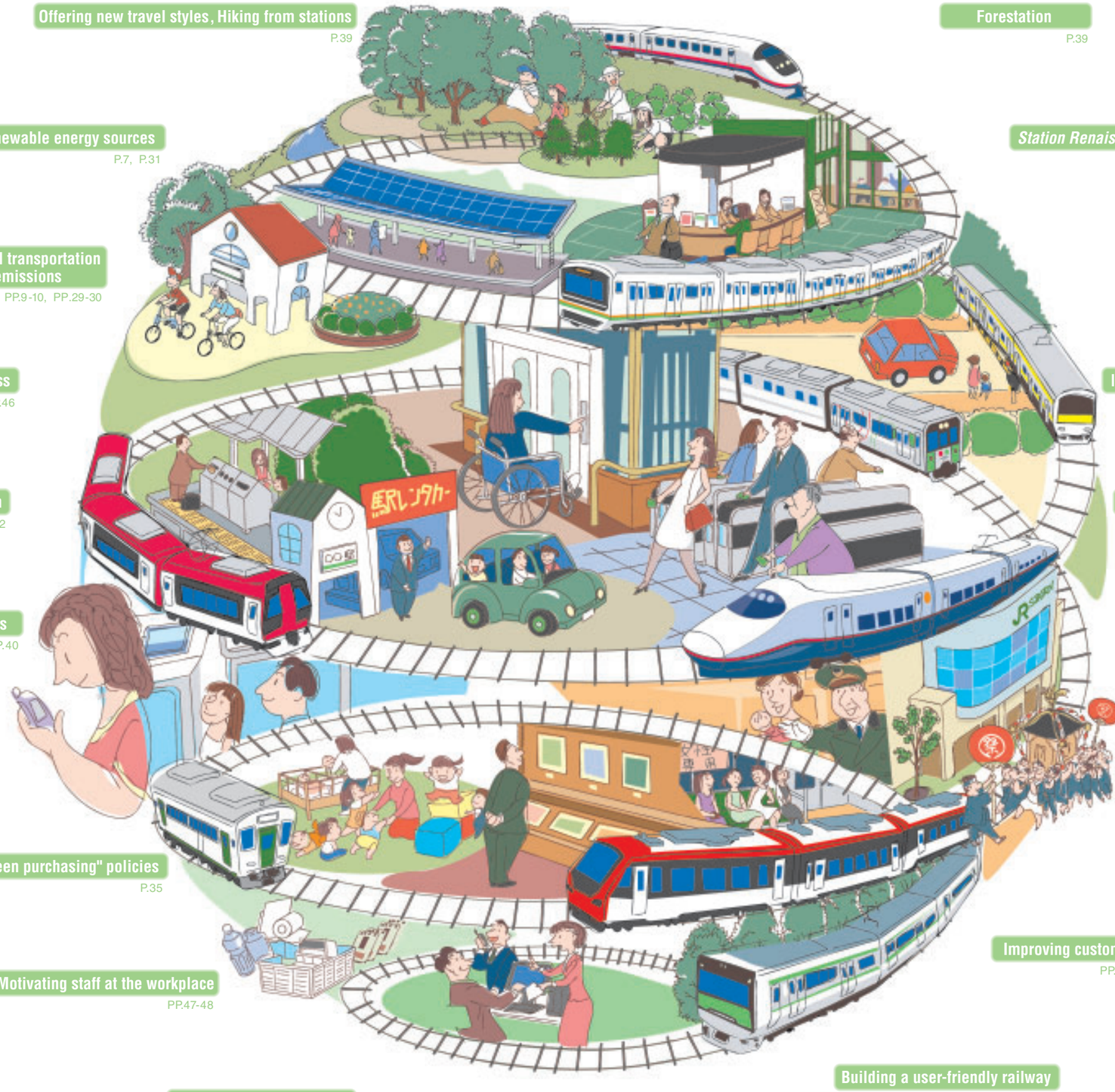
JR East Group

Sustainability Report 2003

Implementing New Frontier 21

We aim to be a trustworthy lifestyle-enhancement services group



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Top Interview

Our main duty is to provide railway services through sustainable manner

The aim of the railway business is to enrich the lives of people throughout the country

Nonaka: When you took over as president of the company, you must have had several areas you wanted to focus on. What responsibility does the railway business have in terms of serving society as a whole?

Otsuka: The purpose of railway business is to enrich the lives of people throughout the country. Our business principle is to provide customers with a high level of satisfaction. In other words, our primary goal is building relationships with individual customers throughout the country, and meeting their various needs. Two years ago, we established an Internet-based customer feedback system. Although we have received some strongly-worded suggestions for improvement, we do not see such criticism as an attack, but as an indication of where we can improve. We consider the Internet-based customer feedback system to be part of our marketing program. Since our customers are essential partners in our business, their immediate and honest response encourages us a lot.


Mr. Mutsutake Otsuka,
President,
East Japan Railway Company

Proactively responding to environmental issues leads to potential corporate growth

Nonaka: The people of the 21st Century value socially responsible corporate behavior. How do you address this movement?

Otsuka: Although adverse effect of railways to the environment is less than that of automobiles or aircrafts, we still consume a huge amount of energy, causing environmental impact. Therefore, we have initiated a range of conservation measures including reduction of CO_2 emissions and other waste, improving recycling rates, noise reduction, and forestation. We have also set numerical goals to measure our progress. For example, we aim to reduce CO_2 emissions linked to global warming, to 80% of 1990 levels by FY 2005.

Our newly developed NE (New Energy) hybrid train reduces environmental load. This railcar, still in the test stage, is powered by a generator driven by its diesel engine, and the surplus electricity is available to charge an onboard battery. The NE engine consumes 20% less fuel than conventional train engines.

Some people think addressing environmental issues doesn't pay, but I believe developing more energy-efficient technology will enhance our technological capability. The process of developing environmentally friendly technologies prompts our engineers to internalize "green values." Such a mindset provides increased job satisfaction, which further motivates them in their work. We must proactively respond to environmental issues, as this will greatly expand our potential.

We are determined to create a railway company with highly motivated employees who provide the top-quality service our customers deserve and demand. The more people ride trains, the more we benefit from the environmentally friendly characteristics of train transport — eventually leading to the minimization of environmental impact by society as a whole. To achieve this goal, we will pursue our mission to provide safe, punctual transportation and deliver convenient, comfortable services that meet a variety of customer needs. I believe such efforts increase the desirability of our railway.

Developing and maintaining trust relationships with our stakeholders

Nonaka: You have an enormous number of stakeholders — including customers and shareholders. What are your thoughts on the company's relationship to them?

Otsuka: New Frontier 21, JR East Group's medium-term business plan, specifies our lines of action in areas such as customer satisfaction, responsible corporate citizenship, employee job satisfaction, and shareholder expectations. All of these are important to us since they directly affect the relationships with our stakeholders.

Many companies have impaired public confidence since the 1990's. Only firms that earn the trust and

confidence from the general public will survive. Since sound management practices are essential to building public trust, we have conducted a detailed review of our operation and are implementing the appropriate changes especially when the business goes well.

Companies also need autonomy and independence. Yukichi Fukuzawa, a noted Japanese pundit, states "There will be no independence of a country without each individual's independence," in his book *Gakumon no Susume* (Learned Advice). I think this applies to all Japanese companies today. Without a sense of independence, employees are too reliant on each other to provide sound management. Likewise, if each corporation depends on the nation, the nation itself may be ruined. We aim to continue our efforts to gain the respect from all our stakeholders while maintaining autonomy and independence.

Disseminating Japan-style railway systems to other countries


Ms. Tomoyo Nonaka,
Journalist

Nonaka: What are some of your goals for the near future?

Otsuka: I would like to disseminate Japan-style railway systems in other countries. Although the sunset theory had been widely held in Europe, modern technology is making safe, high-speed rail transport possible, and therefore, I believe that train transport will regain prominence in the 21st Century. Environmental concerns triggered the resurgence of rail transport in Europe. We believe rail transport will expand in Asia as well.

Providing railway service is not just laying tracks and stringing electric wires to run trains. It is a very complicated system. Operations, maintenance, communications, marketing, and customer service must be simultaneously coordinated into a seamless whole. The *Shinkansen* (Bullet Train) is a good example of the system being used to realize safe high-speed transportation. In accord with the long held Japanese standard of perfect punctuality and zero delays, the system operates successfully because every staff member in each division executes his or her duties flawlessly. That is why there are so few railway accidents in Japan. In this way, I believe the Japanese railway system leads the world.

Accomplishing our responsibilities for the children of the future

Nonaka: Finally, how do you hope to affect society over the next 20 to 30 years to leave a legacy for today's children — the torchbearers of the next generation?

Otsuka: First of all, I would like to bequeath a beautiful natural environment. I also want to develop a society in which those children can be properly educated and pursue their dreams. JR East Group is actively involved in our Children's Railway Association. We provide opportunities for elementary school children and other young people to visit railroad facilities or participate in clean-up activities at stations. We want children to understand that freedom is always accompanied by responsibility, and such programs teach them the social awareness needed to become contributing members of society. We must also set a good example for young people by behaving as socially responsible corporate citizens ourselves.

Nonaka: We look forward to seeing the future results of your efforts and those of JR East Group toward realizing a sustainable society.

JR East Group activities for a sustainable society

We assume responsibility for creating a society in which the people of today, as well as those of the next generation, can live satisfying lives. Here we introduce specific activities we are pursuing regarding environmental and social issues toward a sustainable society, including safety measures, customer service, relationship with local communities, and more.

What is environmentally friendly transportation?

Trains emit the lowest level of CO_2

Railway transportation is quite energy efficient. When we compare fuel and energy consumed to CO_2 emissions emitted, we see trains generate approximately one-tenth of that of automobiles (see graph at right). However, because of serving 16 million customers daily, JR East itself emits cosiderable levels of CO_2. In order to reduce the environmental impact as much as possible, We are developing and incorporating energy-efficient railcars.

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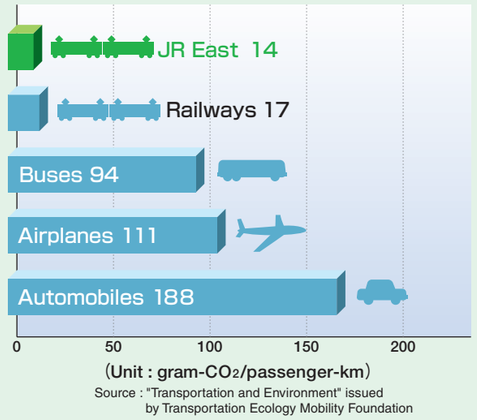
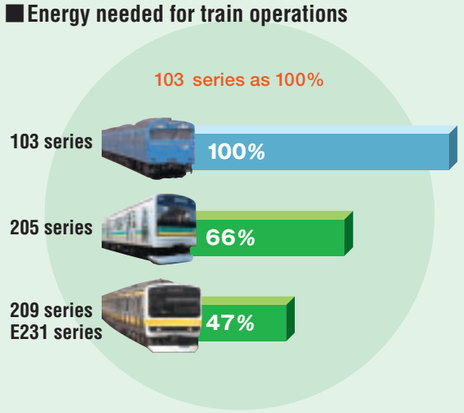
■ CO_2 emission levels by transportation type



(Unit : gram-CO_2/passenger-km)

Source : "Transportation and Environment" issued by Transportation Ecology Mobility Foundation

■ Energy needed for train operations



Energy-efficient railcars consume about half the energy of conventional units

Our energy-efficient railcars cut operational energy consumption by 66% and 47% respectively of that of conventional railcars. To accomplish this, we developed various technologies, redesigned railcar structure, and used stainless steel instead of iron when possible to reduce weight. Furthermore, by harnessing the energy generated during braking, we have greatly reduced overall energy consumption. These steps achieved significant reduction of CO_2 emissions.

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Energy-efficient railcars account for 68% of our fleet

JR East continues to introduce energy-efficient railcars such as the E231 and E205. The number of energy-efficient railcars is steadily increasing, reaching 68% by the end of FY 2002.

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Life cycle of rolling stock

The reduction of energy consumption in operation has a significant effect on environmental conservation, but we need to extend this effort to every stage — from development and designing to manufacturing and refuse disposal. Taking advantage of our business resources at each stage, JR East continues to work toward increased energy-efficiency, reuse, and recycling throughout the entire lifecycle of our rolling stock.

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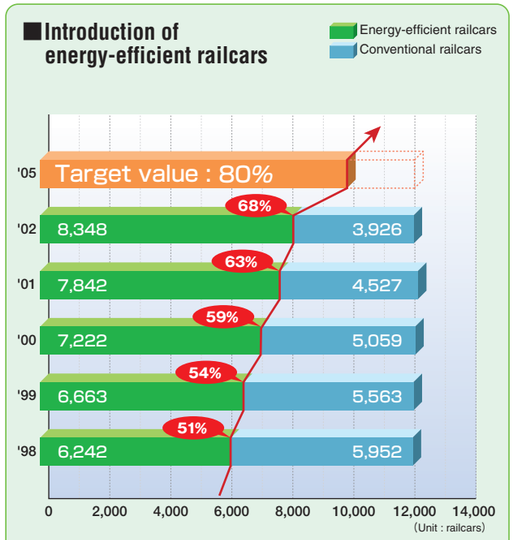
■ Introduction of energy-efficient railcars



World's first hybrid railcar (NE Train)

Niitsu Rolling Stock Manufacturing Factory

Oi Rolling Stock Workshop

Recycling discarded wheels to disk brakes

Where does the electricity for our trains come from?

Devised use of dedicated power plant has reduced CO_2 emissions by 16% compared with 1990 levels.

JR East obtains more than half its annual electricity from dedicated thermal and hydraulic plants. These efficient operations help reduce CO_2.

Moreover, the hydraulic plant supplying about a quarter of our total power is a clean energy source emitting zero CO_2. We continue to devise power-generation methods that improve the efficiency of thermal power. A central load-dispatching command facility controls the entire volume of energy generated and regulates the transmission network. Recently we are also exploring natural energy resources such as wind and photovoltaic power.

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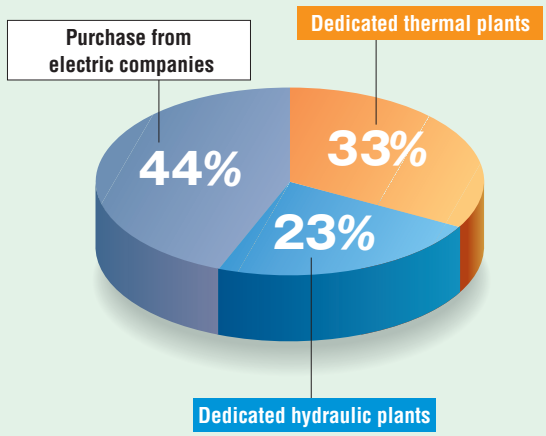
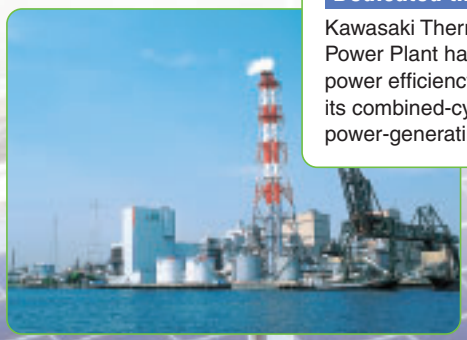
■JR East's electricity source



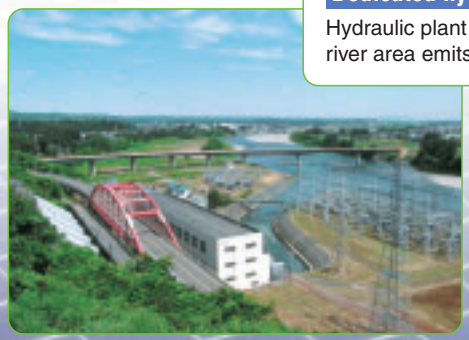
Dedicated thermal plant

Kawasaki Thermoelectric Power Plant has improved power efficiency with its combined-cycle power-generating units.



Dedicated hydraulic plant

Hydraulic plant in Shinano-river area emits zero CO_2.



Photovoltaic generator panel

Panel & roof material integrated solar power generation system for the *Shinkansen* platforms of Takasaki Station

What happens to used train tickets and other refuse?

Dedicated recycling centers improve refuse-recycling rate

People worldwide are working to end the cycle of mass-production, mass-consumption, and mass-disposal. JR East takes part in promoting a zero-emission society by expanding recycling activities.

JR East has approximately 560,000 tons of refuse per year. Approximately 50,000 tons of garbage are discarded by customers on trains or at stations, including newspapers, magazines, PET (Polyethilene Terephthalate) bottles, aluminum cans, and so forth. These are mainly processed at JR East recycling centers.

Used train tickets are made into toilet paper. Newspapers and magazines are recycled into copy paper for use at our offices. Through these efforts we recycled 37% of the waste generated at stations and on trains in FY 2002.
74% of the industrial waste generated in rolling stock plants and 84% from construction sites was also recycled.

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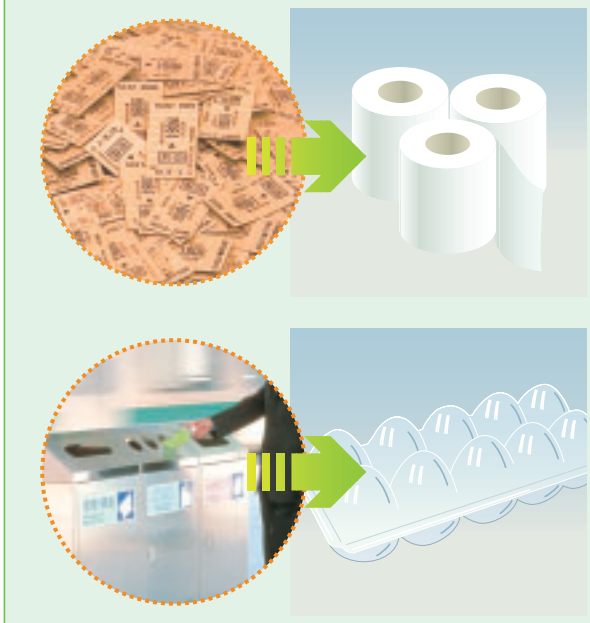

Shinkiba Recycling Center

The Center sorts out newspapers and magazines collected from stations, then compresses and sends them to paper recycling facilities.

What is an environmentally friendly transportation combination?

Reducing CO_2 emissions by promoting intermodal transportation

Each type of transportation has its advantages and disadvantages.
Intermodal transportation is designed to minimize global warming and increase convenience by effectively integrating various types of transportation. Intermodal transportation is now attracting worldwide attention and JR East is offering various services to promote it.

For instance, Park & Ride allows customers to park their cars at stations and take trains. It reduces distance traveled by automobiles, thus reducing CO_2 emissions. JR East works, in some cases with local authorities, to set up parking lots near stations.

We also suggest ways of combining alternative means of transportation to further cut CO_2 emissions, such as allowing customers to bring their bicycles on trains for free, as long as the bike can be folded or dissembled to fit in a bag. Our Sendai branch is even experimenting with a policy for allowing customers to bring bicycles onto a special train without folding or dissembling.

We are also facilitating other intermodal transportation services by selling discount tickets for train/car rental packages.

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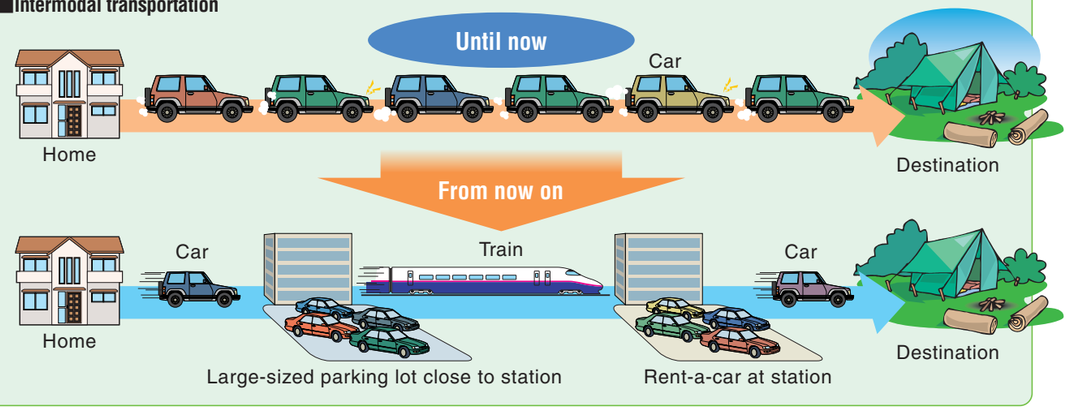
Park & Ride

Park & Ride means parking one's car at the station and taking a train. JR East, in some cases with local authorities, is setting up parking lots near train stations.
(Above: Akita Station Below: Kurikoma Kogen Station)

■Intermodal transportation



Rail & Rent-a-car

We are introducing new reasonably priced services, such as *Torenta-kun* and Rail and Rent-a-car, for even more convenient transportation combination options.

Rental bike

Provides rental bike at stations near tourist destinations.
This is the rental bike service at Shinano Omachi Station on the *Oito* line.

Bike and Ride

JR East began permitting passengers to bring folding and bagged bicycles onto trains for free in 1998. We have also inaugurated pilot programs in some areas to allow customers to bring non-folding bicycles on certain trains.

How is customer safety ensured?

Platform safety is a key factor

The entire JR East Group continually strives to increase the safety of our railway system, in terms of both facilities and employees' know-how and experience. The safety of passengers on the platform is one of our major concerns. We have installed various types of safety equipment, including fall-detection mats adjacent to tracks, raised tiles to guide visually-impaired passengers on the platform, emergency alarm buttons to stop oncoming trains, and steps from the track bed to the platform.

In addition to installing safety equipment, in 1999 we began a platform safety campaign illustrating proper platform manner (not rushing to board a train, for example) and encouraging passengers to push an emergency alarm button should someone fall to the track bed.

Thanks to these measures, the number of accidents resulting in physical injury dropped nearly 50% — from 124 incidents when the company was founded in 1987 to 68 in FY 2002.

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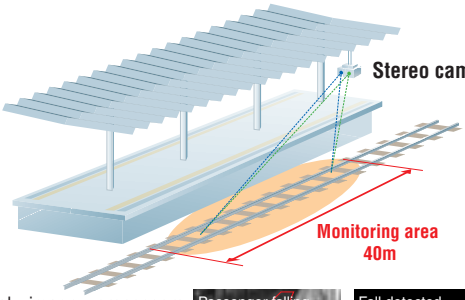
Developing the image-processing type fall-detection system

We are developing a high precision fall-detection system monitored with stereo image processing technology. Should a passenger fall from the platform onto the tracks, the system automatically detects the incident and alerts station and train crews. This system spans nearly the entire track bed, not just beneath train doors where fall-detection mats are in place.



