Annual Environmental Report 2001

EAST JAPAN RAILWAY COMPANY

Committee on Ecology

1. Environmental Management System

In 1992, JR East established the Committee on Ecology as a means of tackling a variety of global environmental issues, and set forth our Basic Philosophy and Policy on the Promotion of Ecological Activities. In 1996, we established guidelines pertaining to the environmental impact of our business operations, together with ecological goals to be met by fiscal 2001. In November 2000, as we were nearing our initial target date and because we had already met some of our objectives, we revised environmental targets to be achieved by fiscal 2005.

These revised targets are set to coincide with the culmination of New Frontier 21, JR East Group's medium-term business plan, which features the promotion of environmentally conscious management as one of its key components. As such, New Frontier 21 represents our determination to redouble the efforts of our entire group to better protect the environment.

Basic Philosophy and Policy on the Promotion of Ecological Activities (established in May 1992)

Basic philosophy

The entire JR East Group, working together, will diligently strive to reconcile environmental protection with its business activities.

Basic policy

To contribute to customers' lives and local communities by providing a comfortable environment

To develop and provide the technology needed to protect the global environment

To maintain an awareness of environmental protection and raise the environmental awareness of our employees

Activity guidelines and goals for the promotion of ecological activities (established in March 1996)

Activity guidelines

1. We work to prevent the waste of precious energy and to reduce CO_2 emissions—a known source of global warming—by enhancing our energy efficiency and introducing cleaner forms of energy.

2. We ensure the proper management and processing of environmental pollutants and ozone-depleting substances, in compliance with laws and regulations. Moreover, we do our best to reduce the usage and generation of these substances, and to adopt environmentally responsible substitutes when they are available.

3. We ensure the appropriate processing of various types of waste generated at our offices, establishments, stations, trains, etc. We strive to recycle waste and reduce the generation thereof, and to use more recycled and resource-saving products to minimize our burden upon the environment.

4. We respect the natural environment as a nurturer and source of life, and therefore, we endeavor to reduce noise and vibration caused by train operations, thus achieving a harmonious relationship with the communities we serve.

5. We work to make railways a more attractive and environment-friendly form of transportation.

Goals to be met by fiscal 2005 (based on figures from fiscal 1990; partially revised in February 1998 and revised in November 2000)

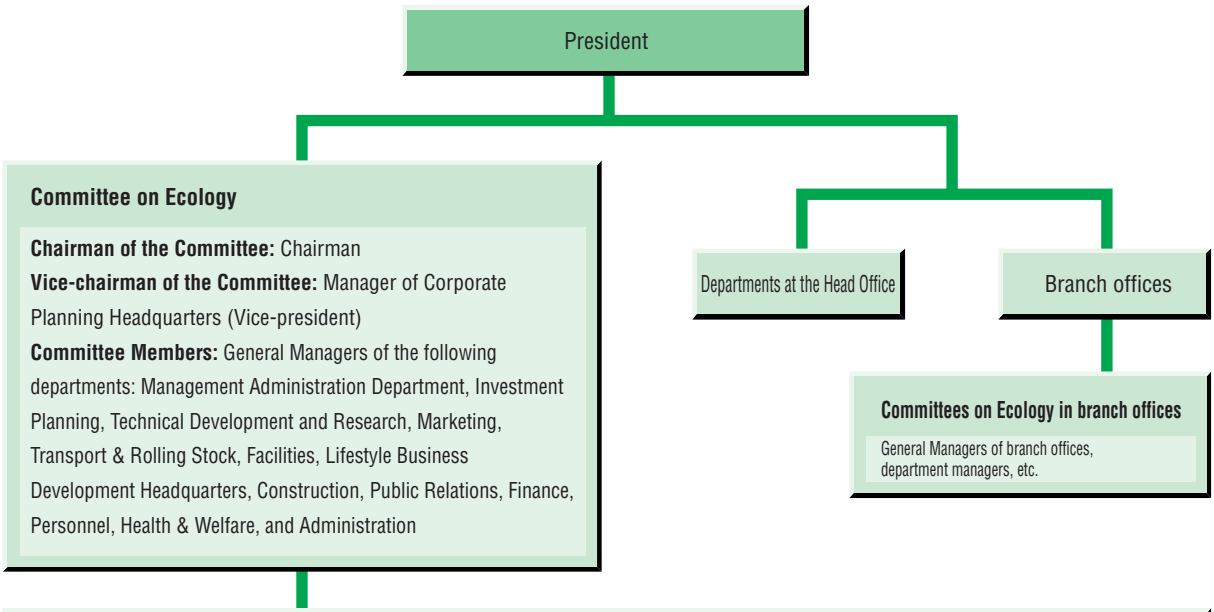
- A 20% reduction of CO_2 emissions in general business activities
- Realization of an energy-saving railcar ratio of 80%
- A 30% reduction of CO_2 emissions in proportion to unit electric power generation at company-run thermoelectric power plant
- A 15% reduction in energy consumption for train operations in proportion to unit transportation volume
- An 85% reduction in number of large-size refrigerating machines using specific chlorofluorocarbons (CFCs)
- Realization of a 36% recycling rate for waste generated at stations and on trains
- Realization of a 75% recycling rate for waste generated in rolling stock workshops
- Realization of an 85% recycling rate for waste generated in construction projects
- Realization of a 100% rate for usage of recycled paper as office stock
- Reduction of noise to less than 75dB in designated residential areas along the Tohoku and Joetsu Shinkansen Lines*
- A 60% reduction of NOx emissions at company-run thermoelectric power plant
- Implementation of specific environmental protection activities on an annual basis

