

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

**139TH ANNUAL
CIVIL ENGINEERING CONFERENCE**

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**From Builders to Integrators –
Civil Engineers Leading the Way**



Strategic Investments in Infrastructure Development to Boost Economic Growth

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1. Public Investment in Japan

1-1. Trends in Public Investment in the ex-bubble economy

<National Public Investment>

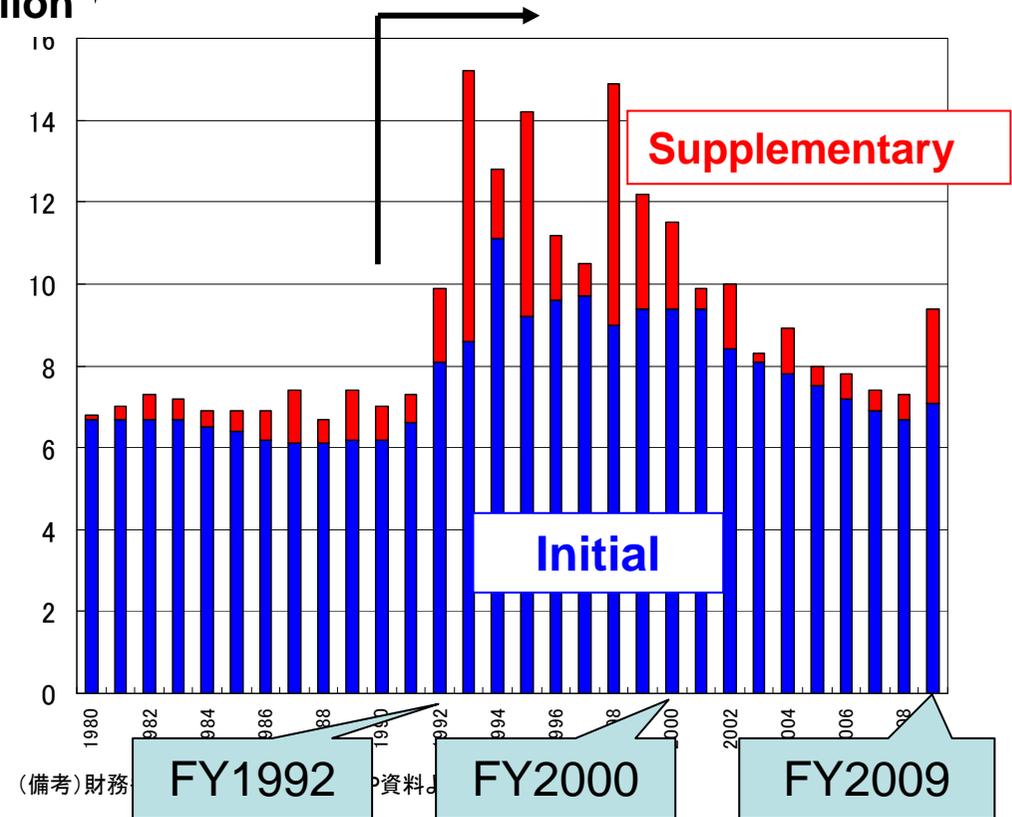
Effects of public investment:

¥ Trillion)

a. **Direct impact:** increases in the consumption of construction materials and public works-related jobs

b. **Indirect impact:** improvement of economic activities

*Expansion of transportation network = improvement of distribution systems





1-2. Effective Public Investment in the '90s

During a deflationary period, **<Employment measures = Creation of new jobs>**
**investment = 3 times as
 effective as tax reduction**

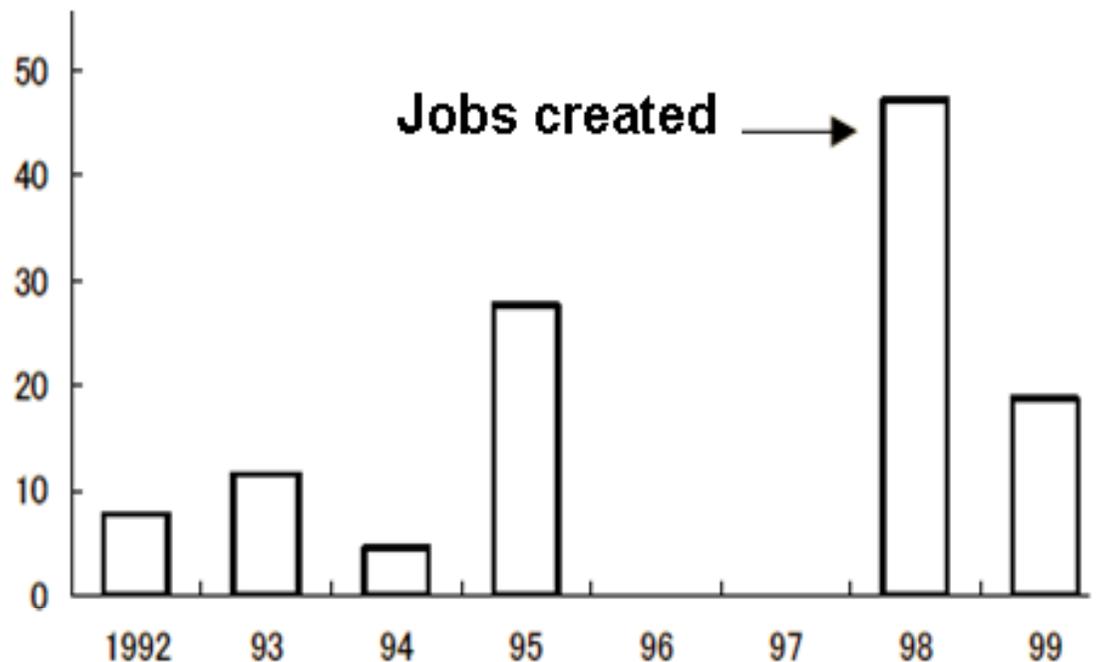
For 8 yrs from '92 to 99,
 additional public investments of

