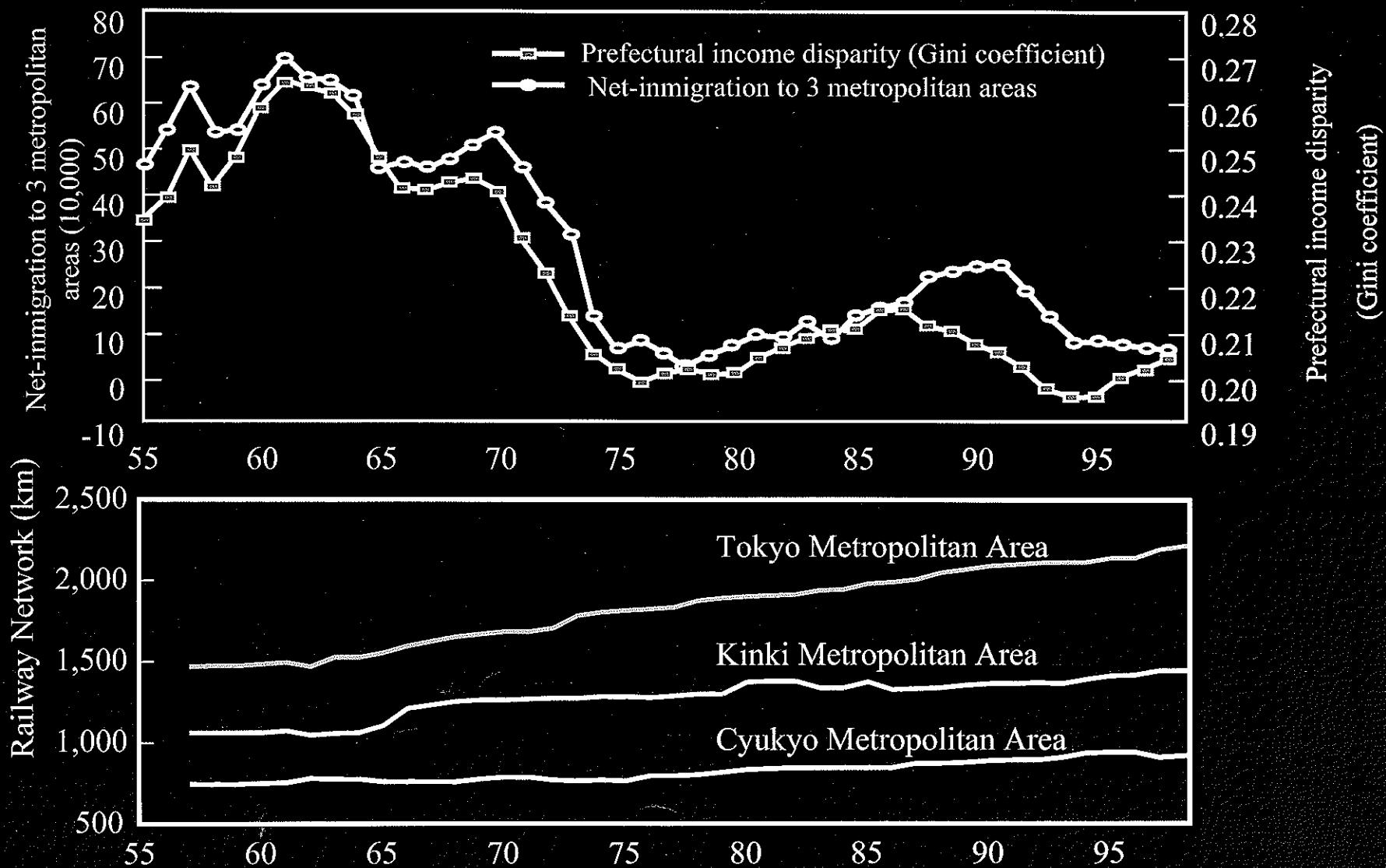
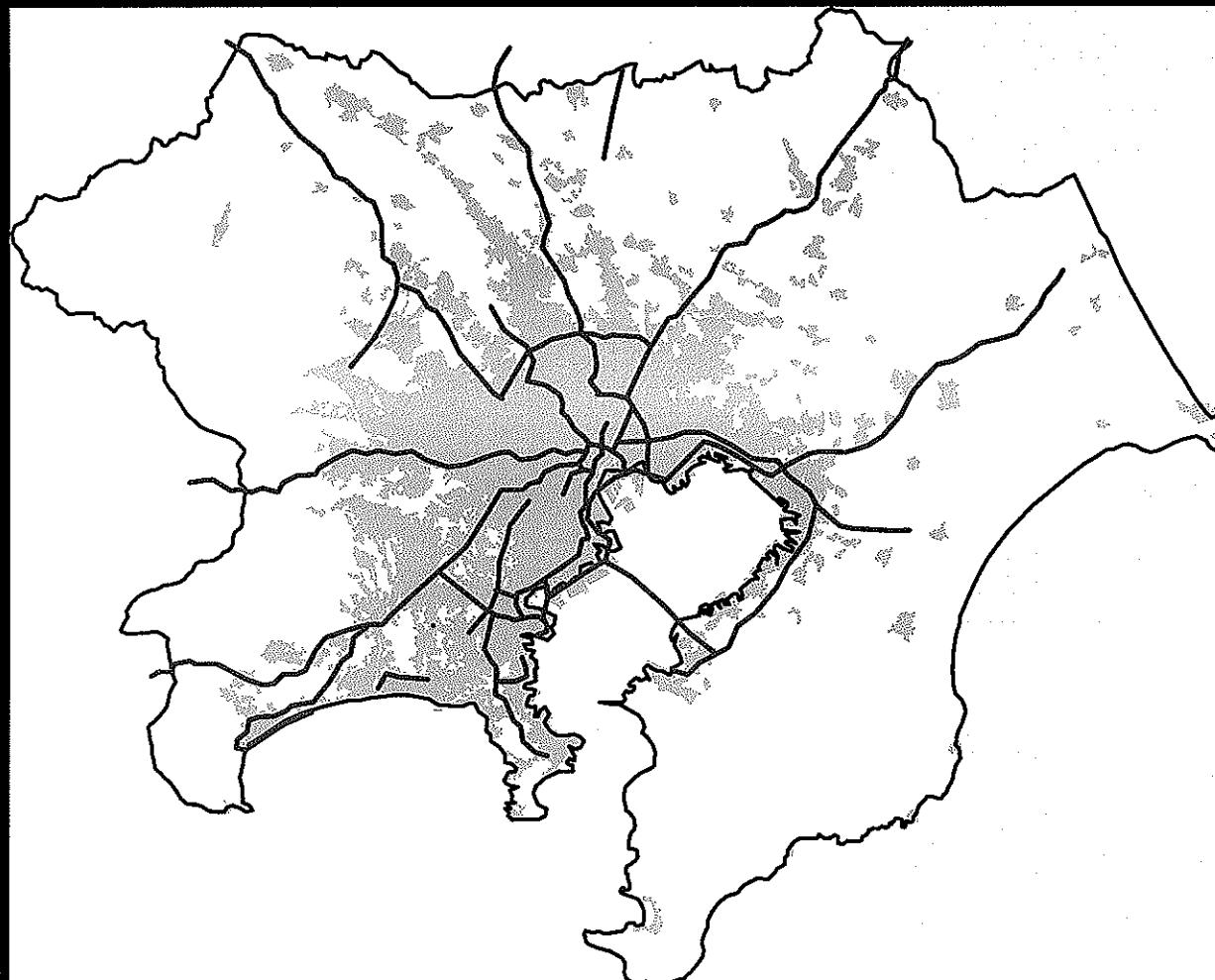


