

# History of Road Development, Finance and Investment in JAPAN

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*HANSHIN EXPRESSWAY Co., Ltd.*

Japan

# Contents

1. Road Infrastructure Development in Japan
2. Road Financing System in Japan
  - ① Earmarked tax revenue system
  - ② Toll road system

I introduce the thing Japan has experienced.

# 1. Road Infrastructure Development in JAPAN

*Before the modern age (until 1868)*

- Wheeled traffic failed to develop in Japan
  - surrounded by sea
  - covered by mountainous areas
  - crisscrossed by rivers



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## *Before the modern age (until 1868)*

- Wheeled traffic failed to develop in Japan
  - surrounded by sea
  - covered by mountainous areas
  - crisscrossed by rivers
- the main means of transport
  - . . . foot,



Source: Yoshitoshi TSUKIOKA (1867) "ODAWARA", Encyclopedia of city of Odawara (<http://www.city.odawara.kanagawa.jp/encycl/>)

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  - surrounded by sea
  - covered by mountainous areas
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  - • • foot, horseback, boat



Source: Hiroshige UTAGAWA (1867) "ARAI", Encyclopedia of city of Odawara (<http://www.city.odawara.kanagawa.jp/encycl/>)

## *The modern age*

after 1868 ( Meiji Restoration )

- Japan wished to catch up with the advanced nations of the West as quickly as possible.
  - Priority in the development of transport systems
    - ↳ railroad and maritime network
- ⇒ Government had hardly developed the road network

## *After World War II* after 1945

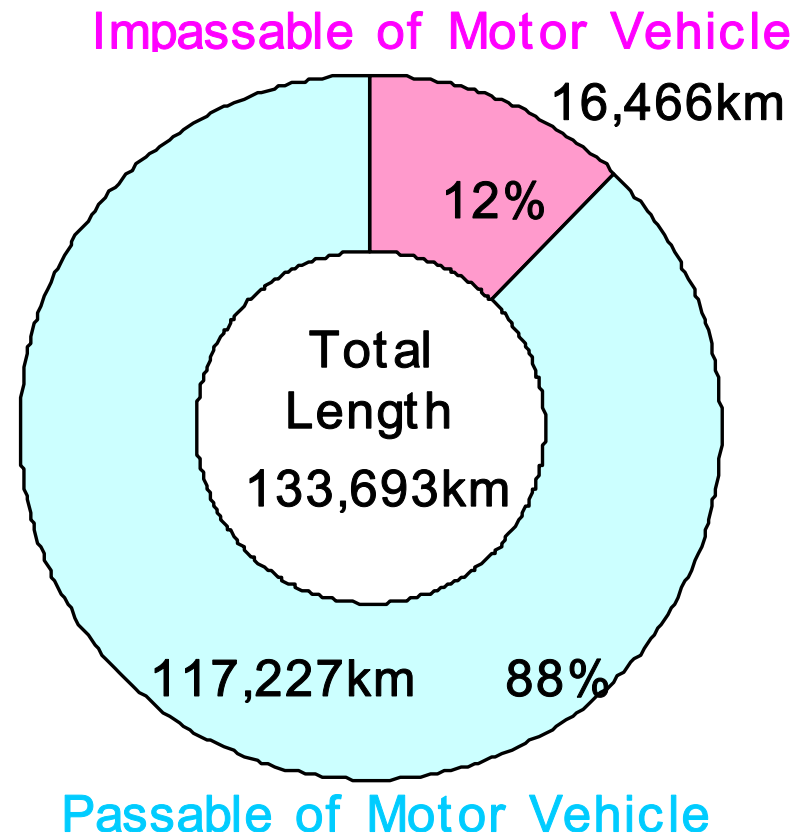
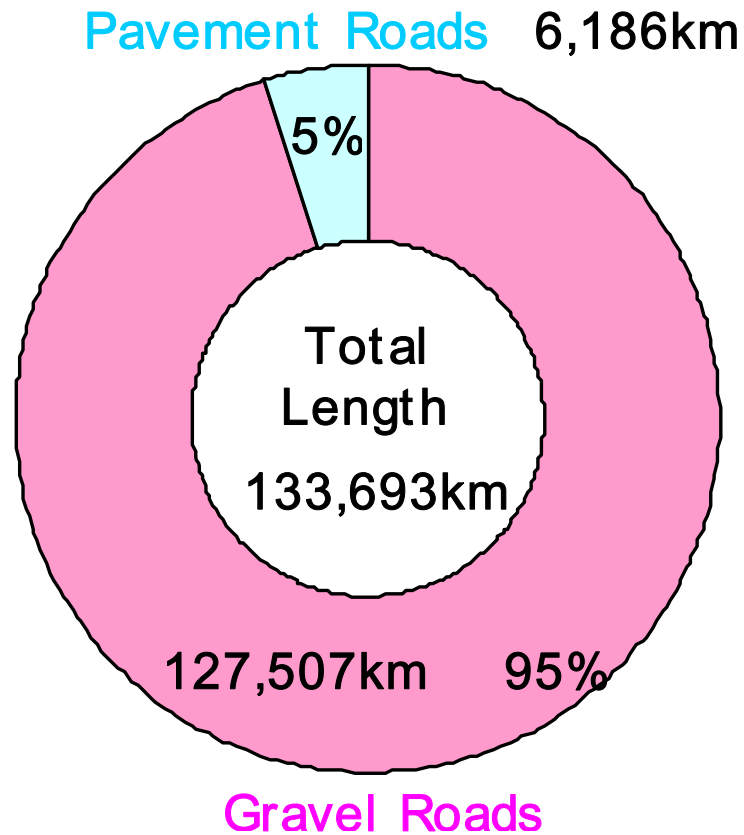
- Most infrastructure was destroyed



- Transport facilities were poor  
→ bottleneck of industrialization
- • • Most roads were unpaved

# After World War II

after 1945



Source: Road Bureau, Construction Ministry (1952) *Road Statistics 1952*.

