

Recovery of Livelihood and Infrastructure – Lessons of the Great Hanshin-Awaji Earthquake –

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Recovery after the Great Hanshin-Awaji Earthquake

Overview of Recovery

- ▶ In the enormous task ahead, it was particularly difficult to accomplish effective recovery with limited resources and preparedness.

Damage statistics

Fatalities: About 6,000

Completely or partially destroyed buildings: About 250,000

(Direct) financial damages: About 1 billion yen

Time required for recovery

Infrastructure: 2 years

Housing: 5 years

Population: 10 years

Positive aspects of recovery

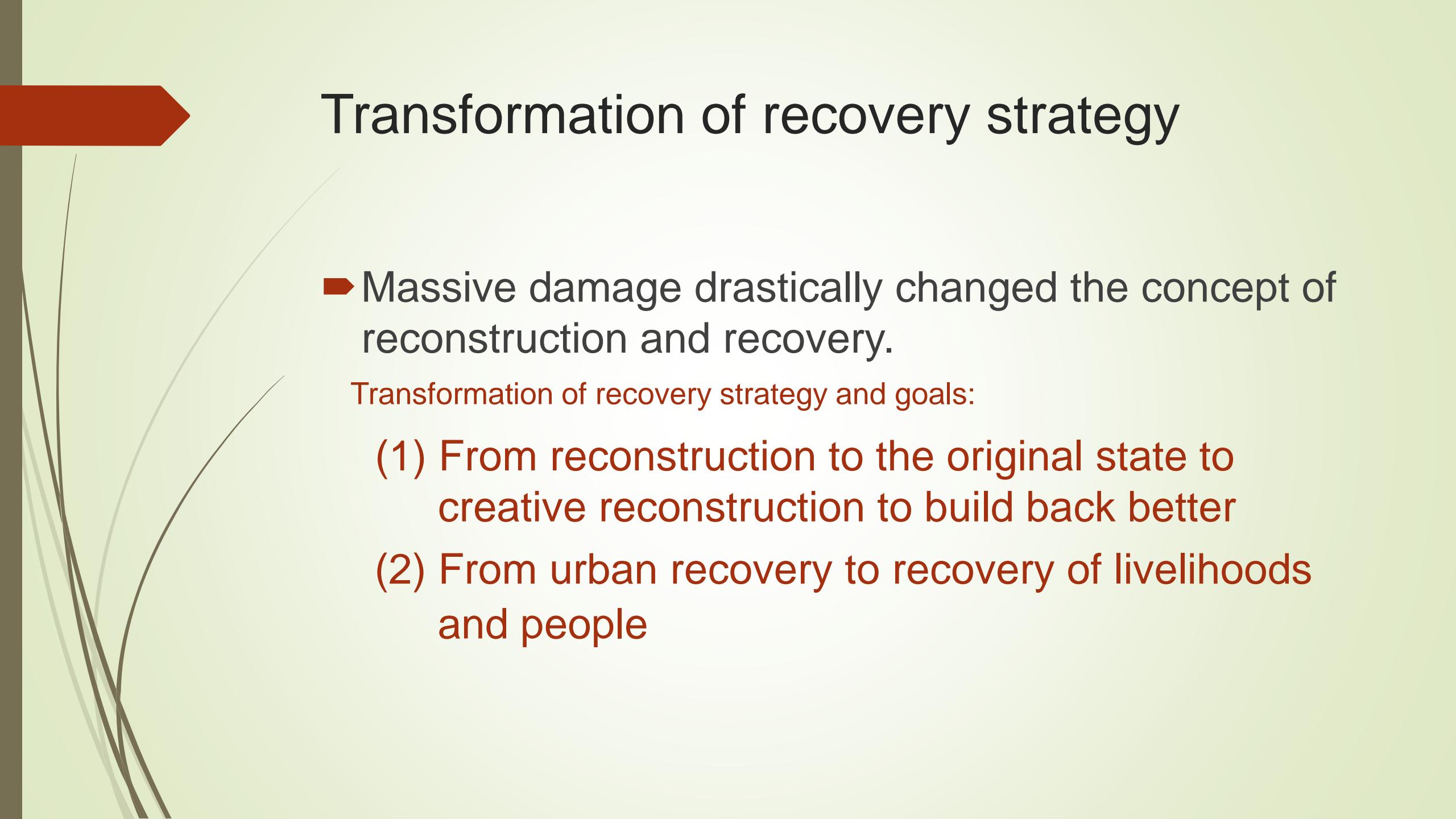
Rapid recovery of urban functions despite extensive damage

Rapid recovery of infrastructure and relatively rapid provision of temporary and permanent housing for those affected

Negative aspects of recovery

Reconstruction and rebuilding took a long time

Increased indirect damages including disaster-related deaths caused disruption and decline of the regional economy