# Time-Series Trend of Urbanization



# Railway-Oriented Land Use: Road Network and DID



DID: Densely Inhabited District, population density over 4,000 persons/km<sup>2</sup>  
and resident population of over 5,000.

### 3.1 Pilot Program

- Trial implementation of policies, which are likely to have big social impact

Theme	Contents	No. Impl.	No. Ongoing
Effective use of road space	♦Coexistence of pedestrian and vehicle in one way ♦Multipurpose usage of road. (Ex. Terrace cafe)	16	2
Promotion of public transport	♦Park and ride ♦System of car sharing	12	3
Smoothen transportation in tourist site	♦Limitation of private car entry into tourist site, substitute bus ♦Comprehensive information system for tourist	8	2
Promotion of bicycle	♦Creation of bicycle lane Introduction of rental bicycle system	7	2
Logistics and loading policy	♦Creation of loading space on road ♦Guiding trucks parked in the streets into parking lots	4	1
Effective use of toll road	♦Environmental Road Pricing	3	Con't
Others	♦Road safety ♦Cooperation of road management	5	1

### 3.1 Pilot Program: Environmental Road Pricing (1)

- Environmental road pricing was introduced to mitigate environmental impacts around residential areas by charging differential tolls to divert traffic to coastal routes
- The tolls for roads located in costal areas are set lower than those for roads running through residential areas.
- This measure is introduced in two routes

## II. Urban Transport Policy Framework

# Comprehensive Urban Transport Policy

- Person-trip survey & Master plan
  - 10 year interval for large-scale cities (> 300k pop.)
- Urban railway master plan for three metropolitan areas



- Railway-oriented land-use
- Road investment to respond to rapid motorization

# Collaboration among Central, Local Government and Private Sector

## 1. Railway

- Planning process collaboration
- Financial burden sharing for investment
- Mixture of railway operators
  - Japan National Railway ➔ Privatized, JR
  - Teito Rapid Transit Authority ➔ Privatized, Tokyo Metro
  - Operators owned by municipality
  - Semi-public operators
  - Private operators

# Collaboration among Central, Local Government and Private Sector con't

## 2. Road

- Central government
  - Japan Highway Public Corporation
    - ➡ Privatizing
- Central and local government
  - Urban expressway public corporations (Tokyo, Osaka-Kobe)
    - ➡ Privatizing
- Local Government
  - Highway public corporations
    - (Subsidized by Central government)

# Hierarchical Network Structure

## Road

- Urban expressway
- Arterial road
- Distributor, collector
- Local street

## Railway

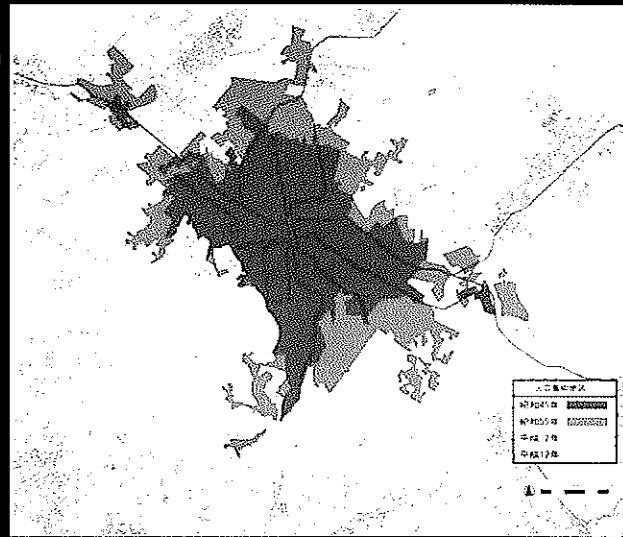
Railway Type	Station Distance	Operating Speed *
Shinkansen Railway	30 – 50 km	120 -130 km/hr
Inter-city Train	5 – 6 km	50 - 60 km/hr
Express Train		
Ordinary Train	1 – 2 km	40 - 45 km/hr
Subway	0.5 – 1 km	30 - 35 km/hr
Monorail / AGT	0.5 – 1 km	20 - 30 km/hr

\* Includes stoppage time at station

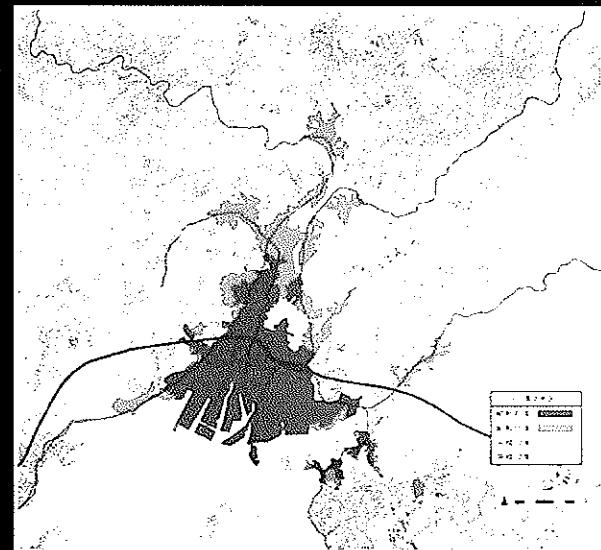
### III. Major Institutions for Urban Transport

