

At 17:56 on October 23, 2004, a magnitude 6.8 earthquake epicentered on Chuetsu struck Niigata Prefecture, causing the most extensive structural damage that JR East has suffered since its establishment. The following report details the impact of that earthquake on JR East and the forward-looking measures that it has taken in response.

IMPACT OF NIIGATA CHUETSU EARTHQUAKE

(1) DAMAGE SUMMARY

Joetsu Shinkansen Line

- Eight cars of the *Toki* No. 325's ten cars, which had been traveling outbound between Urasa and Nagaoka, were derailed. This was the first Shinkansen derailment since Shinkansen began operations. None of the 154 people onboard the *Toki* No. 325 was injured.
- At the site of the derailment, rails were dislodged over an approximately 900-meter section of the line, and track slab and rail fastenings along an approximately 1.6-kilometer section of track were damaged.
- Five tunnels between Urasa and Nagaoka suffered damage, including dislodged wall masonry and raised track beds.
- Extensive damage to bridges and elevated railway tracks included facing concrete dislodgment.

Conventional Lines

- Five lines were damaged: the Joetsu line, the Shinetsu line, the Echigo line, the Iiyama line, and the Tadami line. There were no derailments or injuries.
- Damage occurred at 86 locations, primarily collapsed slopes and embankments; damaged tunnels; and deformed bridge structures, stations, yards, and signal stations.

Shinanogawa Power Station

- JR East owns three hydroelectric power plants along the Shinanogawa River (collectively known as the Shinanogawa Power Station), which are mainly used to secure electric power for trains operating in the Tokyo metropolitan area. All three plants were damaged.
- The damage primarily consisted of dam fissures, penstock leakages, and transformer damage.

(2) RESTORATION PROGRESS

	Status	Date	Number of days required
Joetsu Shinkansen line	Operations resumed	December 28, 2004	Restored in 66 days
	Operations resumed on all lines	December 27, 2004	Restored in 65 days
Conventional lines	Multiple-track operations resumed on all lines	March 25, 2005	Restored in 153 days
Shinanogawa Power Station	Power generation partially resumed	February 1, 2005	Restoration in progress

(3) FINANCIAL IMPACT

Losses totaling ¥60.3 billion were incurred as a result of the Niigata Chuetsu Earthquake. JR East recorded the entire amount in financial statements for the fiscal year ended March 31, 2005.

Losses Incurred as a Result of Niigata Chuetsu Earthquake

Total of estimated decrease in operating revenues: ¥14.1 billion	
Transportation	¥13.0 billion
Non-Transportation	¥1.1 billion

Total costs: ¥46.2 billion

Operating expenses: ¥5.6 billion

Cost of replacement services provided by buses, electricity purchases, etc.	¥5.6 billion
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Extraordinary losses: ¥40.6 billion

Earthquake-damage losses: ¥11.9 billion

Cost of railway facilities restoration	¥10.2 billion
Cost of Shinanogawa Power Station restoration	¥1.7 billion

Provision for allowance for earthquake-damage losses: ¥28.7 billion

Cost of railway facilities restoration	¥6.0 billion
Cost of Shinanogawa Power Station restoration	¥17.4 billion
Increase in fiscal 2006 power costs	¥5.3 billion

EARTHQUAKE COUNTERMEASURES GOING FORWARD

In addition to doing everything possible to bring forward the implementation of engineering projects to strengthen the earthquake resistance of elevated railway track pillars and other structures, JR East intends to upgrade its earthquake early detection system for Shinkansen lines. Further, JR East will analyze the causes of Shinkansen derailment, post-derailment railcar dynamics, the causes of tunnel damage, and other factors and reflect the results in operations.

Countermeasures for Major Earthquakes

Item	Amount	Amount (Billions of Yen)	Scheduled completion	
Elevated railway track pillars (shearing-damage-first type)	Shinkansen lines	5,200 pillars	18	By fiscal 2008
	Conventional lines	2,700 pillars	14	By fiscal 2009
Bridge supports (shearing-damage-first type)	Shinkansen lines	2,570 supports	19	By fiscal 2008
	Conventional lines	750 pillars	6	By fiscal 2009
Station buildings, etc.	80 buildings	8	By fiscal 2009	
Upgrade of earthquake early detection system for Shinkansen lines	—	1	By fiscal 2007	
Other	—	4		
Total	—	70		