



Finance System and Reform of Japan for Road Development

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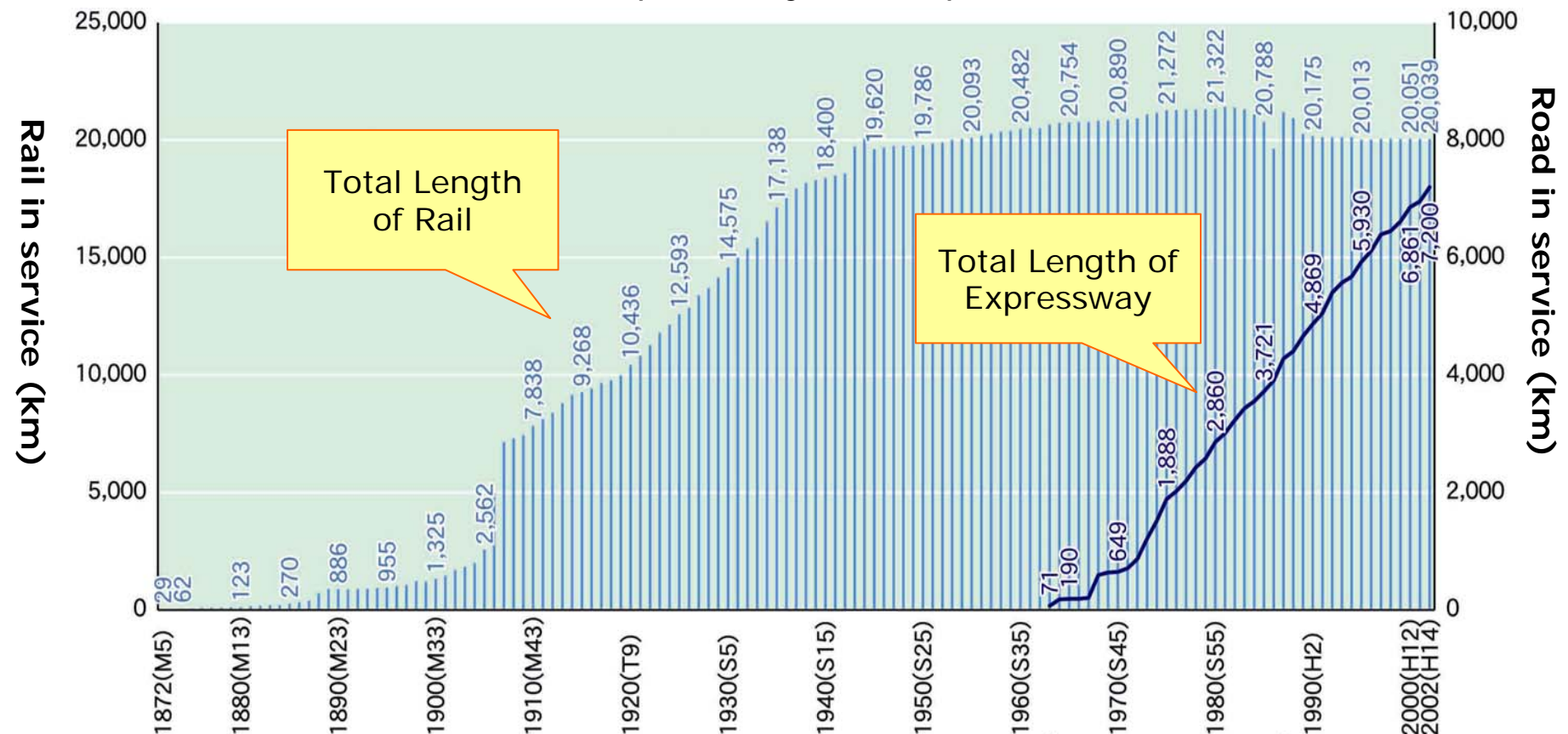
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1. Japanese Road Administration in Major Transition

1) 50years since intensive road development started

- Since 130 years ago, the government focused on rail development
- Road development accelerated after WWII

Rail and Expressway Development



1. Japanese Road Administration in Major Transition

2) Status of road development

- Reached to a certain level

Length of arterial high-standard highways in service

	Total length (km)	Basic plan length (km)	Construction plan length (km)	Length of sections in service at the end of FY2005 (km)
Arterial high-standard highways	14,000	13,082	11,092	8,836
National expressways	11,520	10,607	9,342	(567) 7,389
Honshu-Shikoku Expressway	180	177	177	164
Ordinary national highways	2,300	2,298	1,600	686

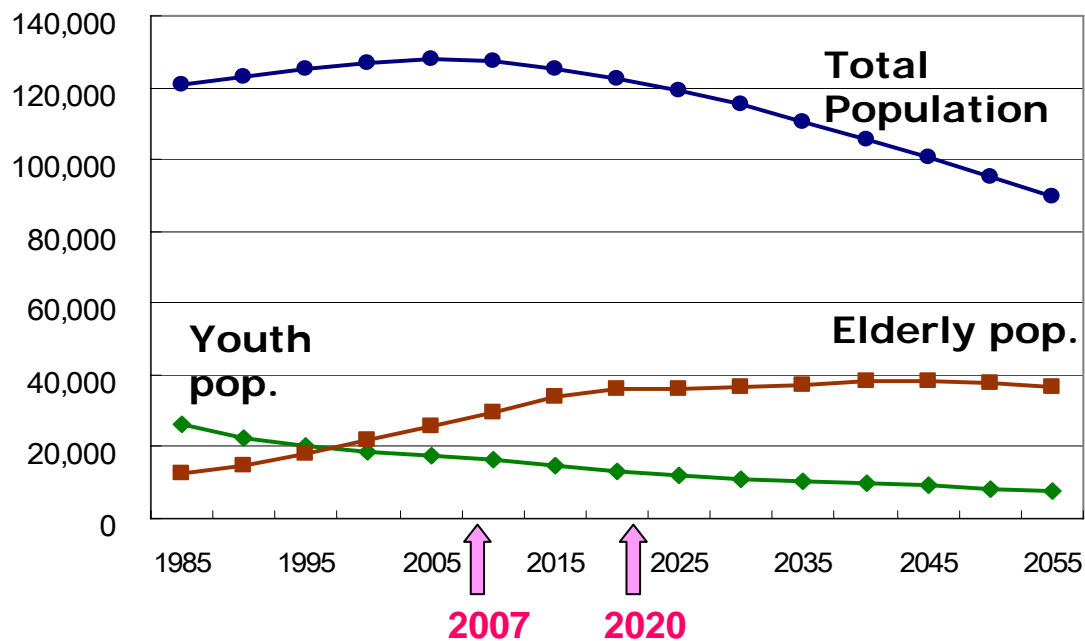
Note: The value within brackets denotes the length of ordinary national motorways along national expressways and are included in the total of arterial high-standard highways. The length of ordinary highways under construction include the sections in mobilization.