¥56 trillion in total created
 1.17 million jobs.

17,000 jobs per ¥ 1 trillion
 public investment

*an estimation of the Cabinet Office

Ten Thousand

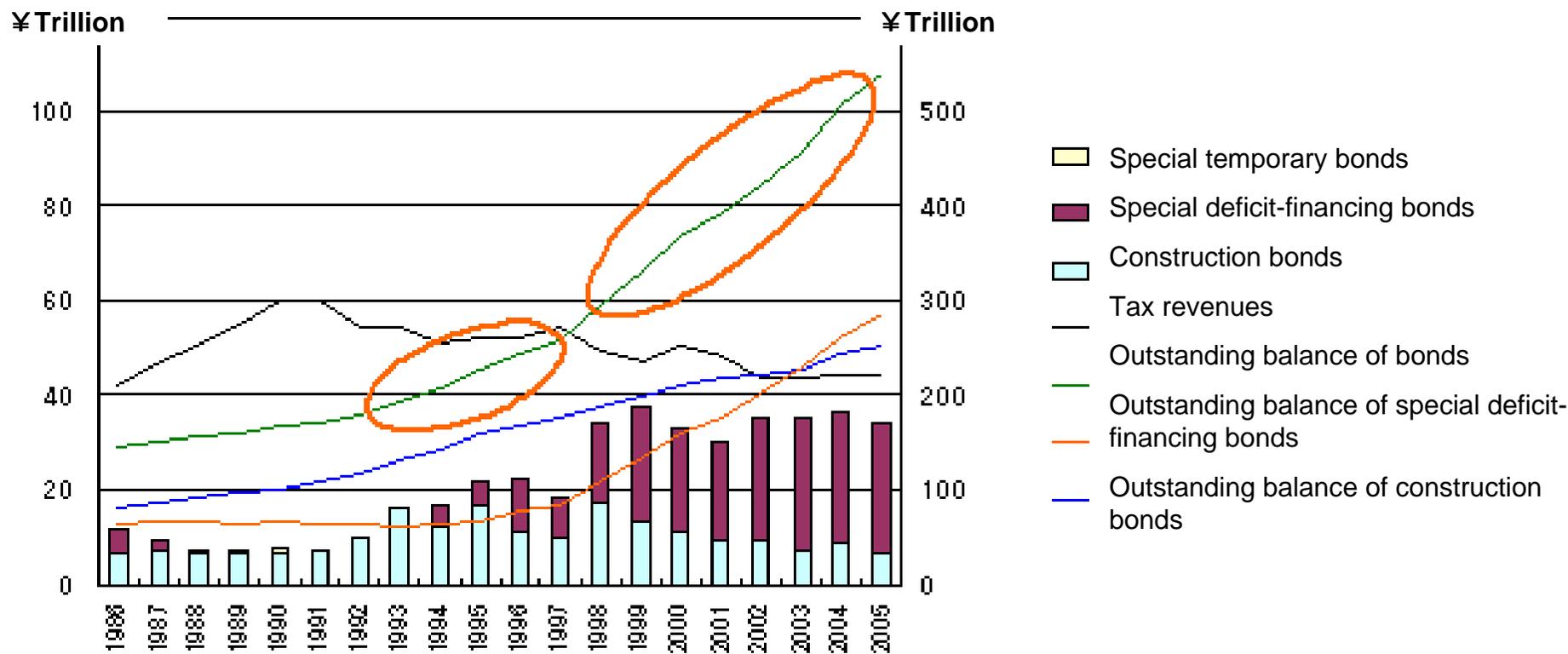




1-3. Mounting Public Debt Outstanding

Pumping money into the money market → mounting debts: gov. bonds + loans

< Trends in Bonds Issued, Outstanding Bonds and Tax revenues >



year

Ref. Ministry of Finance



1-4. Mounting Criticism of Pubic Investment

More criticism because...

1. **Urban residents fail to see** the contribution of **high-speed transport network** to the country's international competitiveness and **social infrastructure needs** in rural and remote areas.

Public investment has two functions: stimulating economic growth and making social infrastructure stocks fulfill their expected services.

2. **The effect of public investments** on economic growth is getting **weaker**

→ a social climate that neglects the services of social infrastructure stock.

3. **People doubt the necessity of investments** in the development of disaster mitigation measures, saying that natural disasters occur once in a while.

Accordingly...

Only the economic impact of public works project is concerned.

→ Infrastructure investment programs has been the focal point.



