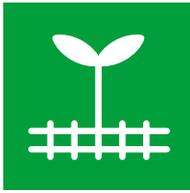




Annual Environmental Report 2000



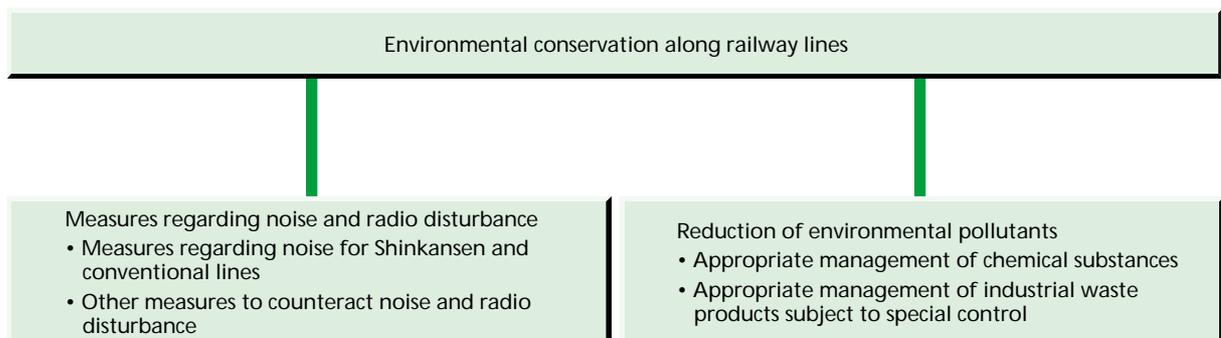
4. Environmental conservation efforts along railway lines

The train operations of JR East have various effects on the environment along railway lines, including noise, vibration and the radio disturbance. In addition, our thermoelectric power plant generates air pollutants. Various chemical substances are used in maintenance operations for railcars and business establishments, as well. Given our awareness of environmental impact along our railway lines, we are taking the necessary measures to minimize them.

■Goals and progress

Item	Targeted value (to be met by fiscal 2001)	Results in fiscal 1999		Reference value (figure from fiscal 1994)
		Actual achievement	Actual value measured	
NO _x emission volume from the Company-run thermoelectric power plant	▲40%	▲47%	467 t	873 t
75 dB measures in "residential areas" along the Tohoku and Joetsu Shinkansen lines	100% (to be completed in 2002)	22% completed		—

■JR East's environmental conservation efforts along railway lines



Measures regarding noise and radio disturbance

Measures regarding noise for Shinkansen lines

The environmental criterion set forth by the Environmental Agency regarding noise generation by Shinkansen cars limits their peak noise level (Lmax) during operation and is one of the world's strictest environmental criteria. We have taken various measures to meet this criterion, including the construction and height extension of soundproof walls, installation of sound-absorbent materials, installation of covers for pantographs, and the flattening of wheels.

The fact that we have achieved noise levels of 75 dB or below for all the "densely populated areas" and "areas comparable to densely populated areas" has been duly confirmed by the Environmental Agency. Currently we are working toward a similar achievement for residential areas, which we plan to complete by fiscal 2002. In fact, by fiscal 1999, we had already accumulated the results and accomplished our target for 22% of the subject area. Concerning the Nagano Shinkansen Line, which went into operation in October 1997, the Environmental Agency has already confirmed that the criterion was met for the entire area along the line.

Noise-reduction efforts go forward in other areas, as well. This includes the use of rail-smoothing cars for the reduction of noise generation from rails, and the introduction of new technologies to the Akita and Yamagata Shinkansen lines, i.e., the application of new pantographs that generate substantially less wind-related noise.

Measures regarding noise for conventional lines

The Environmental Agency established the Guidelines on Anti-Noise Measures for New Construction or the Major Renovation of Conventional Railways in December 1995. The objective of those guidelines was to regulate "equivalent noise level (Leq)," being a fundamentally different environmental criterion from that applied to the Shinkansen. Under this criterion the frequency and duration of sound generation is incorporated in the evaluation of noise level. Henceforth, when we plan to construct new conventional lines or perform major renovations on existing lines we will, in compliance with the guidelines, include noise-reduction as a criterion from the design stage forward.



The Dancette noise-insulation structure, which cancels noise through interference.



The Speno rail-grinding car

JR East is working to reduce noise in existing lines through the use of continuous welded rails and PC sleepers and weight reduction in railcars, among other things. We are also active in the development of technologies for noise reduction, as well as those relating to the design of low-noise cars.

Other measures regarding noise and radio disturbance

We do our utmost to reduce the noise and vibration caused by construction and railway maintenance, etc., which must occasionally be performed during nighttime hours due to limited time availability. However, in such cases, we always give prior notice to the local residents. We are also striving to reduce the amount of nighttime work through the replacement of existing tracks with TC-type labor-saving models or tracks using elastic ballast, both of which require less maintenance work.