1. Japanese Road Administration in Major Transition

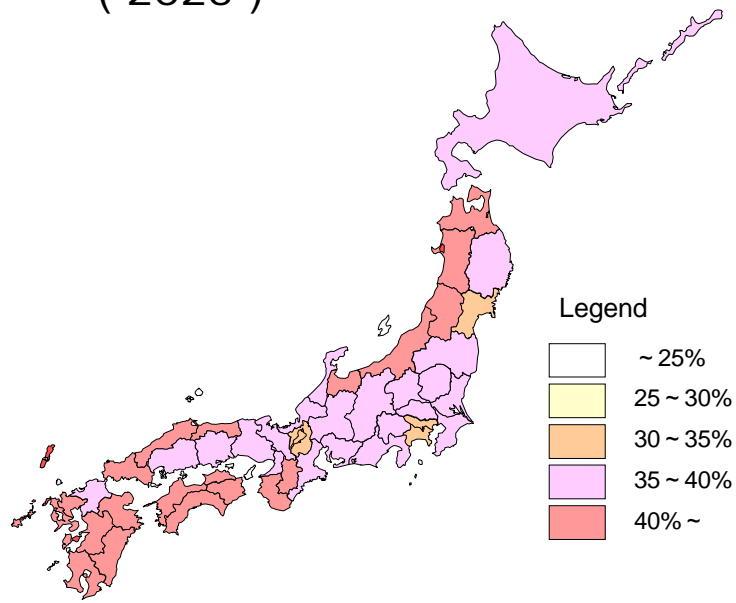
3) Population decreases rapidly in the future

- Decrease slowly in the next 5~10 years, more rapidly after 2020
- Population age mainly in rural areas, leading concerns for the future

Population by age group and estimated population



Ratio of elderly households (HH) to regular HHs (2025)



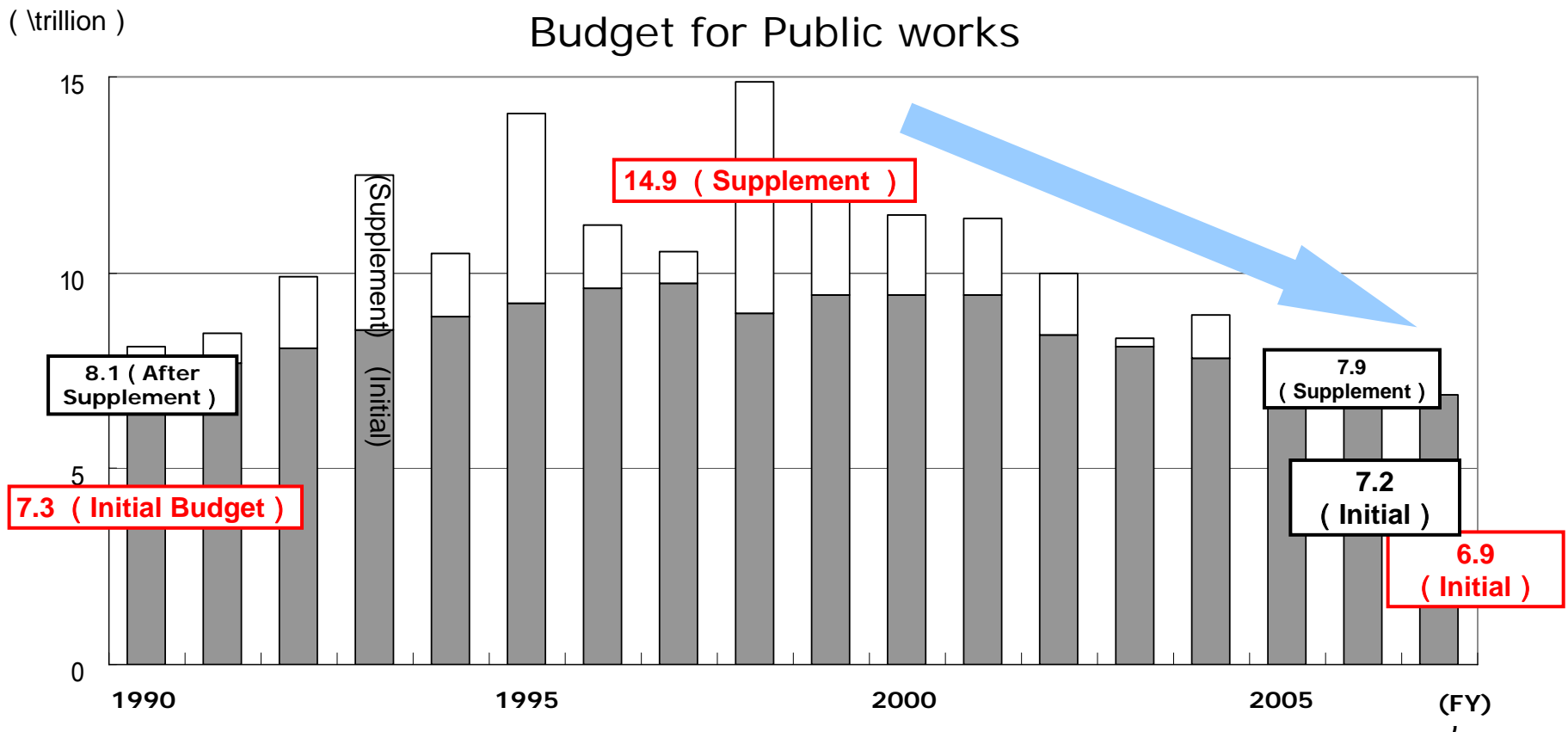
Note: Youth: Younger than 15, Elderly : 65 and older

