

Ensuring Rescue Routes to Support Emergency Activities During Times of Disaster

Current efforts and assessment

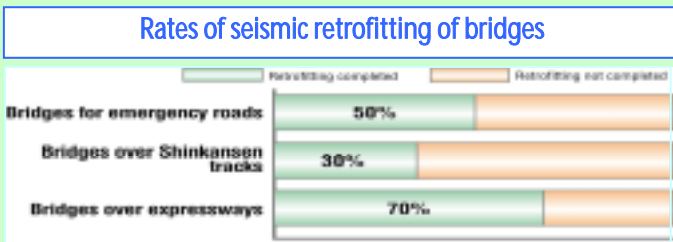
In FY2004, a number of large-scale natural disasters struck Japan. These included torrential rains caused by seasonal rain front, the landing of 10 typhoons (the largest number of typhoon landings in recorded history), and the Niigata Chuetsu Earthquake, which registered a maximum intensity of seven. At the same time, there have been predictions that a major earthquake will occur in the near future.

When disaster strikes, rescue routes that link regional urban centers are indispensable means of supporting prompt rescue activity and transport of emergency supplies.

Problems

Insufficient seismic retrofitting of bridges on emergency roads.

1. Emergency roads
 - Emergency roads essential for prompt restoration activities after earthquakes.
2. Bridges crossing over Shinkansen tracks or expressways
 - Possibility of serious secondary disasters if bridges collapse.



Future efforts

Seismic retrofitting of bridges will be promoted on the basis of a three-year bridge retrofitting program (FY2005-2007).

Bridges for emergency roads

- Seismic retrofitting of highways under direct national government control will be largely completed by FY2007.
- For roads under the jurisdiction of prefectural governments, priority roads shall be selected for seismic retrofitting, with work largely completed by FY2007.

Bridges crossing Shinkansen tracks and expressways

- Seismic retrofitting will be largely completed by FY2007.

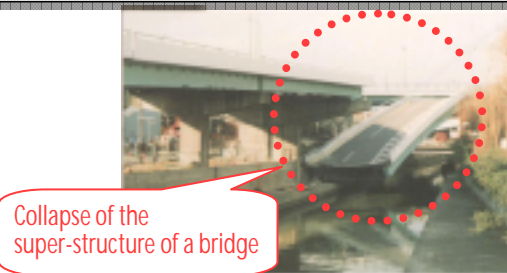
Example

Example of properly functioning emergency roads

Effect of improvement through the quakeproofing of bridges

Quakeproofing of bridges along emergency roads has been moving forward since the Hyogoken Nambu Earthquake of 1995 (maximum intensity: 7). Accordingly, the Niigata Chuetsu Earthquake (maximum intensity: 7) resulted in no serious damage to road bridges, and thus roads were able to fulfill their function as routes for emergency transport.

System to prevent bridge collapses



Collapse of the super-structure of a bridge

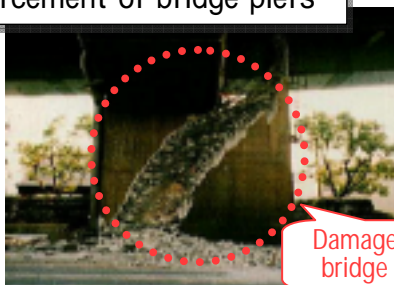
Photo: Collapse of the superstructure of a bridge (Nagata Ward, Kobe City)



Aseismic devices operate to prevent the movement of girders.

Photo: Aseismic connector (Wanatsu district, Nagaoka City)

Reinforcement of bridge piers



Damage to a bridge pier

Photo: Damage to a bridge pier (Higashi-Nada Ward, Kobe City)



No damage to bridge piers due to reinforcement
* Steel winding method



Photo: Bridge piers (Tokamachi district, Nagaoka City)