Aiming for a Sustainable Society

## JR East Group Sustainability Report 2007

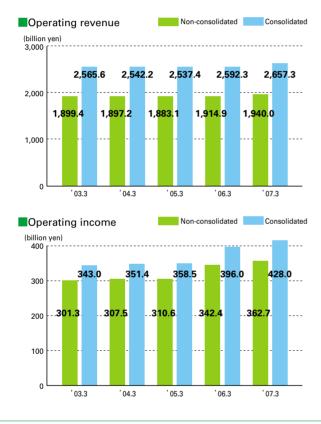




#### JR East Group profile

#### Corporate profile (as of March 31, 2007)

Corporate name	East Japan Railway Company
Address	2-2, Yoyogi 2-chome, Shibuya-ku,
	Tokyo, Japan
Established	April 1, 1987
Capital	200 billion yen
Number of employees	63,140 (as of April 1, 2007)
Passenger line network	Shinkansen lines/1,052.9km Conventional lines/6,473.9km
Number of stations	1,702
Total number of trains in operation per day	12,671 (timetable revised in March 2007)
Total number of passen- gers per day	16.41 million
Business areas	Transportation, station space opera- tion, shopping center and office build- ing operation, and other services



#### Businesses of the JR East Group (as of July 2007)

**Transportation services** 

tation services

## R



#### Shopping center operations

We develop and manage shopping centers, fully utilizing the outstanding customer flow in and around stations.

Safety is our top priority, and we work constantly to enhance the speed, convenience, and comfort of transpor-

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

Tetsudo Kaikan Co., Ltd. / The EKIBIRU Development Co. Tokyo / LUMINE Co., Ltd. / Ikebukuro Terminal Building Co.,Ltd. / Boxhill Co., Ltd. / Kawsaki Station Building Co., Ltd. / Tsurumi Station Building Co., Ltd. / Yokohama Station Building Co., Ltd. /SHONAN STATION BUILDING Co., Ltd. / JR East Department Store Co.,Ltd. / JR Tokyo-West EKIBIRU Development Co. / Utsunomiya Station Development Co.,Ltd. / Mito Station Development Co., Ltd. / Iwaki Chuo Station Building Co., Ltd. / Hirosaki Station Building Co., Ltd. / Station Building Co., Ltd. / Hirosaki Station Building Co., Ltd. / Station Building MIDORI Co., Ltd.



#### Office operations

We operate offices, utilizing the convenience of direct connections to stations. We are also preparing for the new building project near Tokyo Station. JR East Building Co., Ltd.



#### Hotel operations

We operate various types of hotels to meet different customer needs.

Nippon Hotel Co., Ltd. / Takasaki Terminal Building Co., Ltd. / Sendai Terminal Building Co., Ltd. / Morioka Terminal Building Co., Ltd. / Akita Station Building Co., Ltd. / Hotel Metropolitan Nagano Co., Ltd.

#### Retail shop and restaurant businesses



We run shops and restaurants with the aim of offering more convenience and pleasure, both in and near stations, to our customers.

JR East Retail Net Co., Ltd. / Nippon Restaurant Enterprise Co., Ltd. / JR East Food Business Co., Ltd. / Delicious Link Co., Ltd. / JR East Station Retailing Co., Ltd. / JR East Water Business Co., Ltd.

#### Trading and logistics businesses

We play important roles in procuring and delivering materials to facilitate business activities of other Group companies.

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

#### Travel agent and car rental services

We offer travel packages and car rental services to meet travelers' needs.

JR East View Travel Service Co., Ltd. / JR East Rental Co., Ltd.

#### **Editorial Policy**

The JR East Group publishes this Sustainability Report 2007 to provide information on our environmental and social initiatives in an accurate and easy-tounderstand manner. This report details the attitude and approach of the JR East Group to its social responsibilities in terms of "safety", "service" and "environment", JR East's Three Perspectives, in the first half. Also covered in the Special Topic are JR East's current important issues and its environmental activities.

In the second half, social and environment protection activities are summarized for each subject and year-by-year comparisons are presented.

In editing, we made efforts to specifically describe the activities that are conducted in the workplace today, by introducing comments of employees on the social and environmental activities that are part of their front-line work.

Where we have made significant advances, we tried to provide our readers with an overall understanding of Group activities by highlighting them in the Columns.



#### Sports and leisure businesses

We operate sports clubs and leisure facilities to support the healthy lives and leisure of our customers. JR East Sports Co., Ltd. / Gala Yuzawa Co., Ltd.



#### **Real estate management**

In ways that are closely tied to the railway business, we develop and manage houses, apartment buildings, and stores along JR East railway lines as part of our overall development plan.

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



#### Information, financial, and personnel services We provide comprehensive information services for other Group companies.

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



#### Advertising and publishing

We provide information through in-train and station media. East Japan Marketing & Communications, Inc. / Tokyo Media Services Co.,Ltd. / The Orangepage, Inc.



#### **Cleaning and linen supply services**

We provide maintenance and cleaning services at stations and in trains for travelers.

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. / Shinnihon Linen Co., Ltd.



#### Construction consulting and maintenance services We provide consulting and maintenance services for railway facilities, equipment, and facilities in the lifestyle business

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 Technolo gy Co., Ltd. / Tohoku Kotsu Kikai Co., Ltd. / Niigata Rolling Stock Machinery Co., Ltd.



#### Group companies of our branch offices

We develop businesses that meet the needs of individual regions. 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

References	Sustainability Reporting Guidelines (2002 edition), Global Reporting Initiative <sup>*1</sup> Environmental Reporting Guidelines (2003 edition), Japan Min- istry of the Environment	
Reporting period	This report basically covers our activities in fiscal 2006 (from April 1, 2006 to March 31, 2007), although some activities presented here are those before fiscal 2006 or in the period between the end of fiscal 2006 and September 2007, the time of the publication of this report.	
Scope of reporting	This report covers activities of East Japan Railway Company and 85 Group companies <sup>12</sup>	
*1 GRI (Global Report The Global Reporting Initia	ing Initiative) tive (GRI) is an international organiza-	*2 East Japan Railway Compa- ny and 85 Group companies

The Global Reporting Initiative (GRI) is an international organization that issues the "Sustainability Reporting Guidelines," globally-recognized guidelines for reporting on the environmental, social and economic aspects of corporate activities.

The United Nations Environmental Programme (UNEP) was one of the key players in the establishment of the GRI

[Cover]

Today, when global warming has become a challenge for society, how can we hand over the one and only earth to the next generation? We, the JR East Group, will continue to work on safe and comfortable transportation, establishment of a seamless society, and environmental conservation toward a sustainable society, and to actively fulfill our responsibilities

This figure is as of the end of fis-

cal 2006. The number of our Group companies was reduced to

82 in April 2007 by business com-

binations

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The JR East Group aims to become a corporate group trusted by all stakeholders through the provision of a variety of services, with stations and railways as our core businesses.



Safe and

all Shinkansen introduce new able and environ-

The JR East Group aims to provide the highest quality and most advanced services centered around stations and railways - services that give customers a sense of safety and security, services which customers can enjoy with convenience and a sense of affluence, services that respond to current needs of society. As a trusted Lifestyle Service Creating Group, the JR East Group aims to strike a balance between fulfilling its social responsibilities and generating profits, while maintaining close relationships

with all its stakeholders.

Shareholders and creditors





### Pleasurable travel

JH East Group supports town revitalization through tourism, makes proposals for ecotourism and for travel on local lines in order to increase the attraction of railway travel, and cooperates with local transport operators to increase mobility.

Employees and their families

### Busi

JR East knowtured in services



#### Customers



comfortable travel

will promote the introduction of friendly hybrid railcars, designate railcars as non-smoking cars, and railcars which are safe, comfortmentally friendly.



#### **Everyday convenience**

JR East Group is striving to further improve the convenience of Suica, the IC card which seamlessly connects most parts of the Tokyo metropolitan area transport network, and to expand the card's usability, through the development of businesses inside stations, shopping center businesses and publishing.

### Local communities

## Support for life and health

JR East Group provides station nursery school and nursing care facilities that respond to the demands of the aging society and the declining birth rate. The Group is also involved in the sports and leisure businesses.





#### ness support

Group provides its unique how and experience nurthe railway and lifestyle businesses to support other

### **Creating new cities**

In East Group is involved in the construction and operation of shopping centers, hotels, condominiums and housing developments, including the large-scale redevelopment of Tokyo Station. **Business partners** 

NPOs & NGOs

**Public sector** 



# JR East is committed to a continued advance toward the realization of safety, security and comfort.

Our goal is to take our traditional stance of safety an important step further; in other words, to make our customers feel secure by introducing ever higher levels of safety.

Safety is the key to our continued growth as a trusted Lifestyle Service Creating Group. In particular, railways are almost as important to everyday life as the very air we breathe, and safe, punctual services are taken for granted. At JR East, we believe that the provision of such taken-for-granted services and our ability to allow our customers to use them without any worry is our social responsibility.

Shortly after JR East was established, we launched the "Challenge Safety Campaign" aimed at creating a corporate culture where each and every employee would independently address safety issues. We also strived for the utmost levels of human safety by shifting more than 40% of our capital investment to safety measures. As a result, railway accidents decreased dramatically and the company's safety level is increasing steadily. However, in



December 2005, an accident on the Uetsu Line claimed the lives of five of our passengers and injured a further 31. The cause of the accident is currently being investigated by the Aircraft and Railway Accidents Investigation Commission of the Ministry of Land, Infrastructure and Transport, but JR East also needs to ascertain the cause, take countermeasures and make it a lesson for the future. Regarding the strength of the wind, which has been cited as a potential factor in the accident, we have already taken such measures as increasing the number of anemometers and installing windbreak fences. After further discussion, we intend to implement even more measures.

We can never achieve 100% perfect safety, but we must remember that from the moment people think there is no problem, they relax, and, thereby risk the occurrence of a serious accident. We must, therefore, constantly strive for perfection. All JR East employees are strongly aware that they have human lives in their hands, so they share information and cooperate with each other toward the goal of total safety. When we say "employees" JR East means not only station staff and train crew members who come into direct contact with customers, but also support staff; for example, those working on the repair and maintenance of tracks and overhead line equipment during the night. Having the organization as a whole work to achieve the highest possible target is the only certain path to the levels of safety we are aiming for. As a manager, I believe I have to maintain the widest possible communications channel.

## Making stations that are the hearts of their communities and railways that are user-friendly

We are continually striving to ensure that stations used daily by our stakeholders become even more convenient and comfortable.

We are currently operating 18 station nursery schools that are useful for double-income households with small children. In cooperation with local governments and other companies, we intend to continue expanding the number of such facilities.

We also are steadily making our stations barrier-free, and plan to install elevators and escalators in a further 500 stations by fiscal 2010.

Furthermore, we would feel we had done a satisfactory job if, through creating places of relaxation in stations and expanding the number and diversity of dining and shopping opportunities, we



make stations the hearts of their communities and thereby encourage people who did not formerly use railways to visit our facilities.

The interchangeable use of Suica and the new PASMO IC card issued by other railway and bus operators in the Tokyo metropolitan area has brought about a more seamless transport system and clearly is showing positive effects toward the revitalization of stations and railways. With either Suica or PASMO, passengers have access to almost all transport facilities in the Tokyo metropolitan area. This enables everyone, including senior citizens and children, to use the network without having to buy individual tickets, eliminating a psychological barrier to travel.

Furthermore, by making more effective use of existing facilities, such as the through operations between the Tokaido and Yokosuka lines and the Takasaki and Utsunomiya lines via the Shonan-Shinjuku Line, and by the through services between JR East and other railways, we aim to provide convenient and comfortable transport with a minimum of train transfers.

JR East is making these efforts with an awareness that the creation of passenger-friendly railway services will ultimately lead to a full demonstration of the advantages of railways as a transportation system that is energy-efficient and environmentally-friendly. This will encourage reductions in environmental impact by society as a whole.

## Consistent efforts to pass on to the next generation

Sometimes we are accused of not being innovative. It may appear like that on the surface, but the truth is very different. Many of our projects are long term and take many years to come to fruition. For short term viewers, it may seem that nothing is happening, but if they were to look back on the railways and stations of today 10 years later, they would be amazed at the levels of development. Many of our development projects are of this kind.

A good example of this type of development is Suica. In the beginning it was only seen as a facet of the renewal of automatic ticket gates, and very few could have expected it to develop into what it is today. However, looking back now, November 2001 when Suica was launched was a pivotal moment.

In the same way, the world's first diesel hybrid railcar, which made their debut on the Koumi Line this July, entered service only after years of research and development directed toward reducing

our environmental impact. We are now carrying out research and development on a "dream railcar" that will be powered only by fuel cells. There are, of course, massive hurdles we have to get over before its commercialization, but we will continue with its development until we make the dream come true. JR East can be compared to a tree; from the short-term perspective changes are almost imperceptible, but in the long term it changes the world significantly.