※Elderly household (HH): Head of HH 65 or older

1. Japanese Road Administration in Major Transition

4) Severe Financial Situation

- National and local long-term balance of debt reached ¥773 trillion (FY2007)
- Budget for public works decreased in half compared to its peak (1998)
- Questions for investment on road development



2. Financing System for Roads in Japan

Earmarked Road Funds and Toll Road System promoted steady road development in Japan

Earmarked Road Funds (1953 ~)

Toll Road System (1952 ~)

2-1. Earmarked Road Fund

1953 “Temporary Measures Act Relating to the Financial Sources of Road Improvement Costs” passed

User Burden Principle

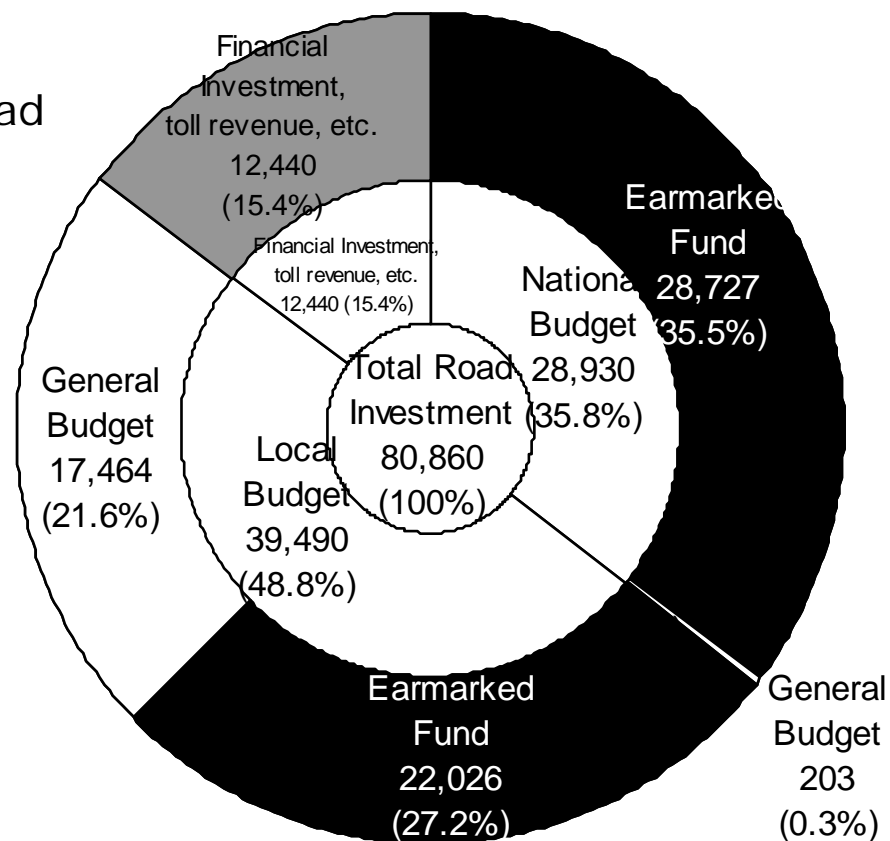
“the users of motor vehicles bear the burden of being the special funding source for road works which will be used for road improvements. Road improvements will result in the reduction of driving time and enhancement of safety, which in turn will benefit the road users”

- (i) Fairness: match beneficiaries and cost bearers**
- (ii) Efficiency: works as the user charge system**
- (iii) Stability: small fluctuations by economy**
- (iv) Rationality: all payments are spent on road development**

2-1. Earmarked Road Fund

Earmarked road funds reached \5 trillion in 2007, accounting for 60% of road construction costs

Composition of resources for road projects in 2007



2-2. Toll Road System

1952 Former “Law Concerning Special Measures Highway Construction”

borrow necessary funding for planned construction, and repay loans by tolls from roads already in service

1956 Japan Highway Public Corporation established

1972 National pooling system introduced

Combine toll revenues nationally, revenues from profitable routes are allocated to others or routes with deficits

- Realizes smooth redemption of debts
- Toll and time period are equal among users
- Enable constructing routes with relatively less profits

2-2. Toll Road System

In 2005, toll revenues from expressways reached \1.78 trillion with 1.56 billion cars

Toll road tariff comparisons

		France	Germany	Italy	Japan
Toll level	Currency	€0.064/ km < As of Feb. 2003 >	€0.09- 0.14/ km < As of Jan. 2005 >	€0.052/ km < As of Jan. 2003 >	\ 24.6/ km+ \ 150
	JP\ equivalent	\ 8.05/ km	\ 11.3- 17.6/ km	\ 6.54/ km	\ 24.6/ km+ \ 150
	Compare to Japanese tolls	About 1/ 3	About 1/ 2	About 1/ 4	-
Remarks		Average of all corporations ^(Note)	Truck Toll (Total weight 12t and over)	Toll by Autostrade	Expressway tolls

Note) Tolls differ in timing, construction costs, etc.

Sources) Germany: Federal Ministry of Transport, Building, and Housing website.

Other countries: Council for Future Direction of Toll Roads, the Ministry of Land, Infrastructure, and Transport of Japan.