Digital image processors with stereo cameras automatically detect when someone has fallen onto the tracks.

Platform safety measures

Emergency stop alarm system

Pressing one of the emergency stop alarm buttons installed on platform pillars notifies train conductors of an emergency.

Raised-tile guides for the visually impaired

Raised tiles inset from the edge of the platform prevent visually-impaired passengers from falling onto the tracks.

Platform safety campaign poster

Fall-detection mats

Mats installed adjacent to tracks detect when a passenger has fallen from the platform and alerts the conductor.

Platform steps

These steps allow a passenger who has fallen onto the tracks to climb back up to the platform.

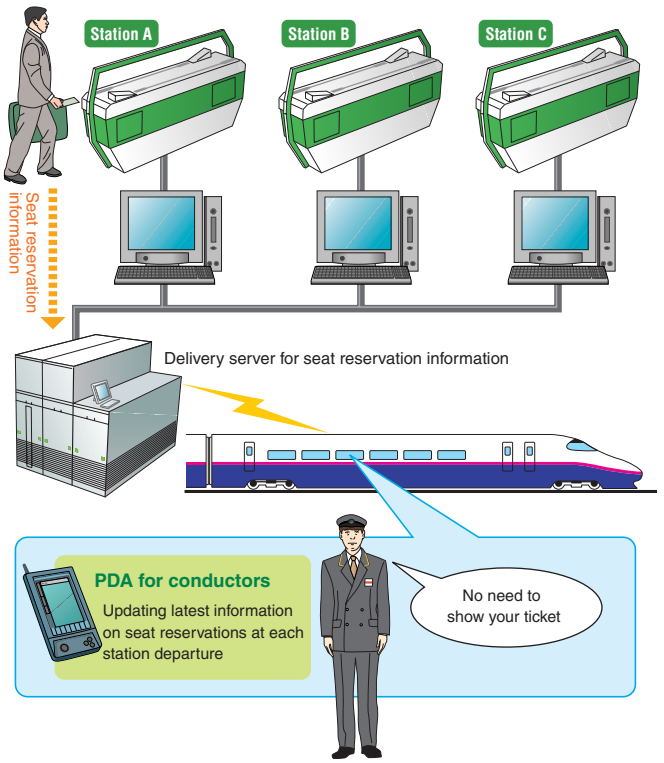
What are new convenient customer services?

Using IT to meet customer demands

JR East takes advantage of Information Technology (IT) to offer an exciting array of new services.

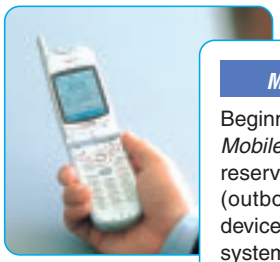
"*Suica*," IC card, introduced in November 2001, eliminates the need to buy train tickets, adjust the fare at your destination, or even remove the card from your pass case. Beginning in Fall 2003, *Suica* card holders will be able to use their cards on some *Shinkansen* (Bullet Train) lines around Tokyo, as well as in the Sendai metropolitan area. Also, beginning in FY 2006 we plan to gradually add correlated *Suica* card use to other rail lines throughout the Kanto Region in addition to the Tokyo Monorail and *Rinkai* line, on which *Suica* cards can already be used. In July 2003, we inaugurated the *View Suica* card, which integrates the *Suica IO* (stored-fare railway ticket) card with the *View* card, JR East's credit card. From Spring 2004, we plan to add the function of electronic money to the *View Suica* card, to further enhance user convenience.

From September 2001, we started providing wireless LAN (Local Area Network for wireless connection to the Internet) in the waiting rooms of selected stations on an experimental basis. Station personnel uses PCs and PDAs (personal digital assistant) to provide customers with faster, more up-to-date information (such as real-time operational information) via wireless LAN.



Elimination of on-board *Shinkansen* ticket inspection

In December 2002, we eliminated on-board ticket inspections on *Shinkansen* trains. Conductors no longer need to inspect passenger tickets, since ticket information such as reserved seat numbers are instantly transmitted to their PDAs when passengers pass through the automatic fare-collection gates at stations. This system allows passengers to relax en route without being disturbed for ticket inspections.



Mobile Tickets further improve convenience

Beginning in August 2002, we launched the *Mobile Ticket* service, allowing customers to make reservations on the *Chuo* Liner and the *Ome* Liner (outbound) via cell phones, and also use mobile device screens as electronic train tickets. This system is more convenient and reduces the number of paper tickets used.

On-board display

In April 2002, new type of railcar with two 15-inch liquid crystal displays (LCDs) above each door was introduced on *Yamanote* Line. The screens provide diverse information services, including emergency instructions, etc.

What is a pleasant, user-friendly station?

Our ongoing *Station Renaissance* program

JR East is dynamically creating 21st Century-style stations through our *Station Renaissance* program. First we closely examine the layout of existing stations, and then redevelop facilities to be cleaner, more convenient and more comfortable. Rather than merely serving as railway transit points for passengers, we want stations to meet diversified customer lifestyles and needs.

One successful example is Ueno Station, which was recreated through our effort to understand and cooperate with the local community and promote the concepts of "harmony between towns and stations," "stations with cultural flavor" and "coexistence with the local communities."

In the year since the renewal of Ueno Station was completed, we have received many favorable comments from customers, especially noting that the station is "brighter" and "more convenient." The station is also more closely in sync with the local community as we now provide local information. We have also widened station entrance/exits and expanded signage in the station vicinity. One positive result is that more young women now visit the Ueno area.

JR East plans to proactively redesign and improve other stations to maximize their potential as well.

New information center

This center provides information not only on station facilities, but also on the surrounding area. Information is also available for foreign tourists who are not familiar with Japanese.

New baby-care room

An integrated nursing room providing baby beds and other amenities for mothers is first installed.

***"Break,"* information dispatch space**

We present tourist information on large screens, and also provide high-speed Internet connectivity. Concierges are available to direct passengers to facilities within the station and surrounding area.

Elevators and escalators

We offer nine barrier-free elevators and 24 escalators. Passengers who have difficulty to use the stairs can now easily get to the platforms.

Multi-function lavatory facilities

We have upgraded existing lavatories and installed multi-function restrooms for the physically handicapped. The new ladies powder rooms are especially popular.

Challenges for new stations

At Ueno station, approximately 350,000 passengers getting on and off every day, and another 500,000 to 550,000 change trains. Our key point for improvement was to encourage these transit passengers to leave the station and visit the surrounding area. We needed to make it easier and more convenient to get out of the station. In order to revitalize stations we must not only offer new amenities inside the facility, but also expand the interface between the station and the local community. Specifically, we increased the size of the entrance/exits by 50% and added two additional exits. Since vendors in the nearby *Ameyoko* shopping area report increased sales, our efforts may contribute to the district's prosperity.

Ueno is also known as an area of art and culture. We have installed a number of works of art in the station, including Ikuo Hirayama's stained glass, which provide a popular Ueno-style attraction.

Ueno Station is now completely barrier-free. The station used to be considered dark and inconvenient but is now much more customer friendly, with new information boards and other added improvements. Escalators and elevators now connect all ticket wickets and train platforms.

The community also hoped to encourage more women to visit, so we have added station amenities including ladies' powder rooms and baby care rooms. New shops featuring products for women are now open inside the station. They carry products with totally different characteristics from shops outside the station, thus enable us to coexist with the neighborhood for mutual gain.

Yuki Maruyama,
Ueno Station Master

"During the postwar period Ueno Station was known as the "station of hearts". Both local residents and employees of JR East have a longstanding fondness for Ueno Station. Such sentiment might be the major driving force for the successful station upgrade".

Contents

(1)Reference guidelines (Index relevant to contents are shown above)
○Sustainability Report Guidelines (Global Reporting Initiative)
○Environmental Report Guidelines (Ministry of the Environment)

Editorial policy

This report covers the consolidated activities of both JR East and the companies, of JR East Group, and indicates the total environmental impact of 82 Group companies.

This report was prepared referring to GRI Guidelines[1] regarding reporting on the environmental, social and economic performances. In compliance with guidelines specified by Ministry of the Environment, we proactively disclose data on environmental issues. Special attention has gone into the design and expressions used in this report in the hopes that people from divergent backgrounds will understand our activities. The first half of the report highlights our major functions, making it easy for readers to quickly grasp JR East Group activities. For those interested in more detail, we have included specifics in the second half.

Other distinctive attempts

●Top interview

Ms. Tomoyo Nonaka, a prominent environment conscious journalist, interviews Mutsutake Otsuka, President of East Japan Railway Company. The president expresses JR East Group's vision and shares his thoughts on corporate social responsibility using clear, jargon-free terminology.

●Feedback from stakeholders

We have solicited honest opinions on activities of JR East Group from noted specialists in various fields, and are using these comments to help develop our future activities.

Term
This report covers FY 2002 (April 1, 2002 through March 31, 2003). Data is based on the results in the period. Initiatives begun prior to this period, as well as some more recent activities, are also referred to in certain sections.

Subject companies
East Japan Railway Company and 101 companies[2] of JR East Group
(However, environmental impact data provided covers only 82 group companies.)

1 **GRI (Global Reporting Initiative)**
An international organization issuing "Sustainability Reporting Guidelines," international guidelines for reporting not only environmental issues but also social and economic issues.
The GRI was established in cooperation with UNEP (UN Environmental Plan) and others.

2 **101 JR East Group Companies**
As of the end of 2002; as of August 2003, the number of group companies was reduced to 97 due to consolidation.

What is JR East Group's CSR management structure?

In order to meet our corporate social responsibility (CSR[1]) and earn continued public trust, JR East Group strives to strengthen the company structure regarding Corporate Governance, Compliance, Accountability, and Risk Management.

Basic concept

The basic function of a corporation is to provide new products and added value through daily business activities, and thereby contribute to the overall prosperity of society.

In recent years, however, corporations are also being called upon to maintain high ethical standards and conduct management activities in a transparent manner. Furthermore, companies must proactively address environmental problems and other serious issues faced by society as a whole.

JR East Group believes that implementing CSR from the management level down is fundamental to maintaining the confidence of our stakeholders[2]. Therefore, we adhere to the following management structure policies.

Management Structure Implementing CSR

Corporate governance

The East Japan Railway Company Board of Directors consists of 27 members (including 2 outside corporate directors). Since the company was founded we have always appointed some independent directors with abundant experience and expertise.

All representative directors also serve on the Managing Directors' Committee for considering matters of particular importance. In addition, our Strategic Group Committee consists of representative directors who discuss matters of particular importance pertaining to the group. In June 2003, we reduced the number of directors in order to more actively discuss issues at board meetings and speed up the decision-making process.

The Board of Corporate Auditors consists of two full-time and three part-time auditors; four of these five are outside corporate auditors. Individual auditors carry out job performance audits in compliance with policy set by the Board of Corporate Auditors.

Regular liaison meetings are held among group company auditors in order to exchange audit-related information.

We maintain Internal Corporate Audit Departments at the head office as well as at our branches. Since July 2000, we have been conducting group company audits through our Corporate Audit Department.

Compliance

Our Legal Department was separated from the Department of General Affairs in July 2002. This department is responsible for early detection of any company-related legal issues that may arise and for ensuring the legitimacy of all business operations. The department consults with outside specialists as needed. Periodic training is provided for representatives and persons in charge of the legal affairs of group companies.

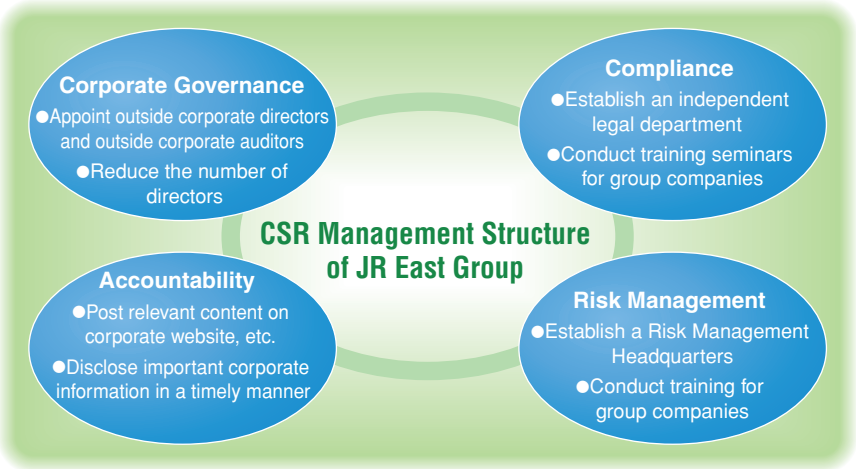
Accountability

We proactively conduct PR and IR activities (see page 49) regarding information disclosure, by regularly updating the contents of our websites and publicizing important corporate data in a timely manner. Beginning with the first quarter of 2003, we started disclosing quarterly income/expenditure and other managerial indexes on a consolidated basis.

Risk management structure

The Risk Management Headquarters was established as a control center for collecting and managing information, and immediately facilitating structural change should any part of JR East Group face a critical situation regarding business operations. By involving top management from the early stages, disclosing information appropriately and requiring compliance, we minimize the impact of any existing risk.

In order to maintain a corporate culture that readily communicates risk information, we reinforce our risk and information management structure by offering training seminars and other activities to group companies.



1 **CSR**
=Corporate Social Responsibility

2 **Stakeholders**
Includes all customers, shareholders/investors, business partners, employees and their families, non-profit organizations, local communities, and others who are involved with JR East Group or its activities.

What is JR East Group's Vision?

JR East Group operates in the transportation business sector, with a core focus of providing railway and railway station services to our customers. With our vision to be a "trustworthy lifestyle-enhancement services group," JR East Group is taking on the challenge of providing core services that meet increasingly stringent customer demands. We also proudly offer a wide range of value-added services that are sure to please all stakeholders.

Group Policy

JR East Group strives for a well-managed corporate group providing high-quality, cutting-edge services with railway business at its core. To accomplish this goal, each individual employee of the group aims to support safe, punctual transportation and the creation of convenient, high-quality services. At the same time, every employee accepts the challenge of improving service standards and raising the level of technology in order to gain the increased trust of our customers.

As a "trustworthy lifestyle-enhancement services group," we constantly strive to improve customer service while contributing to the cultural development of local communities and protection of the global environment.

Action Guidelines

1. Customer focus

We offer cordial, user-friendly services.

2. Safety and quality

We provide safe and punctual transportation services, as well as high-quality services.

3. Group development

We establish trustworthy corporate group organization with autonomy, collaboration and challenging spirit.

Relationships with Stakeholders

JR East serves approximately 16 million customers daily. We also have various relationships with an enormous number of stakeholders, including clients, local communities, employees and investors. The Group places primary importance on the concept of being a valuable asset for all stakeholders. Therefore, we sincerely disclose and explain Group information (Accountability). We also strive to comply with the specifics and the spirit of legal and regulatory requirements (Compliance).

In addition, we are a transparent, ethical corporation (Corporate Governance), which meets its corporate social responsibilities (CSR).

New Frontier 21

New Frontier 21, announced in November 2000, is JR East Group's medium-term business plan for the period of 2001-2005. In accord with our vision, the plan specifies four vital roles and five specific directions that JR East Group should pursue. These include specific steps toward harmony with society and coexisting with the environment. Therefore, we are promoting the development of a barrier-free society and the revitalization of local communities, while focusing on environmental management.

Through such activities, we act as a responsible corporate citizen providing ongoing service to the community.

The four vital roles

We believe that the JR East Group should perform the following four major roles in the 21st century.

1. Providing Safe, Comfortable and Convenient Transportation Services, and the Creation of New Services (Spatial and Temporal Designs)
2. Achieving Steady Growth and Returns
3. Driving Force in Technological Innovation, and Integration of Advanced Technologies
4. Social Responsibility and Partnership with Local Communities

Five specific directions

We are committed to the realization of a group vision, based on five specific directions.

1. Creating Customer Value and Pursuing Customer Satisfaction
– Building a corporate group for providing customers with "trust," "comfort," and "excitement."

2. Innovation of Business through the Creation of Technologies
– Building a corporate group for the integration of advanced technologies.

3. Harmony with Society and Coexistence with the Environment
– Building a corporate group which harmonizes with society and gains the respect of global community.

4. Creating Motivation and Vitality
– Building a corporate group offering a working motivation and a sense of accomplishment through a free and liberal approach to work.

5. Raising Shareholder Values
– Building a corporate group meeting shareholder expectations through the improvement of consolidated performance.

What is JR East's basic vision toward the environment?

Since 1992, JR East Group has had a basic philosophy that is possible to protect the environment while doing its business activities. In 1996, we established activity guidelines and numerical goals to more specifically measure environmental conservation activities.

Basic philosophy and basic policy

Basic Philosophy (established in May 1992)

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

Basic policy (established in May 1992)

- 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 environmental protection and raise the environmental awareness of our employees.

Activity guidelines and goals for the promotion of ecological activities

Activity guidelines (established in March 1996)

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 environmentally friendly form of transportation.

Goals to be met by FY 2005
(based on figures in FY 1990)
(established in March 1996; 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 dedicated thermoelectric power plant
- A 15% reduction in energy consumption for train operations in proportion to unit transportation volume
- An 85% reduction in the number of large-size refrigerating machines using specific chlorofluorocarbons (CFCs)
- Realization of a 40% 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 conservation activities on an annual basis

*Projected for achievement by FY 2002

What is to be accomplished in FY 2002 toward FY 2005 goals?

JR East has established environmental goals to be met by FY 2005.
Each year we review performance (on a qualitative and quantitative basis), looking for ways to achieve the goals.
As for tasks which remain in our environmental conservation activities, we develop strategies to find solutions and create the improvements in the following fiscal year.

Environmental conservation activity category	Main activities	FY 2005 Goals	Reference value (FY 1990)	Target value	FY 2001 Achievement	FY 2002 Achievement ( ) actual number	Evaluation	Reference pages
Environmental conservation along railway lines	●Continue noise reduction measures along *Shinkansen* and conventional lines (constructing sound barriers, installing continuous-welded rails, etc.) ●Reduce environmental pollutants from the dedicated Kawasaki Thermoelectric Power Plant ●Eliminate incinerators ●Conduct appropriate management and treatment of organic solvents, etc.	●Reduction of noise to 75dB or less in designated residential areas along the *Tohoku* and *Joetsu Shinkansen* Lines ●NOx emissions at dedicated thermal plants	— 994 tons	100% (to be completed in FY 2002) 60% reduction	75% 62% reduction	**100%** **60% reduction (399 tons)**	🚃🚃🚃 🚃🚃🚃	36–38
Global environmental conservation	●Introduce energy-efficient railcars ●Increase energy conservation at stations and office buildings (introduce co-generation) ●Promote intermodal transportation (Park & Ride, Rail & Rent-a-Car, etc.)	●Total CO_2 emissions from general business activities ●CO_2 emissions in proportion to unit electric power generation at dedicated thermal plants ●Ratio of energy-efficient railcars ●Energy consumption for train operations in proportion to unit transportation volume ●Number of large freezer units using specific chlorofluorocarbons (CFCs)	2.76 million tons-CO_2 726 g-CO_2/kWh — 20.6 MJ/car-km 82 units	20% reduction 30% reduction 80% 15% reduction 85% reduction	17% reduction 26% reduction 63% 9% reduction 72% reduction	**16% reduction (2.32 million tons-CO_2)** **29% reduction (519 g-CO_2/kWh)** **68%** **10% reduction (18.6 MJ/car-km)** **77% reduction (19 units)**	🚃 🚃🚃🚃 🚃🚃 🚃🚃 🚃🚃	27–31, 36
Resource-recycling	●Reduce and recycle waste generated at stations and on trains (categorized collection, establishment of recycling centers, etc.) ●Recycle train tickets and commuter passes ●Recycle waste generated at rolling stock maintenance facilities and construction projects ●Recycle newspaper collected at stations, and introduce recycled office paper, etc.	●Station/train waste recycling rate ●Rolling stock maintenance facilities waste recycling rate ●Construction project waste recycling rate ●Usage of recycled paper for office stock	— — — —	40% 75% 85% 100%	36% 71% 76% 97%	**37%** **74%** **84%** **98%**	🚃🚃 🚃🚃🚃 🚃🚃🚃 🚃🚃	33–35
Environmental management	●Establish Committee on Ecology at JR East Head Office and branch offices to monitor environmental management ●Acquire ISO14001 certification at the Sendai General Rolling Stock Maintenance Workshop ●Conduct forestation along railway lines ●Publish the Environmental Report, conduct environmental publicity, etc.	●Specific annual environmental protection activities	—	—	12 locations 20,000 trees planted 2,000 participants	**13 locations** **10,000 trees planted** **3,500 participants**	🚃🚃	21–24, 39
Research and development of environment-related technologies	●Develop *AC Train,* next-generation commuter trains ●Develop *NE Train,* hybrid trains ●Develop noise reduction and other technologies							32, etc.
Social activities	●Support organizations or other groups related to environmental conservation and other activities							39 and 50

Satoshi Seino, JR East Vice President, Committee on Ecology Vice-Chairman

"In FY 2002 we made significant progress toward our FY 2005 goals for recycling the waste generated at our rolling stock maintenance facilities and construction sites. We also met our planned goal of reducing noise to 75 dB or less in designated residential areas along the *Tohoku* and *Joetsu Shinkansen* lines. However, our overall CO_2 emissions increased slightly, despite the fact that we consistently reduced train operation energy consumption per unit of transportation volume and CO_2 emissions per unit of power generated at the dedicated thermal plants. This discrepancy resulted from a decrease in the volume of power generated at dedicated hydraulic plants due to weather conditions, and from increased energy consumption at stations and office buildings. We will aggressively strive to reduce our total CO_2 emissions in FY 2003."

Progress toward FY 2005 goals

🚃🚃🚃 ·····excellent
🚃🚃 ·····satisfactory
🚃 ·····behind schedule

*Evaluation of FY 2003 based on both progress and figures compared to previous fiscal year

How do we facilitate environmental management?

The entire JR East Group supports environmental conservation by maintaining and reinforcing our environmental management system, and conducting environmental education to heighten employee awareness.

Environmental Management Implementation Structure

In-house Committee on Ecology

We established the Committee on Ecology to support corporate implementation of the environmental plan, which includes examining the environmental impact of all operations; establishing goals for environmental activities; implementing conservation initiatives; measuring the achievement of these goals; and executive oversight.