In regard to decreasing our carbon footprint, we are doing even more than introducing railcars that can run on 50% of the energy necessary for previous models, and developing the hybrid railcars mentioned above. We are also striving to reduce our environmental impact at a very human level. Under the title JR East Eco Activities, employees are asked to consider what they individually can do in their own workplaces to reduce environmental impact, and then to take the necessary steps. Here also changes will occur over a number of years with, we hope, workplaces becoming more enjoyable places with heightened levels of environmental awareness.

We will also focus on the regeneration of railway trees. Our predecessors planted and protected many railway trees with the objective of securing safe and stable operation of trains by protecting railways from snowstorms and strong winds. There are many railway trees that are no longer actually needed just for disaster prevention because their surroundings have changed greatly since they were planted, but we will continue to reevaluate these railway trees as contributors to the preservation of the environment and we will work toward their regeneration.

The JR East Group hopes to continue to be a corporate group with a social conscience that cooperates with community residents and works toward the realization of a sense of safety, security and comfort. To that end also, we will constantly take steady steps while, at the same time, cherishing the passion and teamwork of all our employees.

Satoshi Seino President and CEO East Japan Railway Company

Satoshi Seino





#### Toward the utmost level of safety

With the specific target of reducing accidents causing fatalities and injuries to zero, we aim for the highest possible level of safety through the partnership of our employees, safety equipment and rules.

Every year more than 40% of our total investment is allocated to safety investment and we have striven to achieve a culture that pursues safety. As a result, the number of railway accidents has been reduced to 1/4 the number at the time of our establishment

Perfection, however, is not possible, but we must never fail to be fully aware of potential dangers. This is why we aim for "the utmost level of safety" rather than "absolute safety."

#### **Three-pronged approach**

We believe we have to take on safety issues in a three-pronged approach. First is the pursuit of safety by equipment and systems. As long as machines and systems are operated by people, there can be no perfection even if we strive diligently for accuracy. Thus, in areas involving the core of safety, where mistakes cannot be permitted, such devices as Automatic Train Control (ATC) and Automatic Train Stop (ATS) have been introduced. Furthermore, we have incorporated a "fail safe" concept, which, as much as possible, is designed to cause trains to stop or make them operate in safety mode if a problem or incident occurs.

Second is organization and rule making designed to eliminate

#### JR East's [Safety] Taking safety an important step further Perspectives



the potential for mistakes. Rules are simplified as much as possible and all employees try to strictly abide by them. Even so, if an unexpected contingency occurs, the impact is kept to a minimum by clarifying the priority order that "safety takes precedence over everything." At the same time, measures are taken to provide normal transport services to customers by restoring services at the earliest possible time while fully taking into account all aspects of safety.

It is important to construct a system where everyone shares information in order to "nip accidents in the bud" before actual incidents occur. We have worked steadily to nip accidents in the bud through the Challenge Safety Campaign in all workplaces with the objective of creating a culture of safety enhancement.

#### What we learn from accidents

Third is the development of human resources. We at JR East believe that fostering employees through education and work is the greatest of all possible safety measures. In order to enable employees to learn from past accidents and internalize the lessons learned, we established the Accident History Exhibition Hall in October 2002. During visits, employees can understand that current facilities and rules to ensure safety were established based on past accidents and reflections. They can also hold discussions concerning past, present and future rules and regulations.

Railway operators have a responsibility to constantly work toward the improvement of safety. At JR East, the entire company is committed to strive for the utmost level of safety and aims for continued evolution of our safety DNA.

Three

Drill using training tracks of JR East Research & Development Center





Challenge Safety Campaign during which discussions on safety were conducted in each workplace and accidents "nipped in the bud"

#### Aiming for a trusted JR East - Our initiatives



From my seniors to myself, and then to my juniors. I want to pass on the "safety DNA."

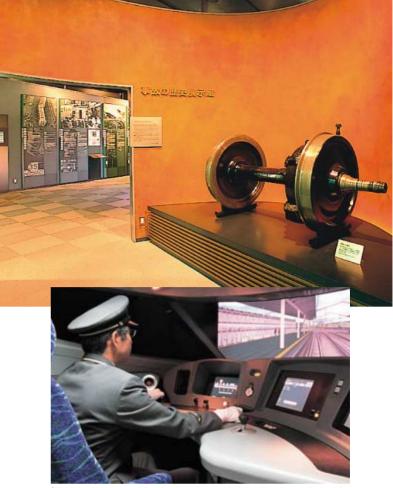
Kazuma Daikou Train Driver Morioka Transportation Depot

I always have both ordinary situations and emergency situations in mind.

In normal times, I confirm things accurately and without hurry. In addition to consciously confirming by pointing my fingers and vocalizing, I try to stick to the basic movements that my senior operators built up.

On the other hand, in times of trouble, the safety and security of customers take precedence. I try to think by myself and act by focusing on what is best to be done, such as transmitting the on-site situation to the transport dispatchers and proposing countermeasures.

In all cases, it is not an individual that protects the safety of customers. From my seniors to myself, and on to my juniors, we must ensure that know-how is transmitted. To that end also, I am making efforts to learn from the experiences of my seniors and supervisors through drills, etc. and improve my ability to make judgments as well as to value an atmosphere where people can talk about their experiences of failure and, actively participate in the Challenge Safety Campaign.



Shinkansen operator training simulator that conducts accident prevention training



Know the background of the rules and understand their essence

Koji Sakuma Chief facilities engineer Sendai Track Maintenance Technology Center

Track maintenance operators who maintain and manage tracks bear the heavy responsibility of having customers' lives in their hands. To maintain this awareness in each and every person and translate it to actual action, there are three things that we do.

First, we abide by rules. Each rule has a clear basis and there are many regulations that were created after learning the lessons of past accidents. As part of an effort to understand such backgrounds and the essence of rules, we prepare educational pamphlets and distribute them to people working near railway tracks, to call for continued safety.

Second, we share information. We regularly hold meetings with the participation of all staff members and discuss accidents experienced and near misses that have occurred. There are many things we come to notice through this process of discussing and thinking about things together.

Third, we conduct training. Assuming daily problems and large-scale earthquakes, we conduct simulation drills on a routine basis so as to enhance customer safety and restore service promptly in both cases.

#### Putting customer comments into shape

In our Medium-term Management Plan New Frontier 2008, we stated that we see "challenging ourselves to meet customer expectations" as the basic tenet of our management. We are building a database to be shared among all our employees as a means to construct a system that can promptly respond to customer concerns. The database consists of customer comments gathered both directly and indirectly through our 19 customer help desks, at stations, via the Internet, and in all sections of work.

Furthermore, to help us read between the lines and understand exactly what customers may be referring to obliquely, we have started a program to collect information on things we "noticed" regarding safety and service level improvements in our rolling stock and manufacturing divisions in addition to the service division, and connect them to specific actions.

#### Beyond the manual

There is no better test of our ability to provide services than during times of emergency. In order to ensure prompt provision of operational information, early restoration of train schedules and cooperation with alternative transportation systems, we will share our responses as "organization knowledge" by preparing manuals and updating them daily. However, what we are truly aiming at is an accurate and detailed service that goes beyond mere manuals. The real issue is to elevate each customer's sense of security and satisfaction.

To that end, all employees strive to heighten their awareness and act accordingly while advancing service improvements through teamwork founded on the power of each individual.

#### **Pursuing satisfaction**

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The Customer Service Department was established in July 2005 as a cross-organizational section to enhance services that go beyond the manual.

In this department, the comments database is analyzed and feedback is given to all other departments. Customer Service Department also conducts independent customer satisfaction surveys, anticipates customer needs and works on employee awareness reform. What we aim for is the creation of a corporate culture of "being happy by making customers smile."

JR East is promoting many different measures from both the human and physical aspects, including the introduction of womenonly railcars, the banning of smoking on trains, the encouragement of service assistant qualification acquisition, the provision of information in times of emergency using displays, and the publication of a corporate newsletter Smile that promotes service improvement efforts by introducing best practices.

JR East's Three Perspectives 2

## <sup>[Service]</sup> It is our happiness to make customers smile





Easy-to-read information display



Universal design, barrier-free railcar

#### Aiming for a trusted JR East - Our initiatives



A customer's thank you brings satisfaction

Ai Tsuchiya Senior Passenger Station Clerk Tokyo Station

All kinds of customers use the ticket office. There are those not used to traveling, business people in a hurry, foreign tourists, etc. I attend to them by placing myself in their place and asking myself what they are troubled with.

When I was a new recruit, I once helped a customer with a large bag to secure an extra seat to put it on. Later I received a thank you letter, and that "thank you" made me extremely happy.

Although the time I spend with each customer is very, very short, I try to attend each individual with a smile, wishing them a safe journey as sincerely as possible. This is because in the station we are the representatives of the company.

In the future, I would like to become a good model for junior employees, and work on upgrading the service quality of Tokyo Station as a whole.

Corporate newsletter Smile that introduces advanced initiatives

Poster announcing total non-smoking trains



3月18日(日)より

べて禁煙に、

JR東日本の新幹線・特急列車は、



Look at things from the customer's viewpoint in morning rush hour commuter trains

Syuku Saitou Rolling Stock Engineer Toyota Electric Railcar Depot

I am in charge of inspecting and repairing the E233 series trains which are now being increasingly introduced on the Chuo and other lines with the aim of providing more comfort and security. The question I often have to consider is how to prevent trouble and not inconvenience our customers. With this in mind, I am working to establish inspection methods and an advanced trouble survey. In addition, every day I pay close attention to all details of railcar conditions during the morning commuting hours.

In addition to customer comments, we can discover many points of improvement for railcars that are our products by looking at things from the customer's perspective and carefully listening to comments of family and friends. Based on these discoveries, I am working to improve the quality of our services.

Although we do not directly have contact with customers, we take notes of such points and report them regularly.

Cooperation with other departments and sections is also needed. For example, we may obtain information from train crews and through the improvement of couplers, we can work on the improvement of riding comfort in all railcars.



JR East's Three Perspectives **3** 

## [Environment] Responsibility for global environmental issues

#### Two approaches toward ecological preservation

The Intergovernmental Panel on Climate Change (IPCC) 4th Assessment Report published in 2007 concluded that one cause of global warming was human activity. The report stated that greenhouse gas emissions must be reduced by between 50% and 85% by 2050 if we are to avoid serious ecological problems.

We must remember that railways are already highly energy-efficient modes of transportation with low environmental impact. But JR East, with its daily passenger load of 16 million, uses a vast amount of energy (equivalent to the electricity consumed by 1.45 million ordinary households), and the volume of waste generated at stations and on trains is huge that it is about the same volume as would be produced by 110,000 people.

Against this background, JR East is carrying out environmental preservation activities from two approaches: the establishment of a railway system with lower environmental impact, and the development of an easier-to-use railway system. Activities under the first approach include introduction and promotion of energy saving railcars which will reduce our railcar-driving energy consumption, which currently accounts for 70% of the company's total energy consumption; establishment of waste recycling routes; and JR East Eco Activities, in which the company's 2,000 workplaces work on environmental impact reduction initiatives that are closely related to their tasks and the workplace environment.

Regarding the second approach, for example, we have been promoting the use of park & ride and rent-a-car services in order to utilize the environmental advantages of railways and contribute to the environmental impact reduction of the overall transportation system. Furthermore, to increase the convenience of railways themselves, we are working toward seamless railway usage, in ways such as establishing Shonan-Shinjuku Line service and introducing Suica cards.

#### Research and Development Contributing to Environmental Preservation

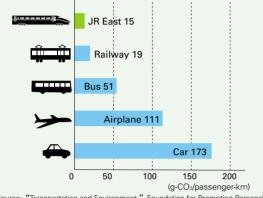
In July 2007, the world's first diesel hybrid railcar, the fruit of JR East's research and development, was introduced on the Koumi Line. Compared to traditional diesel railcars for non-electrified sections, the hybrid railcar can save approximately 20% of energy\* and realizes approximately a 60% reduction of toxic material in emission gases. Furthermore, as the next leap forward, we have commenced research and development of fuel cell hybrid railcars. Running tests are now being conducted.

JR East will continue to actively solve technological problems in order to reduce environmental impact, and will strive to achieve an acceptable balance between our business activities and environmental preservation and to upgrade our technical levels.