# Transport/Land-use Policy

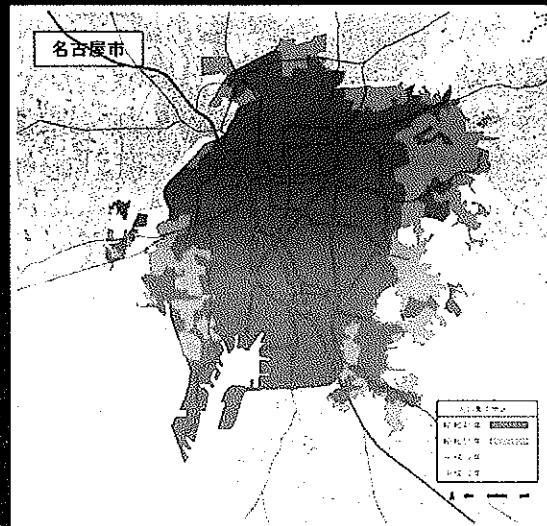
Sapporo



Hiroshima



Nagoya



Kitakyusyu

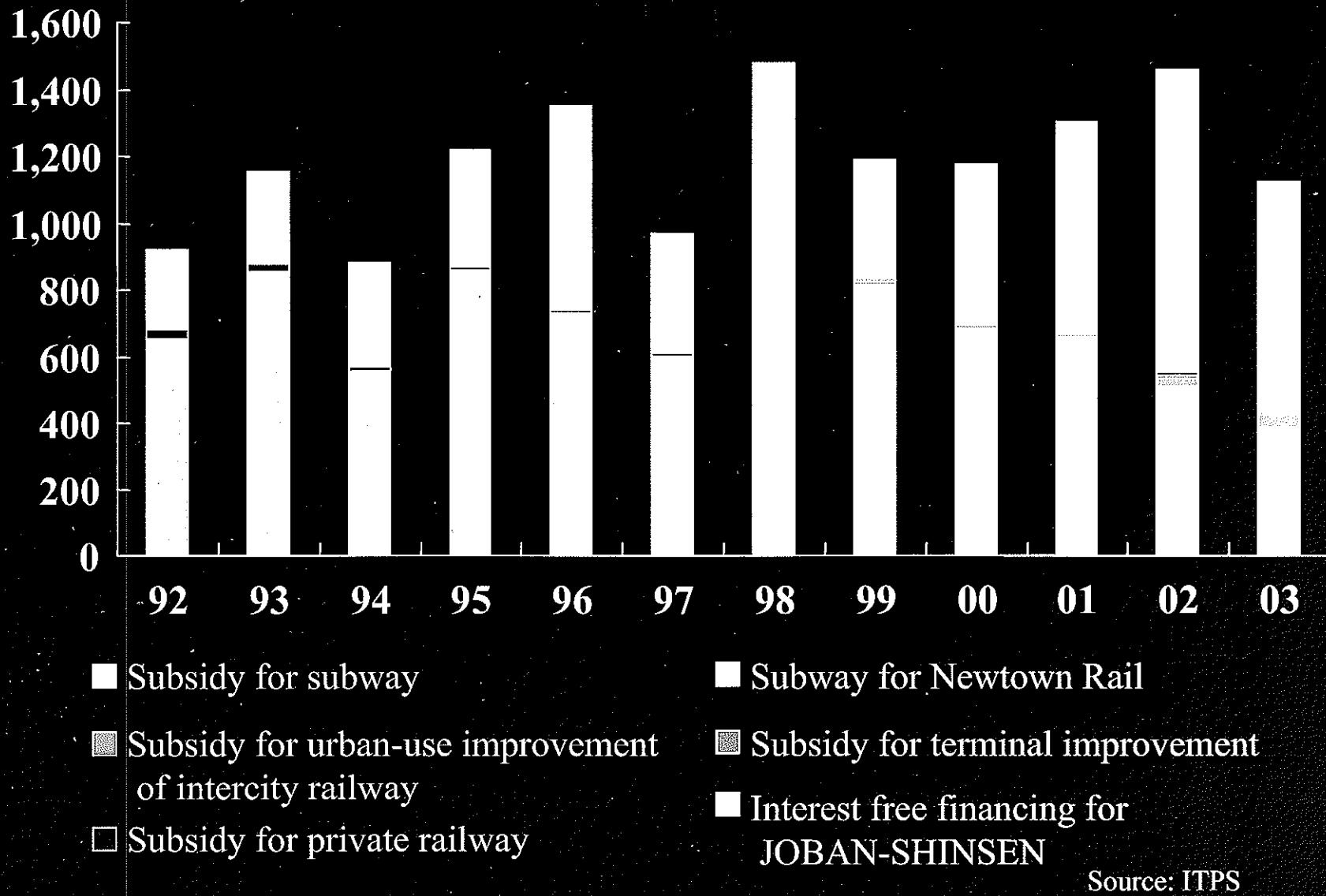


# Major Subsidy System for Urban Railway

- Subsidy for : Subway
  - : Monorail
  - : LRT
- Interest free financing for JOBAN-SHINSEN
- Subsidy for Newtown Railway
- Subsidy for grade separation of rail and road crossing
  - : Individual intersection
  - : Continuous elevation of railway

# Subsidy for Urban Railway

(million US\$)