*Projected for achievement by fiscal 2002

Structure for the implementation of environmental activities

JR East, in conjunction with our Committee on Ecology, has established a basic policy on environmental issues and is energetically implementing a variety of activities. A cross-departmental organization within the company itself, the Committee consists of managers from each department, and is chaired by the Chairman of JR East. The Committee maintains an office within the Management Administration Department and a number of subcommittees, each of which is charged with a specific issue and led by a chief supervisor from the respective business section. The Committee is involved in various activities, including the examination of the environmental impact of our business operations, the establishment of goals regarding our environmental activities, the implementation of conservation initiatives, confirmation of the degree to which goals are achieved, and oversight by executive staff.

In fiscal 1998, each of our branch offices established its own Committee on Ecology, consisting of a branch manager and relevant department managers. In fiscal 2000, several of our branch offices began publishing their own environmental reports to track the progress of their environmental activities.



Subcommittees	Departments in charge of subcommittees	Main activities
Environmental Management System	Management Administration Dept.	Establishment and revision of goals and environmental measures
Energy Savings and Clean Energy	Electric Facilities Section, Facilities Dept.	Energy savings and the reduction of CO_2 emissions
Environmental Pollutant Management and Reduction	Planning Section, Transport & Rolling Stock Dept.	Reduction of environmental pollutants and ozone-layer depleting substances
Zero Emissions	Passengers Facilities Section, Facilities Dept.	Reduction of waste volume and promotion of use of recycled products
Green Rail	Environmental Planning Section, Facilities Dept.	Environmental conservation along railway lines and noise reduction
Ecology Technology	Technical Development and Research Dept.	Development of environmental technologies
Intermodal Transportation	Marketing Dept.	Reduction of environmental burden by enhanced integration of railways into the general transportation infrastructure
Environmental Business	Lifestyle Business Development Headquarters	Environmental contributions through business operations

ISO 14001

In 1999, our Niitsu Rolling Stock Manufacturing Factory obtained certification under ISO 14001, the international standard for environmental management systems in business and industry. Three other facilities obtained certification in fiscal 2000.

In March of 2001, our Kawasaki Thermoelectric Power Plant, Oi Rolling Stock Workshop, and Niigata Mechanical Technology Center—each engaged in operations with the potential of generating a significant environmental burden—received ISO 14001 certification. We will continue our efforts to obtain certification, primarily at our rolling stock workshops.

Among our Group companies, East Japan Eco Access Co., Ltd. received certification in November 1999. It was followed by three Lumine Co., Ltd. buildings—the corporate headquarters, the Yokohama Store, and the Machida Store—in December 2000.

