

► Environmental Activities Along Railway Lines

How Does the JR East Group Conserve the Environment Along Railway Lines?

As a railway company it is particularly important to take care of the environment along our railway lines. JR East undertakes a range of activities to reduce noise, protect the landscape, and minimize impacts on the living environment.

Reducing Environmental Impacts along Rail Lines

Noise from Shinkansen

Noise caused by the Shinkansen is strictly regulated by the Japanese government's "Environmental Quality Standards for Shinkansen Super-Express Railway Noise." JR East takes a variety of measures to reduce noise, including the installation of soundproof walls and sound-absorbent materials, rail grinding,^{*1} and railcar modifications for quieter operation.

Measures to reduce noise levels to 75 dB or lower have already been completed in densely-populated residential areas. We will continue implementing a variety of measures to improve the living environment along rail lines, and will strive to eliminate or further reduce noise and continue meeting environmental standards.

Noise on conventional rail lines

Although no specific government-mandated environmental standards apply to conventional rail lines, we are carrying out voluntary measures to

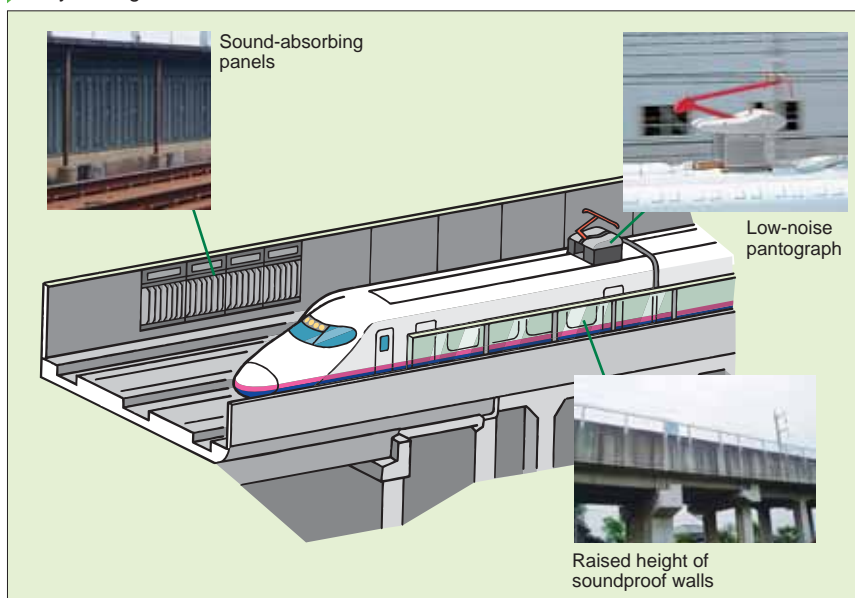
reduce noise, such as making continuous welded rails,^{*2} and performing wheel truing.^{*3} For new construction of or large-scale modifications on rail lines, we comply with the national government's Policy on Noise Measures for Construction of New Conventional Railways or Large-Scale Remodeling.

Noise from maintenance work

Besides noise from trains in operation, noise is also generated during track and other maintenance work. Because maintenance work is typically done at night when the trains are not running, we give advance notice to residents along the rail lines, informing them of the hours and details of the work; we also make an effort to minimize noise by using equipment that has been improved to operate more quietly.

On double-track lines, we also carry out work on one track during daytime hours, while the other track is used for train traffic. To reduce the actual need for maintenance, we are currently increasing the number of low-maintenance rails that are less affected by warping.

► Key strategies to reduce Shinkansen noise



*1 Rail grinding

The process of smoothing out the unevenness that has appeared in train tracks from trains running on them. Trains will run more quietly as a result, because the wheels are in better contact with the rails.

*2 Continuous welded rails

Rails that become more than 200 meters long through welding of rail joints. This measure reduces the noise produced from trains as their wheels pass over joints.

Visual impacts

Large structures such as bridges, stations, and station buildings may affect the aesthetics of the urban or rural landscape. In the interest of attaining harmony between structures and the landscape, JR East sets up design committees in the construction offices responsible for planning and designing these structures. We also encourage efforts to consider the landscape and visual effects at the design stage through an award program that to recognize them.