3-1. Issues on Earmarked Road Funds

Opinions for Earmarked Road Fund

- 1) Road network is already developed sufficiently
- 2) Should transfer to general account
 - Earmarked road funds are massive
 - Causes an inflexible fiscal policy
 - Should be redirected to repay enormous government debt

3-2. Discussions over Earmarked Road Funds

Regarding the claim of sufficient road network

- Ring roads in metropolitan areas are not completed
- Solutions for traffic jams and reduction of accidents
- Increasing costs for repair and renewal of existing assets



**Roads are not
sufficiently developed yet**

(1) Examples of Insufficient Road Development

1) Urban Ring Roads not Completed

Tokyo Metropolitan Area



Completed
40%



凡例

環状道路	開通済	計画中
2車線		
4車線		
6車線		
8車線		

Total 10-12 Lanes

Seoul



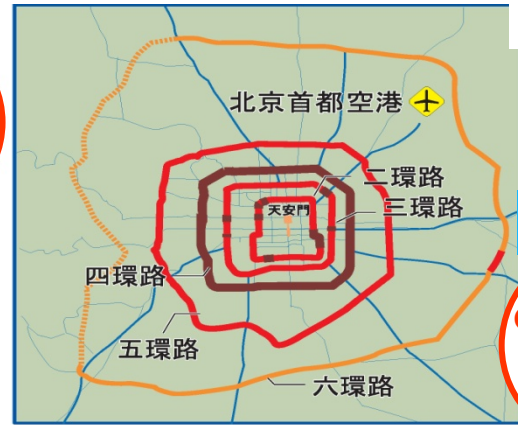
*will complete in 2007
*another outer ring road planned