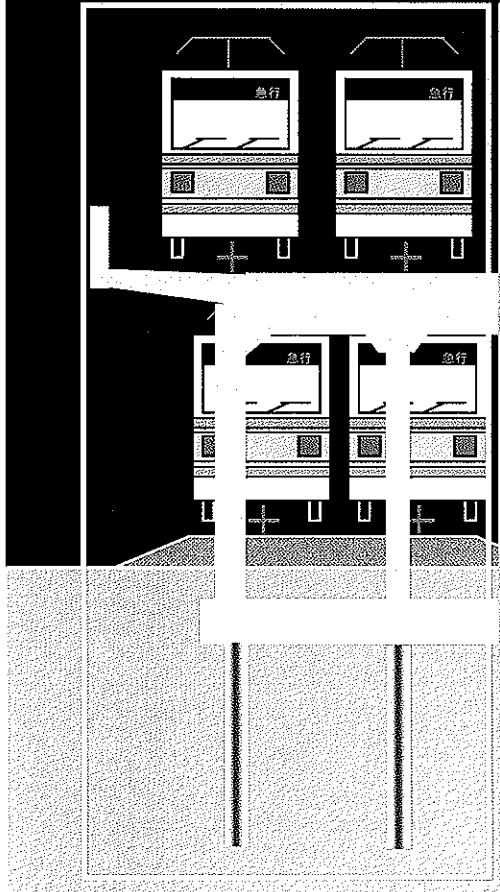


# Burden Sharing for Each Subsidy System

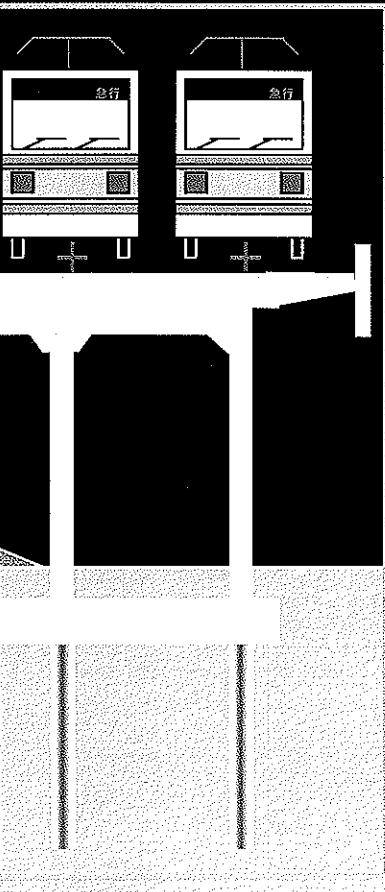
		Central Government	Local Government
Subsidy for	Subway : Construction cost	35%	35%
	for Monorail: Infrastructure	30%	30%
	for LRT : Track, Station etc.	33%	33%
Subsidy for	Newtown Railway	15%	15%
	: Construction cost		
Interest free financing for	JOBAN-SHINSEN		
	: Construction cost	40%	40%
	: Equity	0%	less than
Subsidy for	grade separation of rail and road	28.7 -	20% -
crossing		63.3%	31.6%

# Subsidy for Grade Separation of Rail and Road Crossing

Existing  
infrastructure



Expanded  
Infrastructure



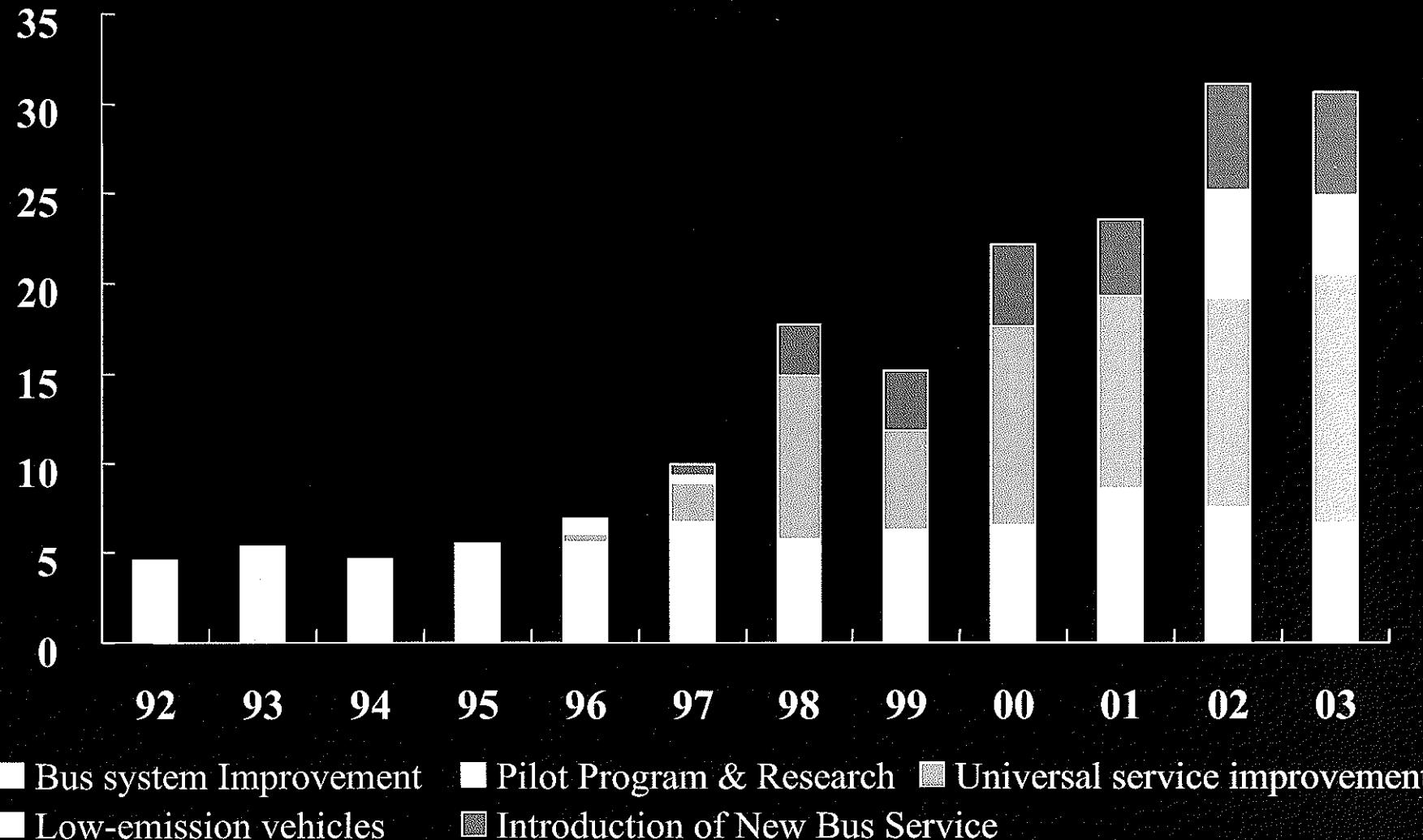
- Ensuring comfortable traffic and Promoting local interaction
- Sharing financial burden between road and rail sides