Delayed Transportation Infrastructure

① Development of loop roads

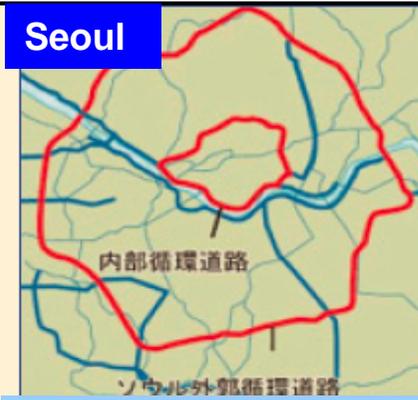
■ loop roads ■ highways ■ Sections to be built
■ public roads



Tokyo
Plan: 520km
Completed: 200km
Completion: 40% 2008



Beijing
Plan: 433km
Completed: 398km
Completion: 92% 2007



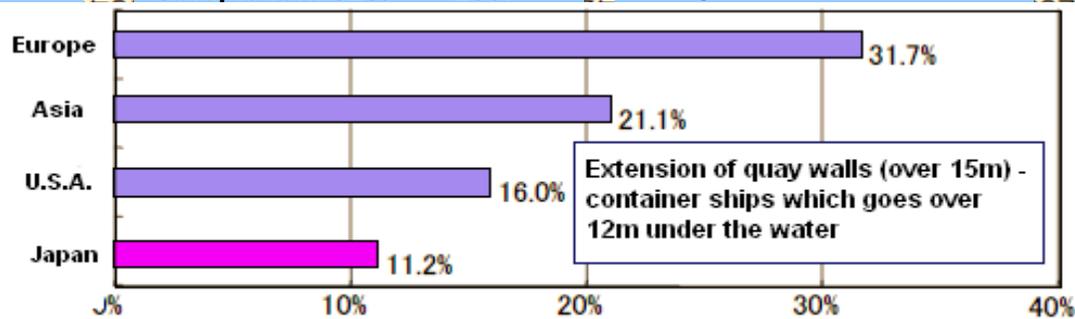
Seoul
Plan: 168km
Completed: 168km
Completion: 100% 2000

