Chemical substance management

Compliance with laws and regulations and reduction of chemical substances
When using chemical substances, the effects on human health and ecological systems must be fully considered. JR East not only rigidly adheres to established standard values, but restrict the use of such substances and adopt substitutes that have less impact on the environment.

Under the Act for Rational Use and Proper Management of Fluorocarbon
We endeavor to reduce the use of substances specified as controlled substances under the Ozone Layer Protection Law and adopt substitutes that have less impact on the environment. Under the Act for Rational Use and Proper Management of Fluorocarbon, we reported a leakage amount of around 3 thousand t-CFCs for FY2019.

Cooling units (large refrigerators)—We are steadily replacing air conditioning units using specified chlorofluorocarbons (CFCs) with systems that do not use them and completed the removal of such units from buildings.

Rolling stock—Except for some diesel railcars, all of our cars use HCFC or CFC substitutes. As of the end of March 2019 we were using 0.6 tons of CFCs and 67 tons of CFC substitutes. We routinely check for gas leaks, and collect the refrigerants when scrapping retired railcars in accordance with applicable laws and regulations.

Fire-extinguishing agents—Although 65 tons of halon gas was still in use as a fire-extinguishing agent as of the end of March 2019, we have it under proper control and are replacing it with non-halon agents (such as powder agents and CO2) when building new facilities or renovating existing ones.

Chemical substance management
As JR East uses chemical substances primarily for painting and repairing our railcars, we take rigorous steps for their use and management in order to prevent spills. We are a company that handles a certain amount of specified chemical substances, and 12 JR East facilities submitted the data regarding the release and transfer of these substances to relevant authorities in FY2019, pursuant to the PRTR System.

We have also been introducing stainless steel railcars that do not require painting. At the end of March 2019, as many as 86.5% of the 9,360 cars operated on our conventional lines were stainless steel railcars. Beside their use for railcars, we used 347 tons of organic solvents for painting railway facilities and stabilizing track beds in FY2019.

Environmental Conservation Activities

Biodiversity

Hometown Forestation Program
In 2004, in order to protect biodiversity and contribute to a sustainable society, while cherishing our sense of gratitude for nature, we began the Hometown Forestation Programs to plant trees native to each region and revitalize the forests. We undertook these programs with the cooperation of Fukushima Prefecture from 2004 to 2009 and with the cooperation of Niigata Prefecture, the town of Tsuchinami and Tomakami and Ojiya Cities in the prefecture from 2010 to 2014, and in Osaki City, Miyagi Prefecture, from 2016 to 2018. In FY2020, we will start the Shima Hometown Forestation Program in Nakanohoro City, Gunma Prefecture.

Forest development along railways
Beginning in 1992, we have been organizing tree planting activities along JR East railways. By FY2019 a total of approximately 51 thousand people had participated in planting about 352 thousand trees*. Today, planting has gone beyond the trackside and is done in cooperation with local communities.

Development of railway trees
Along some railways, we have planted railway trees to shield the tracks from blowing snow and wind. The first railway trees were created in 1893 for disaster prevention. As living disaster prevention facilities, railway forests are playing their role. JR East now owns approximately 3.6 million railway trees on a total of about 3,900 hectares along our lines at approximately 1,080 locations. The trees absorb 15,000 tons of CO2 equivalent to 0.7% of the CO2 that JR East emits (this is the actual amount in FY2019). In this way, they also contribute to preserving the environment.

Planting new railway trees
Ceremonies for the planting of new railway trees have been held in various locations, as shown in the table below, starting with the Kakiizaki No. 1 railway forest in September 2008. During these ceremonies, native tree species were planted, with many local residents participating.

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Basic thoughts on noise reduction

In the operation of trains, noise is created by the train cars moving through the air, by the wheels travelling on the rails, by the motors, and by other sources. In order to reduce noise, we are working in various ways to improve both the trains and our ground equipment.

JR East also endeavors to reduce noise during maintenance work on track and structures to further improve the lineside environment.

Measures for the Shinkansen

In accordance with the Japanese government’s Environmental Quality Standards for Shinkansen Superexpress Railway Noise, JR East has taken many steps to reduce this noise, such as with the installation of soundproof walls and sound-absorbing materials, rail grinding*1 and the modification of our railcars to operate more quietly. We have already completed the implementation of measures to reduce noise levels to 75dB or lower in densely populated residential areas along our railway lines. At present, we plan countermeasure construction for the other areas in incremental steps. Also, based on the knowledge gained from running tests using the Shinkansen “FASTECH” test train, JR East is working to improve the environment even as we increase train speed, including further reduction of noise and micro-pressure waves in tunnels*2.

Measures for conventional lines

We have implemented measures for conventional lines to minimize noise, such as installation of long rails*, rail-grinding and wheel-truing*. We also comply with the Japanese government’s Policy on Noise Measures for Construction of New Conventional Railways or Large-Scale Remodeling when we engage in this kind of construction or modification of our conventional lines.

*1 Installing long rails

Rail joints are welded such that the length of a single rail becomes more than 200 meters. With fewer rail joints, these rails reduce noise produced at joints when trains pass.

*2 Wheel truing

A measure to grind the unevenness of wheels caused by wear, to restore their circular shape.

Measures for maintenance work

As maintenance work is usually done during the night, we give advance notice to residents in surrounding areas about the schedule and details of the work. We also make utmost efforts to minimize noise by using modified equipment that produces lower noise. Furthermore, by using a track that is designed to resist deformation, JR East is reducing the volume of required maintenance work.

*1 Rail grinding

A measure to smooth out uneven places in rails caused by wheel movement.

*2 Micro-pressure waves in tunnels

An explosive sound caused by forced air compression.

ES Series trains have low-noise pantographs.