Internal audits

JR East is in the process of implementing systems for monitoring environmental activities based on the PDCA (Plan-Do-Check-Action) cycle. At our rolling stock workshops, for example, external instructors are hired to train internal auditors, who then conduct regular audits of specific environmental activities. We plan to implement this type of program company-wide in the months to come.

Environmental risk management

We have compiled emergency response manuals for our thermoelectric power plant and rolling stock workshops. These manuals are used in study groups intended to thoroughly familiarize workers with risk control procedures. We also conduct on-site training exercises on handling potential leaks of fuel, organic solvents, or other chemicals which may occur in boilers and chemical storage rooms.

Environmental education

The success of our environmental efforts as a company requires that our employees have an appropriate awareness with regard to environmental issues. We therefore provide environmental education for all our new recruits and new management staff (on-site supervisors, including stationmasters). In addition, our monthly in-house magazine *JR Higashi* also covers environmental topics in every issue, including environmental problems and specific company-wide ecology activities.

Environment-related accidents, etc.

In fiscal 2000, we did not experience a single instance of environment-related accidents and were levied no related fines.

Kawasaki Thermoelectric Power Plant

ISO 14001 certificate for our Kawasaki Thermoelectric Power Plant

JR Higashi: in-house magazine

Environmental education programs implemented during fiscal 2000

• Training for new on-site supervisors	14 times	300 people
• Training for new assistant supervisors	2 times	40 people
• Training for new management staff	3 times	70 people
• Training for implementation managers	Once	180 people
• Training for new recruits	5 times	1,440 people
• Environmental seminars	9 times	620 people

Environmental accounting

Summary table of environmental conservation activities

Category	Main activities	Environmental conservation costs (unit: ¥billion) Investment	Expenses	Item
1 Environmental conservation activities along railway lines (pollution prevention)	• Noise reduction measures along Shinkansen and conventional lines (construction of sound barriers, introduction of PC sleepers and continuous-welded rails, etc.) • Reduction of environmental pollutants from company-run Kawasaki Thermoelectric Power Plant • Renovation of large-size incinerators; elimination of small-size incinerators • Appropriate management and treatment of organic solvents etc., based on PRTR regulations	3.17	6.58	• Reduction of noise to less than the Tohoku and Joetsu • NOx emissions at company-run
2 Global environmental conservation activities	• Introduction of energy-saving rail cars • Energy conservation at stations and office buildings (introduction of co-generation, solar power generation) • Promotion of intermodal transportation (Park & Ride, Rail & Rent-a-Car, etc.)	65.62	–	• CO_2 emissions in general • CO_2 emissions in proportion to run thermoelectric power plant • Ratio of energy-saving railcars • Energy consumption for train transportation volume • Number of large-size
3 Resource-recycling activities (zero emissions program)	• Reduction and recycling of waste generated at stations and on trains (categorized collection, establishment of recycling centers, etc.) • Recycling of train tickets and passes • Recycling of waste generated at rolling stock workshops and in construction projects • Recycling of newsprint collected at stations, and introduction of recycled office paper, etc.	–	5.06	• Recycling rate for waste • Recycling rate for waste • Recycling rate for waste • Usage rate of recycled paper as
4 Environmental management	• Implementation of environmental management by Committees on Ecology at JR East Head Office and branch offices • Acquisition of ISO14001 certification for Kawasaki Thermoelectric Power Plant, Oi Workshop, and Niigata Mechanical Technology Center	–	0.17	
5 Research and development of environment-related technologies	• Development of next-generation AC Train commuter trains (energy savings and recycling) • Development of technologies for noise reduction • Development of measures to eliminate engine idling for diesel railcars	0.01	0.51	
6 Social activities	• Implementation of Afforestation Alongside Railway Tracks program • Implementation of ecology campaigns • Publication of environmental reports • Environmental advertisements	0.09	0.47	• Specific environmental preserva