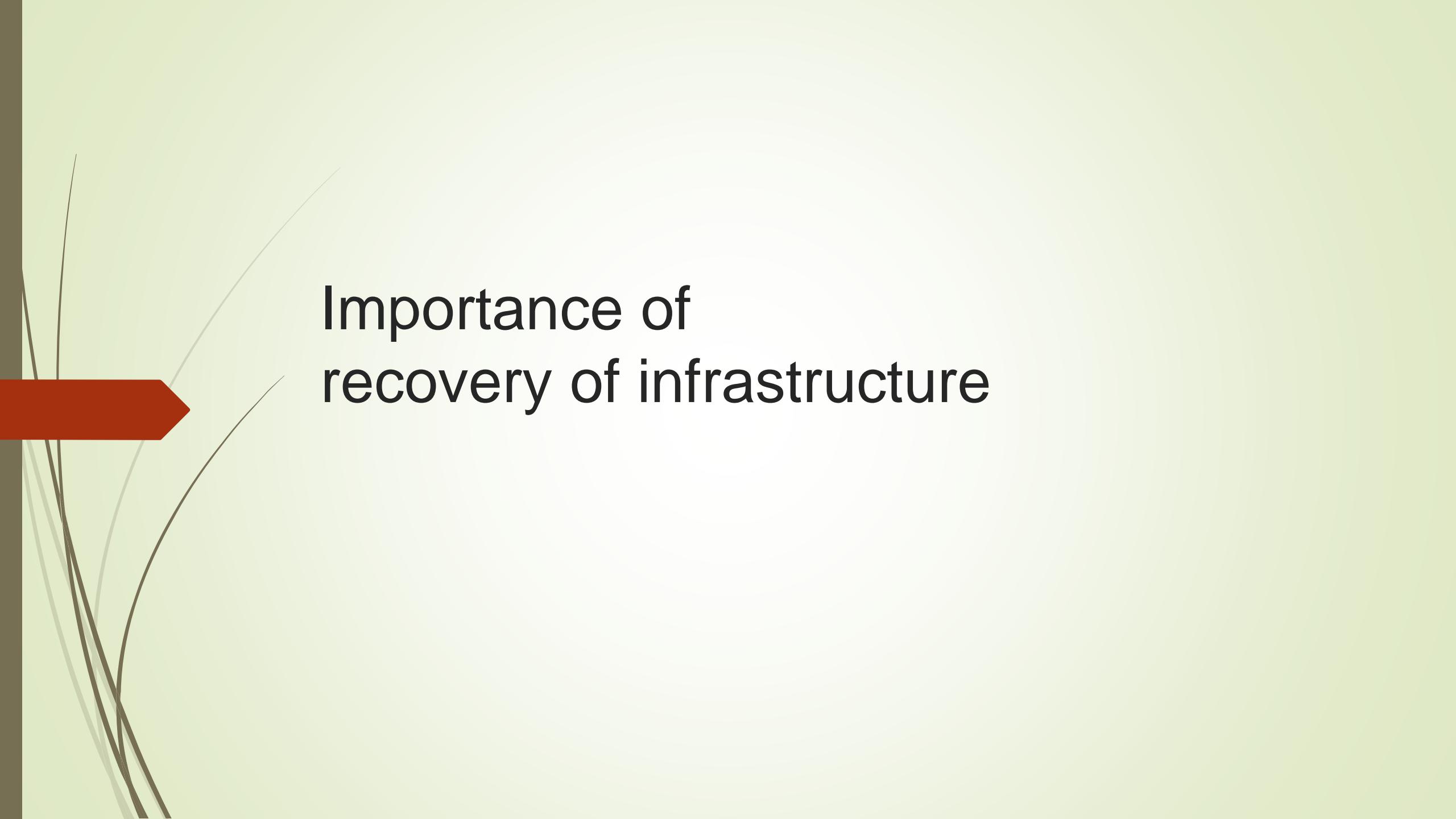


Transformation of recovery strategy

► Massive damage drastically changed the concept of reconstruction and recovery.

Transformation of recovery strategy and goals:

- (1) From reconstruction to the original state to creative reconstruction to build back better
- (2) From urban recovery to recovery of livelihoods and people



Importance of recovery of infrastructure



Infrastructure for recovery of people

► Lifelines are the most important foundation for recovery when setting goals on recovering livelihoods and people. However, lifelines alone are not sufficient for recovery; it requires a comprehensive system built on diverse foundations.

(1) Hard infrastructure

Lifeline infrastructure

Public facilities infrastructure: Schools, hospitals, welfare facilities, etc.

Infrastructure of facilities required for livelihood: Housing, etc.

(2) Soft infrastructure

Infrastructure of legal system for recovery: Legal systems that promote recovery projects and support the rebuilding of livelihoods, etc.

Infrastructure for emergency management: Disaster response and preparedness system, etc.



Lifelines for recovery

- ▶ Damages to lifelines such as electricity, gas, water, telephone, rail and roads had major negative impacts on all stages, from emergency response to recovery.

(1) Overview of damages

Electricity: 2.6 million houses, 6 days

Gas: 850,000 houses, 84 days

Water: 1.27 million houses, 42 days

Landline phones: 190,000 lines, 14 days

Conventional JR railway lines: 74 days

Hanshin Expressway Kobe Line: 622 days

(2) Effects on disaster response

Emergency response: Delay in grasping the damage status and initial response due to disruption of information

Quick-fix response: Loss of lifelines directly hindered lifesaving activities; caused confusion for those living in evacuation centers

Actions for recovery: Also delays in rebuilding of livelihoods and recovery of industries

Recovery of infrastructure is the foundation and first step for recovery of the city and livelihoods.

Soft infrastructure for recovery

► The Great Hanshin-Awaji Earthquake caused serious indirect damages, such as disaster-related deaths. This was partly due to weaknesses in public facilities infrastructure and soft infrastructure.

- (1) Vulnerable emergency response system in the event of disaster
- (2) Poor living environment in evacuation centers, etc.
- (3) Insufficient system to support rebuilding of livelihoods
- (4) Insufficient system to support recovery of industries

We urgently need to develop a legal system that can cope with disasters that are becoming bigger and causing more serious damages.