Paris
Plan: 313km
Completed: 262km
Completion: 84%

Berlin
Plan: 223km
Completed: 217km
Completion: 97%

London
Plan: 188km
Completed: 188km
Completion: 100%

② Extension of container ship quay walls

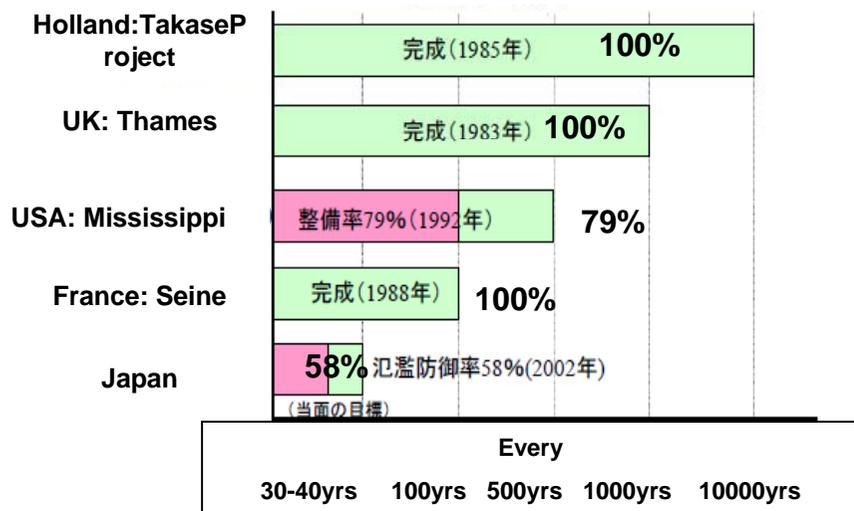


(出典) CONTAINERISATION INTERNATIONAL YEARBOOK 2000等をもとに作成

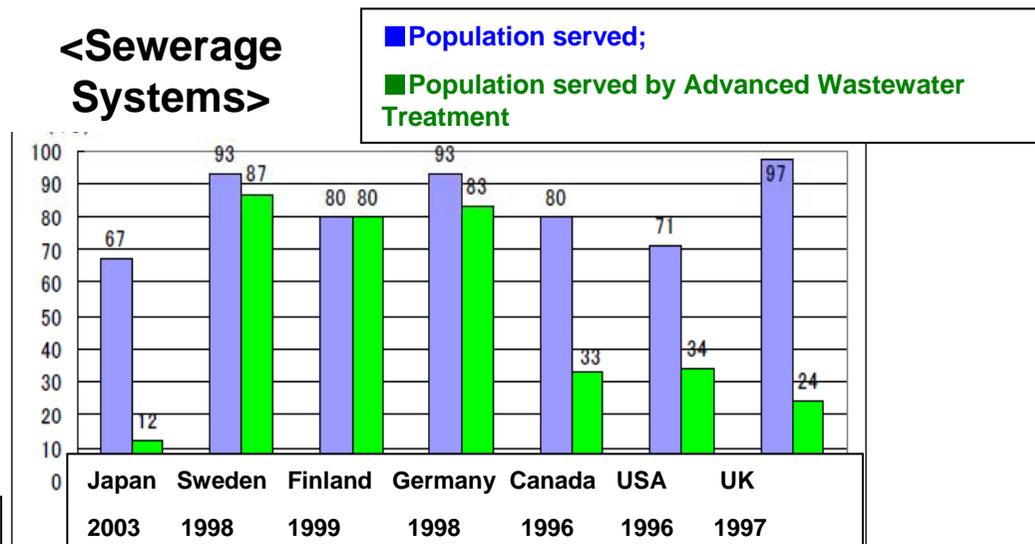


Delayed River & Sewerage Systems

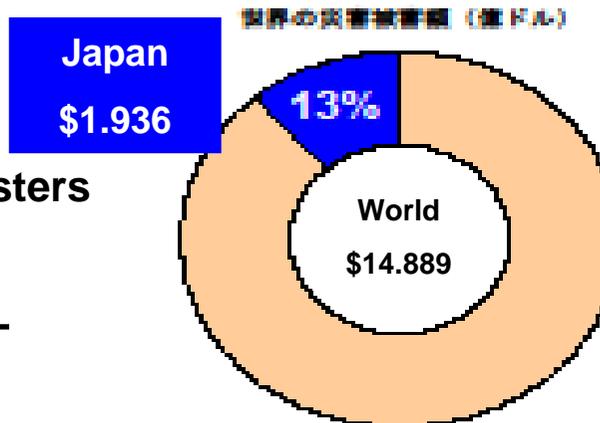
<Flood Mitigation Measures>



<Sewerage Systems>



<Total costs of natural disasters between '77 to '06>



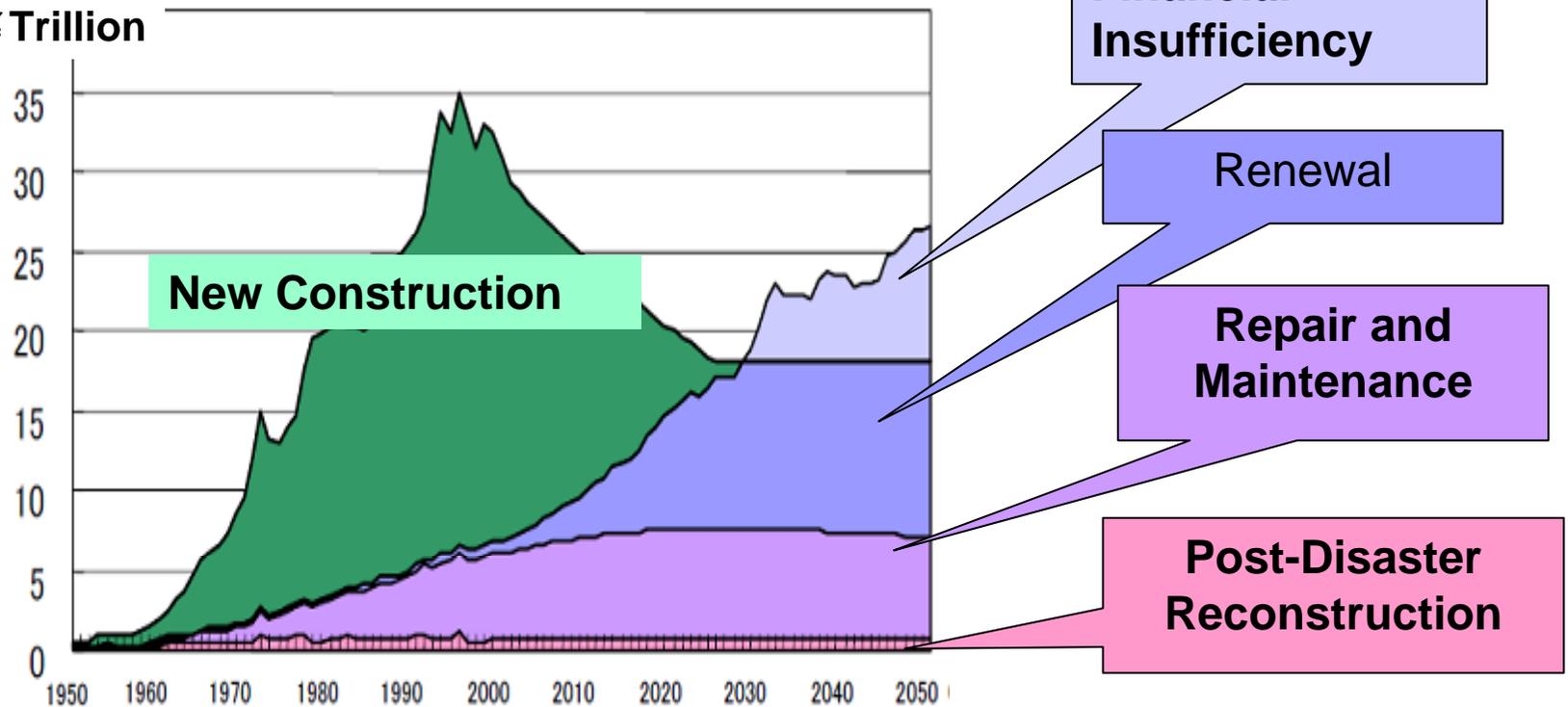


Increase in Infrastructure Stock and Maintenance Work

<Estimated investment in infrastructure development by types of work>

After '01, 2% decrease from the previous year and remain steady after '25

¥ Trillion





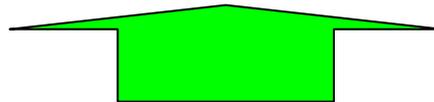
2. Public Investment - Response to the Global Economic Crisis

2-1. Economic Stimulus Measures

– FY2009 Supplementary Budget

- The biggest-ever supplementary budget, which was pledged.
- Compiled with FY2009 Budget and will be executed.