	Financial burden	
Elevation of Existing Infrastructure	Road	86-95%
	Rail	14- 5%
Construction cost	Road	0%
	Rail	100%

# Subsidy for Urban Bus Operators

- Improvement of bus systems
- Universal service improvement
- Low-emission vehicles
- Introduction of New Bus Service
- Pilot program and research

# Subsidy for Urban Bus Operators (million US\$)



## IV. Japanese Policy Related to ECMT Recommendations

# Recommendations for National Governments from ECMT, 2001(1)

- Establish a supportive national framework
  1. Improve institutional co-ordination and co-operation
  2. Encourage effective public participation, partnership and communication

# Recommendations for National Governments from ECMT, 2001(2)

3. Provide supportive legal and regulatory framework
  - Ensure a comprehensive pricing and fiscal structure
4. Rationalise financing and investment stream
5. Improve data collection, monitoring and research

# 1. Improve institutional co-ordination and co-operation

## 1.1 Existing institution and its improvement

## 1.2 New institution for better railway service: from 2005

- Infrastructure improvement to upgrade function of urban rail network
  - Improving accessibility by developing shortest route
    - Ex: Developing connecting track between Sotetsu & JR
  - Upgrading function of terminal
    - Redevelopment of set of stations for smooth mobility
      - Ex: Development of Sannomia station

## 2. Encourage effective public participation, partnership and communication (1)

### 2.1 Public Comment Procedure for policy making: from 1999

- Provision to seek suggestions from wider section of citizens.
- Administrative agencies make final decisions taking account of the public comments.
- Administrative agencies must follow the procedure when they formulate new regulation, and revise or abolish existing regulations.