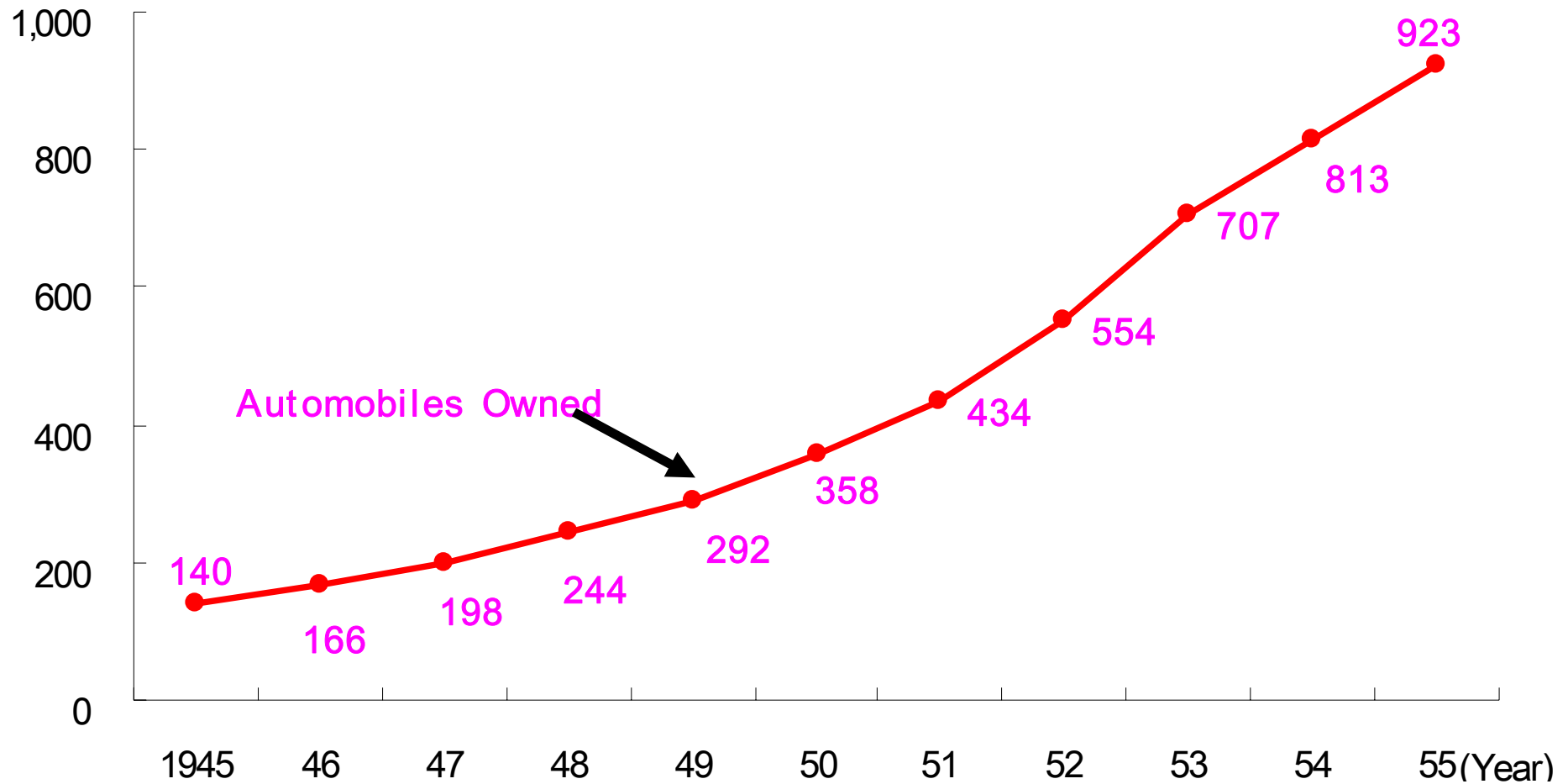
Road condition in 1950



## *After World War II* after 1945

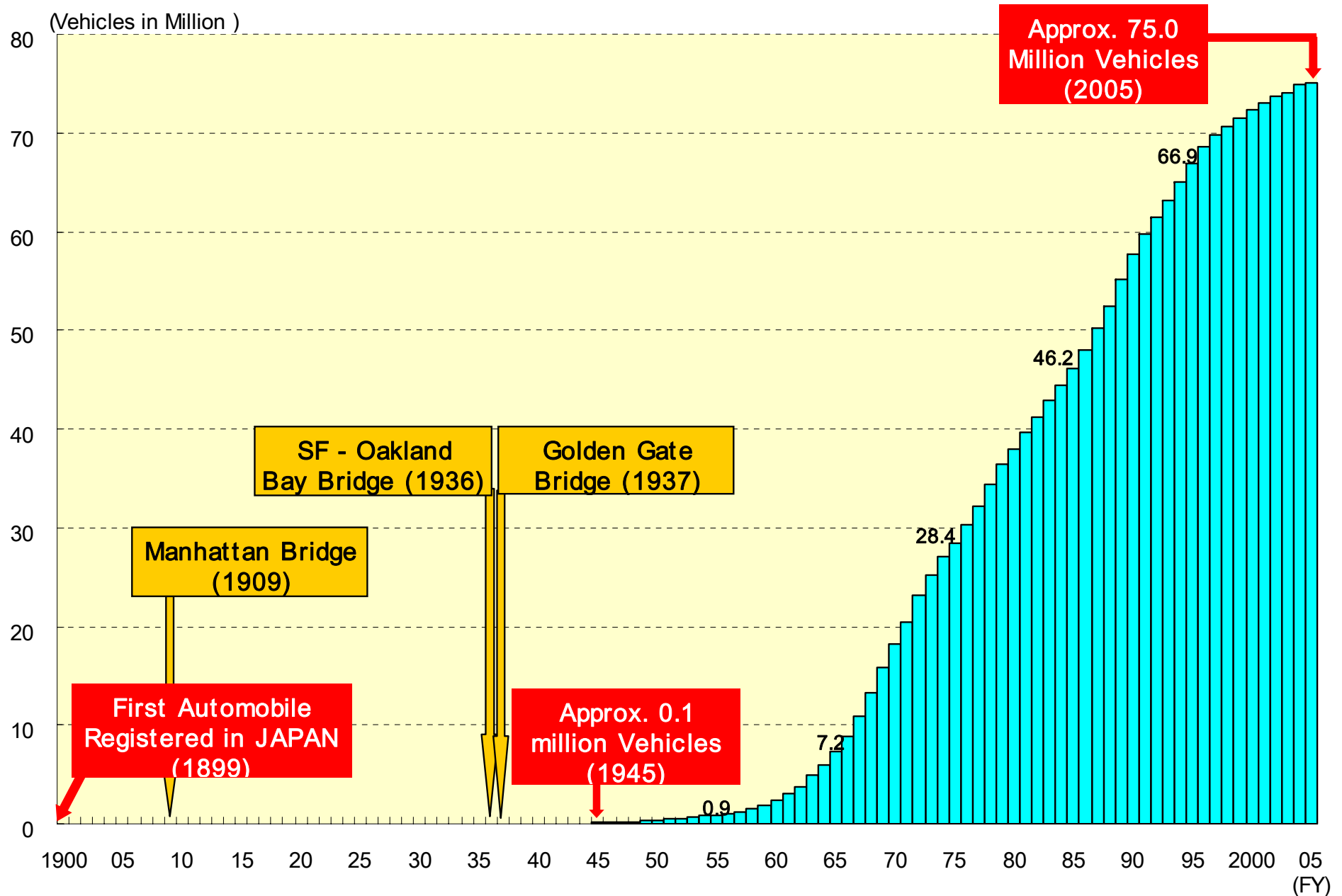
- Most infrastructure was destroyed
- Transport facilities were poor
  - bottleneck of industrialization
  - • • Most roads were unpaved
- In order to speed the recovery of the nation, full-scale road improvements were needed.

(Vehicles in Thousand)



Source: Road Bureau, Construction Ministry, *Road Statistics*.

Automobiles and Roads for postwar 10 years



Number of Automobiles Owned in Japan

***The roads of Japan are incredibly bad.  
No other industrial nation has so completely  
neglected its highway system.***



Source: Hagen, E. E, F. W. Herring, G. E. McLaughlin, W. Owen, H. M. Sapor, and R. J. Watkins (1956),  
*Report on Kobe-Nagoya Expressway Survey*, Ministry of Construction.

## *After World War II*

- Road policy of the government
  - Toll Road System (1952 ~ )
    - · · supplement inadequate road investment by toll fees
  - Earmarked Tax Revenue System (1953 ~ )
    - · · secure the road development budget by fuel tax



- Road policy of the government

- Toll Road System (1952 ~ )

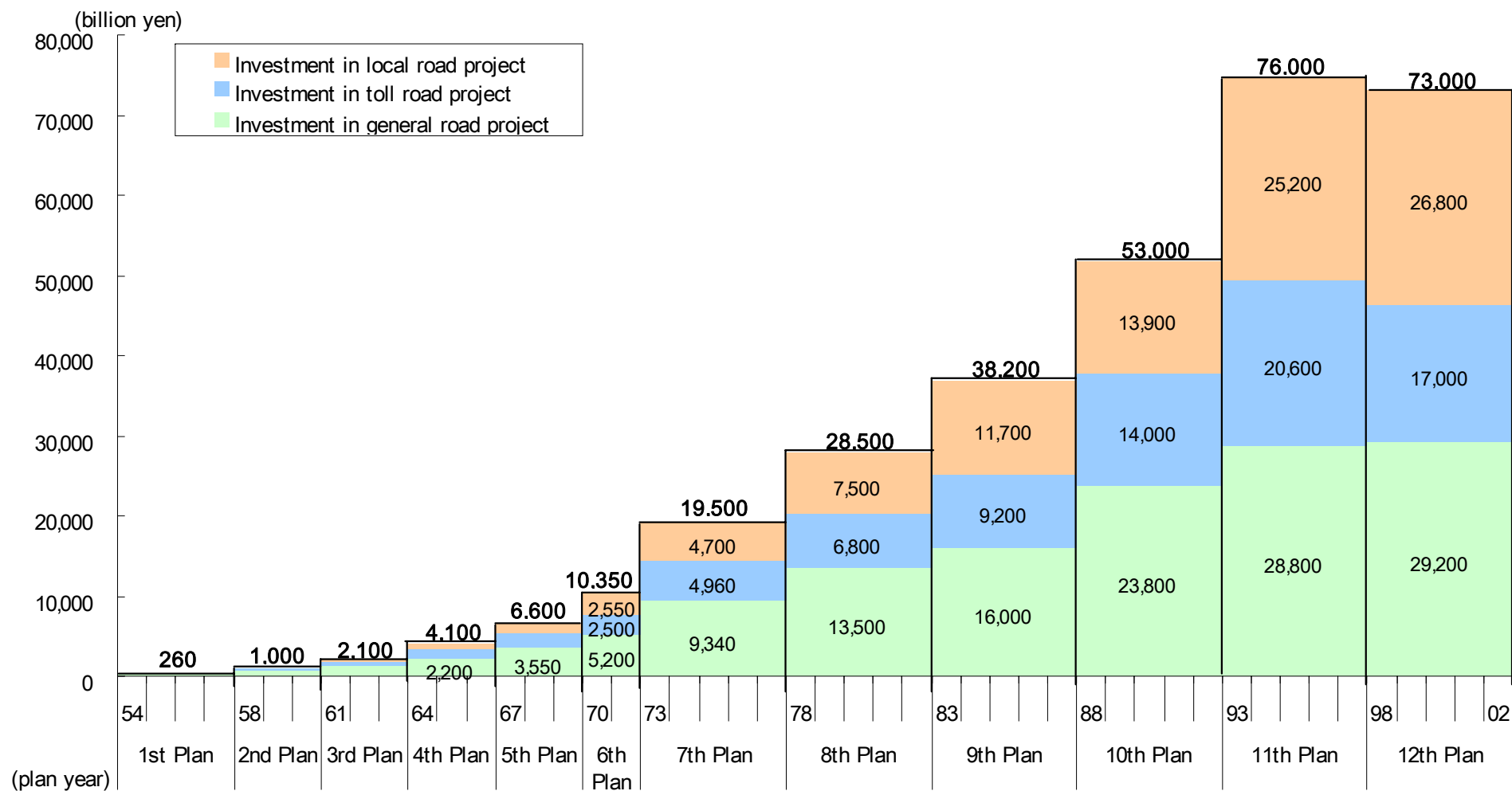
- Earmarked Tax Revenue System (1953 ~ )