¥13.92 trillion for financial crisis measures



“Public Opinions”

“Expert Discussions” on economic recovery

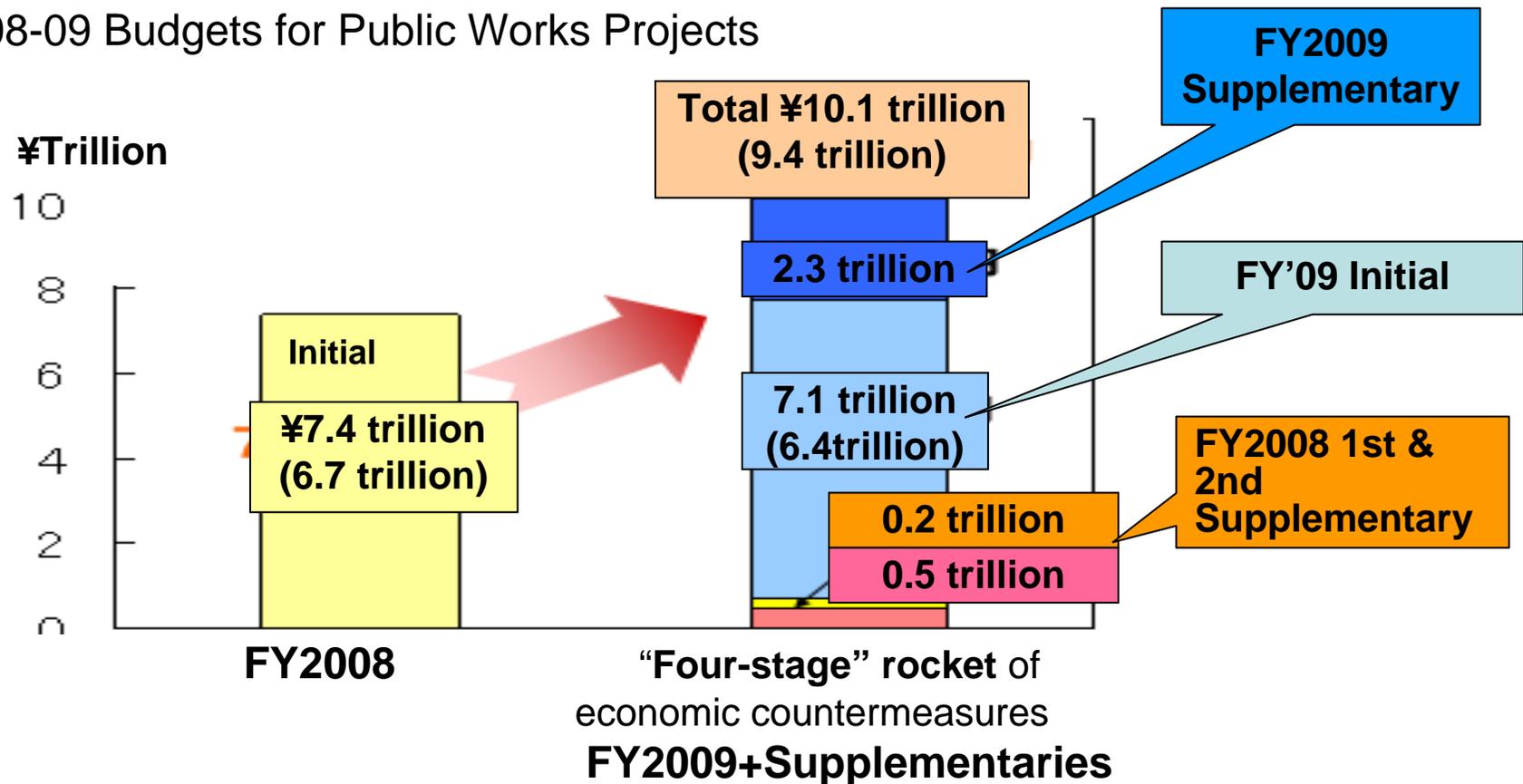
*Set up within the Cabinet Office: 5 meetings

*Total 84 experts from industry, academia and gov.



2-2. MLIT's Budget for Public Works Projects

FY2008-09 Budgets for Public Works Projects





Additional spending to FY2009 Supplementary Budget:

¥ 2.3321 trillion (as of April 2009)

1. Realizing the potential of the economy and developing infrastructures to address the challenges of the 21st century (e.g. Haneda Airport, Shinkansen network): ¥438.7 billion
2. Revitalizing regions: ¥132.1 billion
3. Strengthening safety and security (e.g. disaster mitigation measures, road safety measures): ¥991.2 billion
4. Advancing low-carbon revolution: ¥66.4 billion
5. Implementing employment measures and creating new jobs: ¥500 million



2-3. Investments and Possible Effects

Example.