This Committee is a JR East cross-departmental organization. It consists of general managers from every department and is chaired by the Chairman of JR East. The Committee maintains offices in the Management Administration Department. In FY 1998, each of our branch offices established its own Committee consisting of a branch manager and all department managers. Currently, each committee is implementing environmental conservation activities that focus on local circumstances and business. In FY 2002 we established our first JR East Group Environmental Committee to foster ongoing working relationships and coordinate the activities of group companies more effectively.

Recognition for environmental merit

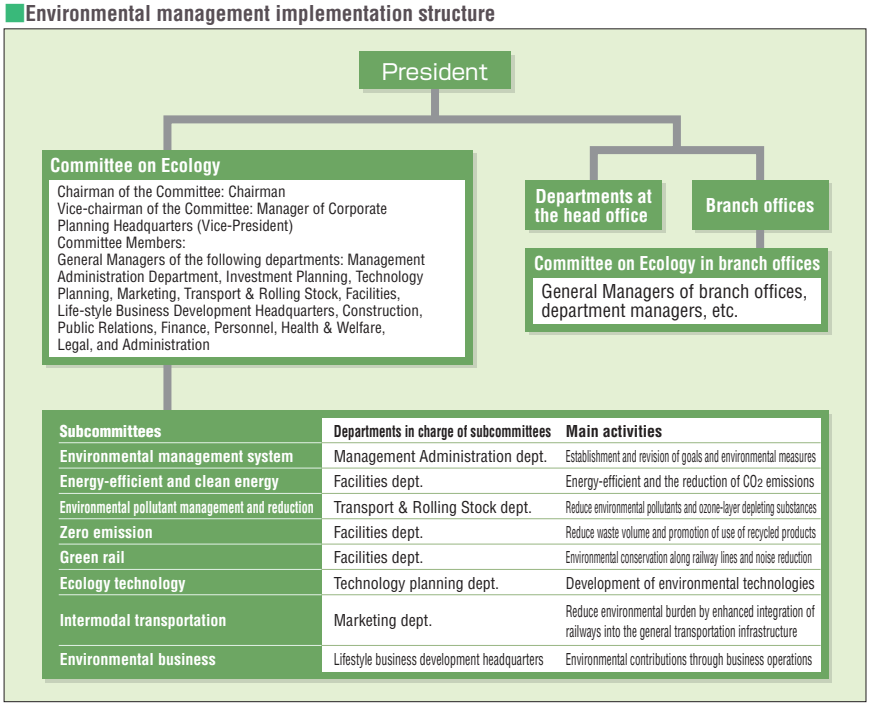
JR East honors excellence in our employees' autonomous small group activities and proposals, including environmental conservation work. In FY 2002, for example, in our small group competition the Koriyama Factory group *Kaeritize* received a special award for its resource conservation project. The group devised and implemented a multifaceted strategy to drastically reduce water and energy consumption by optimizing the temperature and volume of water used at the company shower facilities.

ISO14001 Certification

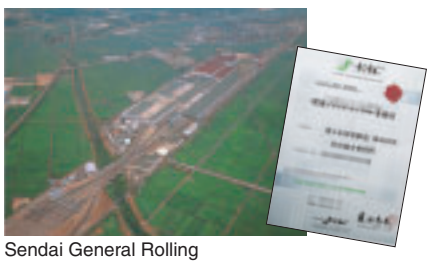
In FY 1998, our Niitsu Rolling Stock Manufacturing Factory became the first operating division of a railway company in Japan to acquire ISO14001 certification (the international industrial/business standard for environmental management systems). In FY 2000, our Kawasaki Thermoelectric Power Plant, Oi Rolling Stock Workshop, and Niigata Mechanical Technology Center all acquired the certification. The Omiya Plant also acquired ISO 14001 certification in FY 2001, and the Sendai General Rolling Stock Workshop was certified in 2002. Our Koriyama Plant is currently working toward certification.

Among our group companies, East Japan Eco Access Co., Ltd. was certified in FY 1999. As for the LUMINE Co., Ltd. its corporate headquarters and all eight outlets received certification in FY 2000 and 2001. The Production Operation Division for box lunches and other products in Nippon Restaurant Enterprise Co., Ltd. was certified in FY 2002, while JR East Mechatronics Co., Ltd. received certification in July 2003.

Environmental management implementation structure



Subcommittees	Departments in charge of subcommittees	Main activities
Environmental management system	Management Administration dept.	Establishment and revision of goals and environmental measures
Energy-efficient and clean energy	Facilities dept.	Energy-efficient and the reduction of CO_2 emissions
Environmental pollutant management and reduction	Transport & Rolling Stock dept.	Reduce environmental pollutants and ozone-layer depleting substances
Zero emission	Facilities dept.	Reduce waste volume and promotion of use of recycled products
Green rail	Facilities dept.	Environmental conservation along railway lines and noise reduction
Ecology technology	Technology planning dept.	Development of environmental technologies
Intermodal transportation	Marketing dept.	Reduce environmental burden by enhanced integration of railways into the general transportation infrastructure
Environmental business	Lifestyle business development headquarters	Environmental contributions through business operations



Sendai General Rolling Stock Workshop and ISO14001 certificate

Nippon Restaurant Enterprise Co., Ltd. and ISO14001 certificate

Internal environmental audit

JR East is implementing environmental management based on PDCA (Plan-Do-Check-Action) cycle, primarily overseen by the Committee on Ecology. For example, we send a number of employees from rolling stock maintenance facilities for outside training. When they return, they conduct regular audits at their own and other in-house facilities concerning specific environmental activities.

Through internal environmental audits, there were some that had not met the targets for waste separation and reduction of packaging materials. However, we have already improved them.

Environmental risk management

We have compiled emergency response manuals for the handling of chemicals and other hazardous substances at, for example, thermoelectric power plants and rolling stock maintenance facilities. In order to thoroughly familiarize workers with risk control procedures, we conduct study groups and on-site training exercises for handling such substances.

We have established a rigid management policy concerning chemical substances in accordance with new Pollutant Release and Transfer Register (PRTR) regulations. We are also establishing a system to prevent environmental spills and other accidents, and taking steps to avoid soil contamination by properly managing PCBs and other hazardous materials.

Environment-related accidents

In FY 2002 we had no accidents that adversely affected the environment and were subject to no fines.

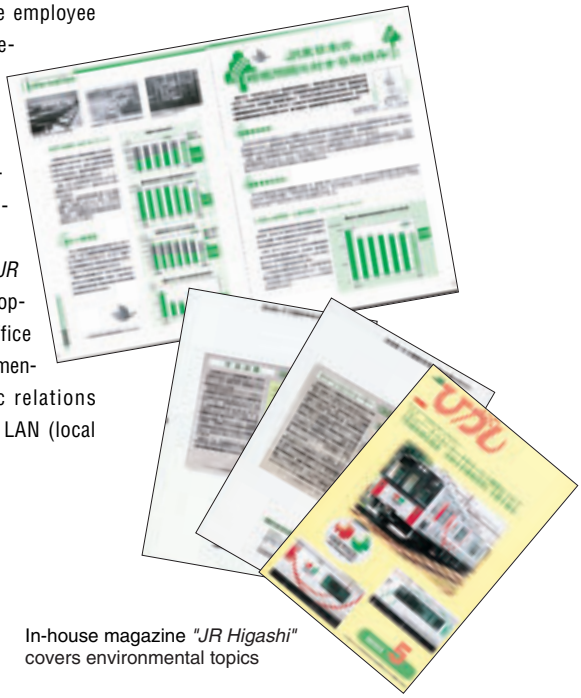
Environmental education

Because JR East is now implementing environmental conservation measures, it is very important that all employees be aware of environmental issues. We therefore provide environmental awareness training to all new recruits and new management staff, and organize environment-focused seminars and lectures for a broad range of employees.

In a continuing effort to increase employee awareness, we also offer nine correspondence courses, including "The Earth-friendly Environmental Seminar" and "Introduction to ISO 14001." In FY 2002, some 2,362 employees participated in various forms of environmental education.

Our monthly in-house magazine, *JR Higashi*, also covers environmental topics in every issue. Each branch office also provides information on environmental issues through its own public relations newsletters and intra-branch office LAN (local area network).

Environmental lecture for employees



In-house magazine *"JR Higashi"* covers environmental topics

Environmental education programs during FY 2002

Seminars and lectures	No. of sessions	No. of participants
Training for new on-site supervisors	8	160
Training for implementation managers	1	200
Training for new recruits	1	1,390
Training for new management staff	2	80
Training session for internal auditors	1	10
Environmental seminars	3	260

What is to be concluded cost/effectiveness analysis in environmental accounting?

JR East has been conducting environmental accounting since FY 1999 to identify the cost/effectiveness of our environmental conservation activities. Since FY 2000, we have also included data on economic effect. In FY 2001 we calculated an environmental management index that compares an operations' CO_2 emissions with operating income, to assist management decision-making.

Basic concept

Generally, environmental accounting has two roles: It serves as a management tool to increase the efficiency of corporate environmental conservation activities through quantitative evaluation; and as a communication tool to objectively report corporate environmental conservation activities to stakeholders.

JR East now conducts environmental accounting and announced its first results in FY 1999. For disclosing this information, we follow the *Environmental Accounting Guidelines* (FY 2002 edition) issued by Ministry of the Environment, which facilitates comparison with other companies.

Although the environmental accounting system is still in the process of development, we plan to make full use of this tool in our efforts to disclose valid data on environmental management as transparently as possible.

Result for FY 2002 Environmental accounting

The main points of FY 2002 environmental accounting are as follows:

As for the cost of environmental conservation activities, we have an investment of 79.2 billion yen, while expenditures were 14.3 billion yen. Investment in global environment conservation activities was up 19.0 billion yen to 74.1 billion yen of the total, due to the accelerated introduction of energy-saving *Shinkansen* railcars and so forth. Introducing such railcars and other equipment cuts CO_2 emissions by 520,000 tons over the lifespan of the vehicle.

Investment in environmental conservation activities along railway lines was increased 1.4 billion yen over the previous year to 5.1 billion yen, due to installing waste categorization receptacles (eliminating incinerators) and using more efficient track equipment.

Environmental conservation cost calculation

Environmental conservation costs

- ○Data refers to East Japan Railway Company as a whole, on a non-consolidated basis.
- ○Based on Ministry of the Environment, *"Environmental Accounting Guidelines (FY 2002 edition)."*
- ○"Environmental conservation costs" cover only those identified by our current management system
- ○For multipurpose activities with significant environmental effect, the amount stated refers to total cost. (The cost for pollution prevention includes all expenses incurred in installing continuous welded rails, etc., as this is considered to contribute to enhanced functionality. The cost for global environmental conservation includes the total amount invested in energy-efficient railcars.)
- ○Expenses do not include depreciation
- ○Expenses for processing refuse generated at stations and trains (under resource-recycling costs) are calculated as follows: A model is set up for cleaning stations and trains. Then the percentage occupied by waste recycling and processing is calculated (in proportion to the entire model). By multiplying the overall cleaning expenses for stations and trains by this percentage, the amount of expense in question is obtained.
- ○Of resource-recycling costs, the cost of processing waste from construction work and rolling stock facilities is calculated for each facility by multiplying the waste volume in FY 2002 by a standard per unit cost.

Environmental conservation effect

- ○The effect of environmental conservation is calculated based on figures that represent environmental targets.

Economic effect of environmental conservation activities

- ○As for global conservation, economic effect is calculated by determining the annual reduction of electricity and maintenance costs generated by the introduction of energy-efficient railcars, cogeneration, etc. (including partial estimates), then multiplying the reduction amount with the legally accepted depreciation lifespan.
- ○Cost of processing waste generated by construction work and rolling stock facilities incorporates revenue gained from resale of reusable resources.

Environmental conservation activity category	Environmental conservation costs (billions of yen)		Environmental conservation effect driven by environmental goals			Economic effects involved with environmental conservation activities (billions of yen)
	Investment	Expenses		FY 2001	FY 2002	
Environmental conservation along railway lines (antipollution activities)	5.06	5.93	Reduction of noise to 75dB or less in designated residential areas along the *Tohoku* and *Joetsu Shinkansen* Lines	75%-achievement	100%-achievement	–
			NOx emissions at dedicated thermal plants	376 tons	399 tons	
Global environmental conservation	74.11	–	Total CO_2 emissions from general business activities	2.29 million tons-CO_2	2.32 million tons-CO_2	29.20
			CO_2 emissions in proportion to unit electric power generation at dedicated thermal plants	539 g-CO_2/kWh	519 g-CO_2/kWh	
			Ratio of energy-efficient railcars	63%	68%	
			Energy consumption for train operations in proportion to unit transportation volume	18.8 MJ/car-km	18.6 MJ/car-km	
			Number of large freezer units using specific chlorofluorocarbons (CFCs)	23 units	19 units	
Resource-recycling	–	6.44	Station/train waste recycling rate	36%	37%	0.23
			Rolling stock maintenance facilities waste recycling rate	71%	74%	
			Construction project waste recycling rate	76%	84%	
			Usage of recycled paper for office stock	97%	98%	
Environmental management	0.06	0.53	Foresting railway lines	12 locations 20,000 trees planted 2,000 participants	13 locations 10,000 trees planted 3,500 participants	–
Research and development of environment-related technologies	–	1.39				–
Social activities	–	0.04				–
Total	79.23	14.33				29.43

Reference:
Amount of facilities investment for the period : 245.9 billion yen
Total amount of research and development costs for the period : 15.2 billion yen*

* **Total R&D costs**
Includes research and development in basic fields, including funding to the Railway General Research Institute (6 billion yen) in accord with the Agreement on Research Activities.

Verifying by environmental management index

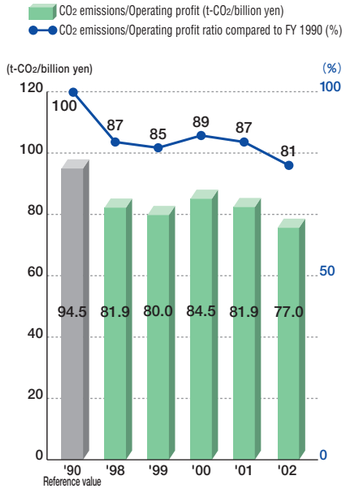
JR East established an environmental management index and uses it to determine the relationship between environmental activities and our economic activities. We use the data calculated to guide business planning and decision-making. For example, reducing CO_2 emissions is one of our top priorities. Using our environmental management index, we consider the volume of CO_2 emissions as an environmental impact factor in comparison to operating profits as an added economic value.

Environmental management index

$$= \frac{\text{Environmental impact}}{\text{Economic value added}} = \frac{\text{CO}_2\text{ emissions (t-CO}_2\text{)}}{\text{Operating profit (billion yen)}}$$

Accordingly, a smaller value indicates less stress on the environment, while still maintaining the same economic value. Thanks to our efforts over the last decade, the value of 945 (t-CO_2/billion yen) recorded in FY 1990 had improved to 770 by FY 2002.

Environmental management index



How do we gauge input and output of resources and energy?

Environmental conservation has two major parts, "Input" and "Output"; we strive to maximize efficiency when using resources and energy in our business activities, and reduce the CO_2 emissions and waste generated by our business operations.
JR East Group identifies the "income and output" of our whole group in terms of energy, resources and substances.
This is used as a guide for developing environmental impact reduction plans.

INPUT

Energy

Electricity 6.30 billion kWh
(of which the dedicated electric power makes up 56 %)

Gas 10 million m^3

Other fuels 87 thousand kl (Crude oil equivalent)

Water 13.4 million tons

Office papers 1,810 tons
(of which the recycled paper makes up 98 %)

Energy

Electricity 0.79 billion kWh

Gas 38 million m^3

Other fuels 100 thousand kl (Crude oil equivalent)

Water 10.2 million tons

Office papers 620 tons
(of which the recycled paper makes up 66 %)

OUTPUT

CO_2 emissions 2.32 million tons-CO_2

General waste

Offices 2,700 tons
Stations and trains 50,300 tons
Tickets 760 tons
Commuter passes 20 tons

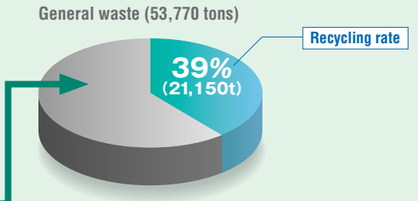
Industrial waste

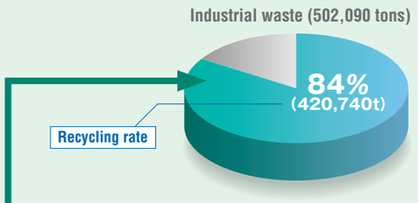
Construction projects 481,400 tons
Rolling stock workshops 20,600 tons
Medical waste 90 tons

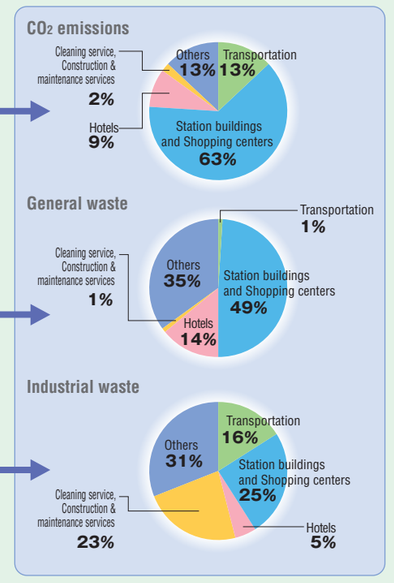
CO_2 emissions 0.64 million tons-CO_2

General waste 68,800 tons

Industrial waste 19,100 tons







What are measures for preventing Global Warming?

Railways are considered environmentally friendly because their CO_2 emission levels per unit transportation volume is lower than that of other types of transportation. JR East Group as a whole, however, emits a great deal of CO_2, so that using energy more efficiently is a major focus for us. Our main activities to this end are as follows:

Efforts to prevent global warming

Energy supply and consumption by JR East

The JR East energy supply consists of electricity and other power sources. Our electricity comes from dedicated thermal power plants and hydraulic power plants, along with electric power purchased from power companies. We use this electricity to power electric trains, as well to illuminate and control the climates of stations and offices. Other forms of energy, such as light gas oil, are used to operate diesel vehicles and air-conditioning systems at stations and offices.

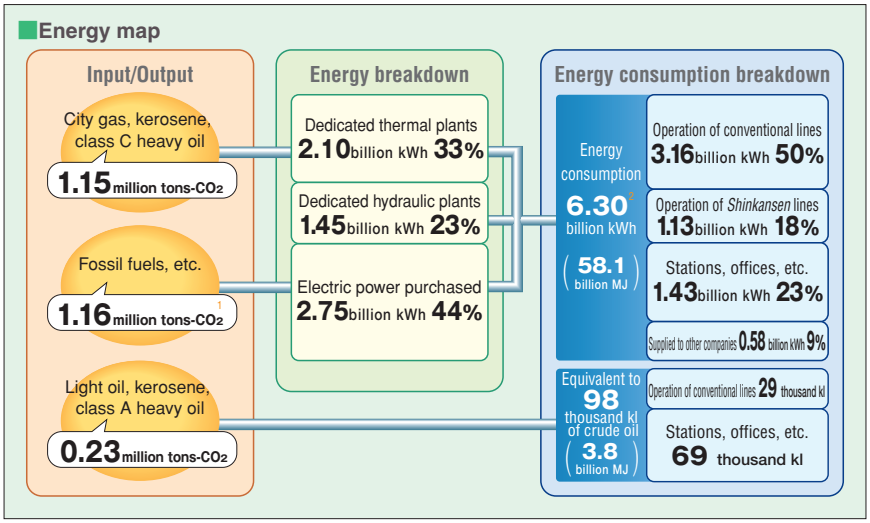
CO_2 is a known source of global warming. We have succeeded in reducing our overall CO_2 emissions by 16% since FY 1990, primarily due to increased energy efficiency.

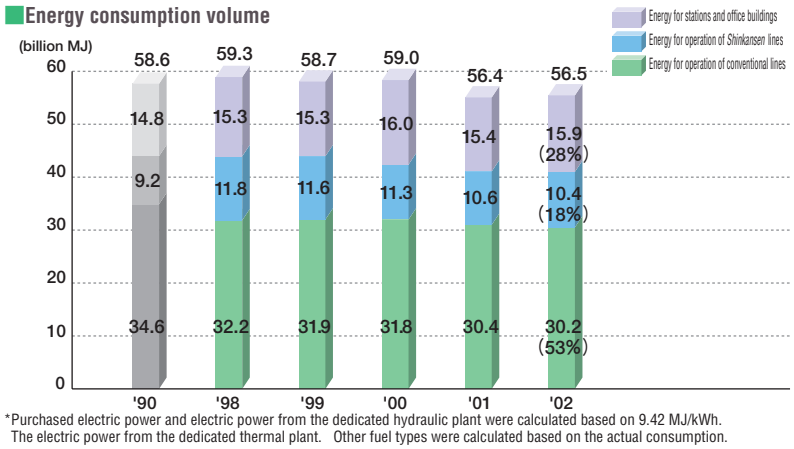
Using energy efficiently

Energy consumption reduction and rate of change

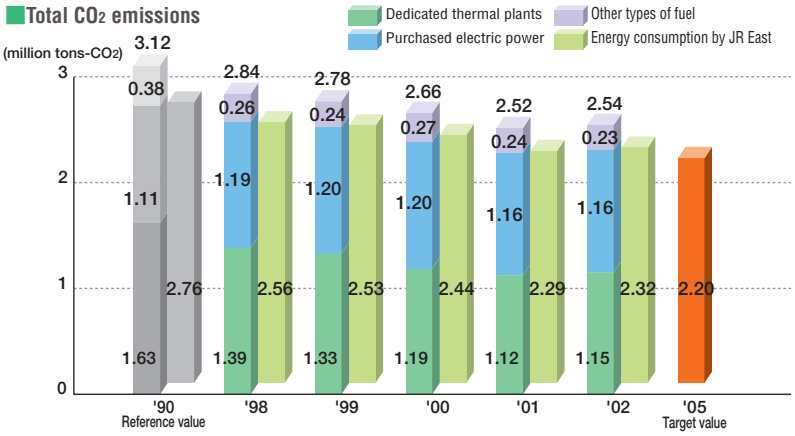
Energy consumption in FY 2002 was 56.5 billion MJ (mega joules), the equivalent of 1.46 million kl of crude oil, while CO_2 emissions stood at 2.32 million tons. Unfortunately our CO_2 emissions increased slightly from the previous fiscal year, due to increased energy consumption at stations and offices and decreased river water volume to generate power at dedicated hydraulic power plants. This was despite our great efforts toward reducing the energy consumed in train operations and to achieving maximum efficiency at dedicated hydraulic power plants.