#### In Harmony with the Natural Environment

Throughout the JR East service area, we operate 7,527 km of railway lines and thus we naturally have a deep relationship with the natural environment. For example, there are still many railway trees that were planted during the Meiji Era (1868 - 1912) to protect lines from snow and wind. With the advance of urban development along railway lines in recent years, however, there are places where this need for disaster prevention forestation has been reduced, but JR East recognizes the intrinsic value of rich treeplanted areas. In the future, we will continue to strive to find the best way to preserve railway trees and work toward the harmonization of railways with the natural environment. Electricity consumption by train series 103 series train = 100% 103 series 205 series 209/E231 series 47%

#### CO2 emissions by mode of transportation



Source: "Transportation and Environment," Foundation for Promoting Personal Mobility and Ecological Transportation



Start of fuel cell hybrid railcar running tests



JR East recycling center where stationgenerated waste from the Tokyo metropolitan area and trains is sorted and compressed



Railway trees can also play a role in environment preservation

#### Aiming for a trusted JR East - Our initiatives



#### Getting over a world-first hurdle is our greatest challenge

Masahito Nakagami Chief

Rolling Stock Electricity Technology Group Advanced Railway System Development Center Research & Development Center of JR East Group

I am involved in the development of fuel cell hybrid railcars. As this project is without precedent anywhere in the world, there were many factors that required careful attention, such as maintaining stable performance of the fuel cells, optimizing the hybrid control of fuel cells and batteries, renovating the railcars, and conducting accident-free running tests. Fuel cell technology is still in its infancy and there are several issues that apply specifically to railcars; nevertheless it is our technological team's ardent desire to ultimately achieve the commercialization of fuel cell hybrid railcars. The main reason for our desire for success is that if we can develop hydrogen-powered railcars, we will contribute to a reduction in greenhouse gases and thereby greatly benefit the global environment. After clearing legal issues, we are now at the stage where we are conducting running tests on commercial lines. We are also researching the safety of installing high-pressure hydrogen tanks on railcars and examining hydrogen filling facilities and methods.



## What the 22nd Century will inherit

Hisashi Tsuyuki Deputy Manager Railway Disaster Prevention Group Facilities Department JR East Head Office

I am in charge of making plans for the maintenance and reinforcement of facilities designed to protect railways from natural disasters.

At JR East, we have various types of disaster prevention facilities, and railway trees are one of the most valuable methods. Railway trees, currently totaling 4,200ha, function to prevent avalanches, reduce the impact of snow storms, deplete blown sand, stop landslides, and dissipate winds.

What is more, as well as still fulfilling their original disaster prevention roles, railway trees are also valuable assets as we strive to further protect the natural environment.

JR East pledges to maintain railway trees for both natural disaster prevention and environmental preservation. Thus we hope to enrich the greenery alongside our tracks.

I hope to be in the position to draft plans that will enable the railway trees planted by our predecessors in the 19th Century to be passed down to our descendents in the 22nd Century.

## Measures taken since the accident on the Uetsu Line

We would like to report the measures we have taken after the derailment accident of the limited express train Inaho No. 14 between the Sagoshi and Kita-Amarume stations near the No.2 Mogamigawa Bridge on December 25, 2005.

On December 25, 2005, limited express train Inaho No. 14 was derailed between Sagoshi and Kita-Amarume stations near the No.2 Mogamigawa Bridge. We sincerely pray for the victims of the accident and apologize to their families from the bottom of our hearts. We would also like to apologize deeply for the casualties from this accident and sincerely hope that all of the injured persons will recover at the earliest possible date.

An investigation into the cause of the accident is continuing, carried out by the Aircraft and Railway Accidents Investigation Commission of the Ministry of Land, Infrastructure and Transport (MLIT). We are cooperating with the investigation to our utmost. In the meantime we established the "Uetsu Line Accident Cause Investigation Committee" within our organization. We are attempting to ascertain the cause of the accident and are taking all possible measures that we can to prevent any re-occurrence in the future.

We would like to explain the measures taken since the accident.

#### Increased number of anemometers (wind meters)

To obtain more detailed wind speed data, we have installed 324 additional anemometers (264 on conventional lines and 60 on Shinkansen lines). An additional 28 anemometers have been installed at locations where windbreak fences have been installed. As of the end of June 2007, this brings the total number of anemometers in our service area to 672 (523 on conventional lines and 149 on Shinkansen lines).

#### Provisional "early restriction" for all lines

When operations resumed on January 19, 2006, operating restrictions due to wind were revised for all possibly hazardous locations, as shown in the table below.

	Wind speed (meters/sec.)		
Restriction type	Before revision (general restrictions)	Revised (early restrictions)	
Speed restricted to 25 km/h maximum	25 m/s – 30 m/s	20 m/s – 25 m/s	
Operation stopped	Exceeding 30 m/s	Exceeding 25 m/s	

#### Installation of windbreak fences

To reduce the forces exerted on trains by wind, we decided to construct windbreak fences at 11 locations, including the site of the Uetsu Line accident between Sagoshi and Kita-Amarume stations (the No.2 Mogamigawa Bridge) and similar locations on the Keiyo Line between Kasai Rinkai Koen and Maihama stations. For locations where windbreak fences were installed, we changed the operating restrictions due to wind to the general restrictions shown in the foregoing table. These changes take the reduction of wind forces into account.



Windbreak fence installed at the No.2 Mogamigawa Bridge

#### Introduction of a gale warning system

We have been using a gale warning system on the Keiyo Line since August 2005. We introduced this gale warning system to 19 zones in six railway divisions, including the Uetsu Line accident site between Sagoshi and Kita-Amarume stations, by the end of March, 2007. The gale warning system restricts operations not only when the actual wind speed measured by anemometers exceeds restriction thresholds, but also when the projected maximum wind speed exceeds these limits. Therefore a higher level of safety can be assured.

## Establishment of the Disaster Prevention Research Laboratory

On February 1, 2006, we set up the Disaster Prevention Research Laboratory at the JR East Research & Development Center. We are conducting various research projects on meteorological phenomena and on natural disaster phenomena in general.

#### Verification of operation restriction zones

Until recently, the operation restriction zones due to wind have been identified based on field investigations and the experience of local employees. We thoroughly reviewed the current operation restriction zones by drawing up gale maps from information such as upper level wind conditions and the topography of the areas.

#### Investigation of observation methods for local gusts

Local gusts are extremely strong winds that occur over small areas for short periods of time. They are difficult to observe with conventional observation equipment such as anemometers. We have been investigating methods to forecast the occurrence of local gusts using meteorological information from external sources such as weather charts and weather radars. We have also been investigating methods of detecting local gusts with Doppler radar.

We are utilizing meteorological information from external sources to detect cold weather fronts from weather charts and weather radars and the accompanying development of cumulonimbus clouds. These methods are being used to identify methods for forecasting the possibility of local gust occurrence.

In January 2007, we installed a Doppler radar at the Uetsu Line Amarume Station and started test observations from February 2007. Doppler radar can determine wind conditions by detecting the movements of raindrops and rain clouds. It is used at some airports for detecting local gusts. However, since this is the first time that Doppler radar has been applied for monitoring local gusts for a railway, we are collecting and analyzing the data to develop ways of utilizing the radar for decision-making in train operation.



Doppler radar installed on the roof of Amarume Station on the Uetsu Line

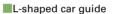
Sample image from a Doppler radar

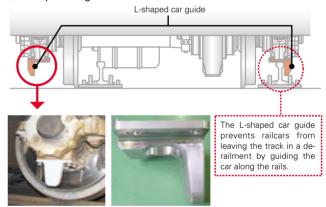
## Measures after the Niigata Chuetsu Earthquake

We report measures we have taken after the derailment accident of the Joetsu Shinkansen train Toki 325 due to the Niigata Chuetsu Earthquake on October 23, 2004.

The earthquake that struck the Chuetsu region, mainly Niigata Prefecture, on October 23, 2004 caused the Joetsu Shinkansen train Toki 325 to derail and caused extensive damage to our tunnels and bridges.

Although a Shinkansen train was derailed, the rails guided the cars, keeping the train on the rails until it came to a complete stop. With the lessons learned from this experience, we have installed L-shaped car guides to prevent trains from completely leaving the track in case of a derailment. To safeguard against subsidiary fractures of glued insulated joints, we have also taken measures to prevent derailed wheels from directly contacting the connecting bolts of rail joints.





Glued insulated joint



Joint shape improved to prevent wheels or other parts of railcars from directly contacting the joints in a derailment

The "Shinkansen Early Earthquake Detection System" has been introduced to detect earthquakes and stop train operation. When seismometers installed along railways and coastlines detect an earthquake, the system stops electric power transmission to the overhead wires to stop trains. We are now developing methods to reduce the time from when an earthquake is detected to when the train stops.

For all conventional lines we have introduced systems for informing our train crews of the occurrence of earthquakes.

## Measures for reducing transport disruptions in the Tokyo metropolitan area

#### Enhanced reliability, early resumption of service, and provision of information

In spring 2006 in the Tokyo metropolitan area, a series of large-scale disruptions to our services occurred, inconveniencing many of our customers.

In May 2006, JR East established "the Tokyo Metropolitan Transport Disruption Prevention Project" to investigate and implement measures for reducing transport disruptions.

JR East deeply regrets the series of major service disruptions in spring 2006. We regard it as a serious issue reflecting on the reliability of our service. We have been working to establish a transport system with high reliability and safety and to implement effective measures for the prevention of service disruptions.

Based on the results of the investigation, in addition to the initial transport disruption measures implemented (costing approximately 160 billion yen), in fiscal 2006 we commenced the initiatives described below, investing a total of approximately 300 billion yen into initiatives for the prevention of service disruptions.

## Major disruptions to service occurred in the Tokyo metropolitan area in spring 2006

Date	Content	Time affected	NO. of passengers affected
April 24th (Mon.)	Track irregularity on the Yamanote Line between Shin Okubo and Takadanobaba stations	Yamanote Line operation suspended for approx. Shours 40 min.; Saikyo Line operation suspended for approx. 7hours 30 min.; Shonan Shinjuku Line operation stopped	Approx. 320,000 passengers
April 28th (Fri.)	Signal trouble on the Keihin Tohoku Line be- tween Okachimachi and Ueno stations	Approx. 2 hours 40 min.	Approx. 85,000 passengers
April 30th (Sun.)	Point failure on the Chuo Line in Shinjuku station	Operation suspended approx. 1 hour 50 min.	Approx. 13,000 passengers
May 9th (Tue.)	Electric power outage on the Joban Line be- tween Kanamachi and Mabashi stations	Operation suspended approx. 40 min.	Approx. 42,000 passengers
May 11th (Thu.)	Signal trouble on the Keihin Tohoku Line between Kamata and Tsurumi stations	Operation suspended approx. 4 hour 10 min.	Approx. 145,000 passengers

#### **Enhancement of transport reliability**

To improve transport reliability, we are planning to introduce a new control system, Autonomous Decentralized Transport Operation Control System (ATOS). The system will be able to determine train operation situations in real time and achieve precise traffic control for more reliable operation management.

We are progressively introducing a new more reliable railcar type, the "E233 Series". High reliability is achieved by the duplication of major items of equipment, so that train operation will continue even if one item fails. Trains on the Chuo Line rapid service are being replaced in stages by this new series. We also plan to introduce the E233 railcars to the Keihin Tohoku Line and the Joban Line in the future.

We are also taking measures to reduce disruptions to transport service by making ground equipment less vulnerable, through the use of stronger cables for the signal system and by installing dual systems. In addition, we have strengthened inspection and mainte-

nance operations by increasing the number of rail inspection cars.

To avoid mishaps caused by track deformation from tunneling or construction of roads under tracks, we established a "Safety committee for construction of



tracks, we established a Safety The E233 Series, with duplication of major committee for construction of equipment to increase resistance to failures

crossings under tracks". The committee thoroughly investigates the possibility of track deformation and draws up systematic track deformation prevention measures for carrying out construction.

#### Early resumption of operation after service disruptions

In addition to our work to prevent service disruptions, we have also made improvements for early and smooth resumption if disruptions do occur.

Within a 50km radius of the Tokyo metropolitan area, we are taking measures for the faster detection of abnormalities, reducing the arrival time to the site of the fault, and faster completion of recovery work. To achieve these ends we are strengthening the monitoring conducted by signalling and telecommunication commands and developing a round-the-clock rapid response system in partnership with signalling equipment manufacturers.

Furthermore, to enhance the knowledge and skills that our staff requires to handle the new equipment, we are expanding and improving our training facilities to better serve track maintenance, electricity, and signaling and telecommunication. In addition, we have increased our stocks of spare parts to promptly replace faulty equipment and shorten recovery time.

#### **Enhancement of information provision**

We are working on smoother transmission of information between our employees so that they can better inform our customers during transport disruptions.

In February 2007, we began installing 50-inch screens for the "display of information during transport disruptions" at the ticket gates of 19 major stations. Information about a trouble spot is displayed in an easy-to-understand map format along with the necessary information for transferring to other lines. By fiscal 2008, we plan to install the displays in a total of approximately 90 stations. In addition to providing traditional text information by LED displays at ticket gates, on platforms, and inside trains, we are striving to pro-

vide accurate and prompt information guidance to our customers.

Apart from these measures, we are providing information over the Internet to personal computers and cell phones and issuing "train delay certificates" for download through our web site.

In addition to replacing and expanding public-address systems at approximately 200 stations, we are also installing wireless communication equipment in 150 stations to help our station employees receive and disseminate accurate information.



Large display in stations for guidance during transport disruptions

Sample image from the information display

## Expanding the circle of "Eco Activities"

Steadily achieving what we can: the entire JR East group promotes "JR East Eco Activities" at each work place to lessen the burden on the environment in our day-to-day lives. In this section, we introduce the efforts of 16 locations within the JR East group network.