1. Realizing the potential of the economy and Infrastructure development to deal with challenges of the 21st century

① Constructing “missing links” on 3 major loop roads in Tokyo

Total 520 km

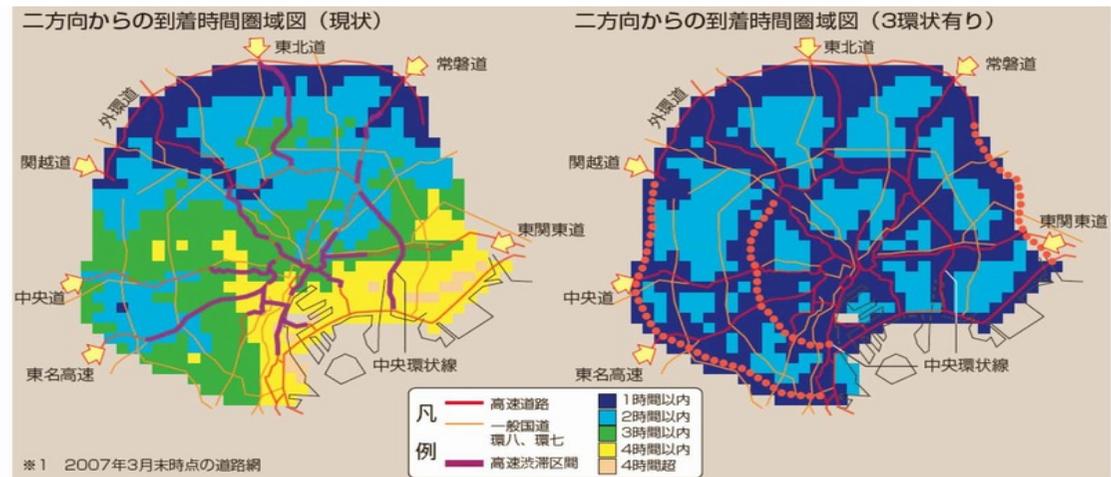
Only 40% of the total
length constructed now

Road safety will be ensured.

Travel time between inside and outside the loop road areas will be **shortened** → **emergency rescue activities** will be operated smoothly.

<Effect of three loop roads in Tokyo>

Reduction of travel time incase of emergency





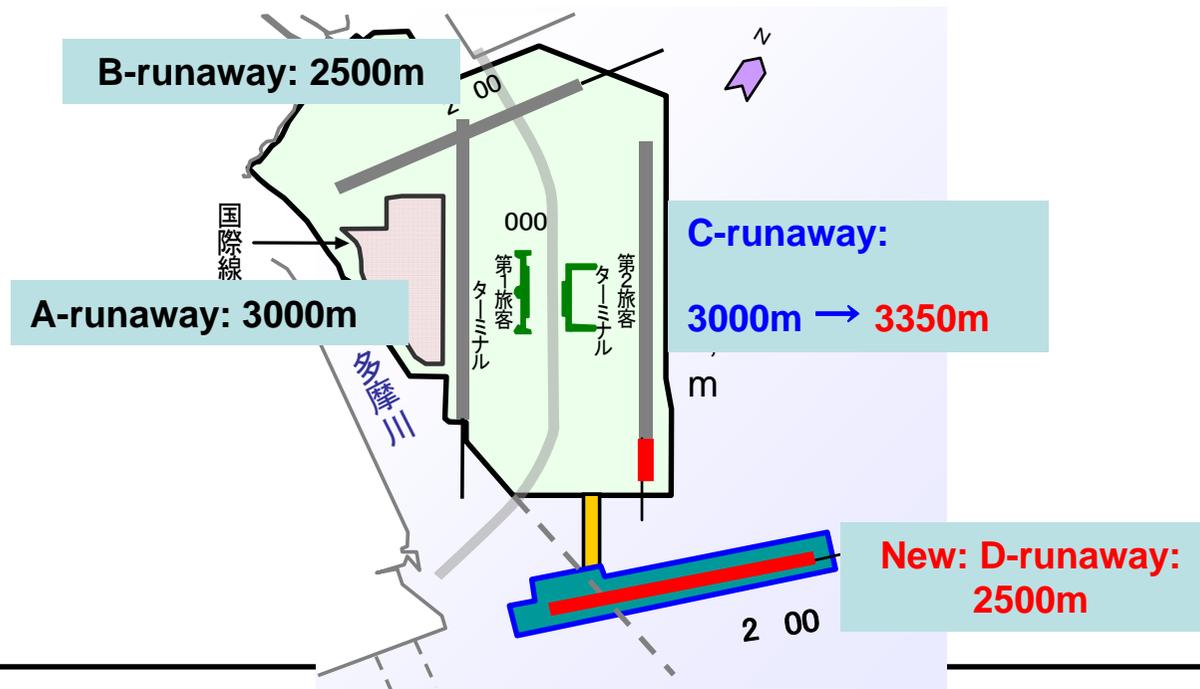
② Improving airports, ports and harbors

Turning **Haneda Airport** to be an international airport

Expansion of C-runaway of 3000 m to 3350 m to facilitate large aircraft landing and takeoff.