One fundamental challenge is to reduce the amount of energy needed for train operation, which accounts for 72% of JR East's total energy consumption. To this end JR East has added energy-efficient railcars to its current rolling stock, and is pursuing research into hybrid trains and other next-generation options. (See page 32)





*Purchased electric power and electric power from the dedicated hydraulic plant were calculated based on 9.42 MJ/kWh. The electric power from the dedicated thermal plant. Other fuel types were calculated based on the actual consumption.



*Calculation of CO_2 emission factors from fuel and purchased electric power was based on the coefficient set forth in the Voluntary Action Plan established by Japan Business Federation and the Federation of Electric Power Companies Japan.

1 **1.16 million tons-CO_2**
As figures represent a historical comparison, the Federation of Electric Power Companies Japan CO_2 emission coefficient for FY 1990 is used; substitution of the FY 2001 coefficient would result in a figure of 1.02 million tons.

2 **6.30 billion kWh**
Equivalent to the annual electric power consumption of 1.74 million households.

Reducing energy consumption in train operations

As of end of FY 2002, 8,348 of our railcars were of the energy-efficient type. This is 68% of our entire fleet of 12,274 — an increase of 5 points over FY 2001. As a result, the energy required to move a single railcar one kilometer (energy consumed in proportion to unit transportation) dropped to 18.6MJ.

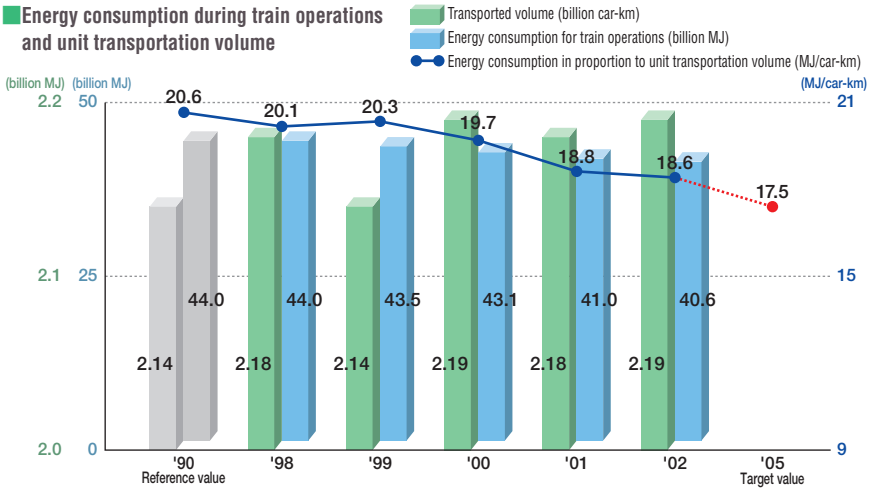
More specifically, our conventional railcar stock now includes 3,335 regenerative brake model cars [1] and 3,868 VVVF model [2] cars. Of a total of 10,632 railcars, 7,203 (68%) were the energy-efficient type — an increase of 5 points over FY 2001. The regenerative brake cars reduce operating power consumption to 66% compared to older cars, such as the rheostat control model. VVVF cars also reduce operating power consumption to as little as 47% of older units.

On our diesel railcars on conventional lines, we have introduced new types of railcars such as the *Kiha* 110 series, featuring lighter bodies and redesigned, fuel-efficient engines. In FY 2002, including railcars that were retrofitted with new engines, the energy-efficient railcars account for 82% of the total (532 railcars).

We have also been improving the efficiency of air conditioning systems. In some railway sections we have introduced an open/shut system for several of the doors, or a semi-automatic door system that allows customers to push a button to manually open and close only those doors required to embark or debark the railcar. This prevents unnecessary temperature fluctuations in the cars.

In addition, we have introduced new *Shinkansen* cars featuring lighter bodies, regenerative brakes and VVVF inverter controls. Other energy-saving improvements include more aerodynamically designed bodies that cut wind resistance while traveling at high speeds.

Energy consumption during train operations and unit transportation volume

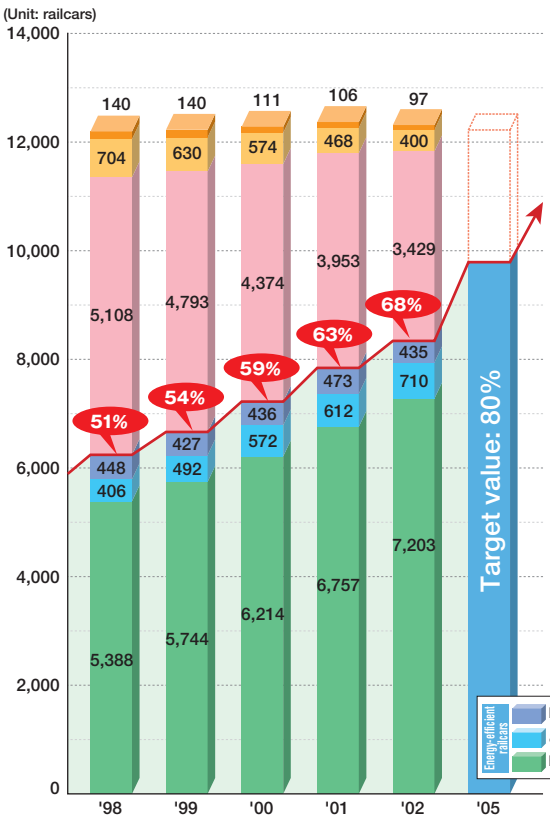


E231 series
VVVF cars introduced on the *Sobu* Line (among others), and on the *Yamanote* Line in FY 2002.

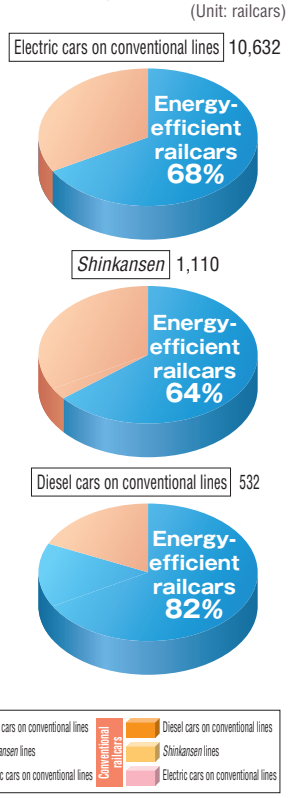
E257 series
VVVF cars Introduced on the *Kaiji* Express of the *Chuo* Line in FY 2001.

E2 series
VVVF cars introduced on the *Nagano Shinkansen Asama* trains, and on *Tohoku Shinkansen Hayate* trains.

Introduction of energy-efficient railcars



Ratio of Energy-efficient railcars in FY 2002



1 Regenerative brake cars
Have lightweight bodies and regenerative brakes (a breaking system designed to convert heat generated by breaks into electric power with a motor that returns energy through wiring for subsequent use).

2 VVVF cars
Have lightweight bodies, regenerative brakes and VVVF inverter control.
VVVF stands for variable voltage variable frequency, an inverter that can efficiently control motor revolution without electrical resistance.

New energy-efficient railcars for the Tokyo Monorail

Tokyo Monorail Co., Ltd. joined JR East Group in FY 2001. The company provides the main access to Haneda Airport, and introduced a new type of VVVF inverter control-based "E2000 series" of energy-efficient railcars in FY 1997. Today there are 24 of the E2000 series railcars in service, comprising 20% of the total railcar fleet of 120 in an increase of 4 points over the previous year.

Tokyo Monorail with "E2000" series energy-efficient railcars

Saving energy in motor vehicle operations

JR East uses many service vehicles to maintain facilities, transport equipment and materials, and provide transportation services. We are now introducing low-emission vehicles such as hybrid cars, natural gas vehicles, and fuel-efficient automobiles with an idling-stop function. As of the end of FY 2002, 7% of our total service car fleet (3,110) were replaced with low-emission vehicles.

To foster energy-efficient bus transportation, JR Bus Kanto Co., Ltd. is now using the "*Megaliner*," a 15-meter-long double-decker bus. The bus can carry 86 passengers (double that of a conventional bus), yet emits only two-thirds the emissions, saving significant energy. In addition to current vehicles, four more *Megaliners* will be introduced in FY 2004.

In addition, JR Bus Kanto Co., Ltd. and JR Bus Tohoku Co., Ltd. introduce 35 vehicles with idling-stop function out of a total of 340 busses (excluding highway bus lines).

JR East Japan Logistics Co., Ltd. developed the idling-stop function by installing digital tachometers in its vehicles. As a result, the company successfully reduced idling rates to 1% in FY 2002, far exceeding the target of 5%.

Megaliners currently operate from Tokyo Station to the Tsukuba Research Park.

Some trucks used by JR East Japan Logistics Co., Ltd. are equipped with engines powered by natural gas. Such engines emit less NOx, particulate matter (PM) and CO_2 than diesel-engine trucks. Of the company's 229 vehicles, 17 trucks have natural gas engines.

More efficient support services through a new distribution company

In March 2003, JR East and JR East Japan Logistics Co., Ltd. established the JR East Logistics Platform Co., Ltd. This new company coordinates logistics for vendors serving JR East stations, aiming for optimal distribution efficiency within each group. The initial step, set to launch in spring 2004, will improve liquor and beverage distribution in the Tokyo metropolitan area. This should shorten delivery truck routes by approximately 20%, cutting overall fuel consumption and reducing environmental impact.

Saving energy in stations and office buildings

We are working to reduce energy consumption at JR East's stations and station buildings. One major undertaking has been to install cogeneration systems—using power generation/exhaust heat for hot-water supply and air-conditioning. This has been introduced at Sendai Station, the Machida Station Building, and General Education Center in Shirakawa City, Fukushima Prefecture. In FY 2002, we also began operating similar systems at Morioka Station and Hotel Metropolitan Edmont (Chiyoda-ku, Tokyo). In addition, we have installed 162 gas heat pump air-conditioners, mainly in the Tohoku region, to provide more efficient air-conditioning.

Reducing CO_2 emissions with integrated transportation systems

Railways advantage toward environment

It is regarded that railways have lower environmental impact than that of other modes of transportation. Still, it is difficult for railways to carry all passengers in every corner. In order to reduce total CO_2 emissions generated by the overall transportation infrastructure, we are encouraging the integration of trains with other modes of transportation such as rental cars, buses and bicycles.

Intermodal transportation

JR East is promoting intermodal transportation that integrates railways with other transportation modes. We are improving facilities and services in order to increase customer convenience. For instance, we have expanded our existing Park & Ride facilities and are offering various other services such as Rail & Rent-a-Car.

Park & Ride

JR East is promoting the Park & Ride concept, whereby customers drive to a station and park their car, and then take a train to their final destination. By March 2003, JR East had 21,000 parking spaces at 47 *Shinkansen* stations, and 38,000 parking spaces available at 464 conventional line stations. We also encourage the use of the Park & Ride system by offering incentives such as discounts to intermodal commuters holding express tickets, and other value-added services.

Offering the Rail & Rent-a-Car *System*

Under the Rail & Rent-a-Car program, certain customers who purchase JR tickets and rental car vouchers at the same time receive discounts on both the rail and car rental portions. Although rental car service has been available at stations for many years, since 1995 JR East has been offering the *Torenta-Kun* discount car rental program at roughly half the standard price. The program continues to grow in popularity and today serves almost 140,000 users per year.

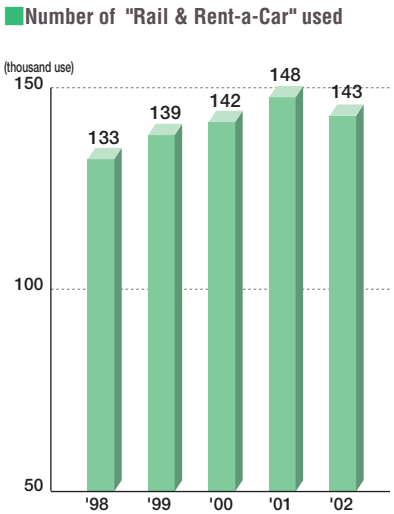
Car-rental counter at Sendai Station moved to more convenient location

Hybrid-type rental cars also available

Incorporating trains into bus and other tours

In order to avoid traffic jams, JR East offers bus tours that begin by using express lines or the *Shinkansen* to get the first 100 to 150 km outside the Tokyo metropolitan area.

In 2002 we introduced *Air Rail*, a new discount service combining airplane and train. This reduces CO_2 emissions from automobiles, which are prone to traffic jams, and ensures punctuality.



Using trains with bicycles

In 1998, JR East released the Traincle, one of the world's lightest folding bicycles. We also began waiving fees charged to passengers bringing bicycles onto trains, as long as they are folded or disassembled to fit into a dedicated bag.

Our Sendai branch office has initiated a limited offer of *Cycle Train*, a pilot program allowing passengers to bring unfolded bicycles onto trains. We are committed to developing an environment in which people can easily transport bicycles by train.

Passengers may bring bicycles onto trains for free if they fold or disassemble them to fit in a bag

Reducing automobile exhaust CO_2 emissions by eliminating traffic congestion

JR East is working to prevent morning and evening rush hour traffic jams by cooperating with local governments to replace railroad crossings with overpasses.

In FY 2002, we build continuous overpasses that eliminated railroad crossings at three sections. Given the ongoing construction of overpasses in the 13.1km stretch between Mitaka and Tachikawa, by FY 2010 we expect to eliminate 18 railroad crossings and greatly relieve rush hour traffic in this area.

Construction of overpasses between Mitaka and Tachikawa on the *Chuo* Line will be completed in FY 2009 to 2010.

Supplying energy efficiently

Utilizing networks

JR East's demand for electric power fluctuates throughout the day, reaching a peak during rush hours. To supply energy efficiently, we adjust to demand fluctuation by effectively combining dedicated thermoelectric and hydroelectric power generation, and control electricity production and the network of transmission lines and transformers. Our load-dispatch command center plays an essential role. This facility monitors and governs the energy supply in real time for optimal utilization of energy.

Increasing thermoelectric power plant efficiency

Our Kawasaki Thermoelectric Power Plant, located on a 6.6-hectare site in the Keihin industrial belt, has four power-generating units with a total power output of 655,000 kW. Currently three of these units operate as an efficient combined-cycle power-generating unit*.

By optimizing the operating efficiently of these power-generating units, CO_2 emissions at the Kawasaki Power Plant dropped to a total of 1.15 million tons in FY 2002, while the ratio of emission volume per unit electric power generation was 519 g-CO_2/kWh—down 4% from FY 2001 levels.

Efficiently using hydropower generation

Hydropower is a source of clean energy that does not emit CO_2 or other greenhouse gases. JR East has three hydropower plants on the Shinano River Power Plant, including the Senju Power Plant (Kawanishi-cho, Niigata Prefecture), the Ojiya Power Plant and the Shinojiya Power Plant (Ojiya City, Niigata Prefecture). Combined, these have a maximum power output of 449,000 kW while generating 1.4 to 1.6 billion kWh per year.

Since FY 2001 we have been working with the Shinano River Construction Office of Ministry of Land, Infrastructure and Transport to improve the aquatic environment in the middle stretch of the government-controlled Shinano River. On an experimental basis we have begun increasing the dam discharge volume in summer when water temperatures rise, and also during the fall, when salmon run. As a result, an increase in the number of salmon was also confirmed during the 2002 season.

Using natural energy sources

Although still only a small portion of our overall energy, we do utilize some natural energy sources such as solar and wind power. Photovoltaic generators have been installed on the roof above the *Shinkansen* platforms at Tokyo Station and Takasaki Station, as well as at the General Training Center and at the Research & Development Center. At Takasaki Station, the photovoltaic generators are actually built in to the roof panels. The power generated at all of these facilities is used in the stations and office buildings.

From FY 2002, we began to establish a wind power generator system at Gosawa Station on the *Tsugaru* Line in Aomori Prefecture. This generator uses windmills that are quiet and rotate in any wind direction. Although still in the experimental stage, this system works to effectively melt snow on platform steps, for example.

Working to reduce CO_2 emissions from thermal power plants

Shinano River hydroelectric plants emit zero CO_2 or other harmful gases

Windmills on wind power generators at Gosawa Station on the *Tsugaru* Line rotate in any wind direction

The load-dispatch command center is essential to efficient power supply

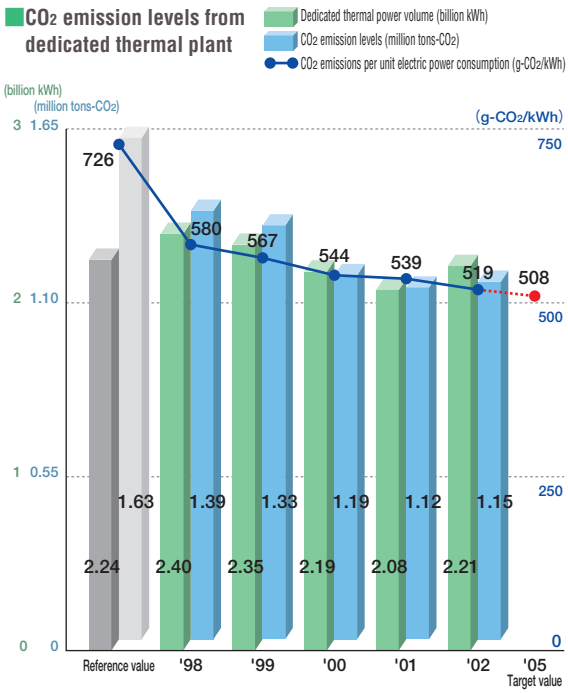
This facility provides a stable of supply of necessary energy by adjusting the power grid according to demand, and transformer and transmission line maintenance requirements. It issues daily power consumption forecasts, which instruct the ordering of electric power from our Kawasaki Thermoelectric Power Plant and Shinano River Hydroelectric Power Plant.

JR East's demand for electric power fluctuates greatly throughout the day. Demand during rush hour is almost seven times greater than after midnight (Daytime demand at an electric company is usually about double the demand after midnight). Demand for electric power is also influenced by weather conditions. A mere 1 degree Celsius temperature rise increases power demand by approximately 10,000 kW.

Hourly electric power consumption forecasts are made for each period based on existing data regarding number of trains in service, the number of cars per train, passenger rates and official weather forecasts.

Tadayoshi Murayama, Commander on Duty, Load-dispatch Command Center Tokyo Branch Office Electronics Department, Power Supply Section

"We maximize the use of hydroelectric power, which generates zero emissions of CO_2 and NOx, and give priority to efficiently generated thermoelectric power. This allows the most environmentally friendly electricity generation through an optimal combination of thermal and hydraulic power."



* **Combined-cycle power–generating unit:** A power-generating unit that combines gas turbines (rotated by gas combustion), with steam turbines (rotated by steam generated by exhaust heat recovery).

JR East New Railcar Development

"Environment" is the keyword for R&D Forthcoming the zero emission railcars

Takashi Endo, Center Manager
Advanced Railway System
Development Center
JR East Research &
Development Center

Test runs of NE train[1] was started in May 2003. Tell us about its development.

One of our group vision has always been to develop technology that fully coexists with the environment. Therefore, we focus on saving energy and reducing exhaust gases. In the automobile industry, hybrid-engine cars already available and fuel cell cars will soon be practical. So what about in the railroad industry? We have spent two years developing hybrid vehicles to replace conventional diesel engines. Our NE Train is powered by electricity generated by diesel engine, and augmented by the power stored from regenerative brakes[2]. We also were able to cut engine idling while the railcars are stopped. In tests their performance compared with that of conventional electric railcars, but they consumed 20% less energy.

Hybrid-type NE Train

The NE Trains, however, are only an interim step as we expect to power trains with fuel cells eventually.

Tell us about the AC Train, Advanced Commuter Train[3]

While the E231 series is almost perfect as energy-efficient railcar, we developed our AC train by drastically redesigning the existing systems. We have added a DDM (direct drive motor) and reduced overall train weight, resulting in a greater than 10% reduction in energy consumption over the E231 series. What's more, the AC Train's overall design takes the whole picture into account, including disposal. Part of making "zero emission vehicles" means using recyclable materials like metal for the buffer materials in railcar flooring.

Using a tester to evaluate DDM reliability

How about stance on building faster *Shinkansen* trains?

This is one of our major projects now. Building trains that are faster yet also environmentally friendly is a major challenge. Faster *Shinkansen* cars increase noise and vibration, so we are developing new technologies to address these issues.

The JR East Research & Development Center is working to create new types of *Shinkansen* trains that balance high-speed performance with environmental concerns.

Given that railways already impact the environment less than other modes of transportation, what are you looking for in terms of further research and development?

I would like to emphasize on "alignment" and "autonomy." In a sense, railway technology has matured, but only when it comes to existing railway-specific technology. By introducing new technologies from the IT, power electronics and other industries, we can further enhance railway technology. Through this process we gain "autonomy" via "alignment" with other fields. And of course "environment" is the keyword of it all.

Modular tables foster group discussion

NE Train (left) and AC Train (right)

1 **NE (New Energy) Train**
An experimental train developed to reduce environmental impact by through the use of hybrid systems and fuel cells.

2 **Regenerative Braking**
This system, which uses a motor as a generator when the brakes are applied, is already available in new types of railcars, (see page 28); Installation in the NE Trains makes this train into hybrid-type.

3 **AC (Advanced Commuter) Train**
Test version of the next-generation, 21st Century commuter train featuring extensive redesign and use of IT.

What are we doing to encourage recycle-based society?

To use Earth's limited natural resources efficiently, we must reduce the amount of waste generated, reusing and recycling as much as possible. JR East promotes recycling-consciousness in society through the recycling network established under the popular slogan "Reduce, Reuse and Recycle."

Waste Recycling

The railway business generates massive amounts of several categories of waste, from the discarded refuse at stations and on trains to industrial waste generated in rolling stock facilities. In FY 2002 JR East generated approximately 556,000 tons of waste. We recycled 442,000 tons, or 79%, of this amount. Each category of waste has its own recycling target to be met by FY 2005. However, it is difficult to project annual figures as the amount of construction waste generated varies each fiscal year.

General Waste Recycling

From trains and stations

JR East carries approximately 16 million passengers daily. These customers generated approximately 50,000 tons per day of refuse at stations and on trains in FY 2002. This equals the annual volume of household waste generated by 130,000 people.

Because some of this refuse is recyclable (i.e., newspapers, magazines, steel and aluminum cans, and PET bottles), we are recycling as much as possible with efficient sorting systems. We place labeled refuse bins throughout stations and on trains, and ask passengers to separate their refuse properly. We collect, sort, and compress the refuse before sending it to our recycling centers. Our target recycling rate for this refuse had been set at 36% by FY 2005, but we accomplished this target in FY 2001. We are now aiming for a new target of 40% whereas 37% in FY 2002.