**plan with corroboration of funds**

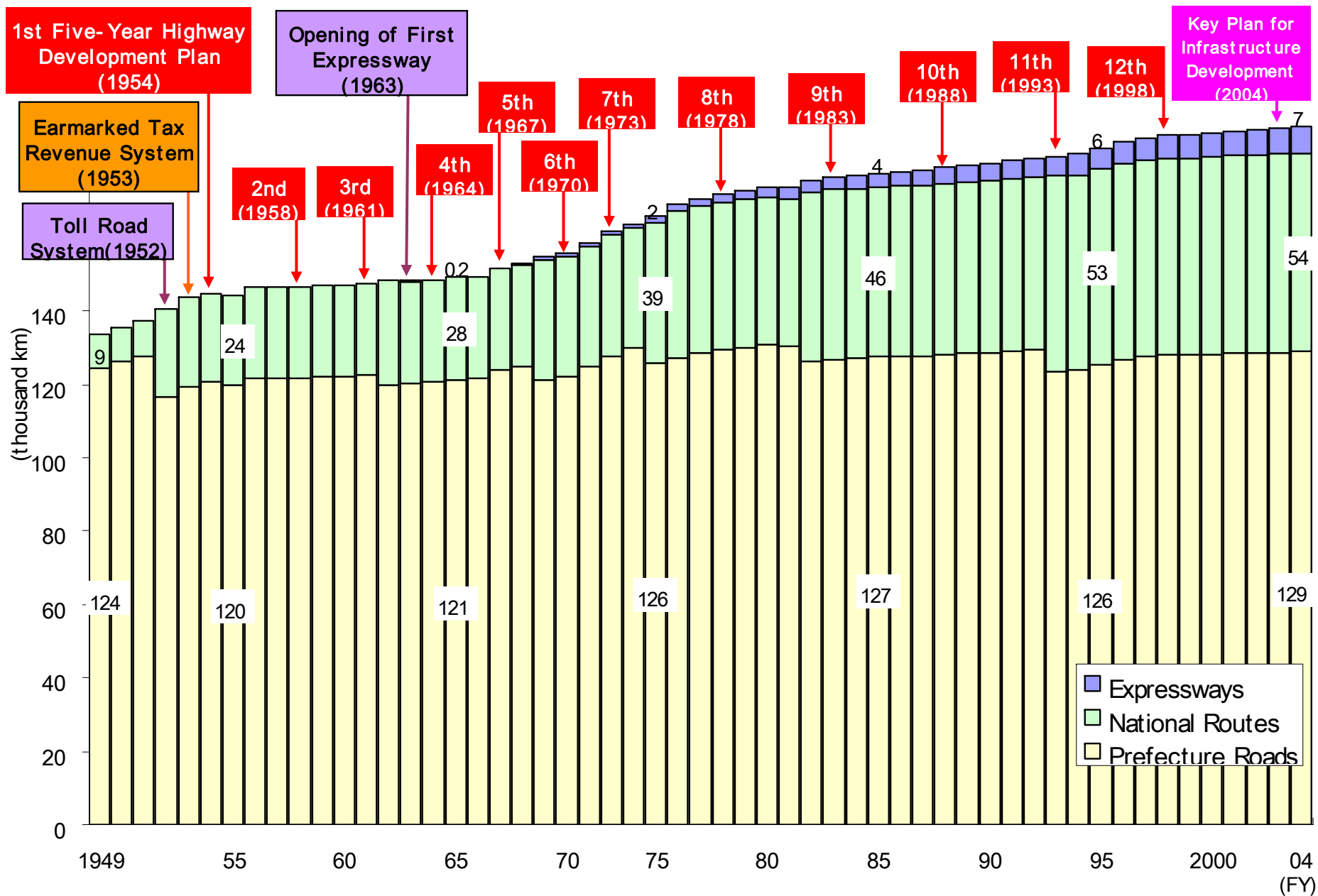
- Five-Year Highway Development Plan (1954 ~ )

⇒ The road network has been developed steadily and continuously.



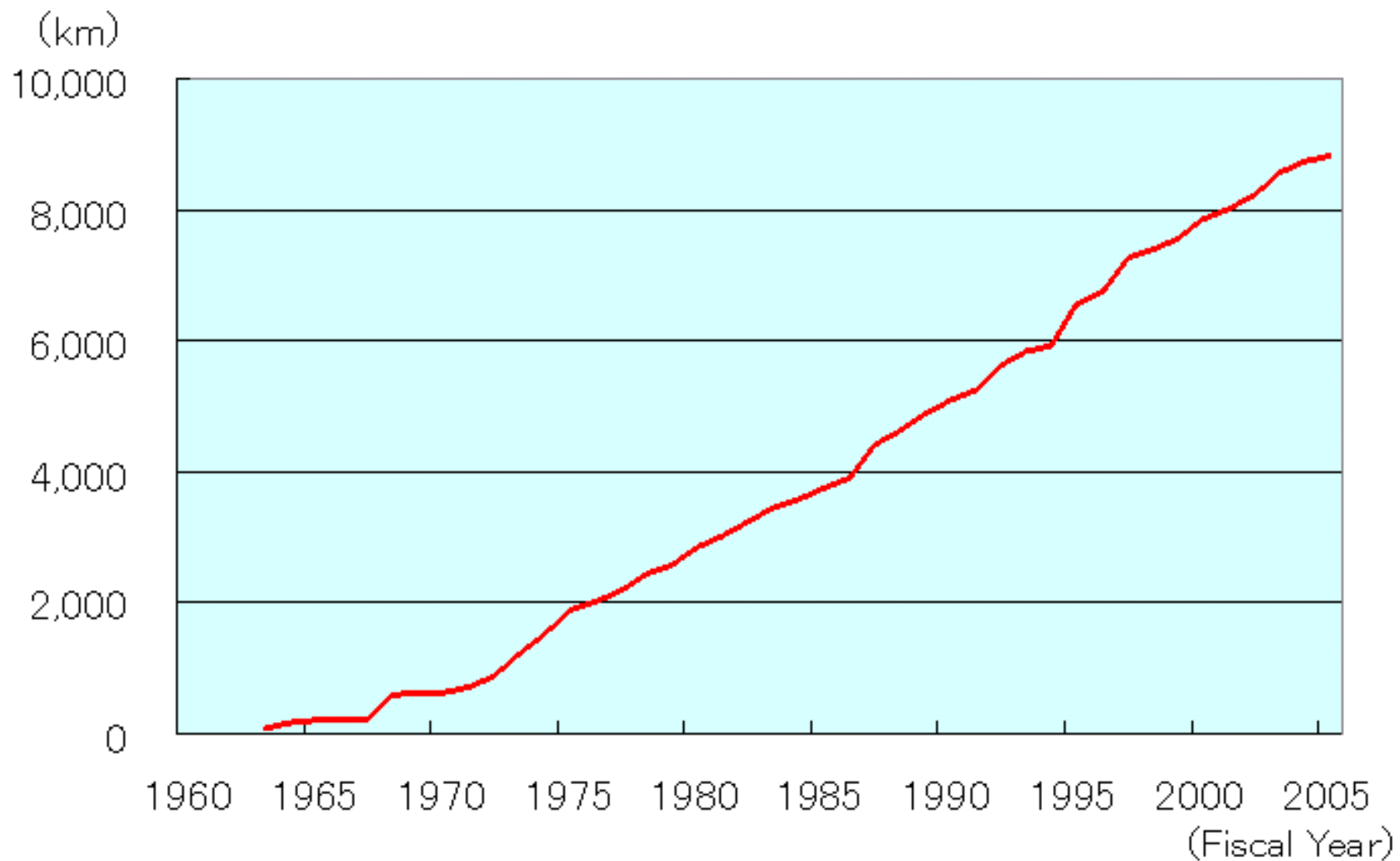
Source: Ministry of Land, Infrastructure and Transport