The airport is undergoing new runway construction → from 303 thous. to 407 thous.

landings & takeoffs



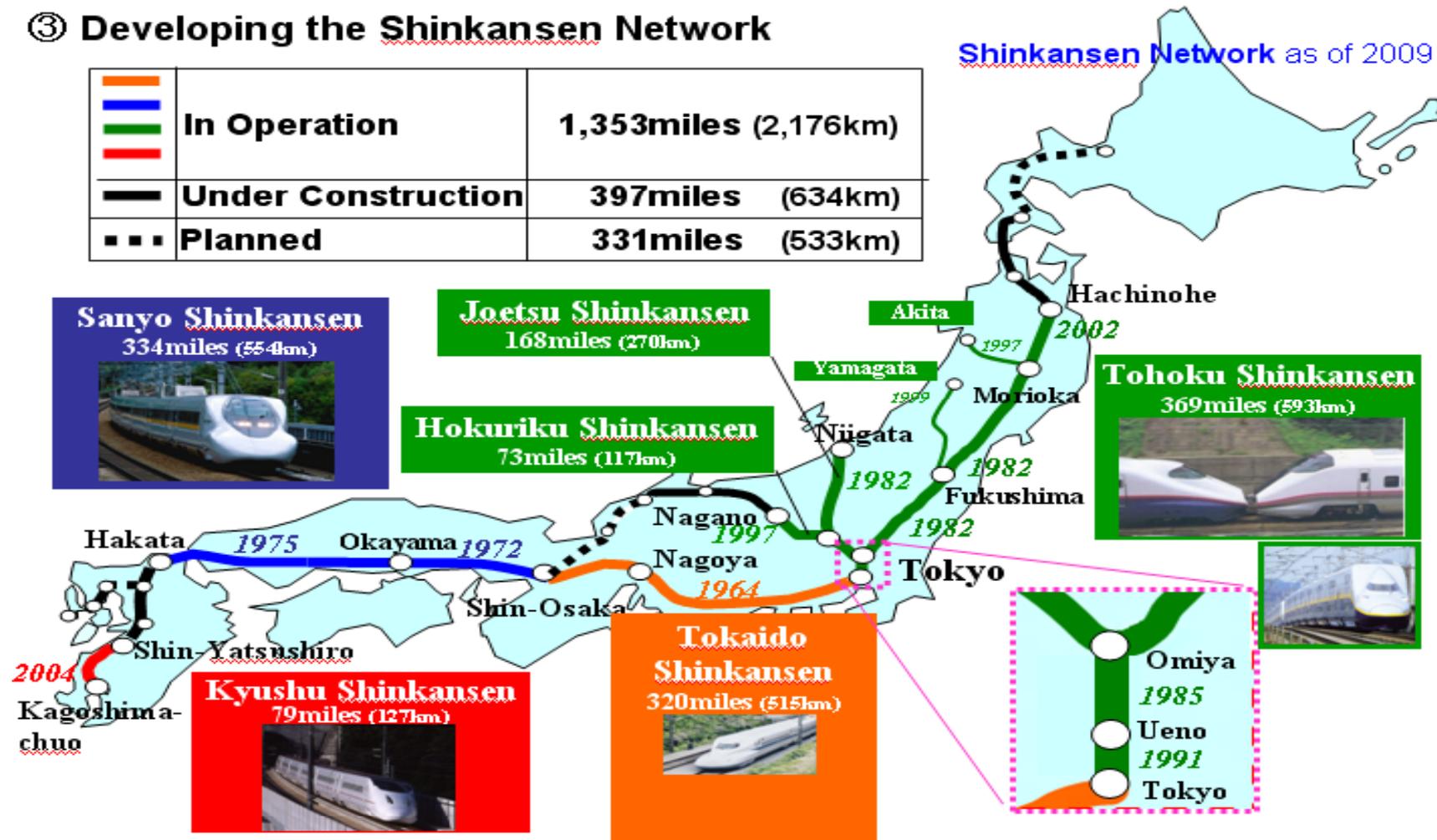
Ref. MLIT



③ Developing the Shinkansen Network

	In Operation	1,353miles (2,176km)
	Under Construction	397miles (634km)
	Planned	331miles (533km)

Shinkansen Network as of 2009





3. Strengthening safety and security

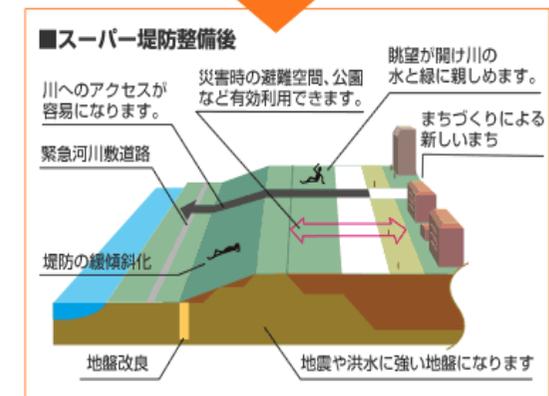
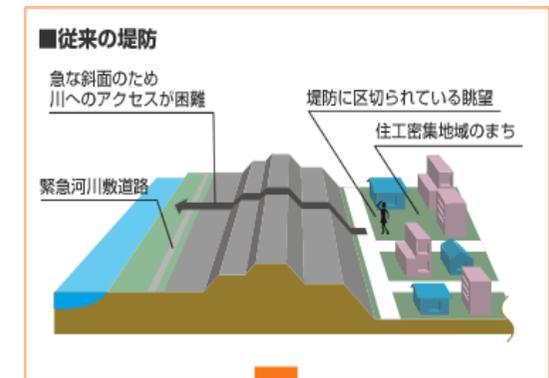
① Flood and water disaster mitigation measures

Hard measures- flood control facilities.

