

Toward Restoration from the Earthquake and Revival of Communities

Measures against earthquakes

Learning from the experiences of the Great Hanshin-Awaji Earthquake of January 1995, the Sanriku Minami Earthquake of May 2003, and the Mid Niigata Prefecture Earthquake of October 2004, JR East has introduced emergency train stop measures, seismic reinforcement measures to its elevated bridge columns, bridge piers, tunnels and station buildings, taken preventive measures against derailments, and increased the number of seismometer locations.

Thanks to these and other measures, nobody on board our trains was killed or injured at the time of the Great East Japan Earthquake of March 11, 2011.

Since FY2010, JR East has expanded its countermeasures and initiated the 2nd phase of its seismic reinforcement measures, including further seismic reinforcement of elevated bridge columns. In addition, JR East has designated the five years from FY2013 as a priority improvement period and is striving to provide disaster-resilient railways through the introduction of the following measures:

- ① Seismic reinforcement measures for embankments, earth cuttings, brick arch elevated bridges and power poles, and measures to prevent the collapse of station platform ceilings and walls if an earthquake directly strikes the Tokyo metropolitan area. JR East will also accelerate the implementation of its plans for continuing the seismic reinforcement of its elevated bridge columns and bridge piers.
- ② Seismic reinforcement measures for station buildings where the number of boarding and alighting passengers exceeds 3,000 persons per day, and for Shinkansen power poles, many of which were damaged during the Great East Japan Earthquake.
- ③ Strengthening of anti-disaster telecommunication functions, including an increase in the transmission speed of seismometer measurement data, and the reinforcement of emergency power sources for our communication network.



Examples of reinforcement of embankments and methods for reinforcement

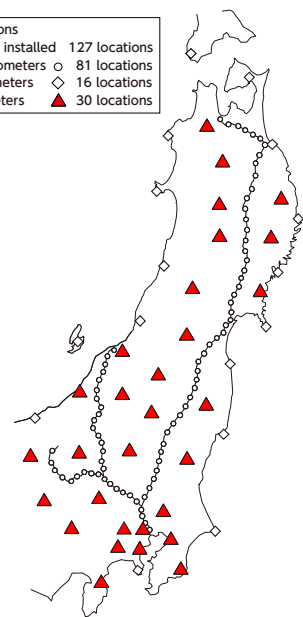


- Strengthened embankments with reinforced materials
- Installation of anti-derailment guards



Examples of seismic reinforcement

■ Total No. of locations with seismometers installed	127 locations
• Trackside seismometers	81 locations
◊ Coastal seismometers	16 locations
▲ Inland seismometers	30 locations



Installation status of seismometers

Measures for protection against tsunami

Prior to the 2011 Great East Japan Earthquake, JR East had already designated tsunami hazard areas and set operational restrictions for each of its branch offices, formulated manuals and conducted drills in the guidance of passengers evacuating from trains. After the earthquake, JR East has further reviewed all of its tsunami-related rules, manuals and drills. Based on the reviewed rules and established policies, JR East carried out the following actions in FY2013:

- Establishment of tsunami warning zones in each of our branch offices after reexamination based on hazard maps of municipalities and tsunami flooded areas resulting from the Great East Japan Earthquake.
- Systemic improvement of displays showing evacuation route maps and signage at and between stations.
- Working together with local municipalities to install emergency stairs to evacuation shelters, and providing signs to indicate escape routes in places where evacuation is difficult.
- Establishment and review of tsunami response manuals in all workplaces that could be at risk.
- Implementation of regular education and training around March 11 in all workplaces that could suffer from a tsunami, based on Tsunami Evacuation Principles, the tsunami response manual, and other sources.



A drill to guide passengers in getting off trains



Evacuation route map

Drills and support provision for people facing difficulties getting home

When train services were interrupted during and after the 2011 Great East Japan Earthquake, stations were crowded with passengers. In the future, after confirming the safety of our facilities, JR East will strive to keep passenger restrooms open and public phones available at stations throughout the Tokyo metropolitan area, provide customers with as much information as possible, and offer temporary shelter in concourses and elsewhere at approximately 200 stations. These designated stations have been listed on the JR East website since March 5, 2013 and the information on temporary shelter spaces and requests to customers has been widely publicized as station initiatives that would follow large-scale earthquakes. At approximately 30 major terminal stations, including Tokyo and Shinjuku, JR East has been stockpiling supplies including drinking water, blankets, and first-aid kits for children and the elderly. By the end of FY2014 this project has been expanded to approximately 170 stations within a 30-km radius of Tokyo. JR East also has conducted joint drills with the local municipalities to increase our ability to support people who have difficulty returning to their homes in the event of a disaster affecting major terminal stations. Together with local municipalities, JR East is working to improve evacuation guidance methods in the event of disasters, and to be generally better prepared.