## Five-Year Highway Development Plan



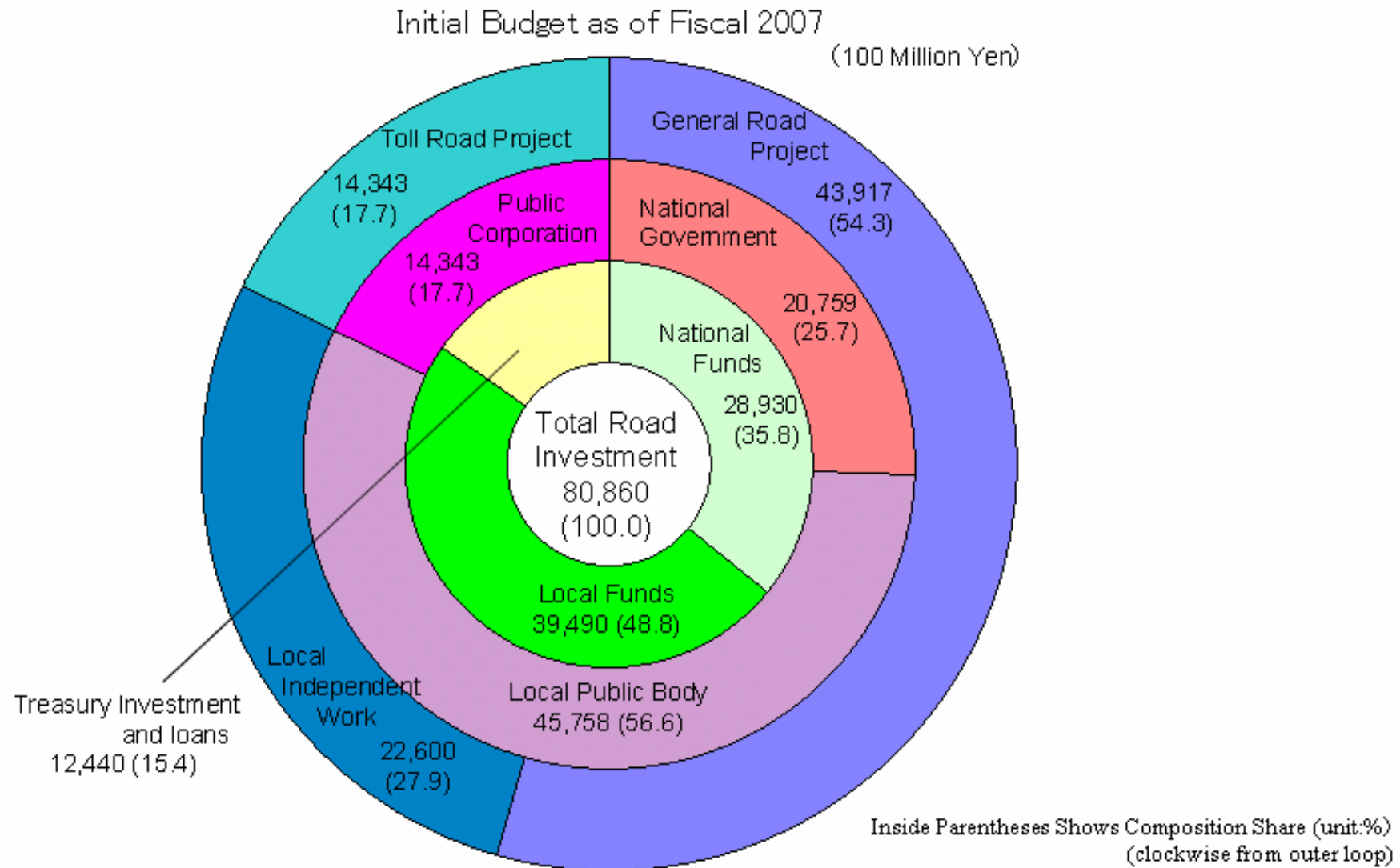
Source: Ministry of Land, Infrastructure and Transport

# Change in the Length of Roads



Source: Ministry of Land, Infrastructure and Transport

## Change in Length of High-Standard Highways



Source: Ministry of Land, Infrastructure and Transport

## Composition of Road Investment by Project Type, Administrator, and Financial Resource



## 2. Road Financing System

- Development of the road network require
  - large-scale funding
  - stable funding
- This funding should respond to  
not the influence of economic conditions,  
road traffic demand.
- Beneficiaries from road use must bear the burden.



- ① Earmarked tax revenue system
- ② Toll road system

## ① *Earmarked tax revenue system* [concept]

- Owners and drivers of automobiles receive more benefit and damage roads significantly more than pedestrians.

⇒ They should pay more for the road cost.

**Fairness:** Users must bear the burden in accordance with the benefits.

**Rationality:** User's burden is totally spent on road improvements, which is acceptable to tax payers.

**Stability:** Free from the effect of fiscal condition, the revenues can be stabilized.

## [history]

- 1953: Special laws on urgent highway development
  - Motorists were subjected to taxes
  - Government established earmarked funds for road improvement
- 1954: The gasoline tax was established as an earmarked tax
  - • • burden according to the mileage (user benefit)
- 1971: Setting of the motor vehicle tonnage tax
  - • • burden according to the tonnage (damage by user)

<div>Taxed Stage</div> <div>Vehicle Type</div>	<div>Purchase of Motor Vehicles</div>	

Source: Ministry of Land, Infrastructure and Transport

## Overview of Earmarked Taxes for Road Projects

<div>Taxed Stage</div> <div>Vehicle Type</div>	Purchase of Motor Vehicles	Ownership of Motor Vehicles	

Source: Ministry of Land, Infrastructure and Transport

## Overview of Earmarked Taxes for Road Projects

<div>Taxed Stage</div> <div>Vehicle Type</div>	Purchase of Motor Vehicles	Ownership of Motor Vehicles	Use of Motor Vehicles (Fuel Consumption)

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## Overview of Earmarked Taxes for Road Projects



<div>Taxed Stage</div> <div>Vehicle Type</div>	Purchase of Motor Vehicles	Ownership of Motor Vehicles	Use of Motor Vehicles (Fuel Consumption)
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Source: Ministry of Land, Infrastructure and Transport

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Source: Ministry of Land, Infrastructure and Transport

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Diesel Fuel Vehicles			1956 ~ <b>Diesel Fuel Transaction Tax</b> (Local Revenue Source)

Source: Ministry of Land, Infrastructure and Transport

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Source: Ministry of Land, Infrastructure and Transport

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Gasoline Vehicles	1968 ~ <b>Motor Vehicle Purchase Tax</b> (Local Revenue Source)	1971 ~ <b>Motor Vehicle Tonnage Tax</b> (National/ Local Revenue Source)	1954 ~ <b>Gasoline Tax</b> (National Revenue Source)  1955 ~ <b>Local Road Tax</b> (Local Revenue Source)
Diesel Fuel Vehicles			1956 ~ <b>Diesel Fuel Transaction Tax</b> (Local Revenue Source)
LPG Vehicles			1966 ~ <b>LPG Tax</b> (National/ Local Revenue Source)

Source: Ministry of Land, Infrastructure and Transport

## Overview of Earmarked Taxes for Road Projects

5-year program		Fiscal Year	Gasoline tax (Yen/Liter)	Regional road tax (all amount is transferred to local gov't) (Yen/Kg)	Diesel fuel transaction tax (Yen/Liter)	LPG tax (1/2 is transferred to local gov't) (Yen/Kg)	Motor vehicle purchase tax	Motor vehicle tonnage tax (1/3 is transferred to local gov't) (Yen/Kg)
			National tax (Apr.)	National tax (Apr.)	Local tax (Apr.)	National tax (Apr.)	Local tax	National tax (Apr.)
1st Program, 1954-58 ¥260 bill.		1954	(Apr.) 13.0 (Aug.) 11.0 (Apr.) 14.8	(Aug.) 2.0 (Apr.) 3.5	(June) 6.0 (Apr.) 8.0			
2nd, 1958-62 ¥1,000 bill.		1958	(Apr.) 19.2		(Apr.) 10.4			
3rd, 1961-65 ¥2,100 bill.		1961	(Apr.) 22.1	(Apr.) 4.0	(Apr.) 12.5			
4th, 1964-68 ¥4,100 bill.		1964	(Apr.) 24.3	(Apr.) 4.4	(Apr.) 15.0			
5th, 1967-71 ¥6,600 bill.		1967				(Feb.) 5.0 (Jan.) 10.0		
6th, 1970-74 ¥10,350 bill.		1970				(Jan.) 17.5	(July) 3% of purchase price	(Dec.) 2,500
7th, 1973-77 ¥19,500 bill.		1973	(Apr.) 29.2 (July) 36.5	(Apr.) 5.3 (July) 6.6	(Apr.) 19.5		(Apr.) 5% of purchase price ○ (Apr.)	(May) 5,000 (May) 6,300
8th, 1978-82 ¥28,500 bill.		1978	○ (Apr.) (June) 45.5	○ (Apr.) (June) 8.2	○ (Apr.) (June) 24.3		○ (Apr.) ○ (Apr.)	○ (May) ○ (May)
9th, 1983-87 ¥38,200 bill.		1983	○ (Apr.) ○ (Apr.)	○ (Apr.) ○ (Apr.)	○ (Apr.) ○ (Apr.)		○ (Apr.) ○ (Apr.)	○ (May) ○ (May)
10th, 1988-92 ¥53,000 bill.		1988	○ (Apr.)	○ (Apr.)	○ (Apr.)		○ (Apr.)	○ (May)
11th, 1993-97 ¥76,000 bill.		1993	○ (Apr.) (Dec.) 48.6	○ (Apr.) (Dec.) 5.2	○ (Apr.) (Dec.) 32.1		○ (Apr.)	○ (May)
12th, 1998-2002 ¥78,000 bill.		1998	○ (Apr.)	○ (Apr.)	○ (Apr.)		○ (Apr.)	○ (May)
2003-2007 ¥38,000 bill.		2003	○ (Apr.)	○ (Apr.)	○ (Apr.)		○ (Apr.)	○ (May)