Conventional Levee



Super Levee



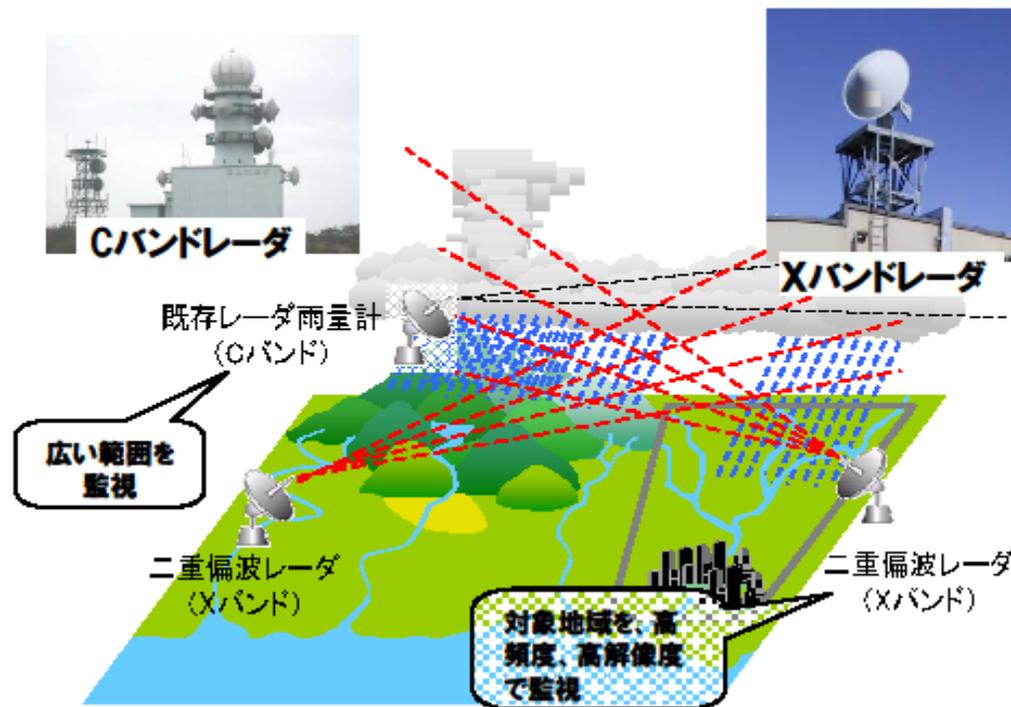


① Flood and water-related disasters mitigation measures

Soft measures – high-precision precipitation radar and observation systems.

C-band radar

observes large areas



Dual-wavelength radar (X-band)

measures drop size due to high resolution and high frequency

Ref. MLIT



4. Advancing Low-Carbon Revolution

Promoting clean energy generation, eco-friendly vehicles

Eco-friendly public housing



Green roofing



Wind-power generation



Green parking lots



Solar-power generation



Rainwater recycling

Ref. MLIT

Support programs to promote the introduction of low-emission vehicles

Compressed natural gas vehicle



Hybrid vehicle



Electric car





2-4. New Evaluation of Projects

Criticism of public works projects...

- (1) Cost reduction,
- (2) Quantitative evaluations of projects, and
- (3) Inclusion of outside experts' opinions

Example: Yonabaru Bypass Road (4.2 km)



図 与那原バイパス路線位置図



現道部の道路状況(与那原交差点付近)



Reponses to criticism of public works projects...

Ex. Yonabaru Bypass Road in Okinawa

(1) **Cost reduction (C):** ¥ 58 billion → ¥ 47 billion

(2) **Quantitative analysis**

Direct benefits (**B1**): shorter travel time, less travel costs, less road accidents

Indirect benefits (**B2**): more access to medical facilities, less CO2 emissions

only **B1** measured **B/C: 1.13**

B1+ B2 measured **B/C: 2.02**

(3) **Project Evaluation Committees around the country.**

Chair: a college professor.



Conclusion

Investments in public works projects

- **Boosted economic recovery and growth in the 1990s.**

More jobs and higher macroeconomic growth

- **Shrank to half of '95.**

Affected by change in social values, increase in government bonds outstanding and criticism

After the Lehman Shock- - -

the Gov. planned to pump ¥ 9.4 trillion into public works including supplementary in the beginning of 2009.

- **invest the supplementary ¥2.3 trillion into public works**

- **invest strategically, considering public opinions.**

- **Improve the evaluation method of public works.**



New Democratic Party Cabinet launched on Sept. 16, 2009

Pledged to trim wasteful budget spending for public works projects and reviewed the FY2009 supplementary budget of ¥2.3 trillion.

*About ¥1 trillion may be trimmed.

*Almost of all the major projects in the above discussion will be implemented.

Future remains unclear...

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Thank you very much.