## 2. Encourage effective public participation, partnership and communication (2)

### 2.1 Public Comment Procedure for policy making: from 1999 (con't)

- Ensuring fairness and transparency of policy and decision making process

### 2.2 Public Involvement Procedure for road and airport: from 1996

- From the first stage of planning

### 3. Provide supportive legal and regulatory framework

3.1 Pilot program: from 1999

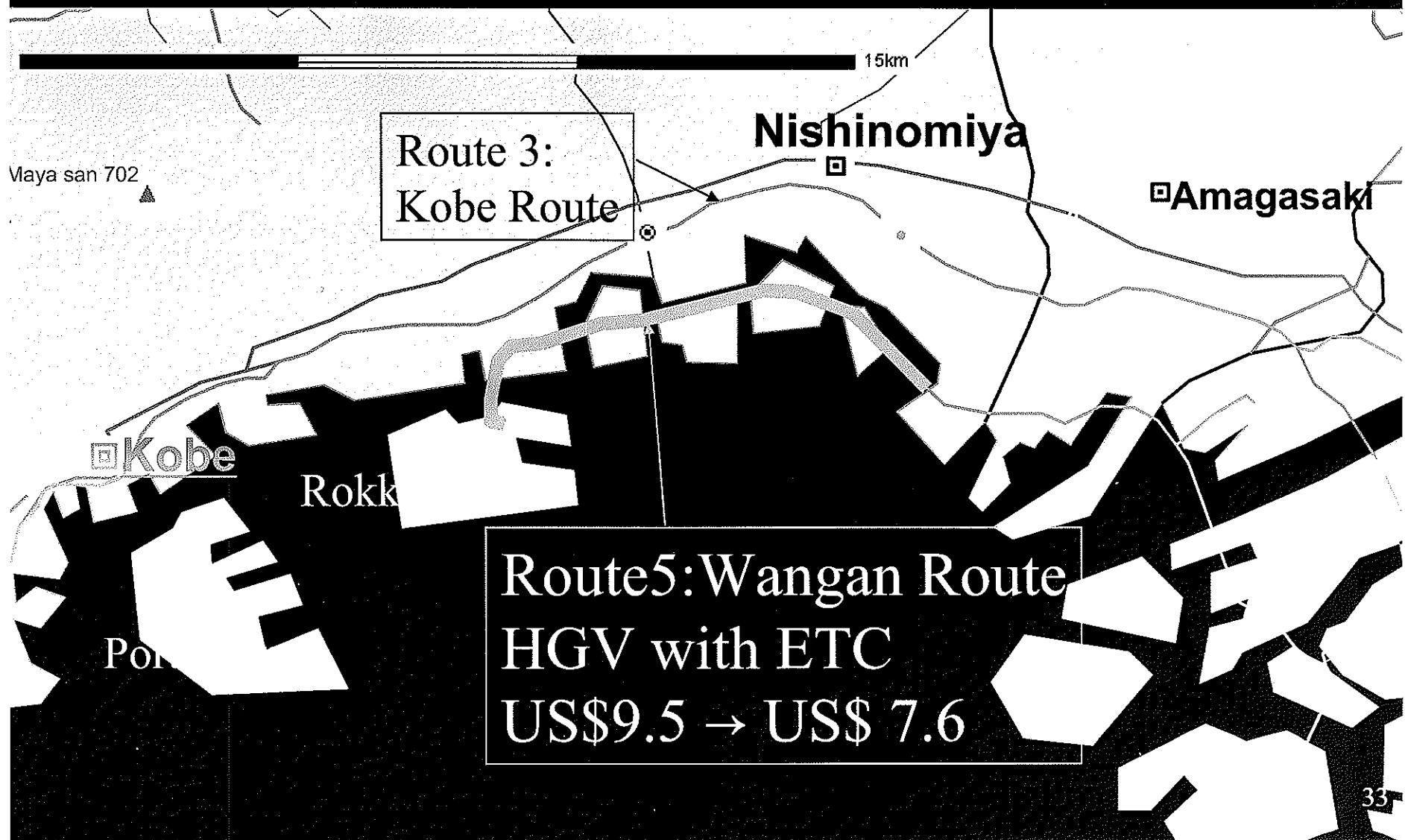
- Environmental Road Pricing

3.2 Automobile NO<sub>x</sub> and PM Act: from 1992, 1994, 2002

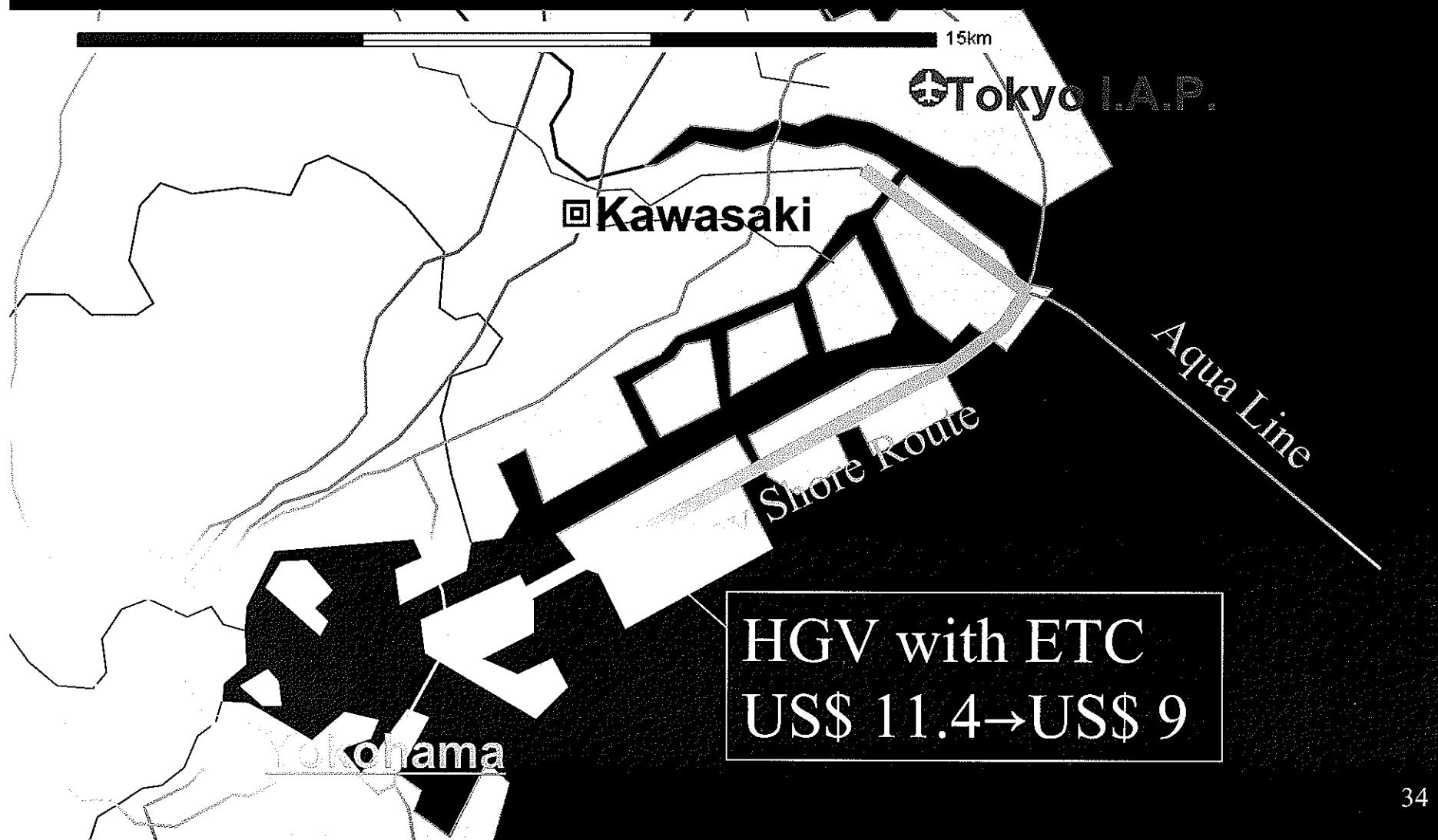
3.3 Regulation for diesel vehicle in Tokyo Metropolitan Area: from 2003

3.4 Revised energy saving law for fuel economy: from 1999

## 3.1 Pilot Program: Environmental Road Pricing (2)



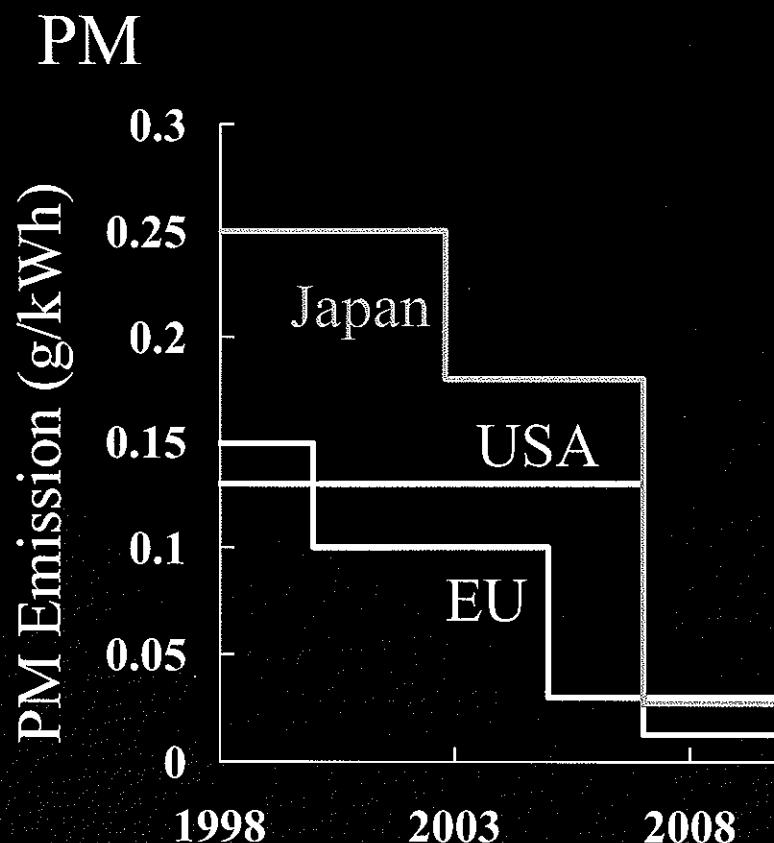
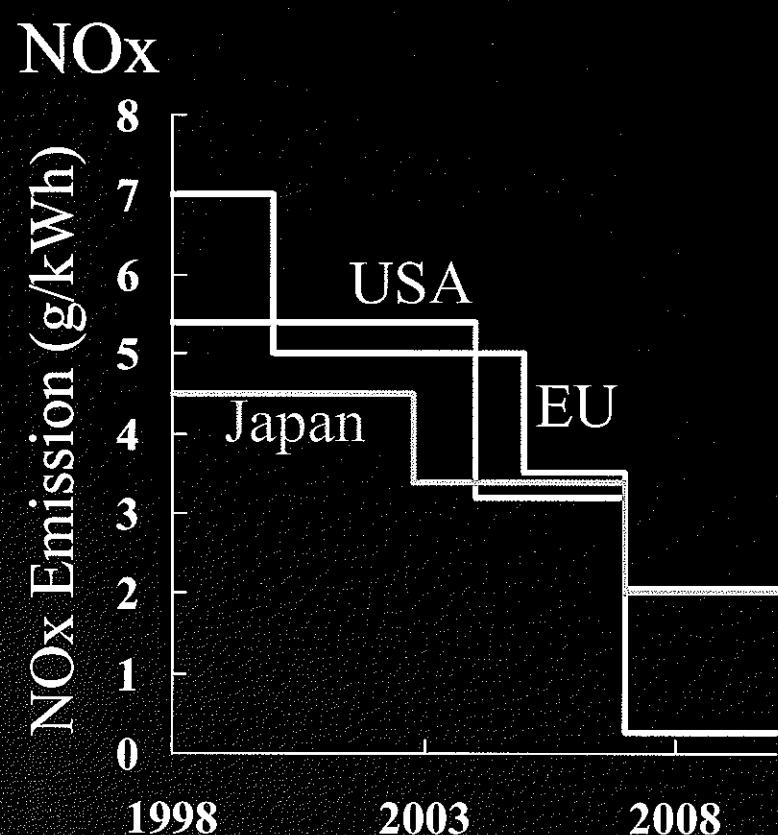
### 3.1 Pilot Program: Environmental Road Pricing (3)