Source: Ministry of Land, Infrastructure and Transport

- Note: 1)   Indicates provisional tax rate stipulated by Special Taxation Measures Law or the additional clause of the Local Tax Law.  
 2)   Indicates the years which the provisional tax rate was extended.  
 3) The rate of transfer for the motor vehicle tonnage tax is 1/4 until fiscal 2002.  
 3) The figure for 2003-2007 does not include local independent works.

## Trends of 5-Year Plan and Rates of Earmarked Tax



# Earmarked Tax Revenue for Road Projects in Current Japan

Tax Items		Appropriation for Road Improvement	Tax Rate	Tax Revenues
National	Gasoline Tax	Total Amount (1/15 has been directly allocated to the special account for road improvement since 1985: however this has been expanded to ¼ since 1988.)	Provisional tax rate: ¥48.6/liter Basic tax rate: ¥24.3/liter	29,573
	LPG Tax	1/2 of Revenue (1/2 is transferred to the local government as motor vehicle LPG transfer tax.)	Basic tax rate: ¥17.5/kg	143
	Motor Vehicle Tonnage Tax	77.5% of the National Share (2/3) of Revenue (2/3 of the revenue is national general revenue: however, in view of the origin and the tax, an account equivalent to 77.5% is set aside as road fund)	(example)Provisional tax rate: ¥6,300/0.5t year Basic tax rate: ¥2,500/ 0.5t year	5,712
	Subtotal			35,429
Local	Local Road Transfer Tax	Total Amount of Local Road Tax Revenues (Levied together with gasoline tax) 58/100: Prefectures and designated cities 42/100: Cities, towns, and villages)	Provisional tax rate: ¥5.2/liter Basic tax rate: ¥4.4/liter	3,110
	LPG Transfer Tax	1/2 of Revenues from Motor Vehicles LPG Tax Prefectures and designated cities	Basic tax rate: ¥17.5/kg	142
	Motor Vehicle Tonnage Tax	1/3 of Revenues from Motor Vehicle Tonnage Tax Cities, towns, and villages	Provisional tax rate: ¥6,300/0.5t year Basic tax rate: ¥2,500/ 0.5t year	3,707
	Diesel Fuel Transaction Tax	Total Amount Prefectures and designated cities	Provisional tax rate ¥32.1/liter Basic tax rate: ¥15.0/liter	10,620
	Motor Vehicle Purchase Tax	Total Amount 3/10: Prefectures and designated cities 7/10: Cities, towns, and villages	Provisional tax rate: 5% of purchase price for private motor vehicle Basic tax rate: 3% of purchase price	4,742
	Subtotal			22,321
Total				57,750

Note: 1) Tax revenue figures are based on the original budget and local public program for fiscal year 2006 (¥ 100 million).

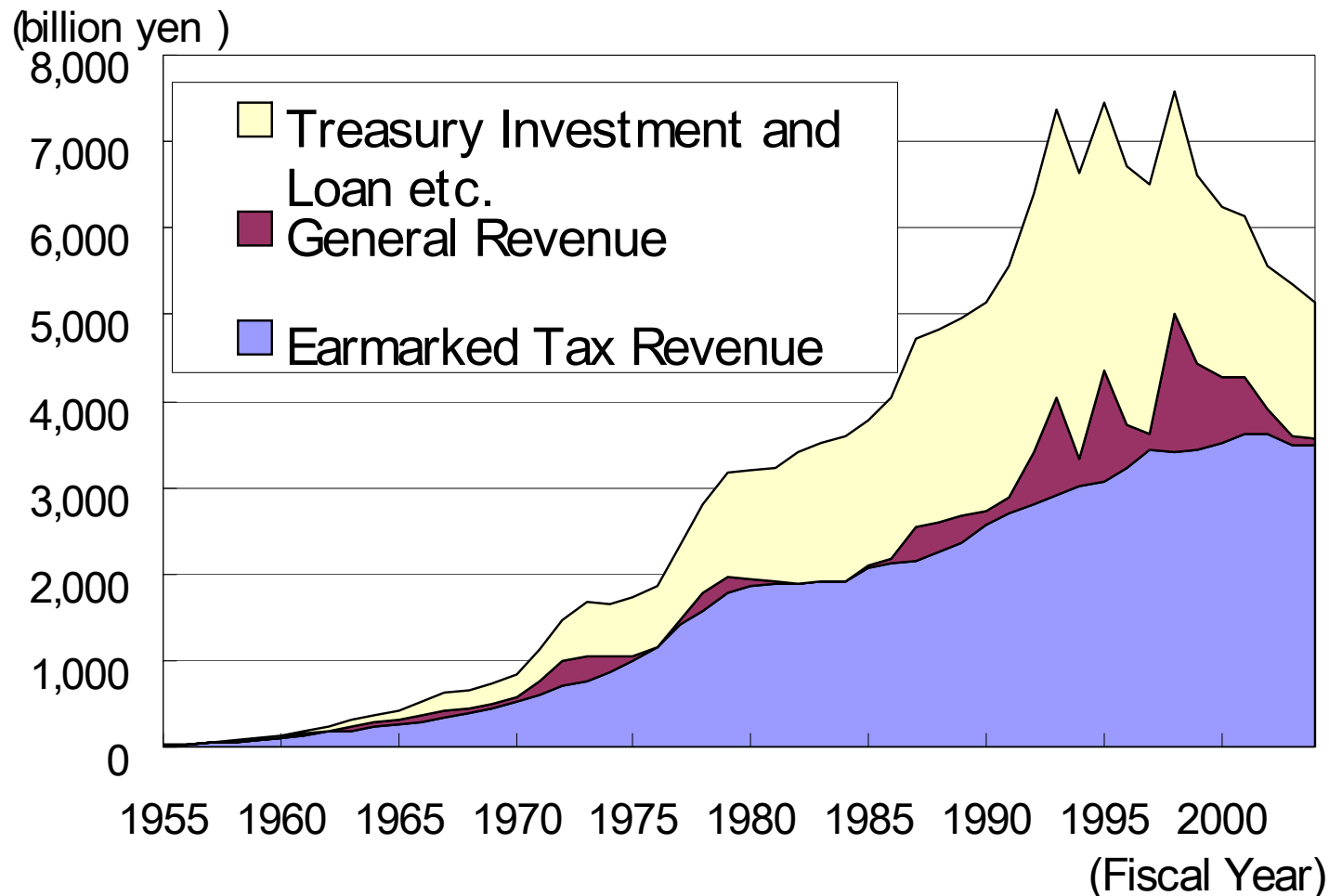
2) Revenue from motor vehicle tonnage tax corresponds to 77.5% of national revenue(2/3).

3) The tentative tax rate is applicable to the end of March 2008(or the end of April 2008 in the case of the motor vehicle tonnage tax).