Stockpiling supplies



A drill to support people who have difficulty returning to their homes

Measures to Support the Restoration of Disaster-damaged Areas in FY2014

The areas affected by the Great East Japan Earthquake are still in the process of reconstruction, and their revitalization with the power of tourism is an important mission of JR East. In fiscal 2014, we conducted the Sendai - Miyagi Destination Campaign (DC) over the months April - June and the Akita DC over the months October - December. Throughout the same year, we promoted the GO! TOHOKU Campaign, which we launched in fiscal 2013 as a symbol of our efforts to assist recovery, and publicized travel to the Tohoku region on a continuous basis. In addition, we commenced sales of bus tour plans to support recovery and emphasized transportation of visitors to coastal communities such as Minamisanriku and Kesenuma, which incurred tremendous damage from the tsunami. We also marketed a tour plan to support the affected areas that was linked with an aid project of the Tokyo Metropolitan Government under the banner "GO! FUKUSHIMA! Nice Price in Summer! Fukushima" and a bus tour for support of recovery in Iwate Prefecture, with a guided tour of disaster sites. The latter included financial aid for the affected areas. In these and other ways, we strove to assist recovery and revitalize communities in these areas.



Restoration measures for disaster-damaged areas: Tourism campaigns

During restoration support events in Sendai Station, Dila Nishifunabashi, and Dila Mitaka, JR East provided concrete assistance by offering sales channels for products from disaster-affected area where production has been resumed and sales outlets for residents of disaster-affected areas.

At Ueno and Akihabara stations in Tokyo, JR East continuously hosted events such as farmers' markets and "NOMONO" local produce shops, which focused on eastern Japan including disaster-struck areas. We also launched a new event titled "Sanriku Marketplace," which focused on communities in the Sanriku district. At this event, customers were able to buy seasonal foods and sake directly from Sanriku farmers and sake brewers.



Farmers' market

Tsunami-damaged Railway Lines—Basic Policy & Restoration Status

JR East has been carrying out post-tsunami reconstruction with the goal of resuming train operations on line sections where safety can be guaranteed along the Pacific coast, which incurred tremendous damage from the tsunami. Services have now resumed along the entire Hachinohe Line and on most sections of the Joban, Senseki, and Ishinomaki lines.

On the Joban Line between Soma and Hamayoshida, the Senseki Line between Takagimachi and Rikuzenono, and the Ishinomaki Line between Urashuku and Onagawa, we are laying track for restoration of railway service in step with community reconstruction. We are aiming for resumption of service in the spring of 2017 on this section of the Joban Line, by June 2015 on the Senseki Line, and the spring of 2015 on the Ishinomaki Line.

There are many factors that we must consider regarding the resumption of operations on the Joban Line section between Hirono and Haranomachi, which runs partially within the 20-km radius exclusion zone around the Fukushima Daiichi Nuclear Power Station. Before making any decisions, we will consider all aspects of reconstruction, including reviews of line sections, decontamination activities implemented by the Ministry of the Environment, the condition of infrastructural redevelopment, the situation regarding the return of former residents, and requests from local governments. Track restoration on the section between Hirono and Tatsuta began early enough for us to restore service when the residents of communities along the line were permitted to return, and service was resumed on June 1, 2014.

On the Kesennuma and Ofunato lines, we started a Bus Rapid Transit (BRT) program so that we could provide safe, convenient service at an early date. This has been improved by measures such as lengthening the exclusive BRT roadways and introducing "odeca," an IC boarding card system.

For the Yamada Line section, we made a proposal to local government organizations for integrating its operation with the North and South Rias Lines, which are operated by the locally based Sanriku Railway Company. This proposal, which is now under discussion, was raised from the perspective of encouraging service use through operation rooted in the area, which would be sustainable and responsive to local needs.

The suspension of train operations along line sections badly damaged by the earthquake and tsunami has now been reduced from the initial 400 km to approximately 240 km as of July 1, 2014. JR East will, of course, continue to cooperate with both national and local government authorities to bring about restoration of damaged railway lines, as well as in plans to rebuild the area as a whole and further develop towns, while at the same time ensuring the paramount safety of customers.



Ofunato line BRT, Sakari Station