Along Shinkansen lines, television interference is sometimes caused by overhead wires and pantograph bounces. We are now implementing measures to control television interference for affected households.

Air pollutants

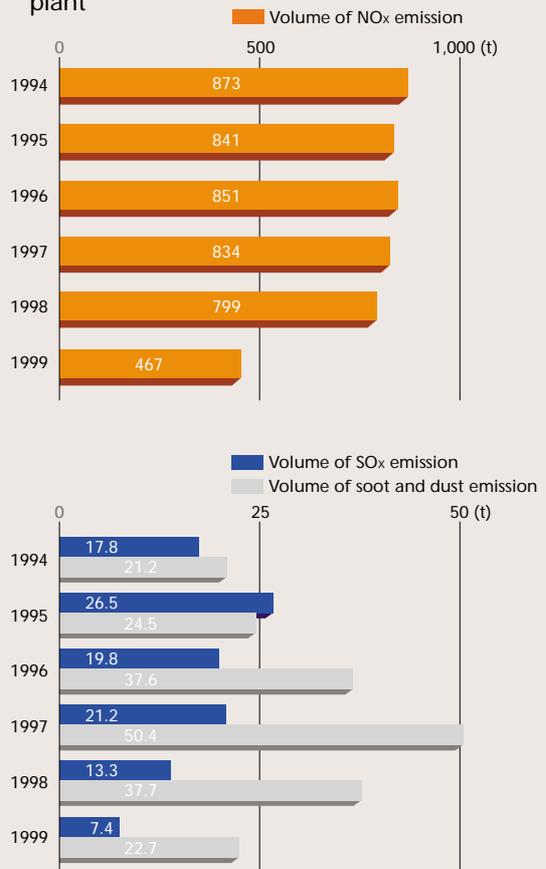
The Company-run thermoelectric power plant at Kawasaki generates a large volume of air pollutants. In that regard, we are busy converting fuels and renewing equipment to reduce NO_x and SO_x emissions and improve the facility's efficiency of energy consumption. In 1999, the NO_x emission volume was 467 t, SO_x emission 7.4 t, and soot and dust emission 22.7 t.

We are also working on the introduction of new engines for diesel railcars, along with examinations of function and durability with regard to our low-pollution engines.



"TC-type low-maintenance roadbed," introduced to reduce labor spent in maintenance work

■ Trend in volume of NO_x emission and others, from the Company-run thermoelectric power plant



*The displayed data of NO_x emission volume and others, from the Company-run thermoelectric power plant refers to the total for the entire calendar year (January 1 to December 31).

Reduction of environmental pollutants

Measures regarding incinerators

It has been pointed out that incinerators will under certain conditions generate dioxin. Currently a portion of the refuse disposed in JR East's stations and trains, as well as waste generated in business offices, is burned in our own incinerators. In response, we are now consolidating these incinerators and are planning to abolish by January 2001 the ones having incineration capacity of less than 200 kg/h. This will be achieved through an effort to reduce waste volume and out-source incineration operations. Moreover, we will consolidate our incinerators having capacities of 200 kg/h or more, along with equipment renovation and other significant measures.

Appropriate management and reduction of toxic substances (such as chemical substances)

The chemical substances used in our business operations include those found in the organic solvents used for the railcar painting at rolling-stock maintenance plants and herbicides used for weeding on railway tracks.

We used 510 t of organic solvents in fiscal 1999, which we later disposed of in an appropriate manner. We have also introduced paint-free cars to our commuter lines, and such cars now account for approximately 40% of our rolling stock.

Heavy weed overgrowth on railway tracks can seriously interfere with the safety of train operations, so to control it we used 338 t of herbicides during fiscal 1999. However, in consideration of environmental impact we only use herbicides with toxins categorized as "low mammalian toxicity, category-A fish toxicity." Moreover, we use only the minimum amount necessary and strive to limit the area of sprinkling so that other plants will not be affected.

PCBs

We have been using PCBs as insulating oil for high-voltage transformers and condensers in railcars, transformation units and so forth. However, we remove PCB-using machinery as soon as it becomes obsolete, bringing the total weight of such removal to approximately 2,000 t. This equipment is stored in warehouses and managed in a manner appropriate with legal regulations, including the placement of personnel in charge of industrial waste subject to special control.

Formerly only method allowed for PCB processing was combustion. Now, however, following revision of the Enforcement Ordinance for the Waste Management Law, it is allowed to process such materials chemically, as well. The Railway Technical Research Institute is now developing a processing technology that uses a combination of microbes and ultraviolet rays. We are considering the use of various processing methods in the future upon confirmation of their safety level.

Treatment of sewage from train washrooms

We have been working on the installation of sewage-treatment equipment in washrooms in trains. The installation has been completed for all passenger railcars equipped with washrooms. Forty-seven diesel railcars are scheduled to receive similar procedures by the end of fiscal 2000.





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