The height of the front and back guiderails of Yanoguchi Bridge, serving the Nambu Line, corresponds to that of the main beams to give an appearance of continuity. This is Japan's first Langer truss bridge with three main beams for a double track railway.

Dioxins from incinerators

Waste incinerators are known to generate dioxins under certain internal conditions. In the past, JR East was disposing of a portion of its waste using its own incinerators, but in fiscal 2002 halted the used of all except one large incinerator; use of this final incinerator was ended in fiscal 2004. At present, we are in the process of having them dismantled and removed.

Utilizing spring water from tunnels

In cooperation with local governments, we have been redirecting ground water and spring water from tunnels into nearby rivers in order to improve their water quality. In the Tokyo area, we started pumping water into the Nogawa River in fiscal 2001 and into the Tachiaigawa River in fiscal 2002, and began pumping springwater from around Ueno station into Shinobazu Pond in fiscal 2003.

We have been using spring water to melt snow along the Echigo-Yuzawa section of the Joetsu Shinkansen Line since the line was opened.



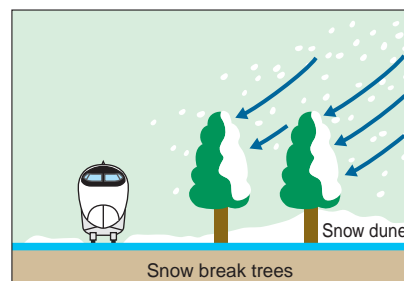
JR East has supplied water to the Shinobazu Pond (Ueno, Tokyo) since fiscal 2003.

Protecting railway trees

Railway trees are trees that have been planted to protect the railway tracks from damage, including from drifting snow, land slides, rock slides, and snow slides, etc. The planting of railway trees began during the Meiji Period (1868-1912) in Japan, and at one time the trees also made profit for forestry operations.

At present, besides their traditional role in preventing natural disasters, the trees are serving the protection of the natural environment along rail lines.

JR East owns about six million trees on a total of about 4,300 hectares of land along its railways. These trees play a role in preventing global warming, by absorbing 17,000 tons of CO₂ per year, equivalent to 0.7% of the annual CO₂ emissions of JR East. JR East continues to preserve the trees along its rail lines as a contribution to the environment and local communities.



Fallen snow may be blown by strong winds and bury rails in snowdrifts. These trees act as a windbreak to keep the tracks clear of snow.



Trees along the JR East Ou Line prevent snowdrift build-up. Shown here is the Yamagata Shinkansen.

Report: Misapplication of herbicide and countermeasures taken

In an unfortunate incident last year, the application of herbicide to remove vegetation along the Banetsu Higashi Line (June 2004) and the Suigun Line (July 2004) resulted in damage to agricultural crops. JR East sincerely regrets the inconvenience caused to residents along the tracks and to all persons affected.

JR East regularly clears vegetation along rail lines so that it does not become unmanageable and affect operations. In fiscal 2004 we used 258 tons of herbicide. During the application of herbicide, we make every effort to limit the amount used, and the area of exposure. We only use the herbicides that have the least possible toxicity, which are classified as "regular" if toxic to humans and livestock,

and as Type A if toxic to fish.

After the two incidents mentioned, investigations identified the sources of the problem to be the method of application – including the fact that the spray was dispersed by the wind.

In August 2004 we reenacted the incidents on JR East property, and verified the circumstances relating to the scattering of the herbicide. As a result, we confirmed that if workers use a nozzle to spray from a vehicle, as during the above incidents, the herbicide is dispersed more widely than expected due to deflection, as is the case under a given wind speed.

Based on these findings, we have taken the following precautions:

* Prohibiting workers from using nozzles

to spray herbicides from vehicles.

- * Installing covers to prevent dispersal from vehicles.
- * Strictly enforcing policies to halt work under poor weather conditions (wind, rain).
- * Avoiding application of herbicides during growing periods of agricultural crops.
- * Ensuring that when work is contracted out, the relevant companies submit a document for approval to JR East, recording the period in which the work takes place, the method, and what measures will be taken to prevent dispersal.

We will apply these measures rigorously, and do our utmost to prevent the occurrence of any similar incidents.