#### Setting "My eco-conscious behavioral objectives' Noboru Ishikawa Akita General Rolling Stock Center Akita Branch Office

Arra pranch Office To save energy and resources and to reduce waste, all employees create their own mission statement, referred to as "my eco-conscious behavioral objectives". As a result, the environmental awareness of our em-ployees has been activated, allowing the center's tar-tet behaviorate to be serviced unworked. get objectives to be revised upwards



#### **Recruiting ecological ideas** Tetsu Yokota Yamagata Transportation Depot, Sendai Branch Office

We actually put ecological ideas into practice. For in-stance, we created a tool for cleaning the interior of trains that allows train crews to bring trash back to the office for sorting.



#### Making our town beautiful Masahiko Uchiyama Sakata Station, Niigata Branch Office

We are engaged in volunteer environment activities such as cleaning the vicinity of our station, including the forests, and rivers. I would like to expand this ef-fort to include each employee 's household.



#### From the perspective of "construction and office lives Ryoko Nakano Takasaki Construction Depot, Joshinetsu Construction Office

We put one environment-friendly idea into practice for each construction project. A conveyor to reduce industrial waste was created from this activity. We are also working from the perspective of our day-to-day office lives.

Industrial waste collection point in



#### prominent position Junpei Makita Takasaki Rolling Stock Center Takasaki Branch Office

We installed a prominently located collection point for the industrial waste generated by rolling stock in-spections and construction. This not only increased the recycling rate, but also boosted the morals of ev-eryone concerned.



#### Environment patrol keeps an eye on our activities Toshio Oki Nagano General Rolling Stock Center, Nagano Branch Office

We are promoting the "3Rs", by recycling rolling stock parts. It has taken just 3 years to achieve our objectives for the reduction of electricity, water and waste. The environment patrol keeps an eve on our activities to gain an overview of our efforts.



#### Introduction of "Eco -Day' Minoru Orihara Higashi Koganei Station, Hachioji Branch Office

We have introduced one "Eco-Day" each month. This creates an atmosphere of getting everyone at the sta-tion involved in the activity. Mainly off-duty workers are cleaning the work place and focusing on energy saving and resource saving.



#### Easy separation and easy collection of waste Tsutomu Shibata Yoshikawa Station, Omiya Branch Office

We made the locations of trash bins more clear and applied stickers for better separation of trash. In addi-tion, for the temporary storage of waste we installed shelves for each waste category, resulting in smooth separation and collection of waste.



#### Steady and long-term activities Kouji Miyano Morioka Signal & Telecommunication Technology Center, Morioka Branch Office

We are re-examining everyday work, such as gradually increasing the number of LED signals and using trains instead of automobiles to get to work places.



## Horizontal development of know-how

### in the workplace

In the Workplace Tomoko Fujita Morioka Construction Depot, Tohoku Construction Office We transfer the know-how we acquire in each field horizontally between different work divisions: know-how in such fields as recycling of waste from con-struction of bridges, prevention of noise from con-struction, prevention of contamination of rivers, and harmony with sensory. harmony with scenery.

#### It starts with voluntary awareness Yoshihiro Fujita Matsudo Train Driver's Depot, Tokyo Branch Office

Tokyo Branch Office We issue an ecology information bulletin. To start, we are emphasizing that the effects of glo-bal warming are our immediate concern. Some employees even volunteer to become involved in ecology promotion.

#### Reforming awareness of each employee

## Hirokatsu Inoue Mito Track Maintenance Technology Center, Mito Branch Office

Who branch Office We are working to enhance the awareness of each em-ployee by holding a monthly group meeting on the en-vironment, putting up "Snippets of Eco-knowledge" in each room, even in rest rooms, and we also have an "Eco-bulletin Board".

#### The most important thing is not to leave things to others

### Yasuhiko Suzuki Chiba Machinery Technology Center, Chiba Branch Office

We were able to obtain surprising effects from the complete separation of waste. This initiative gath-ered momentum, further improving the spirit of our employees with more ideas for improvement. As a next step, we plan to work on energy saving.

#### Construction with less burden on the environment

## Junya Totsuka Research and Development Office, Tokyo Construction Office

We first carefully examine construction sites and then when its carefully examine construction sites and then endeavor to come up with a construction process with the least burden on the environment. We share the in-formation and awareness with the rest of our team in proceeding with the construction work.

#### Attending meetings with

your computer Masayuki Kitano Tokyo Electrical Construction & System Integra-tion Office

We are promoting paperless offices, in ways such as separation of trash from offices and re-using the reverse side of copy paper. All employees bring their own computers to meetings, eliminating the need to distribute paper documents.

#### My bag and my chopsticks campaign Toshiyuki Tatewaki Yako Conductor's Depot, Yokohama Branch Office

We distributed re-usable eco-bags to all employees, thereby reducing the use of plastic bags. We are also working on complete separation of waste. We introduce these efforts in our "Eco-Newspaper". We plan to start a "My Chopsticks" campaign in which employees use their own chopsticks instead of disposable ones.



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## Environmental efforts within the diverse businesses of our group companies

The JR East group is active in a wide variety of businesses, such as transport, shopping centers, retailing, real estate, cleaning, and facility maintenance.

Each group company is working to satisfy both "business and protection of the environment", while utilizing the characteristics of their own businesses.

In this section, we introduce the efforts at four group companies and JR East Station Building Committee as revealed during a round-table discussion with representatives of the companies and the Committee.

#### Greening building rooftops

**Coordinator:** I have heard that JR East Consultants Company is promoting "rooftop afforestation" to reduce the environmental burden of facilities.

Mr.Oguchi: Yes, we began this initiative in 2004. At present,



Promotion of rooftop afforestation on a station building (Lumine Kitasenju store)

Mr. Yutaka Oguchi, Planning Department Manager, JR East Consultants Company

rooftop afforestation has been introduced at 11 locations such as station buildings and the offices of our group companies. In recent years, awareness of the heat-island phenomenon as an environmental issue in urban areas has intensified. We decided that the JR East group could adopt rooftopafforestation as one of its environmental activities and also that it could form one of the

services we offer as a construction consulting company. Right from the start, JR East Group already had many "candidate sites" for rooftop afforestation, station buildings especially.

**Coordinator:** Have you seen any benefits from this rooftop afforestation?

**Mr.Oguchi:** Yes. We first gained energy savings from air conditioning because the vegetated area works as an effective heat insulator for buildings. In addition, the greenery enhances the aesthetics of buildings for recreation and relaxation. I should also point out that by using a special soil mix, which is lighter than water, afforestation can be achieved without needing to reinforce building structures.

**Coordinator:** Was there any trouble in introducing rooftop greening to the 11 locations?

**Mr.Oguchi:** Yes. Since each station building company had to bear the cost of the afforestation, we needed to visit them several times and explain the plan thoroughly to gain acceptance. However, since the Lumine Company agreed with the introduction at an early stage, we were more successful in promoting the idea to other companies.

In the future, we plan to propose eco-stations that have a lower burden on the environment.

#### From plastic bag to "eco-bag"

**Coordinator:** Many companies in the JR East Group are in the distribution and retail industries, so reduction of waste must be an important issue. Please tell us about initiatives being undertaken at East Japan Kiosk Co., Ltd. (now JR East Retail Net Co., Ltd.).

**Mr.Yamamoto:** At NEWDAYS, which is a convenience store chain with locations in our stations, we rolled out the "Suica Eco-Bag Campaign" as an event to mark the 5th anniversary of this business.

The aim is to reduce the number of plastic bags we use. It is said that 30 billion of them are disposed of every year in Japan. Based on the concept of reducing waste, we provided eco-bags made of cloth, which can be washed and used repeatedly. We also carried out follow-up campaigns to give discount points to those who used the eco-bags when making purchases.

**Coordinator:** So NEWDAYS is actively engaged in down-to-earth activities for the environment, isn 't it?

**Mr.Yamamoto:** Yes, we are working on down-to-earth environmental activities. They are really tiny ideas, such as putting reflective plates inside electric advertising displays to create the same brightness with half the number of fluorescent bulbs. We have reduced the thickness of plastic bags by a matter of microns. In addition, we have begun to look at the recycling of

foods. In our offices too, we are working to "eliminate excess and waste", save energy, and reduce waste.



Mr. Shinya Yamamoto, Corporate Planning Department Manager, East Japan Kiosk Co., Ltd. (now JR East Retail Net Co., Ltd.)

#### Grass-roots environmental management

**Coordinator:** JR Utsunomiya Planning & Development Co., Ltd. involves all employees in "environmental management".

**Mr.Sekiya:** Taking "JR East Eco Activities" \*as our reference, thinking about what we could do was a stimulus to drive our environmental initiatives. Our company operates retail outlets inside station premises in the Omiya and Utsunomiya areas. We wan-



Mr. Hiroshi Sekiya, Administrative Manager, JR Utsunomiya Planning & Development Co., Ltd.

ted to take some proposals, such as brownouts, reusing copy paper, and separation of waste to our retail outlets. But before taking them to the retailers, we first tested the proposals in our offices. Based on our experiences, we then created A4-size information bulletins introducing the target objectives, messages, and outstanding environmental activities. These low-profile efforts



leading to the achievement of numerical targets raised the motivation of all employees. In 2005, "environmental initiatives" were decided at a board meeting. We decided to proceed with environmental activities with set targets at all outlets.

As a result, the various outlets started to cooperate with each other by holding voluntary study sessions to share information about methods to handle leftover food and to dispose of oil waste. Part-time workers started to separate waste completely, even in their own households. We started to hear about these good flow-on effects here and there. Topics for the information bulletin rapidly started to increase and now we publish the bulletin three to four times a month.

\*JR East Eco Activities are environmental activities promoted at each work place. The aim is for each employee to become aware of environmental issues and to work on reducing their environmental footprint in any way they can.

## Balancing cleanliness of rolling stock with preservation of the environment

**Coordinator:** JR Technoservice Sendai Co., Ltd. is in charge of cleaning and maintaining rolling stock in the Sendai region. I heard that you were successful in developing and introducing a detergent that is safer for the environment.

**Mr.Sakiyama:** Yes. Strong detergents clean better, it's true. However, thinking about the effects of such chemicals on the environment and on the health of our cleaning crews, we thought that it was necessary to improve the detergent we use. Oxalic acid is an ingredient in the strong detergents that places considerable stress on the environment. We worked with a detergent manufacturer to reduce the oxalic acid content of the detergent as much as possible while utilizing natural ingredients to maintain cleaning efficacy.

Coordinator: In the process, you repeated the testing.

**Mr. Sakiyama:** Yes. In the early stages of testing the new detergent did not rinse well and did not wash evenly. With trial and error, we repeated the manufacturing and testing cycle and steadily kept improving the production prototype. As a result, we were able to create a safe and highly practical detergent. I am glad that in the end JR East recommended this cleaner and it is now used for rolling stock in each region.



Reduction of chemicals in detergent used on rolling stock

#### Future "recycling of food waste"

**Coordinator:** Lastly, I would like to ask about the new initiatives taken by the JR East Station Building Committee in "recycling of food waste".

**Mr. Kobayashi:** JR East Station Building Committee, which is comprised of the station building companies of the JR East Group, works on issues of common interest to all members. Preservation of the environment is one of the major issues addressed. In particular, since we operate food businesses in our station buildings, the recycling of food waste has captured our attention. However, since there are many kinds of restaurants in the station buildings, the food waste generated from them also varies widely. Some include non-food waste or are too hard to be crushed easily. With this background, we focused our attention



Mr. Shigemitsu Kobayashi, Project General Manager, JR East Station Building Committee, Food recycle investigation group (Research and Development Deputy General Manager, JR East Urban Development Corporation)

on a new type of equipment cal led "a bio-composite food waste processor" and began some trial introductions in 2004.

**Coordinator:** I have heard that with this processor, separation of waste is rarely needed.

**Mr.Kobayashi:** That's right.This processor can process not only food scraps but also pieces of plastic or styrofoam trays with food scraps. The processed food waste becomes "charcoal" and can be supplied to JR East Group companies and to other companies as fuel.

Previously, food waste was mainly recycled to produce animal feed and fertilizer, and it can be difficult to find enough end-users for such products. For this reason, this processor can be regarded as something of a revolution. In the future, with this technology as acenterpiece, we would like to establish and expand an eco system in partnership with our group companies and localities.

**Coordinator:** This is a good idea. Fortunately, the JR East Group contains many related companies. We have a strong base for using teamwork to promote the 3Rs of reduce, reuse, and recycle. In other words, we can use our group's economy of scale to produce successful environmental activities. We strongly hope to lead these "buds" of synergy within our group companies to larger successes in the future. Thank you very much for joining the round-table discussion today.