## 2. Finance for Road Projects

### (3) Transition of Road Investment and Financial

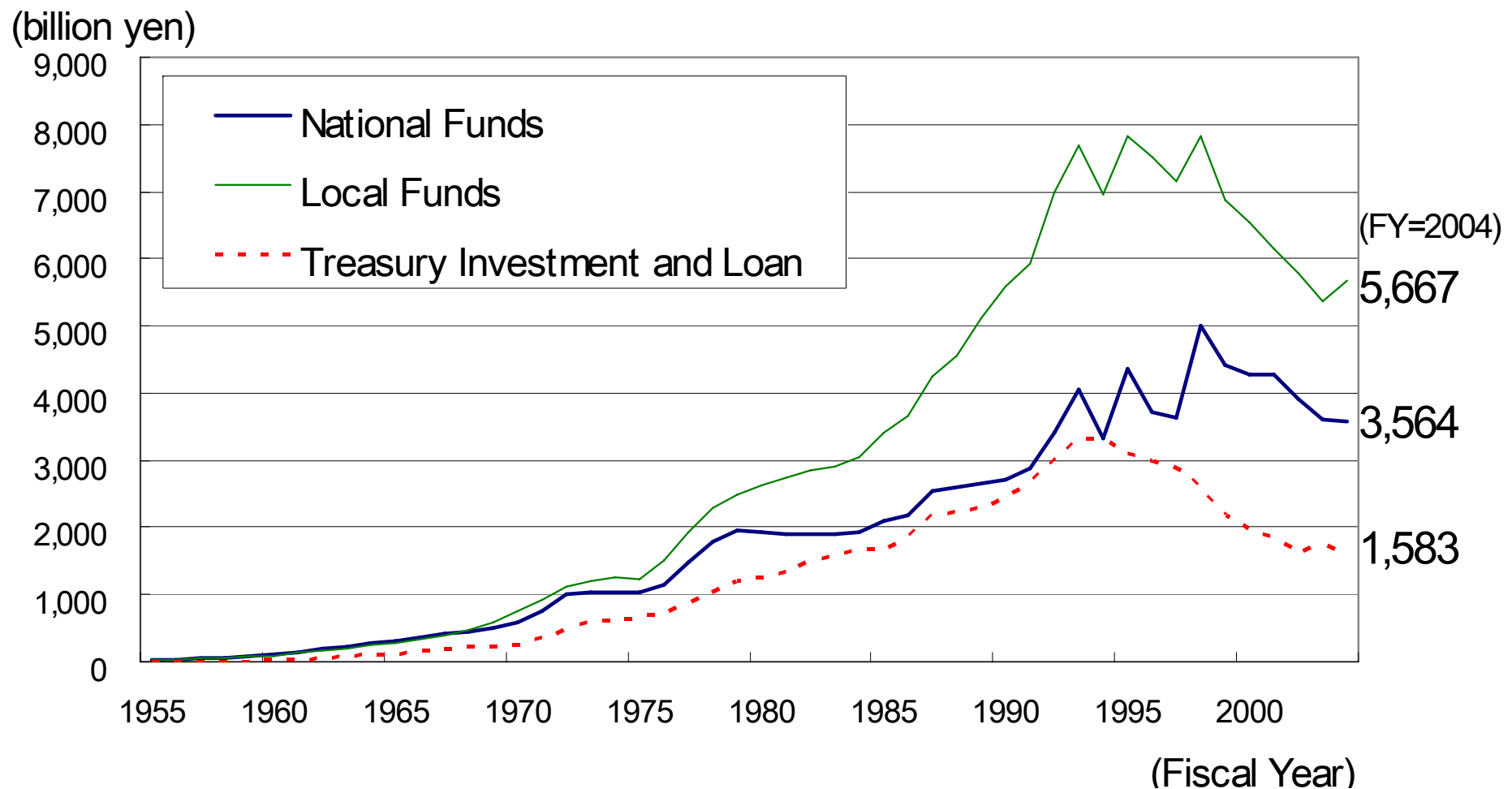
### Resource Change in National Road Investment

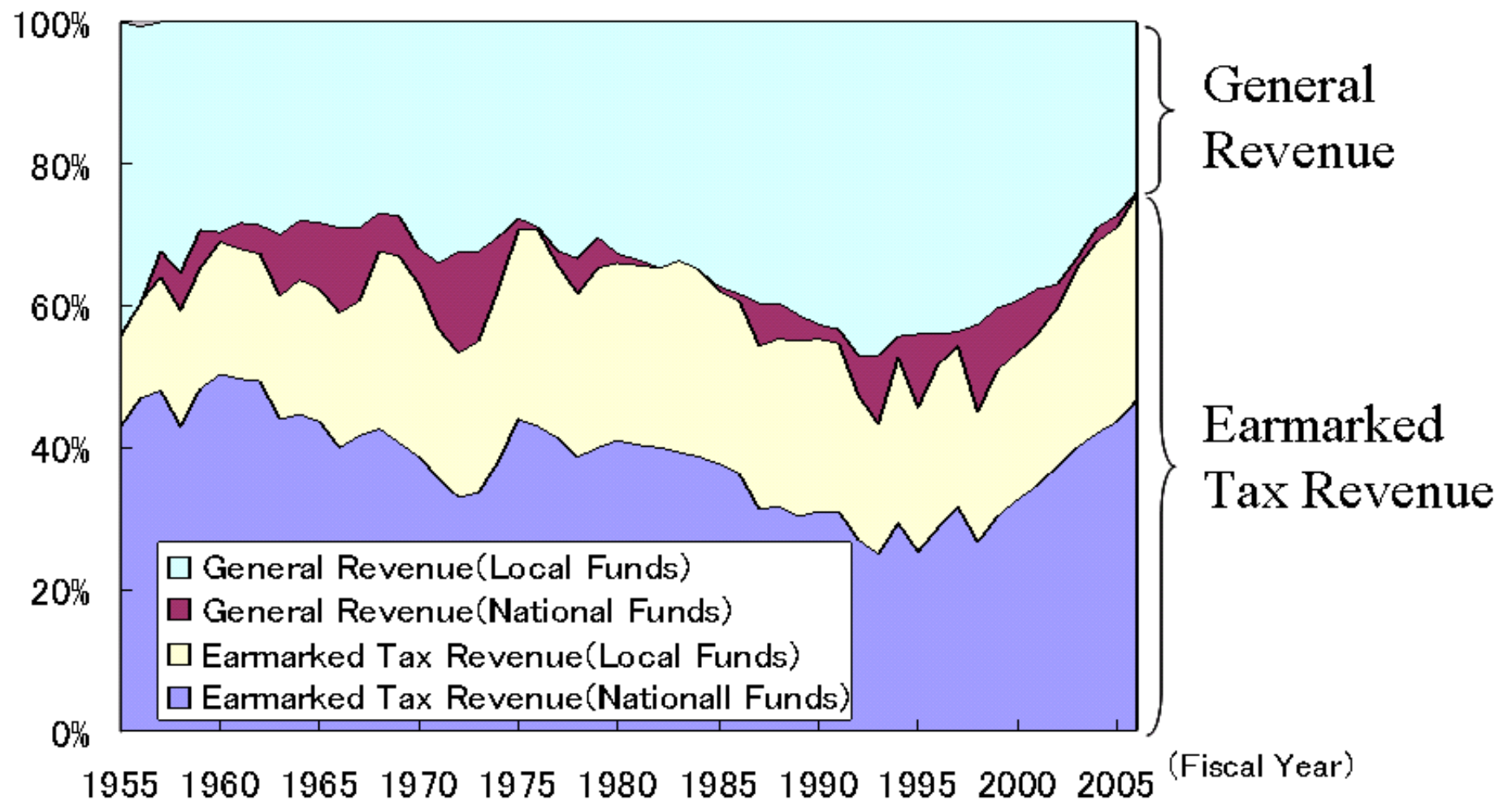


## 2. Finance for Road Projects

### (3) Transition of Road Investment and Financial Resource

Change in Road Investment by National Funds, Local Funds, and Treasury Investment and Loans





Source: Ministry of Land, Infrastructure and Transport

## Change in Share of Road Project Fund

# [argument]

- the urban resident
  - Highway development has attained a certain level.
  - Investments for highway development should now be reduced.
- the Ministry of Finance
  - The earmarked funds for road projects should transfer to the general budget.



- the rural resident
  - The road network isn't developed sufficiently yet.
- car user groups
  - The beneficiary payment principle should be kept.
  - The car related tax should be returned to the road user.

## [argument]

- Recommendations of transport economists
  - The earmarked funds is fair, efficient and stable.
  - A stable revenue source is required to improve  
the road network.
  - The earmarked funds should not be transferred  
to the general budget.
  - If road development is enough,  
the earmarked tax should be abolished.

*Finally, the prime minister decided  
to generalize the earmarked tax.*

## 2. Road Financing System

### ② *Toll road system* [concept]

- The road should be open to the public for free.



*But, only of tax revenue was insufficient to cover the cost of the needed road development.*

- The toll road system
  - · · a means of covering revenue shortages, funding maintenance costs and repaying construction loans
  - · · The system collects toll fees from users, who utilize specific roads.