How environmental conservation costs and effects are determined

- Data refers to East Japan Railway Company itself, on a nonconsolidated basis.
- "Environmental conservation costs" covers only those that can be identified through our current system of management, etc.
- Categorization of activities is based on the guidelines set forth by the Ministry of the Environment of Japan.
- For activities that are multipurpose and have a significant environmental effect, the stated amount refers to total costs spent on behalf of those specific activities. (The cost for pollution prevention includes all the expenses for the introduction of continuous welded rails and PC sleepers, as long as they are considered to have contributed to enhanced functionality. The cost for global environmental conservation includes the total amount invested in energy-saving railcars.)
- Expenses do not include depreciation costs.
- Expenses for the processing of waste generated at stations and trains (within the category of resource-recycling costs) is calculated in the following manner: First, a model is set up for the cleaning of stations and trains. Second, a percentage occupied by waste recycling and processing is calculated, in proportion to the content of the entire model. By multiplying the cleaning expenses for stations and trains by this percentage, the amount of the said expenses is obtained.
- The amount of expenses for the processing of waste generated through construction work and by rolling stock facilities (under the category of resource-recycling costs) is calculated by multiplying the waste volume in fiscal 2000 by the standard unit price in each waste category and location.
- Economic effect is calculated based on real and quantifiable benefits generated by reduction of electricity and maintenance costs and by the sale of assets; other methods of calculation are under consideration. Regarding investments in facilities such as energy-saving railcars and cogeneration, calculation is based on one year's worth of cost savings in the year of the capital investment multiplied by the legally accepted depreciation lifespan of the facility. (If a facility was launched during the fiscal year, a year's worth of cost savings were assumed for the sake of accounting).
- The "cost of facilities" of the "environmental conservation costs" includes outlays to secure such facilities carried over from previous fiscal years.

Reference

Amount of facilities investment for the period ¥222.30 billion
Total amount of research and development costs for the period ¥13.37 billion*

* Includes research contracted (¥5.62 billion) to the Railway General Research Institute based on the Agreement on Research Activities, etc., concerning research and development in fundamental fields.

Targets			Environmental conservation effects		Economic effects (¥billion)	Reference in *Environmental Report*
	Reference value (fiscal 1990)	Target value	Actual achievements in fiscal 2000			
75dB in designated residential areas along Shinkansen Lines	–	100% (to be completed in 2002)	40% improvement	–	–	Environmental conservation along railway lines **pp. 26–29**
thermoelectric power plant	994t	▲ 60%	▲58%	414t		
business activities	2.76 million t-CO_2	▲ 20%	▲ 12%	2.44 million t-CO_2	35.15	Global environmental conservation **pp. 10–17**
unit electric power generation at company-	726 g-CO_2/kWh	▲ 30%	▲ 25%	544 g-CO_2/kWh		
	–	80%	59%	–		
operations in proportion to unit	20.6 MJ/ car-km	▲ 15%	▲ 4%	19.7 MJ/car-km		
refrigerating machines using specific CFCs	82 units	▲ 85%	▲ 63%	30 units		
generated at stations and on trains	–	36%	35%	–	0.31	Zero emissions programs **pp. 18–25**
generated at rolling stock workshops	–	75%	67%	–		
generated by construction projects	–	85%	73%	–		
office stock	–	100%	97%	–		
					–	Environmental management system **pp. 4–9**
					–	**pp. 13, 22, 27**
tion activities	–		–	12 locations 20,000 trees planted 2,000 people participated	–	Environmental efforts in society **pp. 30–33**

[Breakdown of economic effects]

2. Global environmental conservation activities

Item	Environmental conservation costs		Environmental conservation effects		Economic effects		Legally mandated lifespan (years)
	Investment (¥ billion)	Cost of facilities (¥ billion)	Reduction in CO_2 emissions (1,000 t)		(¥ billions)		
			Per annum	Lifespan	Per annum	Lifespan	
Low-energy commuter trains	34.65	34.65	38	494	2.43	31.53	13
Cogeneration	0.93	1.27	6	90	0.24	3.60	15
Solar power generation	0.07	0.07	0	0	0.00	0.02	10
Total	**35.65**	**35.99**	**44**	**584**	**2.67**	**35.15**	**–**

3. Resource-recycling activities

Item	Environmental conservation costs	Economic effects
	Expenses (¥ billions)	Per annum effect (¥ billions)
Processing of waste products from workshops and cosntruction projets	2.17	0.31