Held on May 28, 2007 in a meeting room of the JR East Headquarters building

Coordinator:Mr. Tadami Tsuchiya, Director of Environmental Management, Corporate Planning Headquarters, JR East (now Branch Manager, Mito Branch Office, JR East)

## Toward a Trusted Life-style Service Creating Group

The JR East Group aims to fulfill its social responsibilities while generating profit and to push forward responsive and transparent CSR management, in accordance with its Group Philosophy of providing high quality and advanced services, with railway businesses at the core.

#### **CSR Basic Concept**

## Responding to society's expectations and trust

The railway businesses that form the core of the JR East Group were originally founded and operated for social development. In this sense, they form a type of social infrastructure.

As railway businesses are intimately related with people's lives and local communities, we engage in business with a corporate culture that encourages employees to recognize the importance of contributing to society, and, thereby, allows us to fulfill our social responsibilities.

"How, then, can the Group play a positive role and, thus, contribute to society?" Regarding this social mission of ours, we abide by our Group Philosophy which states, "As a 'trusted Life-style Service Creating Group', JR East aims to sustain the development of its business operations while emphasizing its responsibilities to stakeholders and society at large along with its responsibility to generate profits for shareholders."

By pursuing our business activities in accordance with our Group Philosophy and Action Policies, we are determined to remain a corporate group capable of meeting social expectations and maintaining stakeholders' trust.

#### **Group Philosophy**

The JR East Group will aim to function as a corporate group capable of providing high quality and advanced services, with railway businesses at its core, while achieving sound management.

For this purpose, every individual employee of the Group will endeavor to consider the customer perspective while supporting safe and punctual transportation and supplying convenient and high-quality products and services. Every employee will continuously take on the challenges of improving the standard of services and raising the level of technology to further gain the confidence and trust of customers. As a "trusted Life-style Service Creating Group", JR East will aim to sustain the development of its business operations while emphasizing its responsibilities to stakeholders and society at large along with its responsibility to generate profits for shareholders.

#### **Action Policies**

#### . Putting customers first

We will put our hearts into providing good service and living up to our customers' expectations.

#### 2. Ensuring safety and quality

We will take thorough measures to provide transportation services that are safe and punctual, and products and services that are of high quality.

#### **3. Developing the Group**

Challenge ourselves to meet customer expectations

Sustain corporate growth by offering improved quality of life

based on self-reliant management

Each of us will promote Group development based on our autonomous and cooperative efforts and our positive approach to new challenges.

Enhance the competitiveness and collective strength of the corporate group

#### JR East Group Medium-Term Management Plan: New Frontier 2008 —New Creation and Evolution (2005-2008)—

#### Basic management policy (three reforms)

Offering services that reflect the customer viewpoint

#### **Building a robust group**

Fulfilling social responsibility and achieving sustainable growth

#### Creating new customer values (six challenges)

Continue relentless efforts to provide safe and reliable transportation

Further enhance the convenience and comfort of railway operations

Enhance lifestyles through the Suica brand

Reinvent stations

Grow non-transportation operations further

Focus on research and development

#### Transparent and Responsive Management

## Enhancing corporate governance

JR East has identified the enhancement of its corporate governance as one of the most critical management tasks in order to continue to be a trusted corporate group.

#### Corporate governance system

Our Board of Directors, meeting once a month in principle, decides on key operational issues relating to statutory requirements and other matters and supervises overall operations. Under the Board of Directors is the Executive Committee, which includes all directors with executive functions. Meeting once a week in principle, the committee deliberates matters to be decided by the Board of Directors and other important management issues.

#### Supervision and auditing systems

We have invited two outside directors to join the board in order to enhance management supervision. Furthermore, four of our five corporate auditors have been selected from outside the Group in order to guarantee the enhancement of our auditing functions.

Regarding internal audits, JR East has established an internal auditing system involving approximately 100 full-time employees in the Inquiry & Audit Department at its Head Office and Inquiry & Audit divisions at branch offices, and these units work to ensure that corporate operations are executed appropriately and efficiently.

The audits of corporate auditors are supported by approximately 10 specialized staff. The system for the oversight of directors' implementation of operations, carried out in accordance with rules established by the Board of Corporate Auditors, centers on full-time corporate auditors who attend meetings of the Board of Directors, the Executive Committee, and other important in-house meetings and also investigate financial situations and other items.

The corporate auditors also exchange auditing information with corporate auditors of Group companies at liaison meetings held at regular intervals.

Regarding financial audits, the financial statements of JR East are audited under contract by an independent auditor (accounting auditor), KPMG AZSA & Co., at the end of each fiscal half year and fiscal year.

In light of the characteristics of railway businesses, we emphasize the long-term perspective in decision-making, and remain committed to the enhancement of our corporate governance under the current audit system.

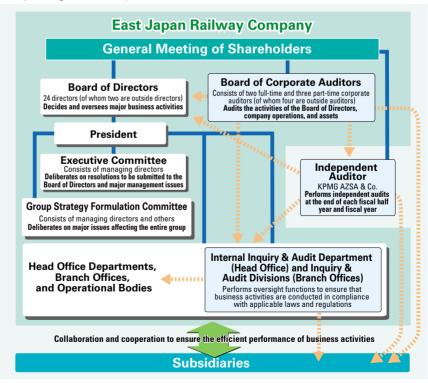
Note that in May 2006, we established a "regime for ensuring administrative appropriateness" in accordance with the Company Law.

#### **Emphasizing dialogs with stakeholders**

We have a wide range of relationships with many stakeholders, including the approximately 16 million customers using our railway services each day, as well as our shareholders and investors, business partners, employees and their families, and local communities.

In order to achieve a higher level of understanding with these stakeholders, we actively disseminate information about Group initiatives through public and investor relations activities. We also strive to disclose key corporate information on our website in a swift and appropriate manner. Furthermore, we work to create opportunities to listen to and learn from our stakeholders' views and requests. We are determined to remain a credible and trustworthy company through earning the continued respect of society and holding dialogs with society as a whole.

#### Corporate governance system (as of March 31, 2007)



#### Dealing with management risks at an early stage

#### Ensure thorough compliance

Recognizing that corporate activities based on strict compliance and high ethical standards are prerequisites for a company to survive and prosper, we have built a structure that ensures rapid response to legal risks and internal legal issues under the auspices of our Legal Department and the Crisis Management Office of the Administration Department. We strive to ensure total compliance with applicable laws and regulations in all our business activities with the assistance of advice from legal counsel and other professionals.

#### Internal compliance awareness

Our New Frontier 2008 manifesto states that greater efforts must be made to ensure that corporate management complies totally with laws and regulations. To achieve this goal, we adopted a Policy on Legal and Regulatory Compliance and Corporate Ethics in 2005, and distributed a booklet titled "Compliance Action Plan" to all employees of Group companies in order to provide them with a straightforward explanation of the requirements and raise their awareness of the necessity of compliance.

At the same time, we established a

"Compliance Hotline" to receive both internal and external information. In addition, in March 2006, prior to the promulgation of the Whistleblower Protection Act in April of the same year, we established rules to handle information that is in the public interest with the objective of protecting whistleblowers.

## Protection of Personal Information

As a corporate group that manages vast amounts of personal information in the course of doing business, we established Regulations for the Management of Personal Information in 2005, and appointed Chief Privacy Officers who have the task of strictly protecting personal information. We are also working to enhance the information security levels of all our Group companies by ascertaining the holding status of personal information.

#### **Raising employee awareness**

We regularly provide training sessions for employees of our branch offices and Group companies, in order to enhance levels of compliance and ensure the highest levels of ethical standards. In fiscal 2006, we continued to offer a variety of training, including Legal Skills Training, a Management School compliance course, Basic Legal Training, and Regular Legal Seminars for employees of JR East and our Group companies. Additionally, we actively promote activities that are designed to raise awareness of compliance-related issues by holding compliance seminars and workshops, and include compliance-related articles in our internal newsletter.

#### **Risk management**

The Crisis Management Headquarters was established in 2001 to centrally collect and manage information, and to make prompt initial responses in the event of major crises affecting the business operations of JR East Group companies. We further established the full-time Crisis Management Office in 2004, with the aim of controlling risks before crises occur, and to identify potential risks at the earliest possible stage.

We constantly strive to minimize loss and damage from crises by measures such as accelerating top management decisionmaking through facilitating its early involvement, in order to avoid delays in response; by disclosing information in an appropriate manner; and by conducting compliancebased management.

We are also enhancing our risk- and information-management structures by conducting training for Group companies to create an open corporate culture that can disseminate risk-related information in a timely manner.

Title	Number of sessions	Participants	Contents and objectives	Number of participants
Management School (Compliance Course)	1	Administrative managers of Group companies	Compliance and risk management	35
Legal Skills Training	1	Legal affairs managers of branch offices	Enhancement of practical legal knowledge, legal reasoning, and decision-making/problem-solving skills	11
Basic Legal Training	2	Legal affairs personnel of Group companies	Acquisition of basic legal knowledge	51
Regular Legal Seminar	4	Employees of JR East and Group companies	Explanation of new and revised laws, and awareness-raising about compliance	About 200 for each seminar

#### Compliance training

## **Relations with stakeholders seen from the economic aspect**

In JR East Group business operations we relate with many stakeholders. Provided here is information concerning aspects in our Sustainability Report from the perspective of economic relations with all our stakeholders.

Breakdown of JR East Group revenues

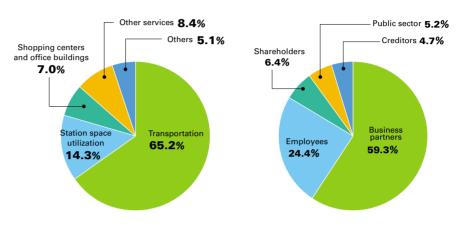
Breakdown of expenses and others by stakeholder

#### **Economic relations with stakeholders**

Transportation including railway operations, which accounts for approximately 70% of our revenue, is the core business of the JR East Group. The remaining 30% of revenue is earned from our lifestyle businesses such as the operation of shopping centers, hotels, retail shops, and other businesses.

These business activities create economic relations with a large variety of stakeholders.

This section presents a breakdown of our expenses by stakeholder and other data, in order to show these relations in an easy-tounderstand manner. The stakeholders covered here include business partners, employees, shareholders, the public sector (governments), and creditors.



- \* "Others" in the breakdown of JR East Group revenues is the sum of non-operating income and extraordinary income.
- \* To ensure objectivity of data, all calculations were made based on consolidated financial statements.

#### Consolidated financial statements and breakdown of expenses and others by stakeholder

Consolidated statement of income		billion yen	
Operating revenues		2,657.3	
Transportation, other services and cost of sales		1,718.5	(1)
	Personnel expenses	261.4	(2)
Selling, general and	Taxes	18.7	(3)
administrative expenses	Other	230.4	(4)
	Subtotal	510.6	
Operating income		428.0	
Non-operating income and extraordinary income		144.0	
	Interest expense	131.3	(5)
Non-operating expenses and extraordinary expenses	Other	134.1	(6)
	Subtotal	265.5	
Income before income taxes		306.6	
Income taxes-current		140.5	(7)
Income taxes-deferred		(12.1)	(8)
Minority interests in net income of consolidated subsidiaries		2.3	(9)
Net income		175.8	(10)

\*Figures may not add to totals due to rounding.

\*For figures that require modifications, rounded figures in the Financial Statement are used.

Breakdown of expenses and others by stakeholder	billion yen	
Business partners	1,661.9	$(1) - \bigstar + (4) + (6)$
Employees	682.6	(2)+★
Shareholders	178.2	(9)+(10)
Public sector	147.1	(3)+(7)+(8)
Creditors	131.3	(5)

★Personnel expenses recorded in transportation operating expenses in the nonconsolidated statement of income: 421.2

Method of calculating "breakdown of expenses and others by stakeholder" Note: Since personnel expenses in the transportation business are recorded in "transportation, other services and cost of sales" in the consolidated statement of income, personnel expenses are calculated by adding "personnel expenses in the transportation operating expenses" in the non-con- solidated statement of income to obtain a more accurate figure.		
Business partners	The figure is the sum of (A) "transportation, other services and cost of sales" minus" personnel expenses" in the transportation operating expenses in the non-consolidated statement of income, (B) "selling, general and administrative expenses" minus "personnel expenses" and "taxes," (C) "non-operating expenses" minus "interest expense," and (D) "extraord-inary expenses."	
Employees	The figure is the sum of (A) "personnel expenses" in selling, general and administrative expenses, and (B) "personnel expenses" in the transportation operating expenses in the non-consolidated statement of income.	
Shareholders	The figure is the sum of (A) "net income" and (B) "minority interests in net income of consolidated subsidiaries."	
Public sector	The figure is the sum of (A) "taxes" in selling, general and administrative expenses, (B) "income taxes-current," and (C) "income taxes-deferred."	
Creditors	The figure is "interest expense" in non-operating expenses.	

## Our aim is "the utmost level of safety"

JR East has made safety the top management priority since our establishment. With the concerted efforts of all group companies, we are tackling this issue and aim to create a culture of safety, to enhance safety equipment, and to become the world's safest railway operator.