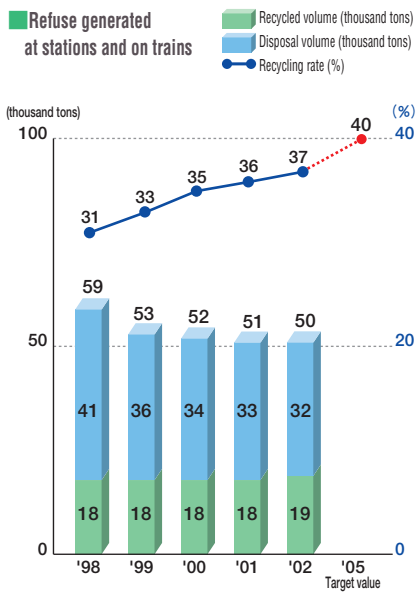
Refuse bins at stations in the metropolitan area are labeled for five types of waste

Recycling used train tickets and commuter passes

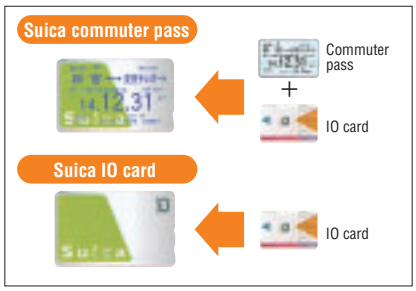
Although most train tickets have a magnetic coating on the back for automated ticket wickets, these can still be recycled since the technology for separating steel powder from paper fiber is available. JR East provides its used tickets to paper manufacturing facilities.

In FY 2002, 99.9% of discarded tickets (approximately 760 tons) was recycled into business cards, cardboard, toilet paper for stations and offices, and more. Meanwhile, roughly 52% (approximately 19 tons) of collected used commuter passes was turned into reducing agent for blast furnaces at steel plants.

We are now further developing ticket-less technologies to reduce the overall volume ticket refuse. As of June 2003, 6.6 million passengers were using *Suica,* IC cards, greatly reducing the volume of discarded train passes.



Recycled copy paper made from newspapers collected at stations



The "Suica Pass" is a combination commuter pass/IO Card that integrates convenient IC card functions. The IO Card is now evolving into an IC card.

Reclaiming resources at recycling centers

The greatest amount of refuse is generated at stations and on trains in the Tokyo metropolitan area. East Japan Eco Access Co., Ltd. operates recycling centers that collect and process refuse at Ueno Station, Omiya and Shinkiba.

The Ueno and Omiya centers collected 5,100 tons of cans and bottles, and 400 tons of PET bottles in Tokyo and Saitama Prefecture in FY 2002. This refuse was sorted, compressed and sent to recycling contractors. In FY 2001, we established our own facility that processes PET bottles into flakes.

In 2002, the Shinkiba Recycling Center processed 4,500 tons of discarded newspapers and magazines and sent them to used paper manufacturers. This recycled refuse is reclaimed as copy paper for JR East offices. We also recycle train and station refuse outside metropolitan areas at locations such as the Nagano Shinkansen Operations Center and the Minami Akita Operations Center among others.

Recycling industrial waste

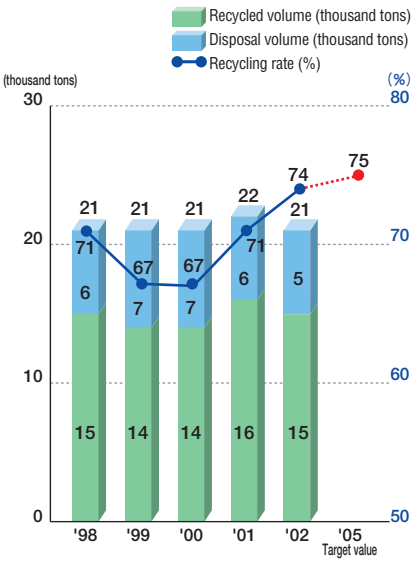
At rolling stock maintenance facilities

JR East maintains and repairs railcars in seven rolling stock maintenance facilities. We also manufacture commuter electric railcars in Niitsu Rolling Stock Manufacturing Factory.

These facilities generate metal, plastic, glass, wood, and oil waste. We need to review all aspects of the design phase with an eye toward recycling and reducing waste. For example, we have been replacing the fiber reinforced plastic (FRP) in window frames with aluminum.

We are also recovering resource materials by separating them into as many as 20 to 30 categories of waste products from the many materials at each workshop. The discarded resource materials are delivered to waste materials vendors, or in some cases, recycled in-house. We are, for example, casting brake parts from molten scrap metal.

Waste disposal and recycling at rolling stock workshops



Effective mulching

Every year, up to 4,000 m³ of debris clogs the intakes at Shinano River hydroelectric power plants; 60% of this is composed of plant-matter, such as driftwood which we used to dry and incinerate. In FY 2002, however, we eliminated our incinerator and began recycling this debris into mulch*. Making mulch eliminates the CO_2 emissions normally generated by incineration, and in using the mulch we no longer need to use herbicides as it prevents weeds from growing.

Mulch made from floating debris is used at company facilities

Passenger cooperation in recycling

We established a recycling center on the B1 floor at Ueno Station in 1994. There we sort and compress 4,300 tons of recyclable waste per year collected from 76 stations and station buildings throughout Tokyo. PET bottles are sorted and processed into flakes, aluminum and steel cans are sorted, and glass bottles are separated by color. These recyclable materials are sorted with partially manual process and compressed before being sent to the recycling contractors.

In order to recycle sorted collections, we need customer cooperation. Although we set labeled refuse bins at platforms, cans or bottles are sometimes tossed in with "other refuse." If liquid remains in beverage containers it needs to be emptied before recycling.

At the recycling center end we must take care to allocate recycling center staff appropriately based on past data, as we know for example the number of cans and bottles discarded increases 1.6 times in summer.

Fumio Okamura, Manager
Recycling Center at
JR East Ueno Station
East Japan Eco Access
Co., Ltd.

"Even though we collect and sort refuse, someone must manage it, or it still remains garbage. I have been doing this job for almost ten years and recycling into resources is still very tough."

Magnets are used to separate aluminum and steel cans

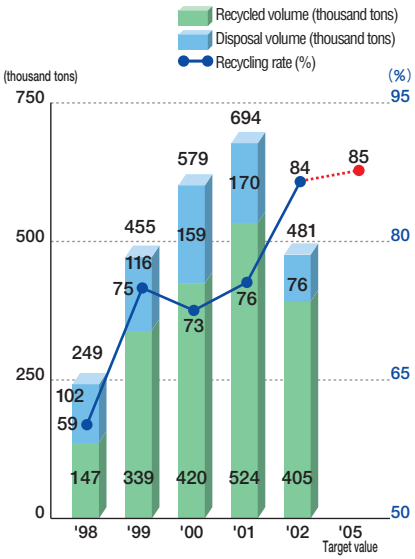
* **Mulch**
Sheeting, wood chips, or other plant matter used to prevent weed growth and maintain soil moisture.

Construction of facilities

In FY 2002, 481,000 tons of construction waste were generated in building new facilities and renovating and repairing existing stations and other structures, of which 156,000 tons were generated by the contract work[1].

Because outside contractors perform all kinds of work, waste disposal laws generally require them to dispose of the garbage they generate. However, since JR East has contracted for this work, we want to make it easy for them to dispose of waste appropriately. We therefore address these issues during the design and planning phase, applying standard civil engineering specifications.

Reducing waste disposal in construction projects



Inside stations, station buildings and hotels

Higashi Nihon Kiosk Co., Ltd. and Nippon Restaurant Enterprises Co., Ltd. provide retail shopping and meal & beverage services in JR East stations and on trains. We are working aggressively in these areas to reduce and recycle. To cut down on the amount of plastic used, clerks at "New Days" convenience stores ask whether customers want plastic bags when purchasing only a few items. We are also reducing packaging by using collapsible containers instead of cardboard cartons for some incoming merchandise.

A variety of waste material is generated by tenant businesses in station buildings. Composting facilities are installed onsite at *GranDuo* (Tachikawa) and *Ron-Ron* (Kichijoji). The *GranDuo* store also sells the compost, which is proving to be popular.

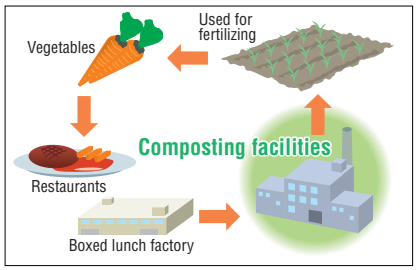
Recycling discarded food and boxed lunch containers

Nippon Restaurant Enterprises Co., Ltd. manufactures and sells boxed lunches with minimal packaging, and began introducing "eco-containers" in November 2002.

The reusable eco-containers feature a peel-off film that is removed and discarded before recycling by the manufacturer.

We also recycle food waste from our restaurants and boxed lunch factories into compost, which is used by our experimental organic farm in Ibaraki Prefecture and by contract farmers. The chemical-free produce they grow is used. In FY 2002, we were able to use a total of 190 tons of food-based compost.

Garbage recycling flow



Reducing office refuse and effectively using water resources

JR East offices are converting to a paperless office environment by using local area networks (LANs), while sorting and recycling office refuse. In FY 2002, the company recycled approximately 1,600 tons of the roughly 2,700 tons of office refuse generated.

JR East uses 13.4 million tons of water per year in offices, stations. In order to utilize water resources effectively, we aggressively promote water reuse[2] at our corporate headquarters, branch offices, and station buildings. For example, water collected from washbasins and station rooftops is purified and reused to flush toilets. In the head office building, 18,000 of the 42,000 tons of water used in FY 2002 were recycled water.

Medical waste

At JR Tokyo General Hospital and JR Sendai Hospital, we offer medical services to our employees as well as local community members. We also conduct employee medical checkups in the central health management office and at railway medical examination centers in each branch office.

In FY 2002 these facilities generated 86 tons of medical waste, which is stored and disposed of as specially controlled industrial waste in compliance with applicable laws and regulations.

Green procurement

In compliance with the "green procurement guidelines" of 1999, JR East encourages its business partners to use recycled materials and to reduce waste by improving environmental management systems. As a general policy, the company chooses products with minimal environmental impact. Besides our "green procurement policy," in FY 2000 we adopted staff uniforms that are partially made of polyester fiber that comes from recycled PET bottles. We further expanded use of this type of fiber in the new uniforms that our staff began wearing in December 2002. Recycled paper has been used for fare adjustment tickets issued by conductors with portable terminals since FY 2002. Until then we had used heat sensitive paper, as recycled paper did not feed into the machines properly. Working with the paper manufacturer, we were able to develop a recycled paper stock that works in our machines. Today 44% of all supplies used in our offices are designated "green procurement" items, and 98% of the copy paper used company wide is recycled paper.

Uniforms with synthetic fiber made from recycled PET bottles

Rolls of railcar tickets are now made of 50% recycled paper, replacing the old heat-sensitive paper

1 **Contract work**
Work contracted to JR East by municipalities in order to ensure safe train operations.

2 **Reuse of wastewater**
Recycled water is reused for certain purposes, such as flushing toilets.

What are we doing to reduce chemical substances?

Certain chemicals, even at low levels and legally permitted concentrations, adversely affect the human body and the overall ecological system. Therefore, it is imperative to establish a system that addresses emissions of these substances. CFCs had been used as coolants and heat insulators all over the world. Scientists later determined that CFCs destroy the ozone layer of the earth's atmosphere that protects us from harmful UV radiation. As CFCs are now restricted by international regulations, JR East continues to minimize use of these substances and to employ safer substitutes whenever possible.

Reducing chemical substances

Reducing substances that deplete the ozone layer

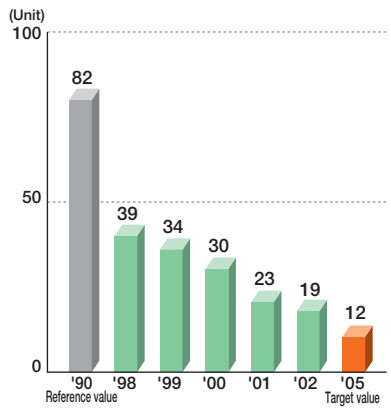
The air-conditioning systems of large buildings and railcars use specific chlorofluorocarbons (CFCs) that destroy the ozone layer. JR East is replacing its old building systems with new ones that are free of specific CFCs.

At the end of FY 2002, we had only 19 specific CFC-based air-conditioning systems, which use 9 tons of CFCs. We simultaneously began introducing non-CFC water-cooling and heating appliances, and had installed 26 units by the end of FY 2002.

On our trains, some diesel cars and passenger cars are equipped with specific CFC-based, and others with CFC-substitute air-conditioning systems. By the end of FY 2002, we had used two tons of specific CFCs and 96 tons of alternative CFCs. We periodically check for gas leaks, and we recover CFCs when scrapping railcars as mandated by law. In the latest models, such as the E231 series, we use R407C, which does not harm the ozone layer.

At the end of FY 2002, 72 tons of halon gas in containers were being used as a fire-extinguishing agent for buildings and other facilities. Although we recover and reuse this halon gas when dismantling halon-using equipment, we will introduce CO_2 as well as powders and other fire-extinguishing agents .

Number of large-size, specific CFC-based refrigeration machines



Reducing chemical substances used by rolling stock maintenance facilities

JR East uses certain chemicals primarily when painting and repairing rolling stock. We use these strictly regulated substances with care in order to prevent leaks and other hazards. Since FY 2001, the 12 service divisions that handle more than the designated amount of regulated chemicals have reported emission volumes and transfers to the appropriate prefectural authorities in compliance with the Regulations on Pollutant Release and Transfer Register, also called PRTR regulations.

As of the end of FY 2002, 54% of our total conventional railcars (10,632) were stainless steel, which requires no paint.

Organic solvents are used in painting bridges and other railway facilities; JR East used 230 tons of such solvents in FY 2002.

Municipal gas, kerosene and low-sulfur heavy oil are used at Kawasaki Thermoelectric Power Plant . These fuels generate exhaust gases including NOx, SOx and particulates, and therefore we use NOx removal equipment and dust separators to reduce these emissions. The NOx emission level in FY 2002 was 399 tons, meeting our FY 2005 target and reducing emissions to 60% of 1990 levels. We will monitor these emissions in the future to ensure that they do not exceed these target levels.

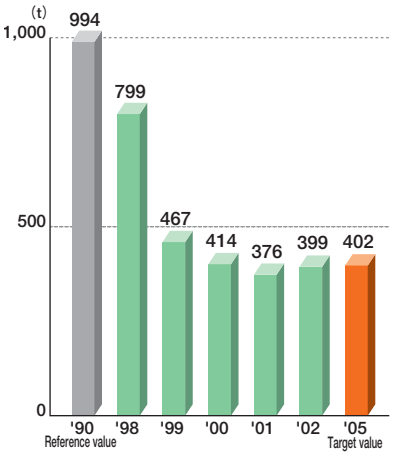
Notified volume released and transferred in 12 places

Name of chemicals	Level of emissions into the air	Level of discharge into public water bodies	Amount transferred to sewers	Amount transferred to outside facilities
Bisphenol A type epoxy resin (kg)	0	0	0	1,400
Ethylene glycol (kg)	0	6,800	0	2,200
Xylene (kg)	27,580	0	0	3,569
Chromium and Chromium (III) Compounds (kg)	0	0	0	130
Dioxins (mg-TEQ)	316	0	1	1,937
Toluene (kg)	42,501	0	9	27,238
Dichloromethane (kg)	4,200	0	0	1,300
Styrene (kg)	6,426	0	0	2,142

Note: There is no discharge to soil and landfill disposal.

Reducing NOx emissions from thermoelectric power plant

NOx emissions from dedicated thermal plant



Storage of polychlorinated biphenyls (PCBs)

JR East is actively replacing PCB-containing transformers, condensers, fluorescent stabilizers and other equipment in railcars and at transformer stations. We have removed from use and are storing approximately 2,000 tons of PCBs, notifying local government agencies as required. We will conduct the detoxification process on all PCB-containing equipment as quickly as possible.

How do we conduct environmental conservation along railway lines?

Since railroad tracks run through residential and other areas, minimizing environmental impact along the railway lines is one of our most important concerns. JR East is taking steps to reduce noise, improve urban landscapes and the surrounding natural environment, and otherwise minimize negative impact on local residents.

Noise reduction

Noise reduction along *Shinkansen* lines

Shinkansen noise levels are regulated by "*Environmental Quality Standards for Shinkansen Super-express Railway Noise*," issued by the Environmental Agency (currently Ministry of the Environment) in 1975. Till today, the Agency continues to instruct us on measures against noise pollution. For noise abatement, we specify sections along our railway lines as one of four types: "Super densely populated area," "Densely populated area, " "Sub-densely populated area" or "Residential area."

By FY 2002 we successfully limited noise levels in such areas to below 75 dB. Measures taken included raising the height of soundproof walls; installing sound-absorbent materials, smoothing rails[1], and other on-the-ground improvements.

We have made additional improvements to railcars as well, with a new type of low-noise pantograph.

We will continue implementing noise-reduction measures to improve the quality of life along railway lines and meet increasing environmental standards.

Single arm pantograph reduces wind noise

Noise reduction along conventional lines

There are no certain government-mandated environmental standards which apply to existing conventional lines. However, JR East plans to reduce noise in these areas as well out of respect to nearby residents.

In addition to installing continuous welded rails[2] and conducting wheel truing[3], we are conducting ongoing research on other noise reduction measures.

Since 1995, when the Environment Agency released its *Policy on Noise Measures for Construction of New Conventional Railways or Large-scale Remodeling*, we have been developing strategies to ensure compliance.

Rail alignment vehicle trims and flattens rails

Smoothing rail unevenness caused by train operation

Noise during maintenance work

JR East performs maintenance work on track beds late at night when the trains are not running. Local residents are notified in advance whenever such night work is scheduled, and we make every effort to minimize noise from construction machinery.

We also perform the work during the daytime on one side of double tracks, while temporarily utilizing the only other track for train operations. This method, which we refer to as "refresh construction," reduces after-hours maintenance work.

What is more, we are currently replacing conventional ballast roadbeds with TC-type low-maintenance roadbeds, to reduce the overall need for routine maintenance.

Preventing electromagnetic interference

Television interference is sometimes caused along *Shinkansen* lines by the high frequency waves generated when pantographs momentarily bounce away from overhead wires. We support the installation of communal television reception systems and other solutions for affected households.

Dioxins generated from incinerators

Under certain conditions, refuse incinerators may generate dioxins. In the past, JR East used incinerators to burn some of the refuse discarded at stations and on trains; we are gradually eliminating our incinerators and now consign disposal to the municipality under the *Law Concerning Special Measures Against Dioxins*. In FY 2002, we closed all but one company-owned incinerator, which has been retrofitted to meet current emission standards.

1 **Smoothing rails**
Train wheels constantly rolling over the rails force rails out of alignment. We can reduce excess noise from passing trains by realigning uneven rail segments.

2 **Continuous welded rails**
Extra-long 200-meter rails require fewer welded joints to connect rail segments; trains pass over fewer joints to generate less noise.

3 **Wheel truing**
Trimming and smoothing worn edges on train wheels for increased performance.

Harmonizing with surroundings

Structures like railway viaducts and bridges, stations and station buildings tend to be large and stand out in their surroundings, causing somewhat impact on the landscape. In order to help buildings and the other structures that we need fit in with the environment, we set up design committees within construction departments and other organizations that plan and design them. These committees analyze how proposed structures may affect the existing landscape, and are formally recognized for outstanding designs.

The design and color of Anegasaki Kawahashi Bridge on the *Uchibo* Line were selected to match surroundings

Above: Before refurbishing
Below: After refurbishing
Asagaya Station on the *Chuo* Line was refurbished as part of our *Station Renaissance* program (see page13). The project focused on harmonizing with surroundings.

Utilizing spring water from tunnels

JR East normally pumps out the water that at times wells up in underground tunnels, but we are now developing ways to use this water. One method is to pump water from underground springs into surrounding rivers to improve overall water quality. Since FY 2001, we began pumping spring water collected in tunnels into Tokyo's Nogawa River (via Sugataminoike Pond) and Tachiaigawa River. In 2003, we plan to begin pumping water from tunnels around Ueno Station into Shinobazu Pond.

In July 2002 we began pumping spring water into Tachiaigawa River, which runs through Shinagawa-ku, Tokyo.

Protecting railway trees

JR East currently has approximately six million trees on a total of 4,400 hectares of land. These trees absorb 17,000 tons of CO_2, about 0.7% of the CO_2 discharged by JR East annually. The trees also beautify local communities. Historically, railroads planted trees to prevent soil erosion and serve as windbreaks near tracks. For all these reasons, we plan to continue taking good care of the trees.

Railway trees along *Yamagata Shinkansen Line*

Environmental awareness in residential plot development

We take the natural environment and local communities into account in all our development and land use plans. In our *Fiore Kitsurengawa subdivision* (located at Kitsurengawa-cho, Tochigi Prefecture, 82 hectares, 1,115 houses) we plan to make extensive use of existing trees and natural topographic features, and establish covenants when selling the lots to insure the environment is protected.

Lots in the *View Verger Annaka Haruna* subdivision (Annaka City, Gunma Prefecture, 49 hectares, 700 houses) will go on sale in FY 2003. We are planting indigenous trees to protect hillsides on the sculpted landscape.

Trees are planted to protect hillsides at *View Verge Annaka Haruna* subdivision

Reducing herbicide use

To maintain visibility and increase safety, we use herbicide to eliminate weeds in the areas around tracks. We severely limit, however, both the amount of herbicide used and the areas to be sprayed. We use herbicides rated "Normal" for mammalian toxicity (the lowest of the 3 ratings), with the A rating for aquatic toxicity (the lowest of the 5 ratings).

How do we conduct environmental communication?

In order to publicize and increase the effectiveness of JR East Group's environmental conservation activities, we conduct various types of outreach programs for customers and communities neighboring railway lines. We also conduct mass communication/PR campaigns via newspapers, magazines, TV commercials and train posters, and post information through our company website, sustainability reports, children's booklets, and other in-house publications.

Environmental communication

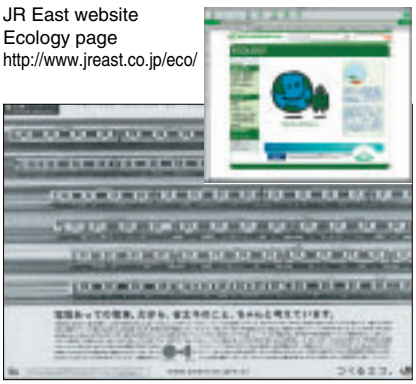
Ecology campaign

JR East holds an annual ecology campaign to publicize our environmental conservation activities, and to communicate the importance of environmental concerns to our customers and the communities neighboring railway lines.