Total 14-16 Lanes

Completed
96%



Beijing



*will complete in 2008

Total 30 Lanes

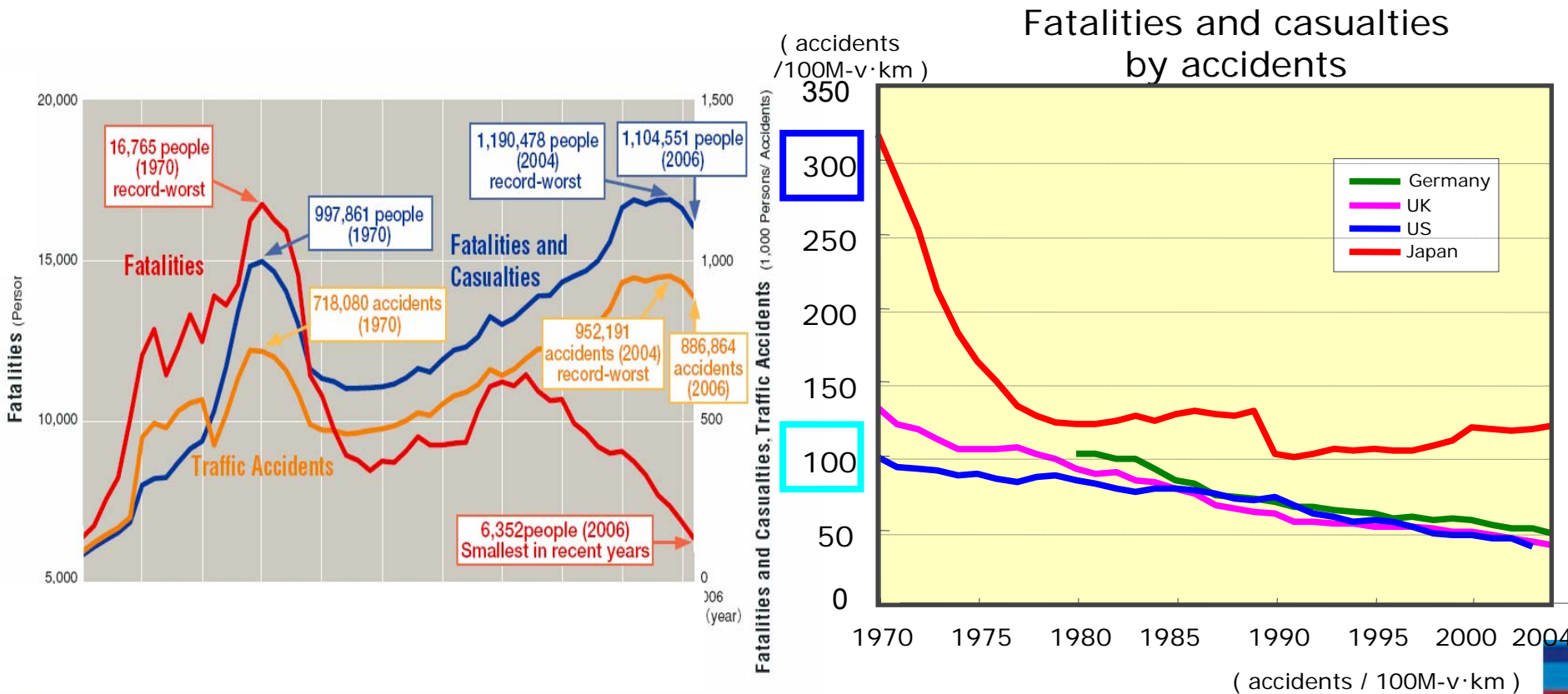
Completed
87%



(1) Examples of Insufficient Road Development

2) Reducing traffic accidents

Annually 6,000 fatalities, but still 1.1 million combined with casualties



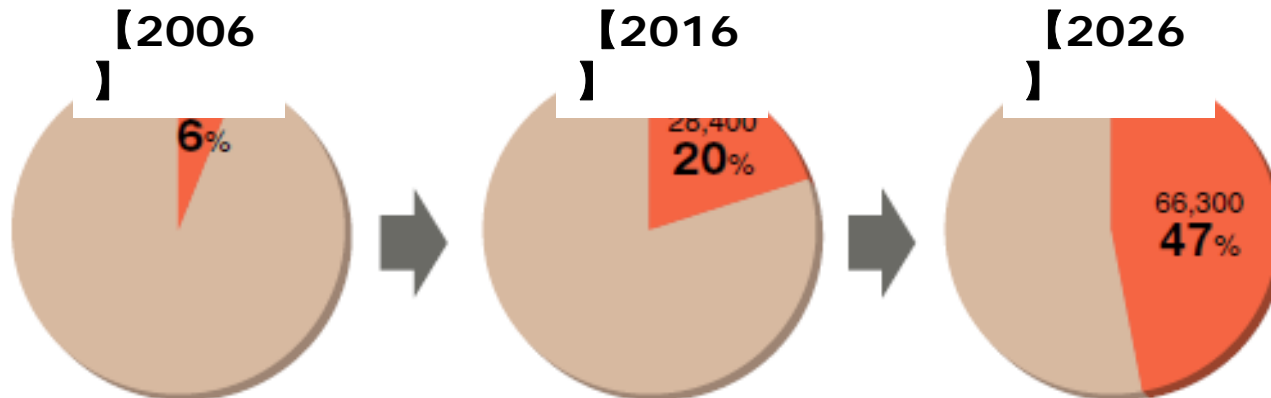
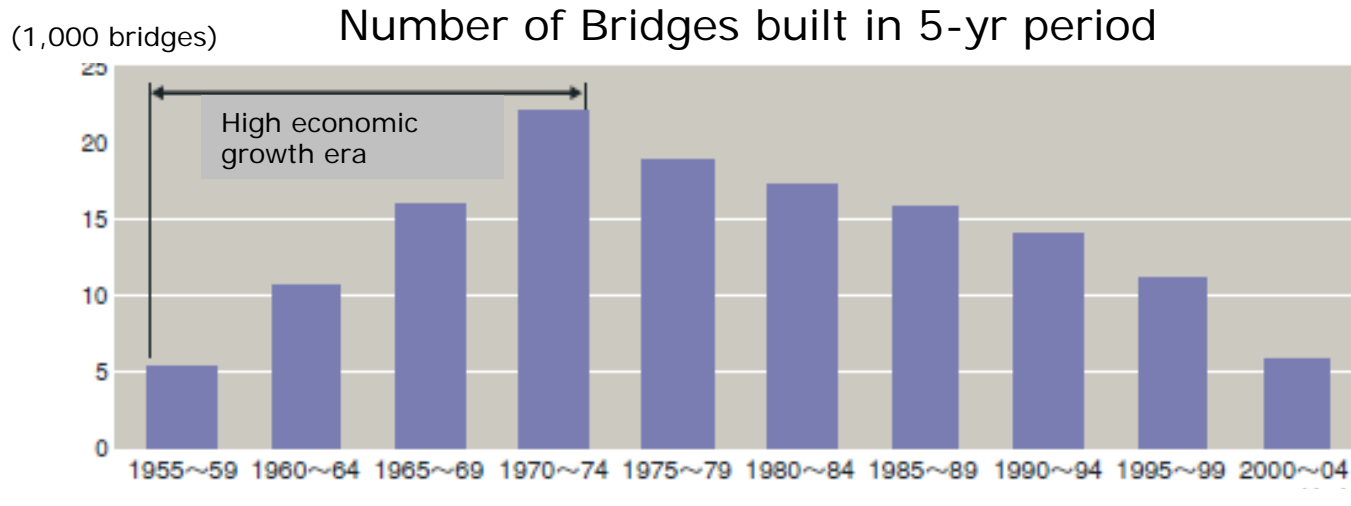
Fatality and casualty (2004)

Country	Germany	UK	US (2003)	Japan
% fatality & casualty	48.7	41.6	40.0	121.8

(1) Examples of Insufficient Road Development

3) Preparing for Maintenance

Most road investments were completed in 1960s,
will need intensive maintenance after 2017



Total bridges: Approx. 140,000

Older than 50yrs

Less than 50 yrs



(2) Refuting Claim of Transfer to General Fund

1) Earmarked road funds are massive

→Road fund needs to be discussed with the necessary amount of road development

2) Causes inflexible fiscal policy

→Functions as tolls, and provides choices for users

3) Should be used to repay enormous government debts

→Debts should NOT be born by road users

→Cars are crucial in mobility and only means in rural areas

3-3. Direction of Earmarked Road Fund System

FY2007 Budget

\180 billion among \3 trillion earmarked funds transferred to general account

FY2008 Budget

Legislative process are expected to pass for transferring to general account

(Current measure is temporary until 2007)

4-1. Discussions over Toll Road System

Discussions of Toll Road System



**Interest-bearing debt reached \40 trillion
for all 4 road related public corporations**

- Tolls are expensive and never be liberated
- Construction of expressways in low traffic areas is economically ineffective