#### Our concept of safety

#### Four aspects of safety

Safety is one of the obligations JR East has toward society, and it is given the highest priority. There are important factors in safety measures: a system to remove the "buds" of accidents before they develop, enhancement of safety equipment, and learning from past accidents.

We believe that safety is ensured through management systems that synergistically link employees, rules, and safety equipment. We therefore are constantly reviewing and improving our management programs in order to ensure that these elements are properly linked.





#### Safety initiatives in our mediumterm management plan

In the JR East New Frontier 2008 medium-term management plan, the top management challenge is to "continue relentless efforts to provide safe and reliable transportation". New Frontier 2008 sets targets to achieve our safety plan within four years.

In fiscal 2006, we invested 151.9 billion yen in measures against natural disasters such as large-scale earthquakes and gale force winds, against train collisions, and against transport disruptions in the Tokyo metropolitan area. To further reinforce these measures, in fiscal 2007 we plan to invest 145.0 billion yen for further safety.

#### Fourth five-year safety plan: Safety Plan 2008

Since our establishment, JR East has continually created and implemented safety plans with ever-higher safety goals. By installing safety equipment according to our plans and raising safety awareness of each and every employee, we have succeeded in reducing the frequency of railway accidents to about one guarter of the level at the time of establishment.

Safety Plan 2008 was adopted in fiscal 2004 as our fourth five-year safety plan. It sets the target of reducing accidents causing fatalities or injuries to customers or causing fatalities to employees (including those of our Group companies) to zero. To accomplish this, we are rebuilding our safety programs from the ground up, focusing on the four initiatives indicated in the figure.



#### Trends in railway accidents

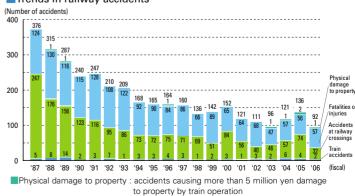
In fiscal 2006, we had 92 railway accidents, 44 less than the previous fiscal year. This was the lowest number of accidents in the history of the company and was about one quarter of that occurring when the company was established.

We have achieved a dramatic decrease in the number of accidents at railway crossings in which trains collided with automobiles or people. However, the number of fatalities or injuries by customers coming in contact with trains on platforms, falling from platforms, or straving onto tracks has remained at the same level for the past several years.

Compared with the time when the company was established, fatalities or injuries have nearly halved. However, we will continue to reinforce, maintain, research, and develop our safety facilities, while appealing to our customers to exercise safety on platforms through safety campaigns and other measures.



#### Trends in railway accidents



Eatalities or injuries Train accidents

people killed or injured by train operation Accidents at railway crossings: people or automobiles hitting or being hit by trains : train collisions, derailments, and train fires

#### Creating a culture of safety

#### Creation of a culture of safety to improve safety throughout the whole group

Railway safety is maintained by linking trains, railway lines, electricity, railway signals and other equipment with the people who operate them in a systematic and rational manner. In other words, safety is preserved only when all employees correctly understand our safety systems and practice their fundamental operations without fail each day.

In order to further raise our safety level, it is vital to uncover the buds of potential accidents hidden in near misses and take preventive measures.

To instill a culture of safety in the workplace, JR East runs a number of safety programs, including our Challenge Safety Campaign and Head Office Safety Campaign.

#### The Challenge Safety Campaign

In 1988, we started the Challenge Safety Campaign with the aim of encouraging our employees to actively take on the challenge of further improving safety levels, rather than just passively maintaining safety. Through this new safety campaign, we strive to foster professional judgment and knowledge in the workplace and create a corporate culture in which each employee remains constantly aware of safety and acts on this awareness. We are carrying out the campaign by taking three phases into consideration. First, each employee identifies safety challenges from his or her day-to-day work. Second, employees discuss these challenges and set action targets for improvement. Finally, they work each day toward attaining the targets.



Discussions were held on safety in the workplace through the Challenge Safety Campaign

#### **Head Office Safety Campaign**

We run the Head Office Safety Campaign once a year. Executive officers from the Head Office and front-line employees hold direct discussions and use the results to implement concrete measures to further improve safety.

The results of these discussions have been the establishment of many project teams and adoption of a large number of safety measures. In fiscal 2006, we discussed what we should do to improve safety with the theme, "the current status of our systemization and newly-discovered safety weak points". Each of our branch office also independently holds regular discussion sessions on safety between managers and front-line employees.



Head Office Safety Campaign where executive officers from the Head Office, including the President, hold direct discussions on safety with frontline employees

#### **Railway Safety Symposium**

Since 1990, we have held the Railway Safety Symposium for the purpose of improving each employee's awareness of safety and vitalizing our various efforts to improve safety, including the Challenge Safety Campaign. In fiscal 2006, the symposium was attended by about 700 people from JR East and our Group companies.

We have also invited outside experts to the symposiums for panel discussions and for presentation of case studies on the initiatives taken by other companies. The participants carry the discussions back to their workplaces and share the consciousness of problems with other employees.

#### Safety education

#### Three steps of safety education: on-the-job training (OJT), drills, and training courses

To enhance the safety consciousness and skills of each employee for practical use in their daily work, JR East thoroughly educates its employees on safety in three steps: on-the-job training (OJT), training at the General Training Centers (one located at each of the 11 branch offices), and at the JR East General Education Center (Shirakawa City, Fukushima Prefecture).

In on-the-job training (OJT), JR East plans and holds training based on the work at each work place. For train crews, we hold regular training once per month.

At the General Training Centers at each branch office, training with accident prevention simulators is held regularly to improve the skills of both new and veteran train crew members.

At the JR East General Education Center, we train drivers and conductors in addition to providing training for human resource development, and improvement of knowledge and technical capabilities.

In fiscal 2006, about 18,000 employees took part in these courses and drills.

#### Safety training programs

JR East General Education Center su	btotal <b>5,700</b> participants
Crew training programs	2,400 participants
Train driver training	
Train driving instructor training	
Conductor training	
Transportation control training, etc.	
Facility training programs	2,900 participants
Maintenance vehicle chief training	
Accident prevention training	
Field-specific technology training, etc.	
Safety culture and safety instructor training prog	rams 400 participants
Challenge Safety Campaign promoter training	ing
Safety standards expert training	
Safety instructor training	
Transport accident data analysis training, e	tc.
General Training Centers at each branch office sui	ototal <b>12,100</b> participants
Total:	17,800 participants

#### Learning from accidents (the Accident History Exhibition Hall)

Most rules and equipment for ensuring railway safety are based on lessons learned from tragic accidents in the past.

To instill a culture of learning from accidents, we have established the Accident History Exhibition Hall at the JR East General Education Center that displays overviews of past accidents, measures taken, and related information. The objectives of the exhibits are to ensure that past accidents are never forgotten and to preserve the valuable lessons learned from past sacrifices. The hall is used as a venue for employee training.



The Accident History Exhibition Hall

#### COLUMN

#### How a "train driver" is born

Since train drivers bear responsibility for our customers' lives, they need to go through rigorous training.

In this section, we introduce our idea of "safety and education" at JR East by describing the process a train driver goes through to become a qualified professional.

The qualification required to apply for the in-house examination to become a train driver is more than 5 years of continuous employment with JR East. The opportunity to sit for the examination is given only after the candidate has acquired an overall understanding of railway practices and experience.

Employees who pass the in-house examination go on to a four-month program involving 400 hours of study and training at the General Education Center.

#### Process 1

#### Learning the mechanisms of safety

The curriculum to learn the mechanisms of safety covers a broad range of topics. As a person who will be in charge of trains in operation, a driver trainee needs to acquire a wide range of knowledge, including regulations on train operations, the structure and mechanics of rolling stock, basic knowledge about electricity, theory of train operation, railway facilities such as signals and tracks, emergency first aid procedures, prevention of accidents that could cause casualties, and past accidents and measures that could have prevented them.



Curriculum which covers a broad range of school studies and training programs

At the General Education Center, we attach importance not just to classroom lectures, but also to practical education using operation simulators, real rolling stock, portable educational materials (safety equipment, signalling equipment, main circuits, control circuits, and door equipment), etc.

#### Process (2)

#### Safety skills to be learned on trains

After completing school studies and training programs, trainees go through approximately four and a half months of skill training. Under the tutelage of an expert driver, trainees polish their practical skills in train operation (train-handling skills), checking of rolling stock before departure from the depot, and first aid.

After passing the skill examination and receiving a course completion certificate, the trainee is issued with a train driver's license from the Ministry of Land, Infrastructure and Transport of Japan.

When they have received train driver's licenses, new train drivers continue learning through on-the-job training, especially on matters that need extra attention such as operating conditions in their specific railway division. After operating actual trains while accompanied by a head driver, only train drivers who pass a test that includes several hundred check items are allowed to drive trains without supervision.

#### Process 3 Further training

#### arther training

Even after train drivers commence work



"Train operation simulator" : accident prevention by training with a feeling of driving a real train

with full qualifications, the training process never ends. To assure their skills and overcome any weak points, train drivers repeat regular and special training at the General Training Centers of each branch office and in on-the-job training.



Yoshinao Watanabe, chief driver, Soga Transportation Depot, Chiba Branch Office

#### While in charge of tutoring train drivers

The two most important things for train drivers are calmness of mind and basic actions in train operation. This never changes, even for seasoned veterans. By constantly maintaining calmness of mind, a driver can detect various dangers. In addition, in an emergency situation, by faithfully performing basic actions, a driver can minimize damage.

There are countless things train drivers need to learn, such as how to use their body, how to keep a watchful eye, how to avoid risks, and also the geography of each railway division, such as grades and curves. However, the most important things, I believe, are calmness of mind and the basic actions.

When riding with test train drivers for a "final test", I emphasize these two points. At the same time, I try to instill in young train drivers as much pleasure and pride as possible in their career of providing safe and reliable train services every day.

#### Safety management

## Establishing a management structure and means to eliminate causes of accidents

In order to ensure safety in train operation, it is necessary to accurately determine the causes of accidents by correctly ascertaining their root cause and then implementing appropriate preventive measures.

JR East is in the process of developing an integrated management structure to put this initiative into practice.

## Railway Safety Promotion Committee

JR East has established a Railway Safety Promotion Committee at the Head Office, chaired by the Director General from the Railway Operations Headquarters. The committee reviews the organization's basic policies to respond to and prevent accidents, and promotes safety measures within the railway business.

There are also Regional Safety Promotion Committees at each branch office and the Shinkansen Transport Dept., chaired by the general managers of the branch offices and the department. These committees implement specific measures in collaboration with the Railway Safety Promotion Committee, and investigate the causes of accidents, implement concrete preventive measures, and promote activities to enhance safety in their service areas.

Safety promotion network (as of the end of March 2007)

#### Implementation of safety management regulations

In response to revision of the Railway Enterprise Law, JR East implemented safety management regulations on October 1st, 2006.

The safety management regulations have defined key safety management issues including the responsibilities of top management and the organization to ensure safety. In addition, the regulations include guidelines for selecting general safety managers, operation managers, and train crew training managers. Also, safety mission statements have been incorporated into the regulations as codes of conduct for all safety-related employees.

## Safety promotion system in collaboration with group companies

For JR East group to achieve the desired level of acceptable safety within its operations, it is essential to implement a system for sharing information and common safety values among employees and enhancing mutual safety support of train operations. Toward this end, the JR East Safety Network 25 (JES-Net25) was established in fiscal 2004. This network comprises 25 Group companies and other entities engaged in work related to train operation or construction projects for promoting safety.

JES-Net25 promotes activities based on three core principles: developing and utilizing information networks; supporting frontline safety efforts; and monitoring and improving safety regulations and each company's level of safety. JR East is committed to improving the safety level throughout the JR East Group through the united effort of each company in JES-Net25.

#### Safety research system

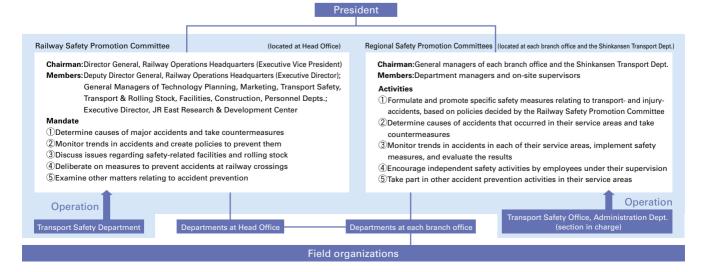
JR East group is researching and developing a wide range of safety-related technologies and systems at the JR East Research & Development Center in Saitama City.

Five organizations have now been established at the center: the Frontier Service Development Laboratory, Advanced Railway System Development Center, Safety Research Laboratory, Disaster Prevention Research Laboratory, and Technical Center. These have formed a focused coalition to conduct research and development with a key objective of "enhancing the safety and reliability of our operations".

The activities of the JR East Research & Development Center include research into human factors that cause accidents by developing a greater understanding of the characteristics of human behavior. The Center also conducts analytical investigations of the mechanisms of Shinkansen and other train derailments, and seeks to provide corresponding preventive measures. In addition, research is being carried out for the development of seismic resistance techniques for bridges and other construction methods.