During FY 2002, we set up displays exhibiting our "Green" activities, and distributed children's booklets at Tokyo and Sendai Stations. In December, we had participated in the Eco Products Exhibition and in March we presented an exhibit as part of WWF Green Power Week, held in the Japan Science and Future Hall and sponsored by WWF Japan. In addition, we routinely publicize our activities via newspapers, magazines, TV commercials, train posters, over the Internet, etc.

Japan Science and Future Hall exhibit was popular with kids

JR East website
Ecology page
http://www.jreast.co.jp/eco/



We present various activities under the slogan, "*Make Eco*"

Forestation

Every year we have been planting trees near all rail lines as part of our *Railway Lines Forestation Program*. The program began in 1992, when we planted trees around the *Chuo* Line's Yotsuya Station and 11 other stations. JR East Group employees and local residents took part on a volunteer basis. In the 11 years up to and including FY 2002, 27,000 people have planted 220,000 trees. In FY 2000, we began working on the *Onuma Hometown Forestation Program* in Onuma area of the southern Hokkaido prefecture. Local committee established by JR East and JR Hokkaido* coordinate the many volunteers — which include JR staff and other local residents. The program is under the supervision of international forestry expert Dr. Akira Miyawaki (Emeritus Professor, Yokohama National University). Participants sprout seedlings at the nursery, raise the seedlings in pots, and then plant them at many locations throughout Hokkaido. In FY 2002, approximately 700 volunteers potted some 45,000 seedlings.

Funds raised by JR East Group employees go to railway forestation programs

The *Onuma Hometown Forestation* project attracts volunteers from within and outside the company

Eco-tourism

JR East offers a variety of nature tours geared to getting people to experience the glories of nature. In FY 2002, approximately 10,000 tourists took part in tours such as *Mt. Shirakami Beech School* and *Flower Mountain Climbing*. Based at extended-stay hotels like Folkloro and Familio, we offer the *LO-CO Club* plan—leisure excursions designed to bring people into contact with the nature and culture of local areas. This program has served approximately 14,000 people in FY 2002.

With our new *Hiking from Stations* program, visitors can take nature walks from stations to enjoy local scenic spots, changes of season, etc. A great many hiking trails are available, from the so-called *Event Courses*, which can only be booked by advance reservation, to the *Recommended Courses*, which require no reservations. Event Courses were opened to the public approximately 400 times in FY 2002 alone, with access by about 150,000 people.

Seven Familio hotels are located at tourist and other destinations inside our operational area. (Photo: Niiharu Familio)

Hiking from Stations assures trails are ready for use any time

* **JR Hokkaido**
JR Hokkaido is one of the passenger railways companies, which was established in 1987 when the Japan National Railways (JNR) was privatized into several companies including JR East. The company serves the northernmost island (Hokkaido).

How do we foster relationships with local and international communities?

As an integral member of society, JR East is strengthening its interrelationships with local and international communities. By establishing various administrative and other facilities at stations, we develop them into community centers and information hubs. JR East contributes to overall social well being by participating in international cooperation, cultural, sporting, and other programs and activities.

Expanding relationships with local and international communities

Station childcare facilities

We are actively developing station childcare facilities to serve local residents. JR East opened its first, model childcare center at Kokubunji Station in 1996. By FY 2002, we had opened childcare centers at Tsurumi and Kozukue Stations in Yokohama City; Kita-Senju, Nishi-Hachioji, Omori and Fussa Stations in Tokyo; and Sendai Station in Sendai City. These eight facilities provide childcare to a total of some 400 children. In order to ensure convenient, easily-accessible childcare, we secure sites nearby stations and employ professionals to offer a wide range of services during the extended hours required by working parents.

Being able to drop off and pick up children at the station shortens parents' commutes. We see more fathers dropping off their kids. In fact, data shows nearly 90% of users head to work directly after dropping their children at daycare. The centers also make it easier for parents to shop in the station vicinity after dropping off or before picking up their children.

Reliability and safety are JR East's top priorities at J Kids/Planet JR Tsurumi Nursery School (Yokohama)

In FY 2003 we plan to set up three new station childcare facilities to support all those involved with childcare in the community. These new facilities will open at three stations on the *Saikyo* Line in FY 2004, and will provide additional services, including childcare counseling and programs in which the elderly participates with elementary school students.

More than simply convenient to the station, we meet a variety of needs…

Yokohama has the second-highest number of children in the nation waiting for nursery school openings. Conveniently located near railway stations, the J Kids/Planet JR Tsurumi Nursery School helps meet this demand. The school is open ever day from 7:00 a.m. to 9:00 p.m., including weekends and holidays.

Enrollment has steadily increased during the first three years, and we have also developed a childcare manual in collaboration with the directors of other JR station nursery schools. We strive to provide high quality childcare, which includes our own meal service featuring high-quality ingredients. Since the children are in our care for such long hours, establishing a relationship of mutual trust is essential. We place great importance on each individual; writing notes to parents detailing how each day was spent, such as "he/she walked two steps today holding on to something for support." We also work with the Tsurumi Station Master and local businesses to exhibit the children's artwork, and conduct other events. It takes a village to raise a child, and parents greatly appreciate the strong community involvement.

Keiko Yoshioka
Director/Nurse
J Kids /Planet JR
Tsurumi Nursery School

"I love working with children every day. Based on the childcare philosophy of developing sound and healthy bodies, I use my 35 years of experience in nursing to address issues of children's health, safety and hygiene."

Contribution to communities through nursing care business

Since FY 2000, JR East has been involved in nursing care in the Sendai metropolitan area. Tohoku General Service Co., Ltd. established the JR East Tohoku Nursing Care Service Center, and is providing home-care medical services in metropolitan Sendai. These include arranging visiting nurses, renting and selling medical equipment, and other helpful services.

Heart Itsutsubashi, a nursing home for the elderly, has been established as an annex of the JR Sendai Hospital. This facility provides high-quality medical and nursing home care (including meals, bathing, rehabilitation, etc.) to senior citizens who can no longer live without help. In FY 2002, use of each of these facilities increased as much as 150% over FY 2001.

Meanwhile, Nippon Restaurant Enterprise Co., Ltd. is preparing to open a home for the elderly in Ota-ku, Tokyo in 2004.

JR East Tohoku Nursing Care Service Center Home for the Elderly

NRE Omori Yayoi Heights (tentative name)
Home for the Elderly scheduled to open in 2004

Community revitalization

For JR East, a local station is more than a point of departure and return; it is a cultural gathering place where all segments of society come together for information. We play a significant role in revitalizing local communities. To this end we establish joint facilities such community centers and libraries adjacent to station buildings and work with local governments to develop plans for the surrounding areas when refurbishing stations.

Sagae Station (*Aterazawa* Line) features a Community Center

Children's Railway Association

The Children's Railway Association was established in 1960 and is active throughout Japan. The association sponsors various activities for children designed to teach proper railway etiquette, including station beautification projects and field trips to railroad facilities. The Traffic Manners Association manages the Children's Railway Association; JR East provides support services including personnel at branch offices, space to hold activities, and railroad engineer simulators.

JR East conducts Children's Railway Association activities

Marunouchi Stationhouse designated an important cultural asset

In May 2003, the classic red brick Marunouchi Stationhouse located at Tokyo Station was designated an important national cultural asset. This stationhouse opened in 1914, but the third floor was destroyed by fire in 1945 during the war. We are now conducting research and planning to restore the interior and exterior of the third floor to its original state.

Example of Meiji/Taisho era architecture (Restored Marunouchi Stationhouse image)

Sponsoring sporting events

The August 2003 JR East Junior Kendo (Japanese fencing) Tournament was the 14th such competition sponsored by JR East. Open to young people living in areas served by JR East lines, the tournament gives competitors the opportunity to test their skills against others. In addition, we also sponsor ski tournaments at *Gala Yuzawa* ski resort, a soccer league for Kanto-area universities, and other sporting groups and events.

JR East Junior Kendo Tournament provides friendly competition with other fencers

Gift of travel

As many physically disabled people seldom have the opportunity to travel, JR East offers them an opportunity to visit Hokkaido. This excursion, using sleeping cars, has been sponsored each year since 1994 through the Executive Committee of the Gift of Travel program. Roughly 6,000 people have participated in such excursions.

Cooperative agreements with foreign railway companies

JR East signed cooperative agreements with German Railways (DB AG) in November 1992, Italian National Railways (FS Spa) in September 1995, and with French National Railways (SNCF) in November 1995. The agreements foster cooperation across a wide range of fields in the railway industry. Collaboration includes sharing technological developments and management information, designing stations and rolling stock, maintenance, passenger services, personnel training and more.

International cooperation / Dispatching employees

As part of our interaction with the global community, JR East is extensively involved in international cooperation, mainly through providing lecturers, conducting inspections and offering practical advice. We also dispatch employees to foreign countries, and have received trainees from railways in Asia, East Europe, Russia and elsewhere. The Japan International Cooperation Agency (JICA) and other agencies coordinate these programs. In FY 2002, we dispatched five employees overseas and hosted a total of 226 trainees in Japan.

International cooperation in FY 2002

Dispatched	Short period (less than one year)	5 employees from 2 countries
Received	Trainee via Japan International Cooperation Agency (JICA)	226 trainees from 39 countries

East Japan Railway Culture Foundation

Activities and purpose

In March 1992, the East Japan Railway Culture Foundation* was established to help create a rich, people-oriented railway and transportation culture. Foundation activities have three major themes: supporting regional culture through railway networks, promoting railway research, and promoting international exchange related to railways.

Tokyo Station Gallery Exhibition

In 1988, the Foundation opened the Tokyo Station Gallery to heighten the cultural significance of the station and display magnificent cultural and artistic achievements for the benefit for all. The gallery's motto is "a small yet authentic art museum." Regularly held exhibits range from painting to architecture.

Exhibitions held at Tokyo Station Gallery in FY 2003

Title of exhibitions	Period
Tadao Ando "Regeneration-Surroundings and Architecture"	Sat. Apr. 5–Sun. May 25
The Art of Bali-I Ketut Budiana	Sat. Jun. 7–Mon. Jul. 21
Railways in Art: Inventing the Modern	Sat. Aug. 2–Mon. Sep. 15
Avant-garde Styles of Ukiyo-e and the Modern World	Sat. Sep. 27–Sun. Nov. 9
The Art of Yamaguhci Kaoru	Sat. Nov. 22–Sun. Jan. 25
The Art of Kazuki Yasuo	Sat. Feb. 7–Sun. Mar. 28

Tokyo Station Gallery displays a range of genres

Supporting regional culture through railway networks

Since FY 1993, the Foundation has been supporting and promoting the revival of traditional regional culture throughout eastern Japan. In FY 2002 we subsidized 12 projects at a total cost of 56.05 million yen.

"Ayako Mai" held in Kashiwazaki City, Niigata Prefecture, FY 2002

Promoting railway research

We support independent academic researches and surveys into our railways to provide incentive and training to young researchers and revitalize transportation researches and surveys.

Old Shimbashi Station preserved and restored

In April 2003, on the site of the Old Shimbashi Station, we opened a building that recreates the old station's 1872 exterior. We restored, as accurately as possible based on archival records, the external appearance of the station in its original location. The building also now houses a Railway History Display Room and "the Grand Café Shimbashi Mikuni" restaurant.

Visitors can see the old station's original foundation stones. Parts of the platform and tracks have also been restored.

Japan Railway & Transport Review (JRTR), English-language magazine

The foundation publishes the Japan Railway & Transport Review (JRTR) in English and simultaneously posts it on the Internet. This magazine provides the global community with information on Japan's railways and other transport, and also serves as a forum for international discussion where transportation specialists from around the world can exchange ideas.

JRTR website
http://www.jrtr.net/

International cooperation / Sponsoring trainees from overseas

The foundation invites young executives from railway companies in other Asian nations (Thailand, Malaysia, Vietnam, Mongolia and Indonesia) to come to Japan. For about four months, these executives undergo business training (through JR East Fellowships) on railway management, railway technology, and other subjects. We also take groups of trainees from the Ministry of Railways of China.

Trainees accepted

Fiscal year	JR East Fellowship	Training for middle-management executives	Trainees from Chinese Railway Dept.
1998	7 trainees from 4 countries	—	34 trainees
1999	8 trainees from 4 countries	—	13 trainees
2000	8 trainees from 4 countries	—	35 trainees
2001	10 trainees from 5 countries	10 trainees from 5 countries	22 trainees
2002	8 trainees from 5 countries	10 trainees from 5 countries	22 trainees

* East Japan Railway Culture Foundation
http://www.ejrcf.or.jp/
+81-3-5334-0623 (Japanese only)

How do we ensure railway safety?

Ever since JR East began operations in 1987, safety has always been our number one management priority; today we are promoting an initiative based plan called Safety Plan 21. In order to become the safest railway in the world, we have set a goal of zero accident fatalities or injuries for customers and zero accident fatalities for personnel.

Safety Plan 21

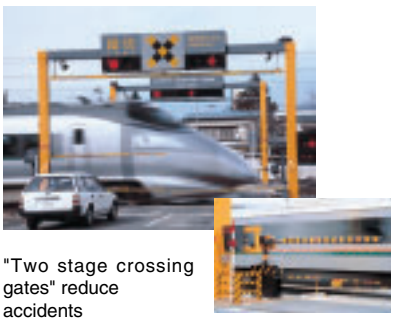
Safety Plan 21 is a five-year plan (FY 1999 to 2003) built around the following core principles; maintaining safety equipment, tightening safety standards, appropriately responding to change, and reemphasizing safety awareness. Based on this plan, we are working to increase the safety of the railway system throughout JR East Group. We plan to invest nearly 400 billion yen over the five years to upgrade our safety equipment, thus living up to both our corporate mission and the expectations of our passengers.

Minimizing railway accidents

In 1987, the first year JR East in business had 376 accidents. In FY 2002, there were 111 accidents—this is the lowest level to date and represents a nearly 70% decrease since 1987.

Safety measures to prevent accidents at railroad crossings

There were 40 railroad-crossing accidents in FY 2002, the lowest number in our history. This is clear evidence of our all-out effort to eliminate crossing accidents using advanced safety equipment such as crossing-obstruction detectors and two-stage crossing gates.



"Two stage crossing gates" reduce accidents

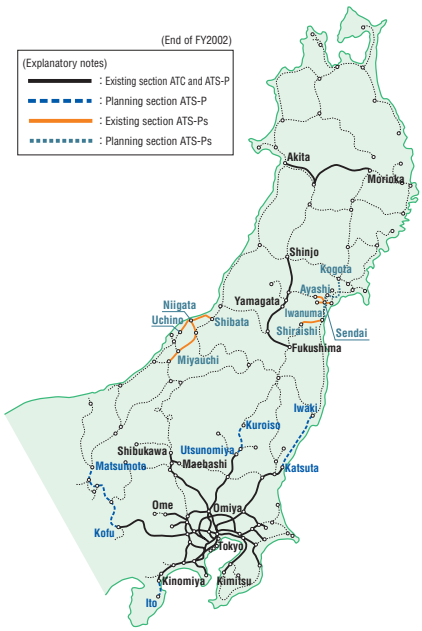
Ensuring railcar operation safety

Providing ATS-P and ATS-Ps systems

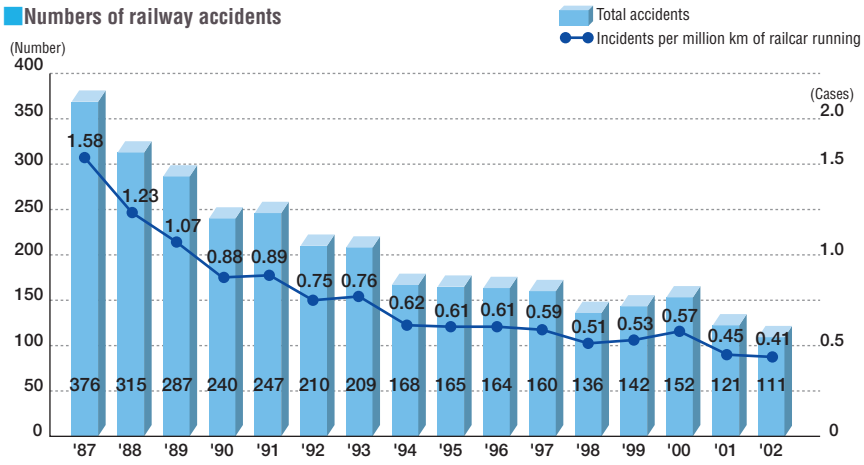
JR East uses the automatically controlled ATC system (Automated railcar control system), which monitors railcar speed, and the ATS system (Automated railcar stop system), which stops trains automatically when an emergency stop signal is activated.

We are currently preparing to introduce the ATS-P system (with highly developed safety features) along 100 km of track in the Tokyo metropolitan area, and to install ATS-Ps designed to suit local conditions in the Sendai and Niigata areas. We are also planning to introduce the digital ATC on the *Keihin Tohoku* Line in FY 2003, and on the *Yamanote* Line in FY 2005. Digital ATC uses digital technology to provide smooth railroad operation.

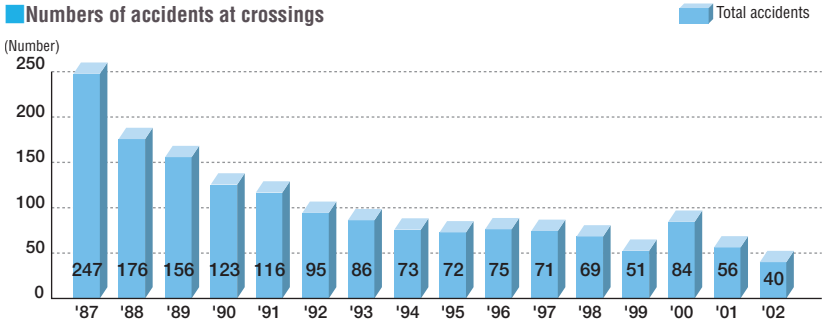
Plan for ATS-P and ATS-Ps



Numbers of railway accidents



Numbers of accidents at crossings



Safety-technology developments

Systematized maintenance

We are in the process of adopting ATOS (Autonomous Decentralized Transport Operation Control System) as the standard operation control system for major railway lines in the Tokyo metropolitan area. With this system a worker uses a handheld terminal to designate a section of track needing maintenance. The system automatically prevents trains from approaching the designated section. In areas where ATOS is not yet available, we are currently testing a system to allow the operation status of each train to be confirmed via mobile terminal.

The ATOS command center provides centralized control for all designated trains

Research on derailing

In order to prevent train derailments, we work to improve methods of managing rolling stock and facilities, and of evaluating safety. To be more specific, we conduct test runs with actual trains to calibrate contact points between wheels and rails on a regular basis, and measure the various forces generated between surfaces. We also study derailment mechanics with the help of computer simulation.

Test runs provide data on contact points between wheels and rails and other information

Research on gale warnings

To prevent derailment and rolling of trains in gale force winds, JR East has formulated regulations on train operation during such conditions. Under existing regulations, however, once a warning is issued, train operations continue to be regulated until thirty minutes after the all clear is given. In order to improve the system, we are now developing a gale warning protocol that activates operating regulations 30 minutes prior to the time gale force winds are predicted to hit.

Learning from past to prevent future accidents

In April 2002 we revised regulations on reporting and categorizing accidents in an effort to more clearly identify accident causes and other transportation hazards. We established a new structure for factors that may not cause accidents directly but could be identified as contributing and preventable.

In November 2002 we established the Accident History Exhibition Hall at the JR East General Training Center. The exhibition hall is designed to impress employees with the gravity of accidents and strengthen their resolve to prevent them. Through safety education facilities like this, we create a climate of learning from past accidents to preventing those in future.

The Accident History Exhibition Hall shows important records

Conducting disaster preparedness training

Preparedness plans of major disasters

JR East is working to establish a structure under which all group companies are prepared to cope smoothly with major disasters—such as an earthquake measuring over 6 on the Japanese scale (Ⅸ on Melcalli scale) .

In the disaster-training manual currently being compiled, the top priority is always on passenger safety and rescue. On September 1st 2002, we conducted comprehensive disaster training exercises with approximately 12,000 participants.

Furthermore, in response to the Great Hanshin Earthquake in 1995, we have been reinforcing viaducts, station buildings and other railway facilities. Future plans include ongoing earthquake retrofitting. Since viaduct pillars were damaged in the earthquake centered offshore near Miyagi Prefecture on May 26th 2003, we will be reinforcing all viaducts on the *Tohoku Joetsu Shinkansen* Line (approximately 15,000 structures).

How do we apply customer feedback?

Putting customers first is a central tenet of the JR East management philosophy, and we make every effort to provide comfortable, convenient service. In order to be able to provide services and products that really fit customer needs, we collect extensive opinion data from a variety of sources, including front-line employees, our Customer Help Desk, and others.

Customer feedback

In order to get direct customer feedback through on-site front-line employees, each branch has devised a variety of methods for soliciting input such as using e-mail or mobile memo pads. We also welcome suggestions at Customer Help Desks situated at 17 stations (as of March 2003), as well as on the JR East website*. We received 116,551 customer comments in FY 2002, up 135% from the previous year. On-site front-line employees collected 79,190 (approximately 70%) of these. The remainder included 19,757 comments collected at Customer Help Desks and 17,604 via our website. The category "suggestions and requests" accounted for 63% of the responses (up 2 points from the previous fiscal year); "complaints" were 18% (down 2 points), while "commendations" accounted for 10% (up 1 point).

JR East website welcomes voice of customers

Action for service improvement

Mere collecting customer opinions does not connect with improvement of our service. JR East, therefore, holds regular "improvement discussions" attended by relevant departments. In FY 2002, approximately 30% of the opinions collected actually resulted in improved service. We accomplished this through on-site front-line service meetings, and customer service meetings at corporate headquarters and branch offices.