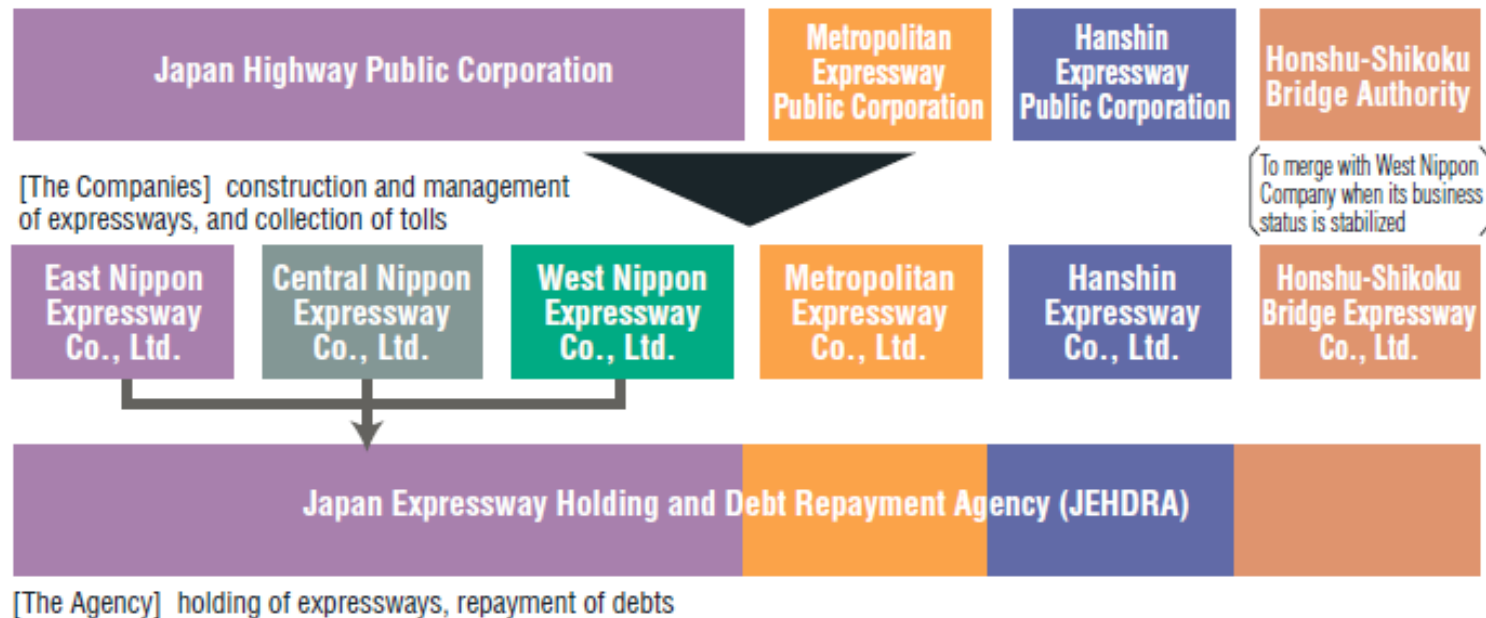
4-1. Discussions over Toll Road System

(1) 2005.10 Privatization of the 4 road-related public corporations

Objectives

- Ensure repayment of \40 trillion debts in a certain period of time
- Construction of most necessary roads in a minimum period of time and with minimum financial burden by public
- Setting flexible toll levels and offering a variety of services through private sector know-how

Privatization of road related 4 corporations



4-1. Discussions over Toll Road System

(2) Reviewing toll road system for privatization

1. 1,953km of 9,342km planned roads not completed yet
822km of them will be built with earmarked fund
2. Review design of incomplete segments for cost reduction
3. Implement flexible toll setting by ETC







5. Reform in Road Administration

**To overcome questions and criticism,
Japanese road administration is implementing following reforms**

1. Declaration of Effects, Efficiency, and Transparency
2. Eliminate unnecessary projects determined with performance management
3. Improve efficiency by introducing ITS

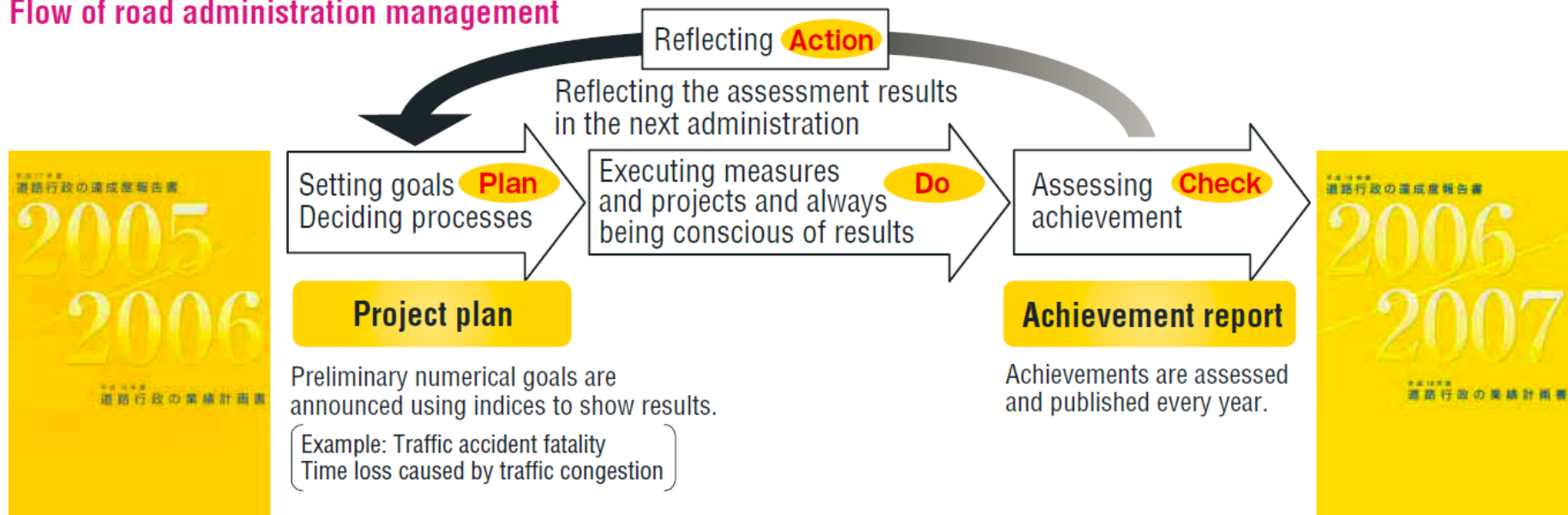
5-1. Declaring Targets

Following Targets Clearly by Traffic Signal System

Segments	ROW Progress 3/30/2006	FY 2005 Project Target	FY2005 Target Achievement 3/30/2006	Project Evaluation
Nishikubo JCT – N. Ebina JCT L=9.4km	93%	<ul style="list-style-type: none"> • Continue construction • ROW 94% 	<ul style="list-style-type: none"> • Construction ; Target achieved • ROW 93% ; Target not achieved 	
Hachioji JCT - Akiruno IC L=9.6km	100%	<ul style="list-style-type: none"> • Continue construction • Complete excavation for all main tunnels 	<ul style="list-style-type: none"> • Construction ; Target achieved • Excavation of All Main Tunnels ; Target not achieved 	 Postpone opening to June 2007