Test facility in the Research & Development Center of JR East Group (bogie testing equipment)



#### Promoting the introduction of safety equipment

#### Investment in safety equipment

The Safety Plan 2008 campaign has earmarked a total of 400 billion yen over a fiveyear period for the prevention of major accidents. JR East is investing these funds in ways that will strengthen safety measures, including the implementation of earthquakeresistant technologies for viaducts and the installation of ATS-P and ATS-Ps automatic train stop systems.

In fiscal 2007, we plan to spend approximately 145.0 billion yen, which is close to last year's 151.9 billion yen figure, for investment in safety measures, including enhancements to bolster safety against large-scale earthquakes, strong winds, rockslides, and other natural disasters.

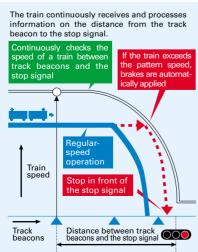
#### Installing safety equipment

Train collisions can be major catastrophes. To prevent train collision accidents, we have installed ATC (automatic train control) systems on all of our Shinkansen lines and ATS (automatic train stop) or ATC systems on all conventional railway lines.

The current ATS systems have continuous speed monitoring functions, and we are installing ATS-P and ATS-Ps systems where they are needed for safety on curves and at other locations.

We are also increasing the number of ATS-P and ATS-Ps system locations according to plan, and these systems are now being installed at more curves, turnouts, and line terminals. Following the accident on the JR West's Fukuchiyama line, the Japanese Ministry of

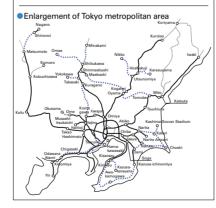
#### Outline of the ATS-P system



Land, Infrastructure and Transport issued in May 2005 regulations for JR East to take measures to prevent excessive speeds on 63 curved line sections. These measures were implemented by the end of fiscal 2005. By fiscal 2006, JR East had installed the systems at 271 locations. Plans are underway to install additional systems in approximately 570 locations by fiscal 2009.

#### Railway lines and stations with ATC, ATS-P and ATS-Ps systems





Installation plans for ATS-P and ATS-Ps

Туре	General plan for use	Installation status in fiscal 2006	Installation plan in and after fiscal 2007
ATS-P installation plan	Mainly for busy lines in the Tokyo metropolitan area	Installation completed for approx. 1,850km	Plan for installation on about 850km in 20 railway sections by fis- cal 2012, including lines near the Tokyo metropolitan area
ATS-Ps installation plan	For major lines in urban cities outside the Tokyo metropolitan area	Installation completed for approx. 230km and at one station	Installation at 20 stations by fis- cal 2011 mainly at stations with frequent trains and many possi- ble routes through the station

#### Station platform safety

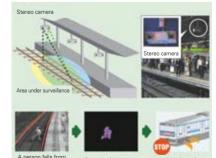
Accidents in which customers on platforms fell onto tracks or came into contact with trains occurred 36 times in fiscal 2006. JR East has put a wide range of protection-related devices into place at our platforms to ensure the safety of our customers, including mats capable of detecting fallen persons and objects; emergency train-stopping systems; image processing device to detect fallen persons; and barriers to prevent people and objects from falling between railway cars. In addition, we urge awareness and cooperation of our customers with our annual "platform safety campaign", which includes the display of posters requesting customers to "step behind the yellow line".



An emergency stop button, one of our systems for stopping trains in emergencies, installed on a post along a platform



A poster for the "platform safety campaign



An image processing device for instant detection if a person falls to the track

## Initiatives to prevent accidents during maintenance work

JR East is committed to preventing accidents during maintenance by systematizing maintenance work.

We are enhancing our maintenance safety by ensuring that signals turn red when a maintenance vehicle is on the track, to prevent train collisions. In addition, security during maintenance work has been improved with the use of TC-type wireless alarm systems that warn our employees working on railway tracks if a train is approaching.

As an additional safeguard against human error and an improvement to our maintenance workers'safety, JR has introduced a system for workers to turn signals red from a handheld device when performing maintenance work. This system ensures that trains are stopped when required. It is already in use on all major lines in the Tokyo metropolitan area and is starting to be introduced in other railway divisions.

#### **Disaster Preparedness**

JR East has installed rain gauges, water level meters, seismographs, anemometers, and other weather observation systems for disaster prevention along the railway lines, for immediate collection of essential information for safe train operations. Data obtained through the weather matically at all times by our command and technical centers and other facilities via an online system using telecommunication lines. If a monitor value on any of the observation systems exceeds a set regulation or alert threshold, the location in question is automatically displayed, and an alarm sounds to ensure that transport restrictions are set in place and inspections are carried out quickly and without fail.

observation systems are monitored auto-

JR East is also reinforcing seismic-resistance capabilities of elevated tracks and other structures as a measure against earthquakes. For the Shinkansen, we will complete seismic retrofitting of about 18,500 elevated Shinkansen viaduct support columns and 2,350 bridge columns by the end of fiscal 2007. For conventional lines in the southern Kanto and Sendai regions, we plan to complete seismic retrofit-



Reinforcement of seismic resistance of Shinkansen viaduct support columns is being carried out as planned.

ting of 12,570 viaduct support columns and 550 bridge columns by the end of fiscal 2008.

#### **Developing safety technologies**

JR East is committed to improving safety through research and development. In fiscal 2006, we worked on the development of an automatic warning radio system. To prevent secondary accidents that can occur as a consequence of an initial accident, a radio signal is used to stop trains in nearby sections. JR East has developed a system to send these signals automatically if there is a major accident, in support of support train crews.

In addition, to prevent a major accident from overheating of a railcar axle bearing, we developed a system for detection of the temperature of axle boxes on running trains by sensors on the ground. We are currently performing field tests on this system.



Axle box temperature detection equipment [axle boxes are indicated by the yellow arrows]

#### COLUMN

#### Progressing step by step to achieve "zero accidents at railway crossings"

Twenty years ago when the company was established, there were 247 accidents during the year at railway crossings between railway lines and roads. By fiscal 2006, the number had been reduced to 32. JR East is working on measures to enhance safety facilities with the cooperation of everyone who uses our railway crossings.

Approximately 80% of railway crossing accidents involve automobiles. We have installed devices such as obstacle detectors, which are capable of detecting an obstacle such as an automobile stalled on a crossing and stopping trains, and at some crossings we have put crossing warning devices in a higher position for better visibility. More red and white large crossing gates have been installed; the barrier arms are thicker than usual and have red and white reflective plates that cover the whole bar. These are expected to provide better visibility day and night to prevent careless driving onto the track when the crossing is closed. Studies are currently being carried



A red and white large crossing gate, to improve visibility and deter careless crossing of railway tracks

out on the effectiveness of these bars.

The cooperation and understanding of automobile drivers are indispensable for achieving "zero accidents at railway crossings" in an environment shared by automobiles and trains.

We are promoting a range of public relations activities for the prevention of railway crossing accidents, which include the display of posters asking drivers to "stop once at railway crossings".

In addition, we are trying to increase the number of overhead crossings to eliminate railway crossings, with the cooperation of local governments, neighboring residents, and the police. In the past 10 years, railway crossings at 176 locations have been replaced by overhead crossings. Safety

## Learning from Customer Feedback-Our Basic Stance toward Everything

The basic position of our management is to "challenge ourselves to meet customer expectations" as stated in our medium-term management plan, New Frontier 2008. Based on this, we are taking on the challenge of identifying customer needs and providing higher quality services.

#### Toward even greater customer satisfaction

#### Promptly sharing customer feedback and implementing responses

The Group aims to offer the highest quality of services by making customer expectations fulfillment our basic management objective in our medium-term management plan.

We believe that customer feedback received by our front-line employees, at our customer desks, and via our website serves as a springboard for addressing issues from a customer viewpoint, and we must utilize it to take appropriate measures.

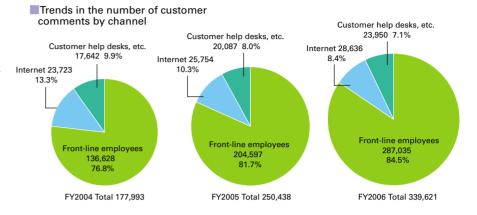
## Establishment of the Customer Service Department

JR East is steadily making improvements toward meeting the expectations of our customers and local residents, thereby alleviating their grievances and offering services that will meet their future needs.

There are needs for improvement in many areas: customer service; train operations, sales systems and train scheduling; train operation information; and service infrastructure such as barrier-free facilities and comfortable and clean toilet facilities.

Our initiatives toward achieving improvements require cross-organizational cooperation among all our stations, branch offices, Head Office, and other departments.

In order to help achieve these improvements, in October 2000, we established Customer Service Committees as forums for the discussion of issues in a cross-organizational manner. In July 2005, we opened our Customer Service Department, so that we could strategically and swiftly enhance the quality of our services. Our process of making improvements in a wide range of fields is enhanced by developing systems that allow all our departments to actively cooperate with each other.



#### **Green Information System**

Back in 1987, we introduced Green counters (their name was changed to Customer help desks in April 2001) as a part of our efforts to garner and react to customer feedback. In addition, to allow prompt internal sharing of customer feedback gained via various channels, a database called Green Information System has been in operation since April 1990.

In fiscal 2006, we received 339,621 comments from our customers, an increase of 36% over the previous fiscal year. Of these, 287,035 comments (about 85%) were received by front-line employees, 28,636 via our website, and 23,950 through our customer help desks.

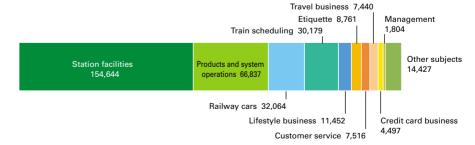
We also conduct annual customer satisfaction surveys in order to provide ourselves with a comprehensive evaluation of our services that could not be adequately determined from customer feedback alone, and we quantitatively measure the levels of customer satisfaction. We make full use of the results of these surveys in the variety of measures we take.

## Company-wide service skills improvements

To better share service case histories beyond individual departments and sections, JR East has implemented service training, designated service promoters (since 1997), implemented contests and workshops (since 1989), and held symposiums (since 1992), involving the entire Group.

We are continually working to create a corporate culture where each employee aims to enhance customer satisfaction, by targeting not only frontline employees, but also those in sections that do not have direct contact with customers.

#### Subjects of customer comments in fiscal 2006 (Total 339,621)



#### Providing more comfortable travel

#### **Transport services improvements**

We are continuously striving to reduce morning rush-hour congestion on major lines serving the Tokyo metropolitan area. The in-train congestion rate during morning commuting hours has declined by 52 percentage points to 186% since JR East's establishment as a result of many efforts: We have increased the number of trains in operation, added cars to many trains, introduced cars with wider bodies, and opened the Shonan Shinjuku Line and other new lines.

#### Women-only cars

We are continuing with the introduction of "women-only" cars in order to enhance the feeling of safety for both our male and female passengers. We first introduced such cars during late night operations in July 2001 on the Saikyo Line, and later introduced them to the Saikyo and Rinkai lines during morning rush hours in April 2005. In September 2005, the first cars of all trains on the Chuo Rapid, Ome and Hachiko lines were designted as a "womenonly" car. This was also done for the Joban Local Lines that enters central Tokyo on Tokyo Metro's Chiyoda Line in May 2006 and for the Sobu Local Line in November 2006. Service hours and the locations of "women-only" cars vary from line to line.

We have advertised this service through posters and announcements at stations, as well as with stickers on "women-only" cars and by marking their boarding locations on platforms.

#### Smoking and non-smoking areas

In response to requests from our customers and in line with social trends, JR East has decided to set up separate smoking and non-smoking areas at all of our stations, and to make all cars non-smoking.

All Shinkansen and limited express trains became entirely non-smoking in spring 2007. In consideration for customers who wish to smoke, however, we are installing more smoking rooms on platforms of major stations.

#### COLUMN

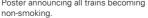
#### Designating all Shinkansen and limited express train cars as nonsmoking areas

Respecting both our smoking and nonsmoking customers, JR East is moving rapidly forward in setting up clearly identifiable smoking and non-smoking areas.

The Health Promotion Law promulgated May 2003 strongly demands the prevention of passive smoking.Complete separation on trains is difficult due to space limitations.An overwhelming majority of our customers have requested non-smoking trains.For these reasons, after thorough internal discussion, we decided to designate all Shinkansen and limited express trains as non-smoking trains from the 2007 train schedule revision.

In parallel to this decision, for our smoking customers who face long traveling times on trains, in addition to smoking zones on Platforms, we have supplemented the smoking zones on platforms with air-purifier-equipped smoking rooms on major Shinkansen station platforms. These are environments where customers can smoke before boarding and after alighting from trains.