## [concept]

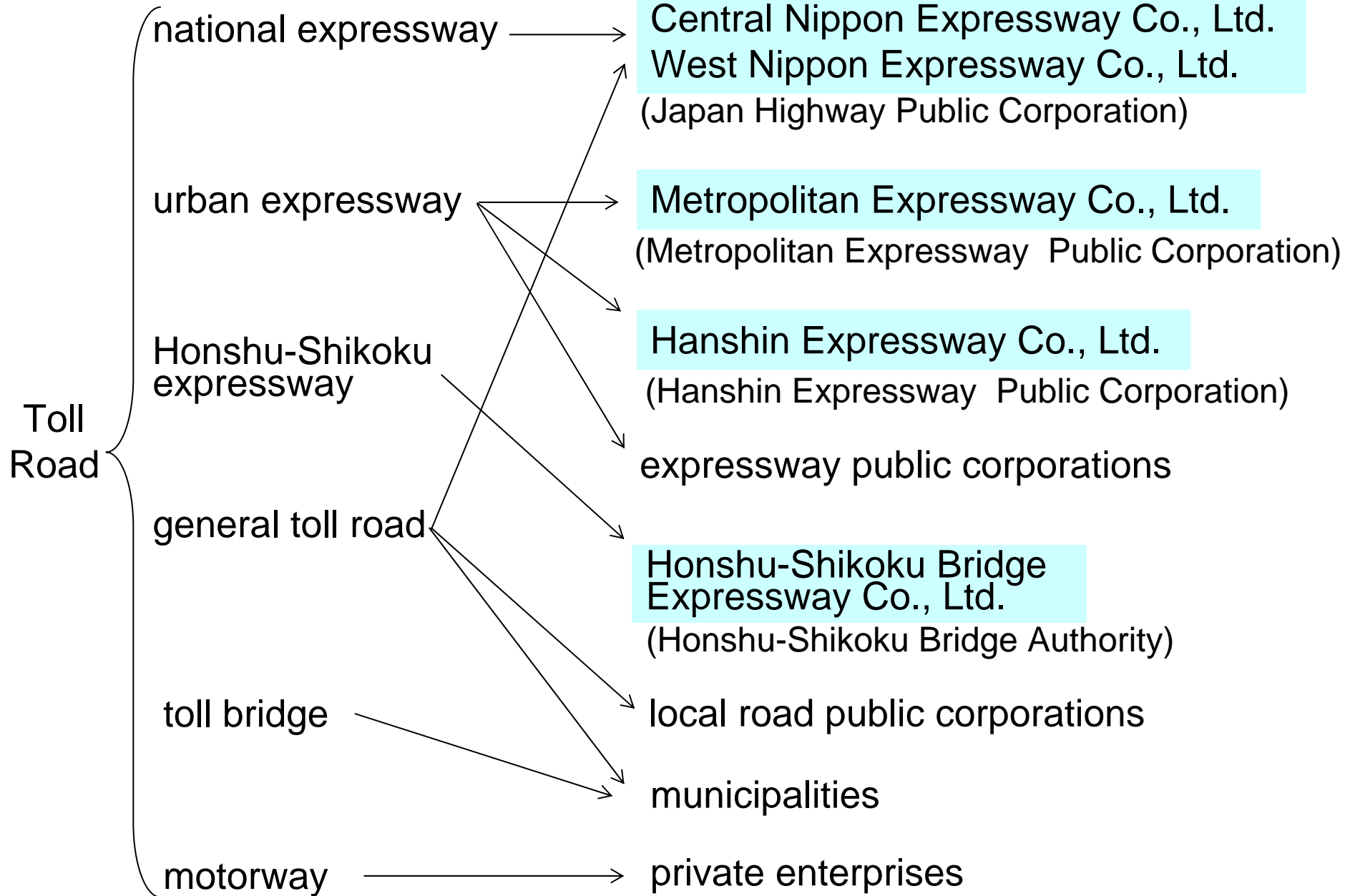
- rule of toll setting in Japan

- 1) Toll must be set to cover the entire cost by its revenue within its collection period.
- 2) Toll must be fair and valid.
- 3) Toll should not exceed the benefit of users.

- feature of toll setting in Japan

- toll pooling system
- · · Several toll roads can be “networked” on a nationwide or regional basis to create a single project for calculating revenue and redemption of expenditures.

[kind]



# [history]

- 1952(revealed in 1956):  
“Law Concerning  
Special Measures for Highway Construction”
  - Introduction of “loans” for compensation  
for the shortage of source of revenue
  - Introduction of the “toll road system”  
(Overseer: State, Local Public Bodies)

## 1956: Foundation of Japan Highway

Public Corporation

---- a main body of national toll road network

- 1959: Establishment of the Metropolitan Expressway

Public Corporation

- 1962: Establishment of the Hanshin Expressway

Public Corporation

- 1970: Establishment of the Honshu-Shikoku Bridge

Authority

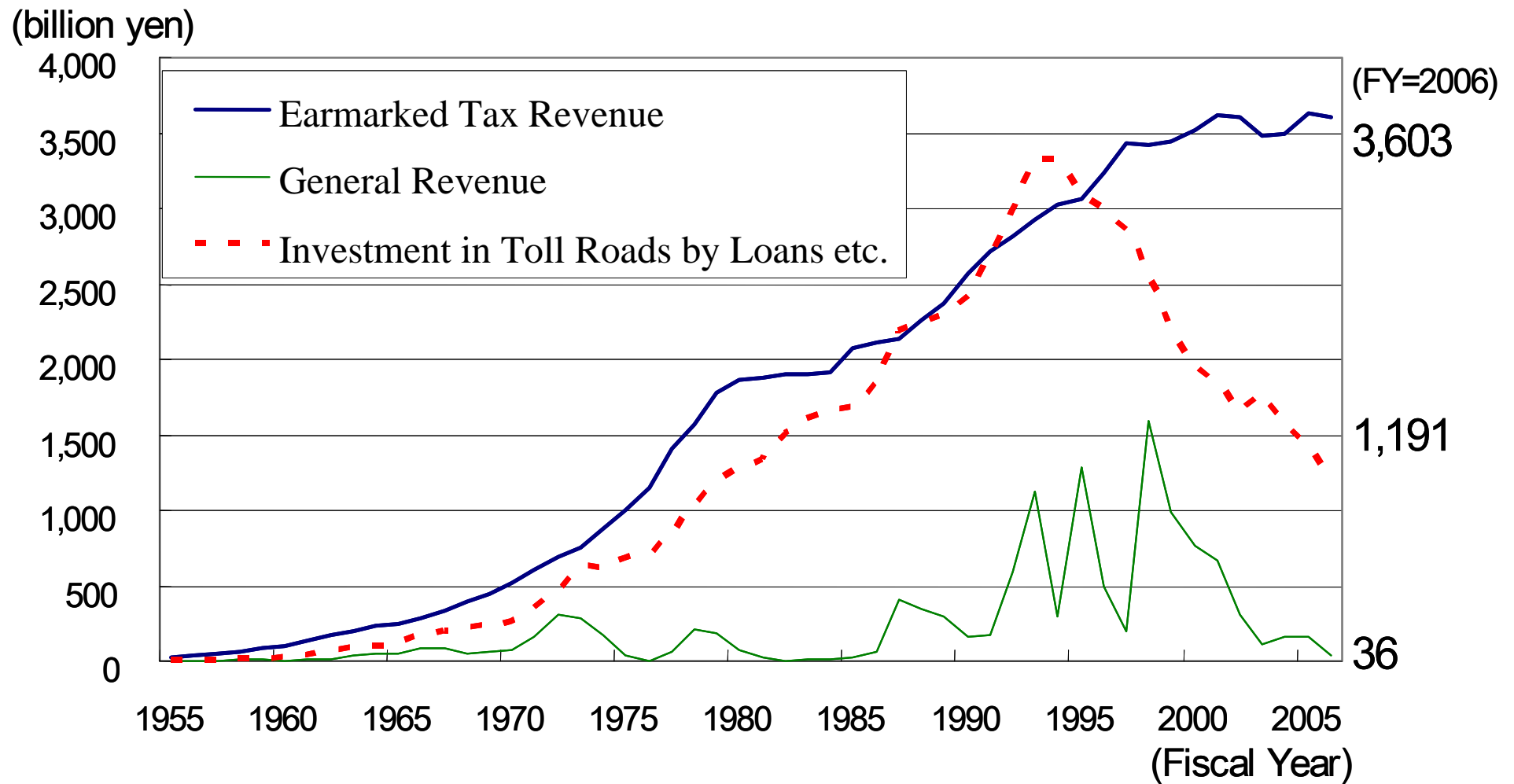
: Enactment of the Law Concerning Local Road

Public Corporation

- Permitting establishment of a local road public corporation to construct regional arterial toll road.

