policy made an interim report on reduction target figures based on fiscal 2001 data, and this was recalculated when the data for fiscal 2002 became available. According to this, the necessary reduction for the transportation sector is 24.5 million tonnes, of which 16.1 million tonnes can be achieved by using existing policies, with 8.4 million tonnes requiring new policies. The former is made up of more environmentally friendly automobiles and driving (4.5 million tonnes), traffic policies (5.1 million tonnes), more efficient logistics (4.5 million tonnes), promotion of the use of public transportation (1.8 million tonnes) and improved energy consumption efficiency by trains and aircraft (200,000 tonnes), while the latter is made up of the demand shift from commercial to private trucks used in logistics and improved load efficiency (3.9 million tonnes), commuter traffic management (900,000 tonnes) and the use of sulfur-free and bio fuels (3.6 million tonnes). The feasibility of such steps is being considered. In the open economic society of today, it is important to find ways of securing mobility while reducing CO_2. In this respect, wide-ranging collaboration between logistics businesses and shippers, such as seen in the Green Logistics Partnership Council (formed in December 2004), is expected to be essentianl of effectively reducing CO_2.

CO_2 emissions and reduction targets in the transportation sector



(Source: Ministry of Land, Infrastructure and Transport)

Meanwhile, there has been discussion on the introduction of an environmental tax in Japan. The proposal put forward by the Ministry of the Environment is to set the tax at 2,400 yen per carbon tonne (approximately 1.5 yen per liter of gasoline), and the expected revenues of 490 billion yenis planned to be used for global warming policies and allocation to maintaining and improving corporate activities as part of general financial resources, with the effect of implementation being a 52 million tonnes reduction in greenhouse-effect gases, and a 0.01% reduction in GDP. It was planned to be introduced in January 2006, but was postponed due to debate about the basis and reliability of the figures showing the effect of the policy s introduction.

Environmental policies for emissions were stated in the Central Environment Council s so-called Post New Long-term Regulations Report submitted in February 2005, with the PM and NOx regulation targets being lowered by 75-85% and 41-50%, respectively, from the current levels in the New Long-term Regulations that are the strictest in the world. Examination is required from the perspective of EST (Environmentally Sustainable Transport).

4. New Developments in Automobile Transportation

ITS World Conference
(source: ITS Japan)

Cover of "Transport Policy in Perspective 2004"

Two events that gained a lot of attentions throughout society regarding the development of automobile technology were the ITS World Conference Aichi/Nagoya 2004 held in October 2004 and the Tokyo Motor Show held the following month. Reports were made on Advanced Safety Vehicles (ASV) in the executive session and special session of the former, with exhibitions and test drives also offered. The Japan Research Center for Transport Policy distributed "TRANSPORT POLICY IN PERSPECTIVE: 2004" at the venue and it was well received. At the Tokyo Motor Show, a prototype developed in a next-generation low-pollution vehicle research project was presented, and the symposium became a great success. There are strong expectations that these new technologies will spread throughout society in order to create a safe and environmentally-friendly automobile society.

There were also new systems and laws linked to new developments in automobile transportation that were introduced in the first half of 2004. A system for evaluating and publishing the fuel efficiency of vehicles began in January, and tax breaks for low emission vehicles began in fiscal 2004. The Law on One-Stop Service for Automobile-Related Procedures was established in May in an attempt to improve convenience for automobile users. The Nagoya ITS Taxi Verification Test of a system directly linking taxi drivers to calls in Nagoya began at the end of May, This is a test aimed at allowing taxi drivers to use ITS technology before the ITS World Conference.

In January 2005, the Automobile Recycling Law came into force, offering another layer of environmental policies. The law was announced in July 2002 with the objective of recycling and properly disposing of the 4 million automobiles that are discarded every year, and the framework was ready after a preparation period of two and a half years. The law makes it mandatory for automobile manufacturers and importers to recycle or dispose of shredder dust, airbags and CFCs, with automobile owners bearing the cost in the form of a recycling fee. Despite the increased burden on automobile owners, the smooth enforcement of the Automobile Recycling Law is desirable in respect to social cost burden because of the beneficial effect it is expected to have on the environment.

With regard to toll roads, the four laws related to the highway-related public corporations (Law Concerning Expressway Companies, Law Concerning the Japan Expressway Holding and Debt Repayment Agency, Law Concerning the Establishment of Road-related Laws Accompanying the Privatization of the Japan Highway Public Corporation, Law for Enforcement of Laws Concerning the Privatization of the Japan Highway Public Corporation) was passed in June 2004 as actual steps were taken in preparation for privatization in October 2005. Executive managers from the private sector have been chosen to head the highway service companies that will become corporations and the Japan Expressway Holding and Debt Repayment Agency that will become an independent corporation, and this is expected to result in tollway services being provided smoothly and in an appropriate fashion.

Despite such new developments, one remaining issue is that the number of

vehicle recall incidents recorded in 2004 was the highest ever. It is hoped that automobile transportation become more sound through the serious actions taken to prevent the recurrence of unethical activity related top recalls.

5. Traffic Accidents and Safety Policies

The number of traffic accidents reported in 2004 were 952,192 (up 0.4% from the previous year), fatalities numbered 7,358 (down 4.5%) and injuries 1,183,120 (up 0.1%).The number of fatalities fell further from the previous year's figure, when this fell below 8,000 for the first time in 46 years. Although it is a positive sign that this figure fell into the low 7,000s, the slight increase in accidents and injured compared to the previous year is a problem. The fact that the number of accidents exceeded 900,000 for five consecutive years and the number of injured exceeded 1 million for six consecutive years is a serious social issue. We tend to focus on the decrease in the number of fatalities but there is a strong need to reduce the number of accidents and also the number of injured.

One characteristic of fatal accidents is the involvement of elderly people. The ratio of elderly victims in the total fatality count is quite high at 41.4% and the number of fatal accidents involving the elderly, especially those aged 70 or more, is increasing (up 0.2% and 6.0% respectively). Overall, the number of fatal accidents resulting from speed violations or driving under the influence of alcohol has decreased significantly (down 19.5% and 9.0% respectively) but accidents resulting from not checking for safety is rising (up 1.9%) and the increase of elderly drivers (up 11.9%) is also seen to be a problem here. It could be said that there is an extremely high need for effective actions targeting elderly drivers. Within the Cabinet Office, the Central Traffic Safety Measures Council was launched to establish the 8th Basic Plan for Traffic Safety. Discussion was started in a special council in February 2005 and the plan is to be decided upon in the Central Traffic Safety Measures Council at the end of fiscal 2005.

Attention should be given to the numerous tragic railway accidents that have occurred since the start of 2005. In March, a derailment occurred in Sukumo station on the Sukumo Line of the Tosa-Kuroishio Railway, killing the driver and injuring 10 others. In April, a derailment occurred between Amagasaki and Tsukaguchi on the JR West s Fukuchiyama Line, resulting in tragedy with 107 fatalities and 460 injured. Improving safety to prevent such tragic accidents is an important issue that needs to be addressed. Investigation of the cause and implementation of safety policies are much needed. As the former accident was in a local railway and the latter a urban railway, the actions implemented cannot be identical, but ensuring safety in both cases is important. The number of level crossing accidents has been decreasing in the long term, but the fatal accident that occurred in the manual level crossing inside Takenotsuka Station on Tobu Group s Isesaki Line, Tokyo in March 2005 was horrific. There is a need to carry out further debate on safety versus economy.

JR West,railroad accident(9:43am, 25 April, 2005) (Amagasaki-shi, Hyogo)
Provided by Asahi Shimbun
(Source: 25 April, 2005 Evening Edition)