## 3.2 Automobile NO<sub>x</sub> and PM Act (1)

- NO<sub>x</sub> and PM emission regulation for trucks and bus with diesel engine
- This regulation applies for all diesel vehicles, which are owned and used in regulated areas
- Regulated areas
  - Tokyo Metropolitan Area
  - Aichi, Mie prefecture
  - Osaka, Hyogo prefecture

## 3.2 Automobile NO<sub>x</sub> and PM Act (2)



Source: various statistics

### 3.3 Regulation for Diesel Vehicle in Tokyo Metropolitan Area (1)

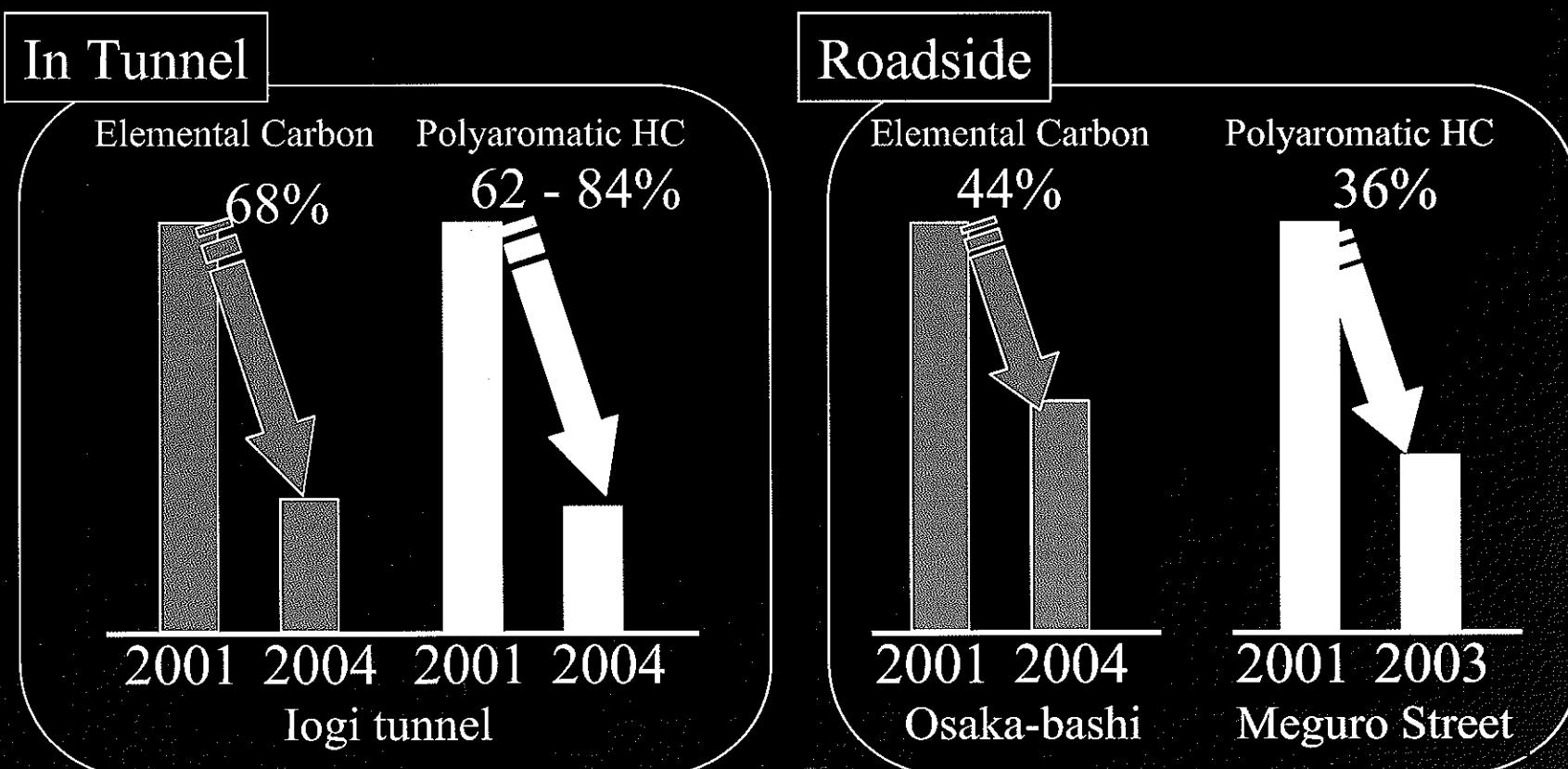
- Prohibition of usage of diesel vehicle, which does not satisfy the emission standard
- This regulation came into force on October 2003