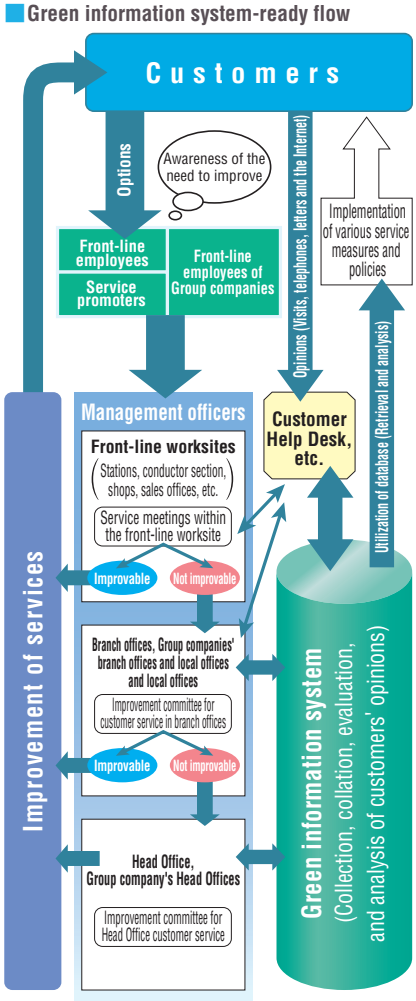
For instance, in FY 2002 many passengers complained that it was hard to hear platform announcements regarding boarding positions of express trains, which differ depending on the number of cars are in a given train. We addressed this problem at Katsuta Station by utilizing limited electronic bulletin board space to announce the number of cars in approaching express trains.

JR East is committed to ongoing discussions of areas that still need improvement. As the circumstances of the environment improve thanks to customer input, we are given a wide range of opportunities to provide even better service.

Green information system

The Green Information System is a computer network that compiles and analyzes important customer comments and other details, then digitizes the information for our in-house database. Head and branch office customer service departments, Customer Help Desks and site operation teams are all linked to the database via intranet, allowing employees to quickly ascertain and respond to customer needs. We also use this data to develop new policies and service initiatives.

■Green information system-ready flow



* JR East website
Voice of customers
http://voice.jreast.co.jp/

Alleviating congestion

Because it serves so many passengers, JR East is continuously working to relieve congestion by modifying the operational system. We increase the number of railcars during peak hours, and have introduced new high-capacity cars on the *Yamanote* Line and other metropolitan commuter lines. As a result, the level of congestion on our trains is decreasing measurably. In FY 2002, the average number of passengers during peak hours was 197% of capacity on the metropolitan commuter lines, down 41 points from FY 1987. JR East is raising the target to an average level of 180% capacity by FY 2005.

Designating railcars for female passengers

To allow all passengers to travel in greater comfort and safety, in FY 2001 we introduced "Ladies-Only cars" on the *Saikyo* Line. On 11 trains, the last railcar is designated exclusively for female passengers on weeknight trains outbound from Shinjuku Station after 11:00p.m. and from Ikebukuro Station after midnight.

On 11 trains, "Ladies-Only cars" operate on weeknights.

Digitizing Lost & Found

JR East has a coordinated Lost & Found system. In the past, whenever passengers or staff turned in an object left on a train, an employee had to manually log the item into a notebook. This meant it took a long time to search for a specific item when the owner inquired about it. Our new computerized system allows us to quickly search from any station on the *Yamanote* Line via LAN. Beginning in FY 2002, customers can also call our telephone center to inquire about lost items.

Improving manners on trains

In FY 2002, we received 3,888 comments regarding passenger manners; approximately 19% of these concerned the use of cellular phones on trains. We continue encourage customers to practice good manners with train announcements, posters, etc.

Reducing Green Car fares

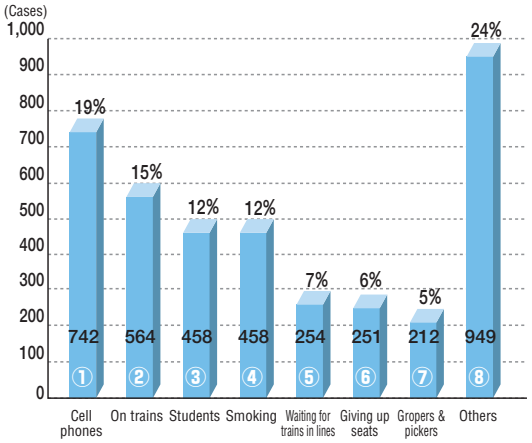
In FY 2002, JR East temporarily reduced the price of *Shinkansen* and express train Green Car tickets by up to 25%. The price cuts are effective through November 30th, 2003. In addition, we changed the way Green Car fares are calculated on the *Yamagata* and *Akita Shinkansen* lines, cutting the price by up to 49%. We have also initiated "Green Attendant" services on parts of some *Shinkansen* lines.

Green Car attendants provide beverage and towelette service on the *Hayate* and *Komachi* liners

Installing elevators and escalators

In compliance with the *Barrier-Free Transportation Law*, we are cooperating with local municipalities to install mechanical lifting devices in stations. Specifically, we now regard elevators as a basic amenity and have set a goal of installing them in all subject stations[1] by 2010. We are also committed to installing more escalators[2].

Customer voices complaining about bad behaviors on trains and at stations



① Some want cell phone use prohibited on trains; others want it permitted, etc.
② Eating and drinking on trains; putting feet up on seats, etc.
③ Middle/high school students making noise, sitting on floors, obstructing passageways, etc.
④ Smoking outside designated smoking areas, etc.
⑤ Remaining onboard return trains to claim seats, etc.
⑥ Passengers failing to vacate priority seating, etc.
⑦ Subject to molestation, pick pocketing, etc.
⑧ Requests for regulation of improper behavior, enforcement of foot traffic flow directions on stairs, and other miscellaneous topics.

1 **Stations slated for elevator installation**
Approximately 390 stations serving at least 5,000 passengers a day with a height difference greater than 5 meters between levels

2 **Stations slated for escalator installation**
Approximately 300 stations serving at least 10,000 passengers a day with a height difference greater than 5 meters between levels

What is our personnel management?

JR East strives to create a motivating workplace where each employee is able to make full use of his/her abilities. Emphasis is on safety and providing a strong sense of accomplishment, especially in terms of the many simple, repetitive and sometimes dangerous tasks that make up the railway business. To this end, we have inaugurated a number of human resource development programs, and encourage small group activities that foster a corporate climate in which employees take the initiative to create cheerful, transparent workplaces.

Pursuing workplace safety

In FY 1999 we began our five-year Safety Plan 21, which addresses both customer safety and preventing on-the-job accidents. Specifically, we automate certain tasks and continually review procedures in order to make them safer.

Rail-based heavy machinery makes aerial work safer

Aiming for zero on-the-job accidents

To great regret, three employees of contracting companies were victims of fatal accidents in FY 2002. The entire JR East Group is united toward preventing on-the-job accidents through our policies outlined in Safety Plan 21 regarding zero accident fatalities or injuries for customers personnel.

Acquisition of OHSAS 18001 Certification

In March 2002, JR East's Oi Workshop was the first railway company in the world to be awarded the OHSAS 18001 Certification, meeting international standards for its occupational health and safety management system. In May 2003, our Omiya Workshop also obtained the JISHA-type OSHMS Certification. We plan to continue improving these systems over time and advance health and safety standards to even higher levels.

Creating motivating workplaces

To create workplaces where each employee is motivated to do his or her best, we must not only ensure the work is safe, but also provide an environment where each individual can take advantage of broader knowledge and experience. For instance, by using open counters at manned ticket wickets, installing vending machines that sell reserved seat tickets and implementing *Shinkansen* fare-collection systems, station staff is more available to provide directions and other services to elderly passengers or those who need help.

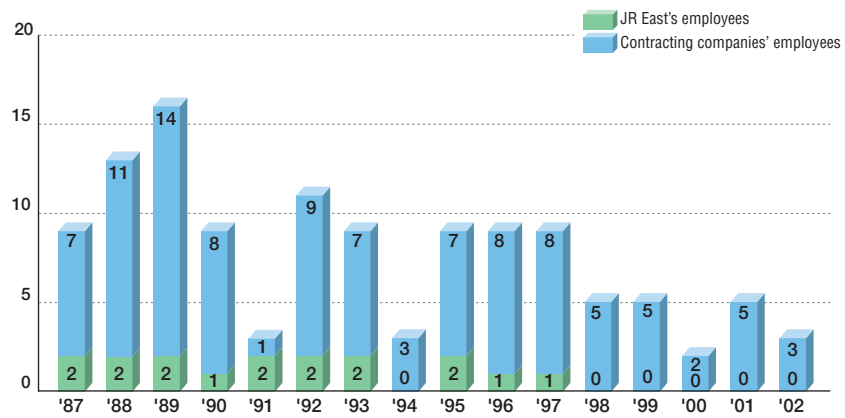
Shortening working hours

Systematization and mechanization improve productivity and allow us to shorten working hours. The average JR East employee worked 1,830 hours in FY 2002, approximately 360 hours less then in the year the company was founded in 1987.

Expanding opportunities for female employees

JR East systematically treats men and women as equals in terms of general human resources management. However, many tasks in the railway business are long regarded as tough for women to perform, which has limited their employment opportunities. When revisions of *Equal Employment Opportunity Law* went into effect in April 1999, JR East began improving some of its employment system. Under the old *Labor Standards Law*, women were restricted from certain late-night work. Since the regulation was lifted many opportunities for female employees have opened up at JR East. For example, they can now be employed in reservation offices where rotating shift work and are eligible to work as train conductors and drivers. As a result, we now have 35% more female employees than we had before the law revised.

Number of fatal accidents among JR East's employees and contracting companies' employees



Female personnel now work as train conductors and drivers

Employment of people with disabilities

JR East realizes its social responsibility to employ people with disabilities. As of June 2003, the handicapped accounted for 2.12% of our work force. Government regulations concerning passenger safety, however, make many jobs in the railway industry unsuitable for the disabled. Still, in an effort to integrate the disabled into society, we take into consideration the type and degree of handicap, and provide appropriate employment whenever possible.

Time-off for community service

In FY 2003, JR East introduced a program encouraging employees to take paid time off from the company to work on community service projects. Participating in volunteer activities gives employees the opportunity to refresh body and mind, and broaden their understanding of the local community in ways that staying in the workplace or at home cannot. JR East regards that allowing time off for personnel to volunteer for community service is another way of contributing to overall social welfare.

Training opportunities

JR East has established a variety of training systems to help employees develop their skills.

Periodic group training

JR East offers seminars at the JR East General Education Center, each branch office's training facilities, general training centers and business training centers. We conduct railway-specific education on safety and accident prevention, as well as provide training to enhance management and service standards.

JR East General Education Center in Shirakawa City, Fukushima Prefecture

Correspondence courses

As part of education for personal enrichment, we have begun sponsoring outside correspondence courses. These provide employees with opportunities to expand general culture awareness, as well as earn specific qualifications. We also provide in-house correspondence programs that deal with the railway business and services.

Outside training

To help staff members broaden their perspectives and develop their abilities, JR East strongly encourages employees to pursue further outside training. This could include enrolling in business management school, attending seminars and study programs, training overseas, or taking courses at colleges or universities.

Training conducted in FY 2002

Training Categories
Trainings for Human Resource Development···33,600 participants
<Traning overview>
Seminars for new directors and auditors of group companies
Marketing seminars
Training for new supervisors (on-site supervisors and assistant supervisors)
Training for new recruits and junior staff
Training for those who passed promotion examinations
Training for those who support small group activities
Training for instructors of small group activities and administrative staff
Trainings for Upgrading Knowledge and Technologies···51,900 participants
<Traning overview>
Training for train drivers and conductors
Training in training centers and business training centers
Training to strengthen business knowledge and technology
Trainings Outside the Company·····3,200 participants
<Traning overview>
Training for management and communication exchanges between different industries
Training for acquisition of various qualifications
Training overseas and training on the ocean
Total ·····88,700 participants

Education on human rights

JR East has formed human rights committees at corporate headquarters and each branch office. These committees, as stipulated in our *Basic Policy on Human Rights*, represent an effort to protect and enhance the human rights of all employees.

To be more specific, at our headquarters and branch offices, we conduct human rights training seminars suited to respective occupations such as for new employees, conductors, on-site supervisors, assistant supervisors, etc. We also publish articles on human rights development in our corporate journal, *JR Higashi*, which is delivered for employees and their families. In terms of outside activities, JR East has joined the *Corporate Conference on the Advancement of Human Rights*, a human rights organization devoted to information sharing and mutual advancement that links corporations across the major prefectures.

Corporate internship programs

JR East offers internships to university juniors, first-year graduate students and seniors at technical colleges. We choose candidates interested in JR East's business and technology, those who practical experience in academic fields, or those wishing to test their skills in the real world. In FY 2002, we offered 10-day internships to 60 students concerned with business practices in 12 fields including investor relations, legal affairs, marketing, rolling stock, and electricity. "I was able to work in the field and learn about JR East technology," said one intern. "You can't get this kind of knowledge in the classroom or from textbooks." Although we offer internships in 12 fields, we plan to expand the program to cover 20 fields in FY 2003.

Economic Performance of JR East Group

Operating revenues, profits and net income all hit record highs in consolidated accounting at the end of FY 2002. JR East Group's strengths include the ability to generate a strong cash flow through safe and reliable railway operations coupled with value-added life-style services that make use of its resources. JR East Group will continue to improve profit levels while meeting its responsibilities as a good corporate citizen.

Relationships with stakeholders

Cash flow is directed as appropriate, not only for payments to creditors and dividends to shareholders, but for compensation to employees and directors, tax payments to public agencies, capital investment and R&D expenditures for better services and facilities.

■Relationship with Stakeholders

IR (Investor Relations)

The IR section provides shareholders and investors with accurate information on business results and conditions, our long-term vision and future outlook — all in a timely manner. At JR East, top management is directly responsible for IR and proactively communicating with shareholders and investors.

A special IR section was established when JR East listed its stock on the market in 1993. Since then the IR section has overseen a comprehensive disclosure system aimed at maintaining the confidence of capital markets by not only publicly disclosing legal matters but also releasing accounting details at special seminars, preparing annual reports and other IR tools, disclosing corporate information via our website, and other methods. Moreover, to accommodate our many shareholders abroad, we hold annual briefings for investors in Europe, the United States and elsewhere.

■Financial highlights

Item	Billions of yen		Percent change	Billions of U.S. dollars[1]
	2002	2003	2003/2002	2003
For the year ended March 31				US$
Operating revenue	2,543.3	2,565.6	+0.9%	21.3
Operating income	316.3	343.0	+8.5%	2.8
Net income	47.5	97.9	+106.1%	0.8
EBITDA[2]	655.3	733.7	+12.0%	6.1
At March 31				US$
Total assets	7,022.2	6,853.4	▲2.4%	57.1
Total long-term debt	4,379.8	4,117.5	▲6.0%	34.3
Total shareholders' equity	930.7	981.8	+5.5%	8.1
Ratio				
Net income as a percentage of revenues	1.9%	3.8%		
Return on average equity (ROE)	5.1%	10.2%		
Ratio of operating income to average assets (ROA)	4.4%	4.9%		
Interest coverage ratio[3]	2.4 times	2.5 times		

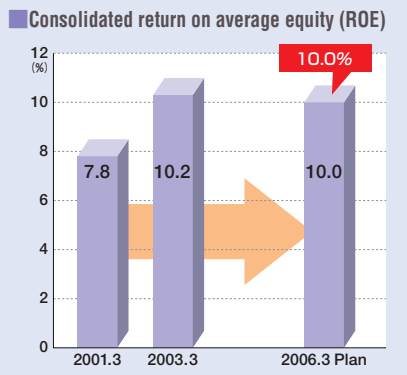
1 **1 U.S.dollar**
Converted into U.S. dollars at rate of ¥120 to U.S. $1
(effective rate at the end of March 2003)

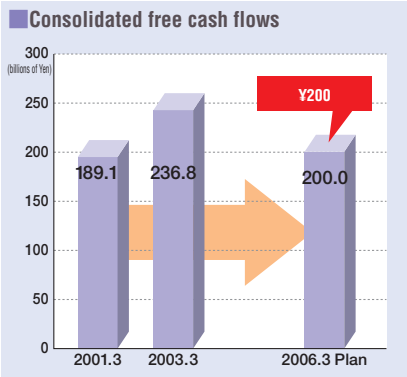
2 **EBITDA**
Net income + interest payable (after deducting interest receivable and dividends)+ corporate income taxes etc. + depreciation

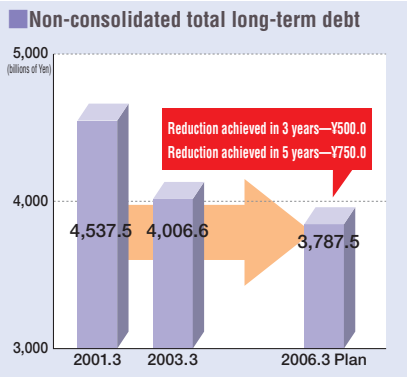
3 **Interest coverage ratio**
Cash flow from operating activities/interest payable

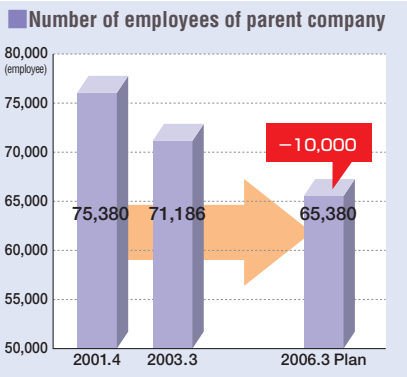
Target figures for New Frontier 21

JR East Group has adopted New Frontier 21, our medium-term group business plan for FY 2001-2005. Working as a group we aim for goals and are preparing to take the next steps. Raising shareholder value is an important goal outlined in New Frontier 21. To accomplish this, we're focusing on maximizing group value and improving consolidated performance.









Corporate bond ratings

The JR East management structure is considered stable by domestic and overseas rating companies.

Moody's (as of July 2003)	→	Aa2
Standard & Poor's (as of July 2003)	→	AA−
Rating and Investment Information, Inc. (as of July 2003)	→	AA+

Evaluation of JR East's social and environmental activities

Thanks to our social and environmental activities, JR East is receiving high marks for SRI (Socially Responsible Investment) by domestic research agencies and institutional investors, as well as by domestic and overseas rating agencies. Since the Dow-Jones Sustainability Indexes (DJSI World)[1] were established in 1999, JR East has been repeatedly identified as a stock conforming to the DJSI World standards. It has also been selected for the FTSE4Good Index[2]. JR East stock appears in the portfolios of various SRI funds[3] and Eco-funds[4].

Donating to NGOs and other organizations

In addition to contributing to society by engaging in activities of our own, JR East Group provides financial support to citizens' groups and others making meaningful social contributions.

Investment for the future

In order to provide better services to current and future customers at home and around the world, we aggressively conduct capital investment and R&D activities and are prepared to transfer our technology to wherever it may be needed.

1 **Dow Jones Sustainability Indexes**
As of June 30. 2003, the Dow Jones (US) and Switzerland's SAM organization have recognized a total of 307 companies in 23 countries (including 37 from Japan) for demonstrating an excellent balance of economic, environmental and perspectives.

2 **FTSE4Good Index**
Britain's FTSE began its SRI index in 2001. The FTSE4Good Index measures a corporation's performance on environmental issues, employment, and labor and human rights, and issues a comprehensive evaluation.

3 **SRI Funds**
Investment trusts that carefully consider the social and ethical aspects of an investment option, in addition to the standard investment criteria based on traditional financial analyses.

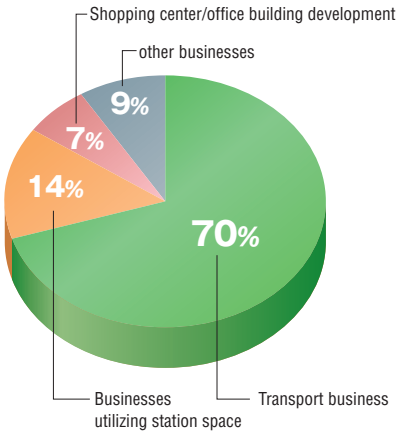
4 **Eco-funds**
Investment trusts that place considerable emphasis on corporate environmental practices and activities when selecting stocks for a portfolio; a type of SRI fund.

Figures pertaining to JR East Group

Economic view of JR East business structure

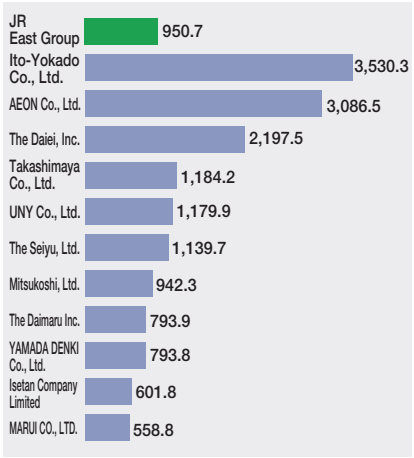
The core focus of JR East Group is on railway business; 70% of consolidated income in FY 2002 came from the transportation sector. The remaining about 30% accounts for revenue earned by lifestyle-related businesses such as shopping centers in station buildings, hotels, retail outlets and so on. Although this sector is smaller than our railway business, the relative scale is larger than in other companies. For instance, our shopping center business is comparable to that of other companies specializing in the field.

Sales of JR East Group (FY 2002)



Sales from shopping center business (FY 2002)

(billions of Japanese Yen)

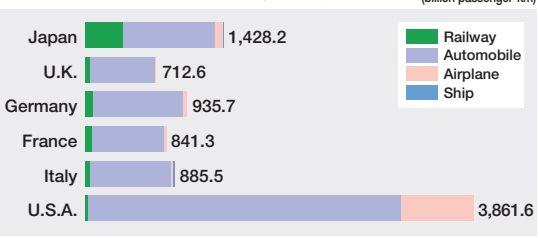


Rail transportation conditions

Economic and geographical factors make Japan greatly dependent on trains, creating a huge demand for railway transportation. JR East is the nation's largest company as well as being one of the world leading firms. Although JR East maintains fewer kilometers of track than many overseas railway companies, distances traveled per customer, revenues from passenger transport, and overall transportation capacity are significant. The number of passengers served per kilometer stands out in particular. These figures indicate that JR East is succeeding to provide effective, economical service by utilizing limited resources efficiently.

Passenger transport share by transport mode

(billion passenger-km)

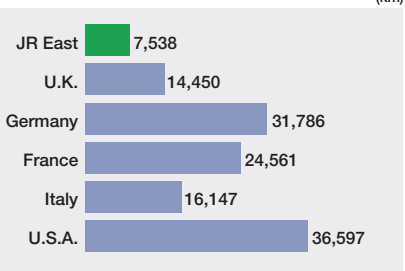


The figures indicated are based on: as of year ended March 2002 for Japan; year ended December 1999 for the U.S.A.; year ended March 2001 for the U.K.; and year ended December 2000 for other countries.