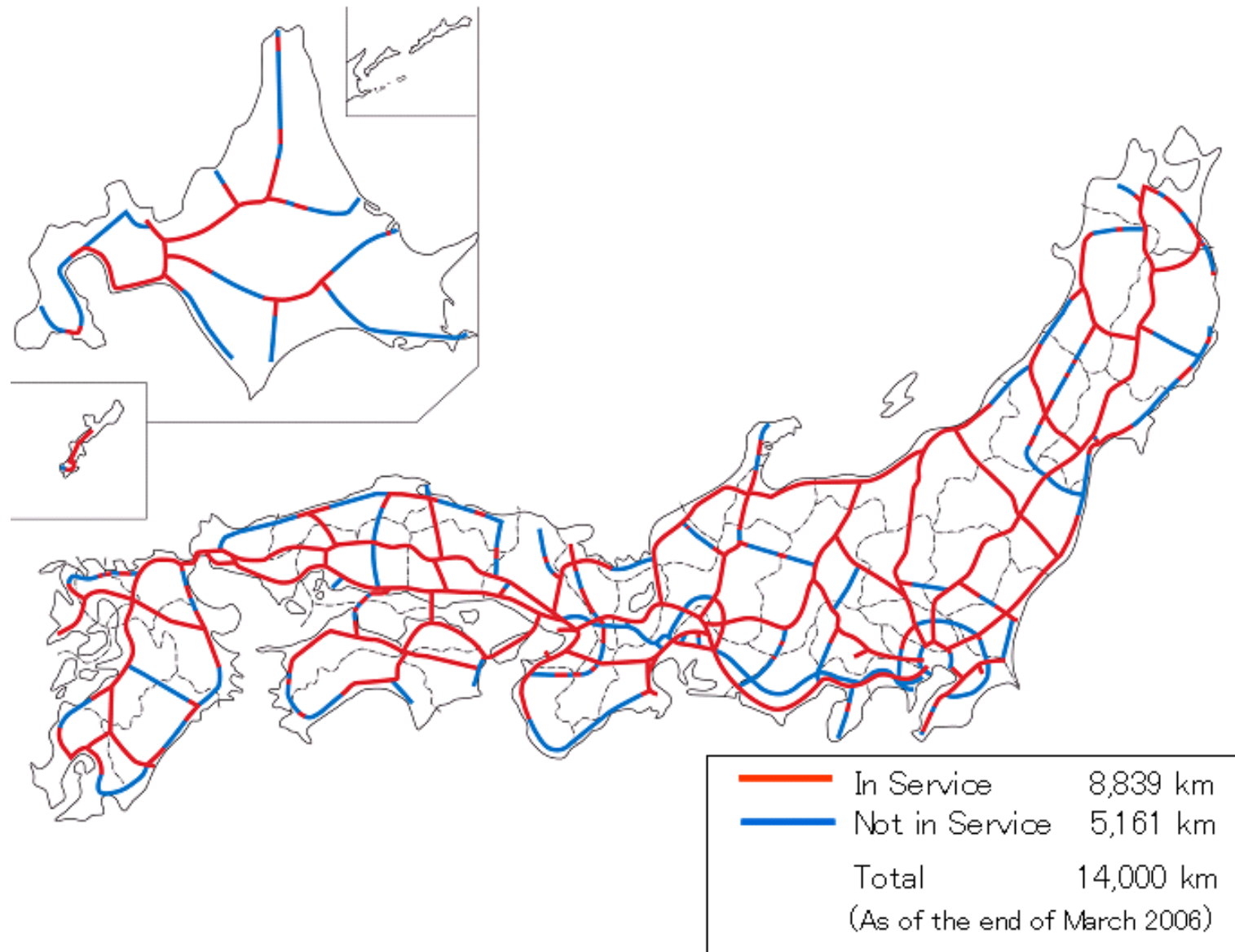
## [history]

- 2000:
  - Budget for toll road works: 2,590 billion yen
  - Share for toll road works
    - · · About 35% of the total road works
  - Total national government funds for toll road works
    - · · 530 billion yen = 15% of the total national funds
- 2005:
  - Total length of toll roads: Approximately 9,500km  
(Includes national expressways, urban expressways,  
Honshu-Shikoku expressways, general toll roads)



Source: Ministry of Land, Infrastructure and Transport

## Change in Road Investment of National Government by Financial Resource



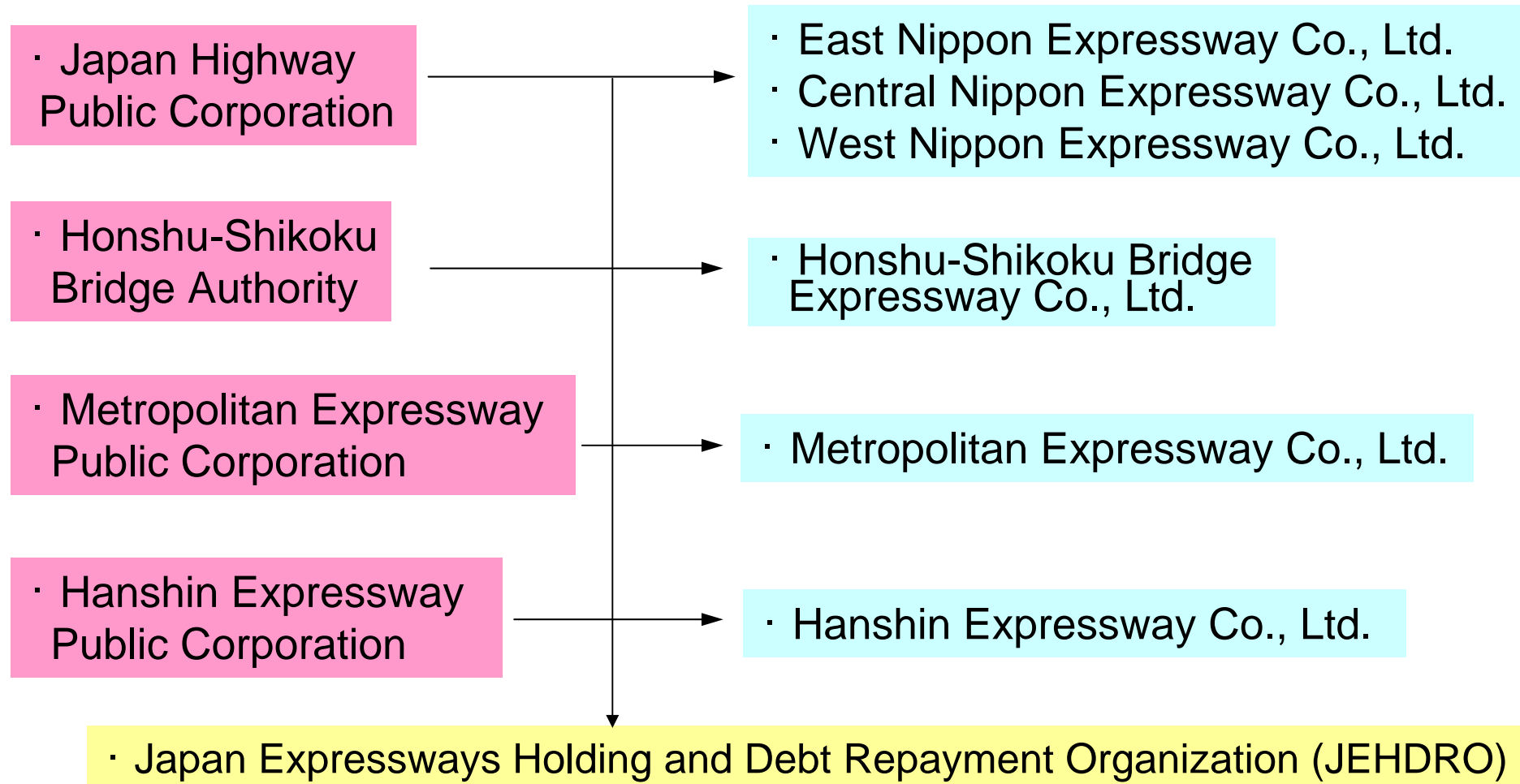
Source: Ministry of Land, Infrastructure and Transport

## Current Status and Further Development of High-Standard Arterial Highways



# [history]

## • 2005: Privatization of Four Highway-Related Public Corporations



# CONCLUSION

- The earmarked tax system

When a country expects an increase in traffic demand in the future, earmarked tax systems can be effective because tax revenues related to automobiles increase in proportion to traffic demand.

- The toll road system

It is possible to introduce toll road systems to cover the cost of development even in countries with low economic growth rates with some assistance from the government as long as traffic demand is above certain levels.



*stable and adequate financial resources for road development*

- The Five-Year Highway Development Plan

It is important that stable development and maintenance plans should be practiced with corroboration of above mentioned resources.

Improving road networks  
based on the plan, and  
securing stable, reliable and  
adequate funding for road  
investment are believing in  
the future of the nation.

*Thank you*

The **END**