5-2. Introducing Performance Management

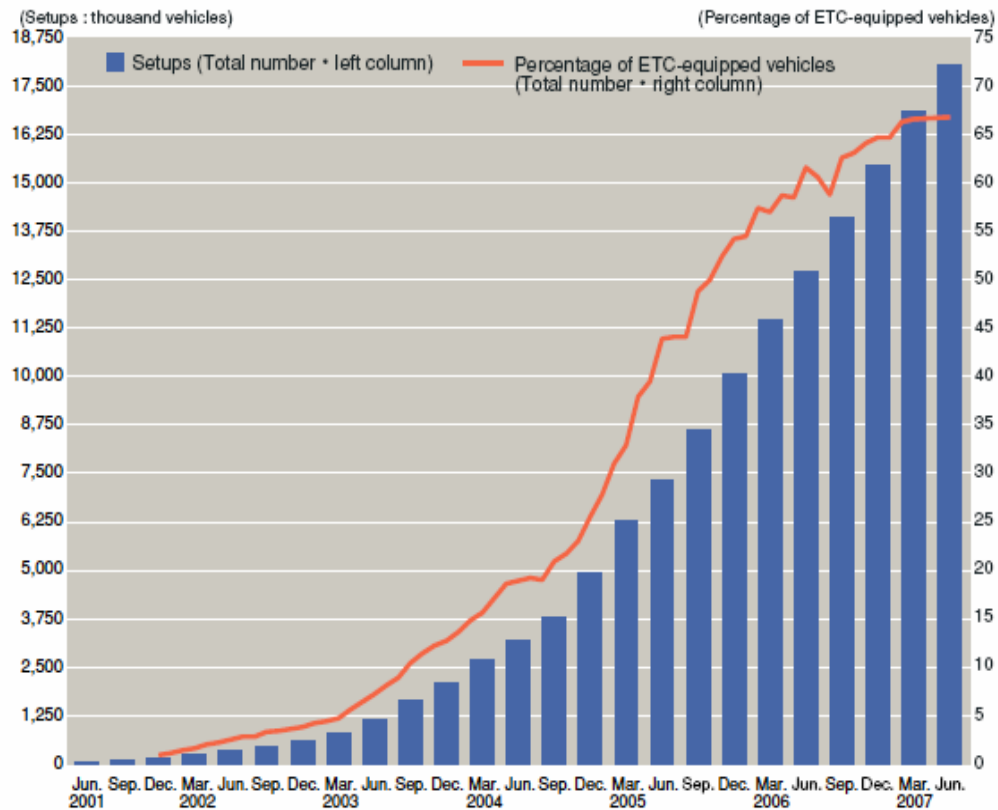
Flow of road administration management



5-3. Improve Efficiency through ITS

1) Congestion Mitigation by ETC

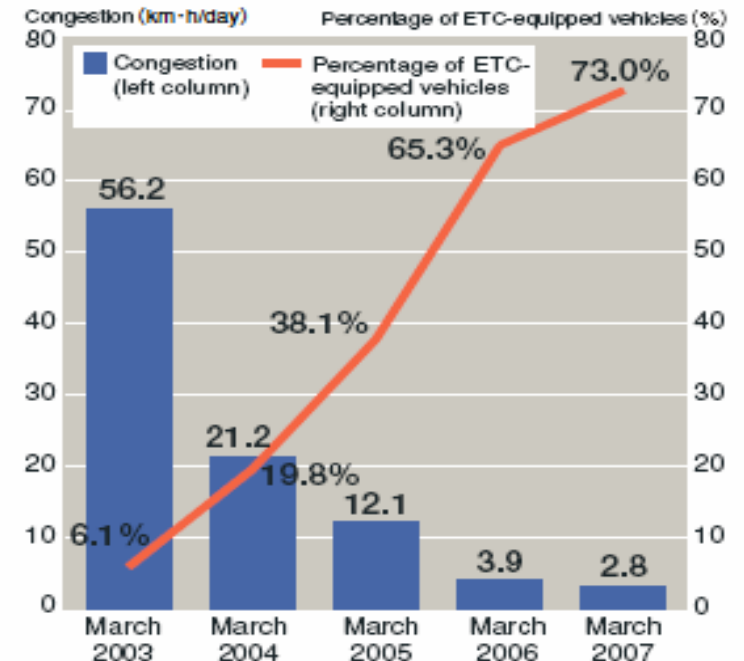
Changes in the percentage of ETC-equipped vehicles and OBE* setups



* OBE = on-board equipment

Reference: Survey by the Organization for Road System Enhancement

Effects of spreading ETC to solve traffic congestion



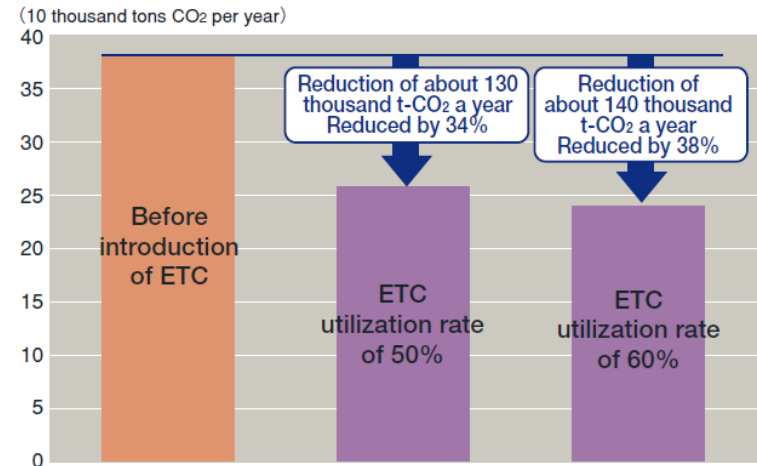
※ total of 18 toll barriers on main lines of the Metropolitan Expressway