Sources:
Japan: Data issued by Ministry of Land, Infrastructure and Transport
U.K.: Annual Abstract of Statistics, 2002
Germany: Verkehr in Zahlen 2001
France: Ministère de l'Equipement, des Transports et du Logement
Italy: Contro Nazionale dei Transporti Anno
U.S.A.: Railroad Facts 2000 and Statistical Abstract of the United States 2001

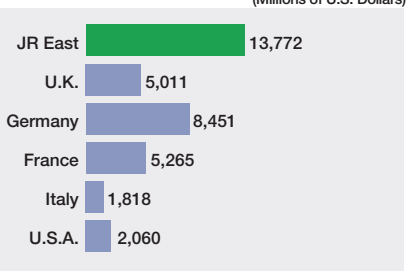
Passenger line network

(km)



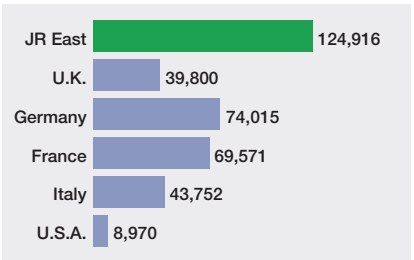
Revenues from passenger transport

(Millions of U.S. Dollars)

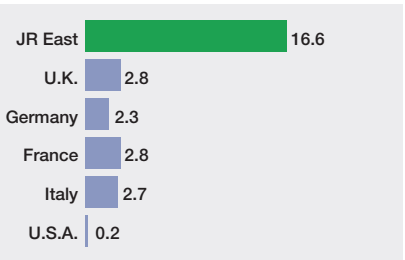


Passenger-kilometers

(Million)

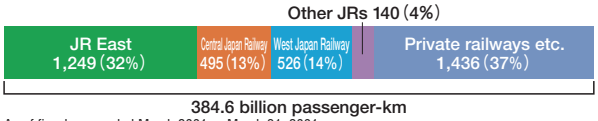


Passenger-kilometers/passenger line network



The figures indicated are based on: as of year ended December 31, 2000 (year ended March 31, 2001 for JR East and the U.K.; and year ended December 31, 1998 for the U.S.A.)
Note 1) U.K.: Passenger Train Operating Company (TOCs) (tracks are owned by Rail Track)
Germany: German Railways
France: French National Railways (SNCF) (tracks are owned by French Rail Network (REF))
Italy: FS SpA
U.S.A.: Amtrak
Note 2) Passenger line network (km) does not include dedicated lines for freight trains (excl. Italy). It is the total length of tracks in service specified to be in use for passenger transportation. The figures are used as bases to calculate traffic volume and fare.
Note 3) Passenger-kilometers is the accumulation of figures obtained through multiplying each passenger by his/her travel distance.
Note 4) US$1=¥122; UK£1=US$1.44; US$1=DM2.20; US$1=F.Fr7.40; US$1=L2,183 (effective conversion rate at the end of March 2001)
Source: "International Railway Statistics" issued by the International Union of Railways

JR East passenger-kilometers in railway operation businesses in Japan



384.6 billion passenger-km

As of fiscal year ended March 2001 or March 31, 2001
Sources: "Statistics of Railways 2000" issued by Ministry of Land, Infrastructure and Transport

JR East passenger-kilometers in railway operation businesses in the Tokyo metropolitan area

169.5 billion passenger-km

Public railways 195 (11%)

Sources: "Annual Report of Urban Transportation" issued by Ministry of Land, Infrastructure and Transport in 2001

Messages from stakeholders

We solicited feedback from stakeholders regarding this report.
JR East Group takes these comments seriously and will incorporate them into future sustainability activities.

Toshihiko Goto

Chair, Environmental Auditing Research Group
Member, Board of Directors of GRI

I found it interesting that editing policy differs between the highlights section and the activity report. The report is geared toward diversified stakeholders; for non-experts, the highlights provide sufficient information. I also liked the Q & A format, because it makes the activity report easy to understand. I suggest the following improvements:

- Although I could grasp nearly the whole picture by comparing with the guidelines, the relationship between certain questions seemed unclear.
- Individual activities are explained clearly, yet it is difficult to see the policy as a whole.

For example, although you claim, "the purpose of railway business is to enrich people's lives," neither mid- nor long-term policies for doing so were explained. Individual items also need more specifics, such as "How and by when the whole group will achieve ISO14001."

Lastly, I hope JR East will put more focus on wind power and other renewable energy sources, as this will make it more competitive with other companies.

Mariko Kawaguchi

Senior Analyst, Management Strategy Research Department
Daiwa Institute of Research Ltd.
Council member of GRI Forum Japan

This report familiarized me with JR East's wide range of activities. Despite the fact JR East is one of Japan's best-known companies, most people are not aware of its overall business approach. Through this report, the company clearly explains the environmental impact of its major business actives, i.e., operating railcars, customer service, and managing station buildings. The report also clearly communicates the company's philosophy on corporate responsibility — such as cooperating with local communities and creating a positive impact on areas near rail lines and stations. The report shows that the company has reduced CO_2 emissions by 16% compared to the FY 1990 level, cut energy consumption per unit of transportation volume about 10%, and improved the environmental management index by nearly 20%. The company has a good record in terms of environmental management.

On the other hand, diversified activities are merely listed, so it is hard to grasp the overall picture. This data needs to be expressed in more interesting way. If the company chooses to focus on its role as a provider of environmentally friendly transportation, it should offer more detailed explanations of energy-saving railcars and the nature of its investment in various "green" technologies, as well as disclose more information on the current status of company-run power plants and renewable energy sources. As for environmental accounting, it may be necessary to break down data or devise formulas to calculate the economic effect on conservation.

Park and Ride is one example. The program should express a long-term plan to someday combine 21st Century transportation services with community businesses, rather than merely use it as an adjunct to traditional rail travel. This will better express JR East's overall vision for the future.

Osamu Hiroi

Professor, The University of Tokyo Institute of Socio-information and Communication Studies

As I'm involved in disaster prevention and environmental research, I have many colleagues in the JR East Group. I had heard about collecting the refuse generated at stations, recycling resources, noise reduction on *Shinkansen* lines, etc., but this report made me realize the company is working on more comprehensive and diversified environmental activities. How to preserve the environment for future generations is a major challenge, and I hope JR East will continue its efforts.

Several years ago, the company organized an accident-prevention committee to deal with the many crossing accidents. As a result of the committee's work, two-stage crossing gates and additional warning devices were installed and the number of such accidents dropped significantly. It is quite rare that countermeasures bring such outstanding results.

In this era of information disclosure, it is timely and appropriate for the company to have established the "Accident History Exhibition Hall," and to keep safety paramount in the minds of all its employees. I expect that further steps will be taken to prevent accidents, to retrofit stations and viaducts, and to avoid chaos at terminals in the event of a major earthquake.

Yoko Akimoto

Steward, Green Consumer Tokyo Net

Whenever I take a JR train, I can actually see the company's environmental activities — such as the new energy-efficient railcars, improved refuse recycling and promotion of intermodal transportation.

How can we reduce the energy consumption necessary for operation while still alleviating passenger congestion? I myself have been confused in front of a ticket machine, spent a long time looking for an elevator on a platform, almost gotten lost not knowing how to switch trains, and experienced frustration that train announcements were so hard to hear.

Although the IT revolution makes life more convenient, it is still very important to properly allocate attentive, helpful station staff. Installing labeled trash bins and designated smoking areas improves passenger manners.

Changing each individual's shopping habits will eventually change society. JR East has made a good start with its in-house green procurement policy, together with selling green products at station stores and by tenants. The company should study the feasibility of completely banning smoking in all facilities and promoting other initiatives to support the stated goal of "harmonizing with society and coexisting with the environment." I also expect JR East will continue to release additional useful information in the future.

Independent Review Report

Asahi & Co

Independent Review Report on "Sustainability Report 2003"

To the Board of Directors of East Japan Railway Company

1. Purpose and Scope of our Review
We have reviewed the "Sustainability Report 2003" (the "Sustainability Report") of East Japan Railway Company (the "Company") for the year ended March 31, 2003. The review consisted of performing certain procedures as described below in relation to the collection, compilation and calculation of the information included in the Sustainability Report. As this is the fourth year of our review, any indicators for years prior to the year ended March 31, 2000 were not subject to these procedures.
Our work does not constitute an audit or examination. We therefore do not express an opinion on the accuracy or completeness of the indicators or databases used to compile the information or the representations made by the Company in the Sustainability Report.

2. Procedures Performed
We have performed the following review procedures agreed to by the Company's management;
1) Obtained the environmental information supporting the environmental performance indicators and the environmental accounting indicators for the purpose of understanding the processes and the procedures of the Company for collecting the data information used to compile the Sustainability Report.
2) With respect to the environmental performance indicators and the environmental accounting indicators in the Sustainability Report, tested mathematical accuracy of the indicators on a sample basis and compared them on a sample basis with the supporting data compiled from the information collected by the Company.
3) With respect to the descriptive information in the Sustainability Report other than the indicators referred to in the above procedures, interviewed the Company's responsible personnel, made on-site inspections, and compared such descriptive information with the data collected by the Company or the data found in certain published materials.

3. Results of the Procedures Performed
As a result of the procedures performed;
1) We are not aware of any material modifications that should be made to the environmental performance indicators, or the environmental accounting indicators in the Sustainability Report in order for them to comply with the Company's policies and procedures for gathering and reporting such information.
2) We are not aware of any material modifications that should be made to the descriptive information other than the indicators in the Sustainability Report to be consistent with the information the Company collected and other information we obtained.

Asahi & Co

Tokyo, Japan
July 24, 2003

The 2003 Sustainability Report discloses the activities and performance of group companies regarding the environmental, social and economic aspects of railway business. This two-part report was useful in communicating JR East's activities to diversified groups of stakeholders. Review by outside parties shows the Company's sincere efforts at transparency. I trust the company will continue to promote sustainability activities while fully using its business strengths. In addition, I hope JR East will further communicate with stakeholders through publications such as the Sustainability Report.

Mitsuru Shibata
Environmental
Management Department
Asahi & Co.

Future perspective

This is our eighth environmental report, and the second one focusing specifically on sustainability issues. In order to introduce the fundamental points as clearly as possible, and to disclose more technical information, we divided this report into two sections: one for highlights, one for details. For the first time we have quantitatively determined the environmental impact of the entire group. As well as promoting the activities to reduce the overall impact, we would like to integrate efforts of each Group company in the process. In addition, we will continue to address environmental, social and economic issues and make full use of the Group's unique business qualities to satisfy our wide range of stakeholders.

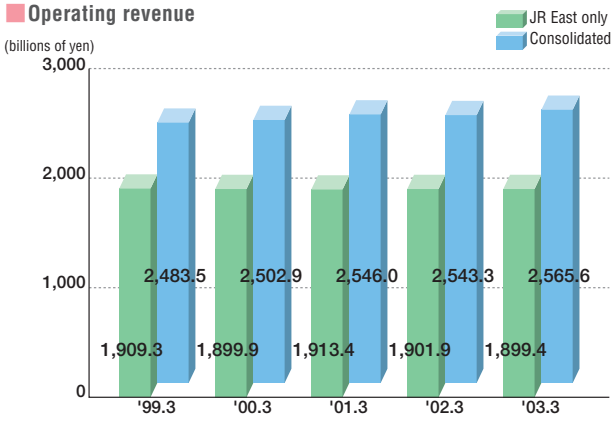
Kazuyuki Kogure,
General Manager
Management
Administration Department

Companies in JR East Group

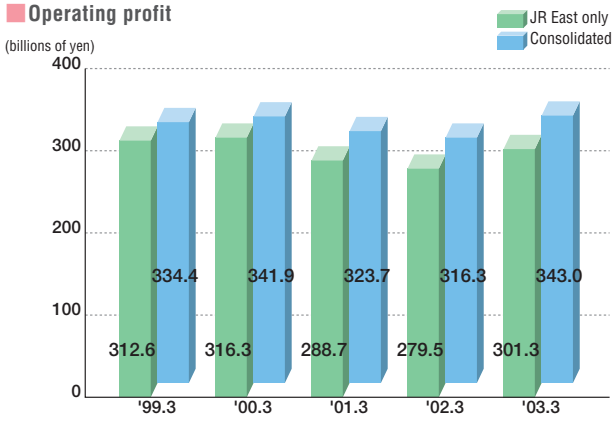
Company outline (as of March 31, 2003)

Corporate name	East Japan Railway Company
Address	2-2, Yoyogi 2-chome, Shibuya-ku, Tokyo, Japan
Established	April 1, 1987
Capital	¥200 billion
Number of employees	71,186
Passenger line network	*Shinkansen* lines: 1,052.9 km Conventional lines: 6,473.9 km
Number of stations	1,695
Daily number of train runs	12,494 (based on the timetable in December 2002)
Average daily number of passengers	16.03 million
Business description	Transport business, businesses utilizing station space, shopping center/office services, and other businesses

Operating revenue



Operating profit



Companies in JR East Group (as of August 2003)

Transportation services

"Safety first" is our top priority. We strive to offer faster, more convenient and more comfortable transportation services.

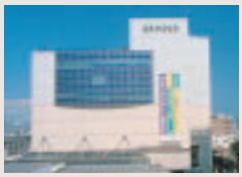
JR Bus Kanto Co., Ltd. /JR Bus Tohoku Co., Ltd. /Tokyo Monorail Co., Ltd.

Hotel operation

We operate hotels, from budget to luxury, and accommodations for long-stay guests for catering to customers' needs.

Nippon Hotel Co., Ltd. /Hotel Edmont Co., Ltd. /Ikebukuro Terminal Building Co., Ltd. /Takasaki Terminal Building Co., Ltd. /Sendai Terminal Building Co., Ltd. /Yamagata Terminal Building Co., Ltd. /Morioka Terminal Building Co., Ltd. /Akita Terminal Building Co., Ltd. /Hotel Metropolitan Nagano Co., Ltd.

Station buildings and shopping centers



We develop and manage station buildings and shopping centers utilizing the convenient features and assets at stations and vicinity.

Tetsudo Kaikan Co., Ltd. /Omori Primo Co., Ltd. /Kamata Station Building Co., Ltd. /Meguro Station Building Co., Ltd. /The EKIBIRU Development Co. TOKYO / LUMINE Co., Ltd. /Shinjuku Station Building Co., Ltd. /Akihabara Co., Ltd. /Boxhill Co., Ltd. /Kawasaki Station Building Co., Ltd. /Tsurumi Station Building Co., Ltd. /Yokohama Station Building Co., Ltd. /Lumine Chigasaki Co., Ltd. /Hiratsuka Station Building Co., Ltd. /Abonde Co., Ltd. /Kichijoji Lonlon Co., Ltd. /Kokubunji Terminal Building Co., Ltd. /JR East Department Store Co., Ltd. /Hachioji Terminal Building Co., Ltd. /Kofu Station Building Co., Ltd. /Oyama Station Development Co., Ltd. /Utsunomiya Station Development Co., Ltd. /Kumagaya Station Development Co., Ltd. /Mito Station Development Co., Ltd. /Iwaki Chuo Station Building Co., Ltd. /Kinshicho Station Building Co., Ltd. /Kameido Station Building Co., Ltd. /Chiba Station Building Co., Ltd. /Koriyama Station Building Co., Ltd. /Aomori Station Development Co., Ltd. /Hirosaki Station Building Co., Ltd. /Akita Station Department Store Co., Ltd. /Echigo Station Development Co., Ltd. /Station Building MIDORI Co., Ltd.

■Retail shops and food services

Our shops and restaurants will offer customers more convenient and pleasurable experiences at stations and vicinity.

East Japan Kiosk Co., Ltd./Nippon Restaurant Enterprise Co., Ltd./JR East Food Business Co., Ltd.

■Information, finance and personnel services

We provide comprehensive information services for the JR East Group companies.

JR East Japan Information Systems Company/JR East Netstation Company /JR East Management Service Co., Ltd./JR East Personnel Services Co., Ltd.

■Trading and logistics

We play an important role in providing material procurement, delivery and other services to facilitate business activities of JR East Group companies.

East Japan Railway Trading Co., Ltd./JR East Japan Logistics Co., Ltd./JR East Logistics Platform Co., Ltd.

■Advertising and publishing

We send out messages through in-train, station advertising, etc.

East Japan Marketing & Communications, Inc. /Tokyo Media Services Co., Ltd./The Orangepage, Inc.

■Travel agents and rent-a-car

We offer travel goods, rent-a-car and other services to respond to travelers' needs.

View World Co., Ltd./JR East Rental Co., Ltd.

■Cleaning services

We provide maintenance and cleaning services at stations and in trains to offer customers "clean travel."

Shinkansen Cleaning Service Co., Ltd./Kanto Railway Servicing Co., Ltd./East Japan Railway Servicing Co., Ltd./East Japan Eco Access Co., Ltd./Takasaki Railway Servicing Co., Ltd./Mito Railway Servicing Co., Ltd./Chiba Railway Servicing Co., Ltd./JR Technoservice Sendai Co., Ltd./East Japan Amenitec Co., Ltd./Akita Clean Servicing Co., Ltd./Niigata Railway Servicing Co., Ltd./Nagano Railway Servicing Co., Ltd.

■Sports and leisure businesses

Our leisure facilities and sports clubs help customers lead healthy life and enjoy time off.

JR East Sports Co., Ltd./Gala Yuzawa Co., Ltd.

■Real estate management

We develop and manage detached houses, apartment complexes and stores under the theme of "creating people and environmentally friendly housing."

JR East Urban Development Corporation/JR East Housing Development & Realty Co., Ltd.

■Construction consulting and maintenance services

We provide consulting and maintenance services for railway facilities, machine equipment and facilities to enhance amenities.

JR East Consultants Company /JR East Design Corporation/JR East Facility Management Co., Ltd. /JR East Mechatronics Co., Ltd./Union Construction Co., Ltd. /East Japan Transport Technology Co., Ltd./Tohoku Kotsu Kikai Co., Ltd./Niigata Rolling Stock Machinery Co., Ltd.

■Group companies under branch offices

We develop unique businesses according to the character of each region.

JR Tokyo Planning & Development Co., Ltd./JR Kanagawa Planning & Development Co., Ltd./JR Kaiji Planning & Development Co., Ltd./JR Utsunomiya Planning & Development Co., Ltd./JR Takasaki Trading Co., Ltd./Mito Service Development Co., Ltd./Keiyo Planning & Development Co., Ltd./Tohoku Sogo Service Co., Ltd./Juster Co., Ltd./JR Atlis Co., Ltd. /Tokky Co., Ltd./Shinano Enterprise Co., Ltd.

History of JR East Group's Environmental and Social Activities

Year	Month	History of JR East Group's Environmental and Social Activities
1987	April	Japanese National Railways divided, East Japan Railway Company begins. First Railway Safety Promotion Committee meeting.
	June	"Green Campaign" begins. Green Counter opened for receiving customer opinions.
1988	September	"Challenge Safety Campaign" conducted throughout the company.
1989	April	Establishing the Safety Research Laboratory and General Education Center.
	May	ATS-P, a train-protection system with improved safety introduced between Ueno and Ogu on the *Tohoku* Line
1990	September	"First Railway Safety Symposium" held
	October	Management plan for the 21st century "Future 21," released. "Lady's Car," for female passengers only, introduced on sleeping cars
1992	March	East Japan Railway Culture Foundation established
	April	Committee on Ecology established
	May	Commemorative tree planting conducted for the 5th anniversary of JR East (becomes annual event as the "forestation along railway lines" program)
	August	Trial collection of garbage separated into three categories at Sugamo Station on the *Yamanote* Line
1993	March	"All day non-smoking" extended to major stations in Tokyo suburban area
1994	February	Ueno Station Recycling Center starts operation (automated sorting of cans/bins) Separated garbage collection starts at 36 stations on the *Yamanote* Line
	March	"Basic Safety Plan" announced
1995	February	Recycling of used train tickets starts in the Tokyo metropolitan area
	March	First antinoise measures initiative for the *Shinkansen* lines completed
	April	Ecology education for all new recruits starts. "Torenta-kun" discount rent-a-car services for Park & Ride launched
1996	March	JR East website set up
	March	Quantitative environmental targets such as CO_2 emissions set
	March	"Annual Environmental Report" published
	December	Autonomous Decentralized Transport Operation / Control System (ATOS) starts operation
1997	March	Recycling facility at Minami Akita Operations Center starts operation. Separate smoking area set at all stations. Smoking banned on all local trains.
	October	Recycling facility starts operation at *Nagano Shinkansen* Rolling Stock Center and Tokyo station
	December	Jointly participates in COP3 with the UIC
1998	March	Second antinoise measures initiative for the *Shinkansen* lines completed
	November	Shinkiba Recycling Center starts operation (collection and sorting of used newspapers and magazines)
	November	Ranks 27th among the "most respectable enterprises in the world" by Financial Times
1999	February	"Safety Plan 21" announced. Niitsu Rolling Stock Manufacturing Factory acquired ISO14001 certification
	March	Omiya Recycling Center starts operation (automated sorting of cans/bins)
	April	Service Managers introduced to some stations
	May	Starts using copier paper recycled from newspapers collected at stations
	September	Starts delivering train operation information by character information service for cell phones
2000	April	"JR East General Education Center" opens
	April	Recycled uniforms made of used PET bottles introduced. "Eki Net," an integrated travel website, opens
	September	Environmental accounting disclosed in the "Annual Environmental Report"
	November	Environmental targets revised in line with the announced "New Frontier 21," the Group's medium term business plan
2001	March	Oi Workshop, Kawasaki Thermoelectric Power Plant, and Niigata Mechanical Technology Center acquired ISO14001 certification
	July	Trial operation of "Ladies Only cars," for female passengers, on the *Saikyo* Line
	September	Announced in-station wireless Internet connectivity testing
	December	Established JR East Research & Development Center
2002	February	Started test runs of the AC Train, a next-generation commuter train
	March	Omiya Workshop acquired ISO14001 certification
	April	Digital ATC introduced on the *Yamanote* Line
	September	Published Sustainability Report, which includes social and economic issues in environmental report format
	November	Sendai General Rolling Stock Workshop acquired ISO14001 certification
2003	January	Published the illustrated booklet Mr. Polar Bear Takes the Train
	March	Distributed the Guide to Barrier-Free Station Facilities
	April	Started test runs of the NE Train, the world's first hybrid railcar

Afterword

We held editing sessions for people from relevant departments to discuss the content of this report. Through our efforts to clarify the interrelationship between JR East Group and a sustainable society, and to communicate this as simply as possible in the report, we realized the difficulty of our challenge. We will continue to strive for unique and effective presentation in future reports.

Sustainability Report 2003

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eco-train

<Cover message>
Children are our future. What kind of society do we envision for them?
What is truly important for the earth and for us?
Consider the pure heartedness of children. What kind of society do they hope for?
What roles do adults play in such a society?
JR East Group is enthusiastically pursuing its responsibility
to create a sustainable society where the people of today,
and those of future generations, can live rich, fulfilling lives.

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