### 3.3 Regulation for Diesel Vehicle in Tokyo Metropolitan Area (2)

- Main contents of regulation
  - Setting PM emission standard
  - Obligation of introducing low-emission vehicle for company bigger than given size
  - Submission of vehicle management plan
  - Compliance with idling stop

### 3.3 Regulation for Diesel Vehicle in Tokyo Metropolitan Area (3)

- Recent results of the regulation at Tokyo

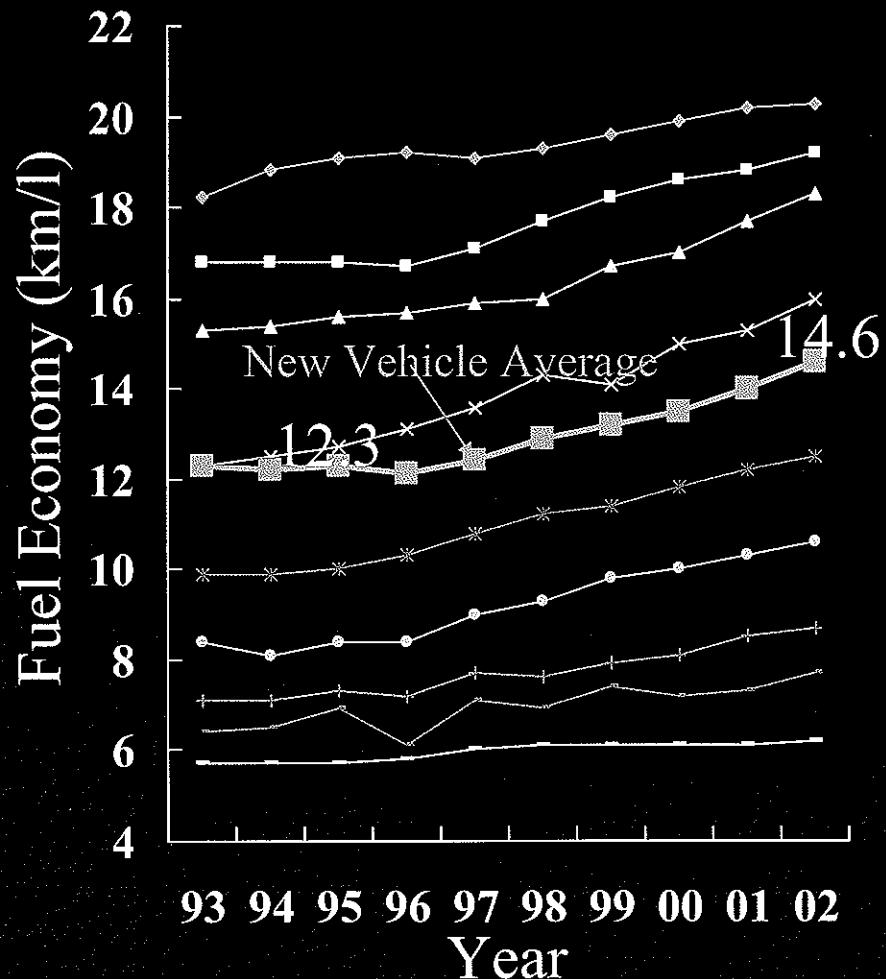


Source: Tokyo Metropolitan Government (2005)

## 3.4 Revised Energy Saving Law for Fuel Economy (1)

- Automakers must achieve regulated level for fuel economy until 2005 or 2010
  - Gasoline car: 22.8% above 1995 level
  - HDV: 14.9% above 1995 level

## 3.4 Revised Energy Saving Law for Fuel Economy (2)



- Average fuel economy of new gasoline vehicle has been improved.
  - 12.3(km/l) to 14.6 (km/l)
  - Increase of 19% above 1995 level

Source: MLIT (2004)

# 4. Rationalise financing and investment stream

## 4.1 Diversified use of earmarked road funds

- Depending on social circumstances, diverting a part of earmarked funds to
  - Development of information networks
  - Development of ITS
  - Improvement of roadside environment
  - Universal service improvement

## 4.2 Subsidy for Environmental-Friendly Technology (1)

- Central Government
  - Automobile Green Tax: from 2002
  - Subsidy or tax exemption for introducing low-emission vehicle

## 4.2 Subsidy for Environmental-Friendly Technology (2)

- Local Government
  - Subsidy for Diesel Particulate Filter
  - Subsidy for low-emission vehicles
  - Tax exemption for introducing low-emission vehicle
  - Subsidy for natural gas station
- Soft loan from government-affiliated financial institution

## 5. Improve data collection, monitoring and research

- Person-trip survey
  - Aiming for grasping “Person Movement” as Traffic Subject
  - Data from this survey is utilized for Master plan
- Urban Transportation Census: every 5 years from 1960
  - Aiming for grasping the usage of mass rapid transit in three major metropolitan areas

## V. Concluding Remarks

# 1. Three Major Metropolitan Areas(1)

- Urban railway improvement brought higher modal split of rail, especially in three major metropolitan areas.
- Urban Expressway policies contributed to reduce the pollution through the improvement of congestion.
- High toll rate is working like the road pricing policy and the ITS technology is expected to be effective for environmental management.

# 1. Three Major Metropolitan Areas(2)

- Remaining problems are high modal split of automobile for passenger transport in suburban areas and for freight transport.

## 2. Mid-size and Small Cities (1)

- In the cities with more than one million population including suburban area, Urban railway had been constructing.
- However, in smaller cities LRT policies is expected to improve the urban transport system.
- Better bus service with lower fare had been introducing especially in down town areas.

## 2. Mid-size and Small Cities (2)

- Auto restricted zone in city-center is so limited in Japan.
- Pedestrian Mall and Transit Mall are not accepted by citizens and storekeepers.
- Without control of car-usage, LRT and bus share could not increase especially in mid-size and small-size cities.

### 3. CO<sub>2</sub> Mitigation Policy (1)

- While central government tightened regulations for supply side, it seems that additional efforts are necessary to achieve the targets set under Kyoto Protocol.

### 3. CO<sub>2</sub> Mitigation Policy (2)

- Comprehensive economic measures for demand side and CO<sub>2</sub> reduction target have been vigorously discussed.
  - Introduction of Environment Tax
  - Allocation of CO<sub>2</sub> reduction target
    - Central government revises target for each sector.  
Target for local government, region and corporation is under discussion.