Reference: Prepared using the data of the then Metropolitan Expressway

5-3. Improve Efficiency through ITS

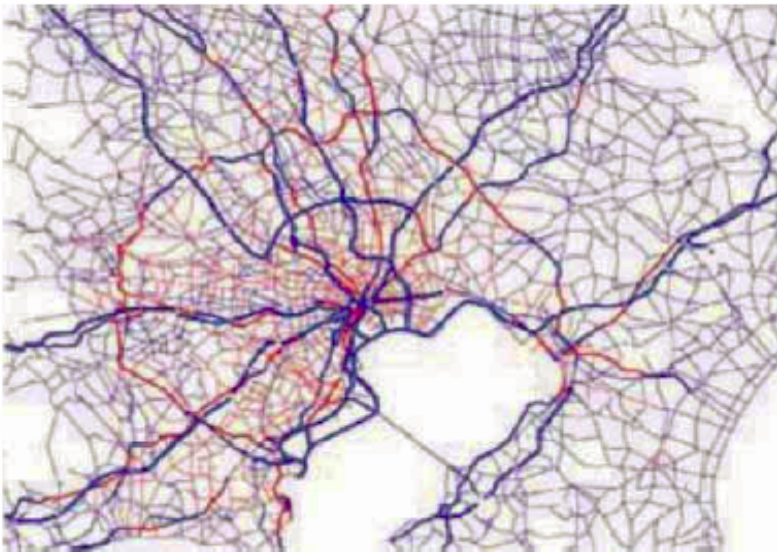
2) Improvement of Environment by ETC

ETC utilization rate and reduction in CO₂ emissions



Roads with large and small CO₂ emissions

Road network in 1999



Road network in 1999 and the three ring roads

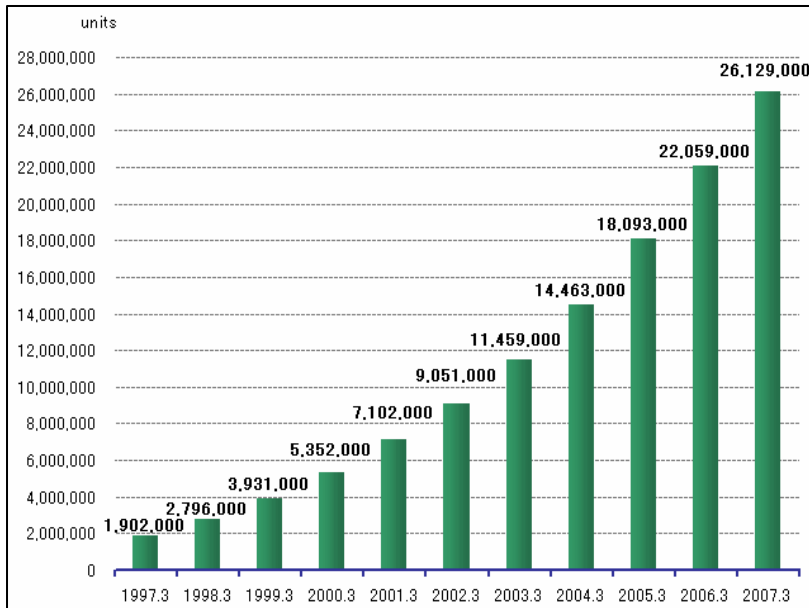


5-3. Improve Efficiency through ITS

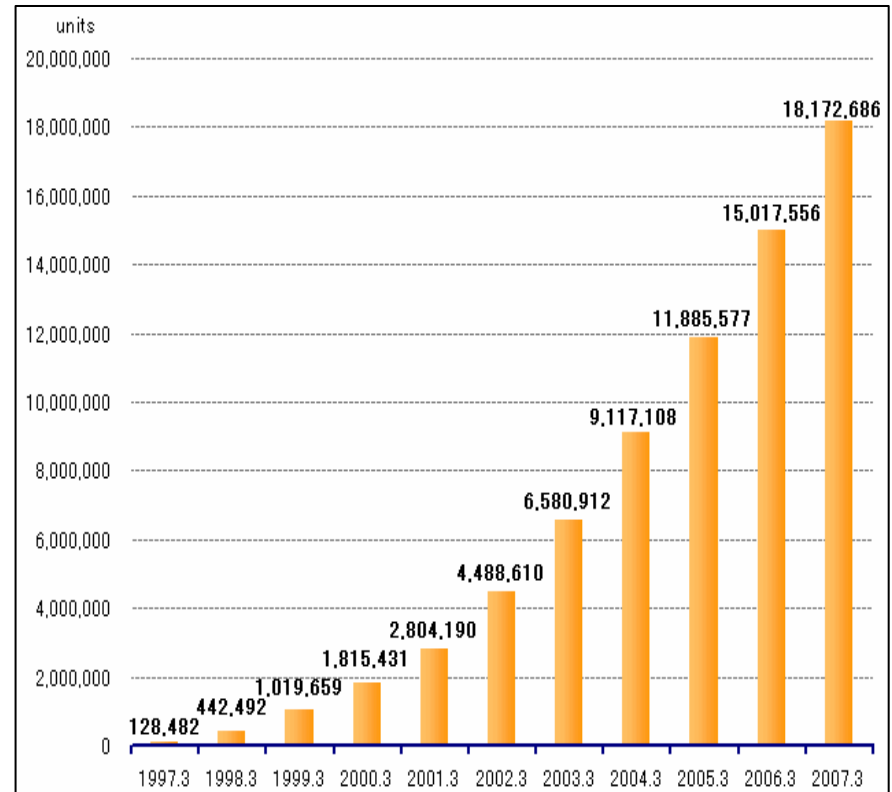
3) Spreading Car-navigation system and vehicle information communication system (VICS)

26.12 million car navigation and 18.17 million VICS equipments have been sold (end of March 2007)

Car navigation system shipped



VICS Unit shipped



VICS solves traffic issues

Effect of time shortening: 7.3 trillion yen (20 years)

Effect of fuel reduction: 450 billion yen (20 years)

Shipment of VICS unit: 1996 128,482 → 2007 18,17,686

Conclusion

- 1. Japanese system with both toll road system and taxation system based on the concept of user burden was effective for modern road development**
- 2. However, systems need changes in the following aspects:**
 1. 50 years after large-scale road development
 2. Reached to certain level of development
 3. Depopulation, aging society, and financial debts
 4. Prepare for maintenance
- 3. Japanese road administration is now implementing:**
 1. Declaring effects, efficiency, and transparency
 2. Eliminate unnecessary projects determined by performance management
 3. Improve efficiency by introducing ITS