Air-purifier-equipped smoking rooms on Shinkansen station platform

### Steps toward establishing smoking and non-smoking areas

March 1997	Smoking zones established at all stations. Smoking banned in Green Cars (first class) that do not have separate compart- ments. Smoking banned on all local trains
December 2000	Non-smoking signs clearly posted on car end-platforms that have no ashtrays.
December 2001	Smoking banned in all Green Cars.
May 2003	Non-smoking hours set at six stations on the Yama- note Line.
March 2004	Smoking zones on platforms integrated. Non-smoking hours set in the Tokyo metropolitan area. Smoking permitted only in one non-reserved-seat and one reserved-seat car of Shinkansen trains and lim- ited express trains on con- ventional lines. Smoking rooms installed on some Shinkansen platforms. (Tokyo, Omiya, Sendai and Niigata Stations)
December 2005	Smoking banned in all cars of Nagano Shinkansen Asa- ma, Narita Express, and Boso Express trains. The number of smoking rooms on Shinkansen plat- forms increased. (Kumagaya, Takasaki, Mor- ioka, and Nagano Stations added)
March 2007	Smoking banned in all cars of Shinkansen and limited express trains.

#### **Service Managers**

JR East is providing more service managers who can give relevant and timely information, guidance, and other fine-tuned services in times of emergency, as well as being able to assist elderly customers and passengers not used to traveling. Service managers make rounds of stations sites and provide guidance to customers. As of April 1, 2007, service managers are located at 31 stations.

#### **Service Assistance**

Since fiscal 2005, we have encouraged our employees to qualify for Service Assistance certification, with the aim of helping them acquire the skills necessary to assist elderly and disabled customers at our sta-



tions, and instilling in them a spirit of hospitality as service providers.By fiscal 2006, approximately 1,300 employees had received level 2 certification.

Poster announcing service assistance

#### **On-board air conditioning**

JR East is working on railcar air conditioning (cooling and heating) to make railway travel more comfortable. On new railcars (E233 and E231 series) fully-automatic airconditioners are installed. On other cars, continuous efforts are made to provide comfortable environments by conductors making frequent temperature checks, thermostat changes and other detailed responses. In June 2006, for example, responding to a trend of increasing comments stating that the air-conditioning on the Yamanote Line was too strong and cold, thermostat settings were raised to 25°C, which was 1°C higher than the traditional setting.

#### Placement of Automated External Defibrillators (AEDs)

AEDs are medical electroshock devices for the treatment of ventricular fibrillation caused by cardiac arrest. The devices have been widely used in the United States and Europe since around 2000. Since fiscal 2005, JR East has been working on placing AEDs near ticket gates, and as of April 2007, 104 stations have been equipped with them. The devices are available not only for treatment by JR East employees, but also by the general public in cases of emergency.

#### Increased Convenience of Suica

The convenience of Suica has gained favor with many, many customers and the number of cardholders now exceeds 21 million. The areas and occasions of usage are also expanding. March 18, 2007, was the starting date for PASMO, a new IC card issued by other railway and bus companies in the Tokyo metropolitan area, and PASMO is interchangeable with our Suica. The use of e-money is also expanding both inside and outside stations.

With functional improvements, more uses that match customer lifestyles has become possible. For example, with Mobile Suica, which was introduced in January 2006, recharging Suica and purchasing commuter passes became possible from anywhere and at any time through mobile phone displays and communications functions, and this eliminates the need for users to stand in line at ticket vending machines in stations. By March 2008, we plan to offer a Mobile Suica Limited Express Ticket service, with which all JR East Shinkansen services can be enjoyed without the need for paper tickets.



Mobile Suica

#### COLUMN

## One IC Card Connects the entire Tokyo metropolitan area

JR East began Suica services, with which passengers can pass automatic ticket gates simply by touching the gate reader with the card, in November 2001. Since then we have expanded the service area within metropolitan Tokyo, as well as carrying out a gradual expansion to the Sendai and Niigata areas. Interchangeable usage with the Tokyo Monorail and TOKYO WATER-RAPID FRONT ARFA TRAN-SIT.Inc.(Rinkai Line) and with the JR West ICOCA card has also been implemented

From March 18, 2007, Tokyo metropolitan area IC card interchangeable use was greatly extended in cooperation with PASMO, a new card issued by transport operators in the Tokyo metropolitan area. With this introduction, almost all trains and buses throughout the area can now be boarded with just one Suica card; thereby realizing seamless travel by various modes of transportation.

In March 2008, we will also introduce interchangeable usage with JR Central's TOICA card. With this, Suica can be used in the Kinki district, Okayama, Hiroshima, Nagoya and Shizuoka areas; thus considerably further expanding its usefulness.

In addition to use on railways, Suica can be used as e-money for shopping in convenience stores and automatic vending machines both in and outside stations, without customers having to bother with coins. This also was extended in March 2007 when it became possible to use Suica in PASMO member stores. By the end of June 2007, Suica was accepted in approx. 19,600 member stores nationwide.

Suica is now an extremely convenient IC card that is invaluable for railway travel, shopping and everyday life.



Suica

#### Making our facilities barrier-free

#### **Barrier-free stations**

JR East has been working in unison with local governments and other entities to install elevators at approx. 490 stations (those with daily throughput of at least 5,000 passengers) in accordance with the Barrier-Free Transportation Law\*1. As of the end of fiscal 2006, we had eliminated the need to climb steps in 64% of the target stations. We expect to provide alternatives to steps at all the target stations by fiscal 2010. We are also installing escalators at approximately 300 stations with daily throughput of 10,000 or more passengers and which have an elevation difference between levels of five meters or more. Pamphlets describing barrier-free facilities are available at major stations, and we show information on our website regarding the main barrier-free facilities of our stations and trains, for persons with physical handicaps\*2.

In order to enable our customers to use stations smoothly and without stress, we are improving and expanding information displays, including the use of pictograms, multilingual guidance signs, and large-text messages.

#### **Barrier-free railcars**

From December 2006, the new universal design E233 series railcars have been introduced sequentially to the Chuo Rapid, Ome and Itsukaichi lines. These modern railcars reflect customer requests provided through questionnaires and on-board surveys.

To improve accessibility for persons with vision impairments, in fiscal 2005 we installed Braille maps and stickers indicating the passenger's current location and the locations of various facilities on all Shinkansen trains. On conventional lines we also are placing Braille stickers identifying car numbers and door locations.



Car doors with reduced difference from platform levels



Elimination of level differences by installing elevators



Up and down escalators

\*1 Installation of elevators,etc.

In addition to legally specified stations, elevators are also being installed at other locations, such as Shinkansen stations.



Easy-to-recognize coloring around doors



Easily identified priority-seat areas

\*2 For persons with physical handicaps URL:http://www.jreast.co.jp/equipment/index.html



Lower overhead luggage racks and supports for standing passengers in priority seat areas and in women-only cars



The LC display above the door provides information about operations and transfers as well as news and weather forecasts



Air-purifiers installed for the first time on commutertype railcars

## **Promoting partnership with communities**

We are working to develop stations into community centers for local societies, oases of relaxation and tools for area revitalization

The JR East Group is actively promoting community-rooted projects such as nursery schools and nursing care facilities, based on the long-term prospect of a declining birth rate and an aging society, and cultural and international communications and the restoration and redevelopment of an important cultural asset, Tokyo Station.

#### Enriching local communities

## Nursery schools and nursing care facilities near stations

To respond to social issues connected to the declining birth rate and the aging of society, with their concomitant requirements for increased levels of child care and nursing care, the Group is developing station nursery schools and nursing care facilities at sites near stations.

Station nursery schools are being developed as a type of business that contributes to society, in cooperation with local governments and child care business operators. As of the end of March 2007, we had 18 nursery schools in operation. Eight of these are located along the Saikyo Line and Saitama New Urban Transit Company's New Shuttle. Continuing this development process, our goal is to make our railway lines helpful for raising children through the construction of nursery schools.

Our nursing care business is currently



Kokubunji J Kids' Station

COLUMN

centered at four sites, including Ohisama Day Service Center, which is attached to a station nursery school near Yonohonmachi Station.

## Making stations engines of community revitalization

Stations are changing from simply being facilities for getting on and off trains to information and cultural bases where people gather socially. JR East has implemented a continuing program of station renewal, employing a variety of methods, with the goal of contributing to local communities through the revitalization of stations.

JR East also has been carrying out various development programs in cooperation with the city planning departments of local governments. Such projects include construction of new stations, the creation and renovation of free passages and station squares, elevating stations to solve prob-



Narita Line Sawara Station, designed to fit the "Little Edo" surrounding area

lems of separation of local communities, and joint development of community halls and libraries. In general, we are making all possible efforts to contribute to lively cities, such as the creation of public areas in Arcade Akabane and other shopping centers. We also are implementing a program of station renewal so that our facilities will harmonize well with surrounding areas.

## Tourism development in coexistence with communities

In recent years, there has been a growing demand for balanced tourism development that considers different aspects, such as the conservation of natural landscapes, and the maintenance and improvement of the society and the life infrastructure in local communities.

In the belief that tourism development ultimately leads to local community development, JR East has instigated long-term initiatives for the creation of tourist destinations that are closely linked with local needs, ranging from drawing up concepts in unison with local citizens, to sending information to the Tokyo metropolitan area. In the Chiba Destination campaign, for example, priority was placed on collaboration with the local community, and in the operation of the Resort Shirakami train, we are joining together with local residents to promote the attractiveness of areas along the line.

## Restoration and redevelopment of the gateway to Tokyo

As part of our Medium-Term Management Plan that advocates "reinvent stations" as a guideline, we have commenced with the Tokyo Station district development plan.

As a first step, in March 2007, 35-floorstall Sapia Tower (the name comes from sapient, having great wisdom) was completed



Image of the completed Yaesu side of the station

near Nihombashi gate on the Yaesu side. As its name implies, many universities and educational institutions have taken floor space and there is no doubt that it will become a valuable venue for intellectual exchange and information dissemination.

This October will see the completion of two high-rise towers, each with more than 40 floors above ground, on the Yaesu side. By removing the existing Tokyo Station Yaesu main building that stands in between, the depth of the station-front plaza will be increased and the transport node function will be improved. The redevelopment will also secure a "wind road" along which sea breezes from Tokyo Bay will flow unhindered into the city center, thus mitigating the heat island effect.

On the other side of the station, the Mar-



The Marunouchi side red brick station building that will be preserved and restored

unouchi side, preservation and restoration of the original red brick station building commenced in fiscal 2007.

The station building is one of the country' s most important cultural assets and could be called the "face" of the capital. The roof, third floor and dome were damaged during World War II and it had been temporarily restored as a two-story building. On completion of the present work, however, it will be fully restored to its original glory and look as it did when it was built in 1914.

#### International contributions

## International cooperation on technology and know-how

JR East widely shares its technologies and expertise with people and organizations overseas.

In fiscal 2006, for example, 446 people from 45 countries visited us. Information provision and on-site inspections and seminars covering a wide variety of subjects were provided, including an introduction of the issues and methods concerning privatization of a national railway, such cuttingedge technologies as Shinkansen trains and the Suica IC fare-card, conservation of the global environment, and our lifestyle services businesses.

In addition, based on requests from such organizations as the Japan International Cooperation Agency (JICA), we are actively involved in international cooperation through the dispatch of our railway experts to Asian and other neighboring countries to provide on-site advice.

### International cooperation activities in fiscal 2006

Dispatch of experts	Short-term (less than 1 year)	1 person, 2 trips to 1 country
Acceptance of trainees	from JICA	Total 66 persons
Acceptance of visits	from 45 countries	Total 446 persons

## Interactions with foreign railway companies

JR East has concluded cooperative agreements with German, Italian, and French national railway companies in order to better exchange information on R&D and management. We dispatch and receive each other's personnel, with the long-term goal of promoting mutual communication. We also exchange information on railway-related technologies, management, and other matters with our counterparts in China, South Korea, and other Asian countries. These interactions with foreign reilway companies are examples of our efforts for the promotion and development of the railway industry throughout the world.

#### East Japan Railway Culture Foundation

JR East established the East Japan Railway Culture Foundation\*1 in 1992 to enable the company to constantly contribute to social activities. The foundation has promoted local cultures, studied and researched railways, and taken part in international cultural exchanges through our railway business.

## Study and research into railways, and international interactions

The foundation has sponsored studies and research on "Railway Culture and the Future Transportation Society" as a basic theme, and published the research findings as well as the foundation's activities on its website. It has also provided other theme-specific information as CD-ROMs and DVDs.

The foundation also has published the Japan Railway & Transport Review (JRTR) and other railway-related English publications, to provide an international discussion forum among specialists.

In addition, the foundation has invited young managers from Asian railway companies to visit for railway management and technology training. In fiscal 2006, a total of 44 managers were invited from China, Indonesia, Malaysia and six other Asian countries.

#### **Promotion of local culture**

The foundation has sponsored activities at various locations in eastern Japan in order to preserve and pass on Japan's precious cultural heritage and traditional arts, as part of its initiatives to promote local culture.

In fiscal 2006, the foundation offered a total of approximately 52 million yen in grants to 15 projects, including those to renovate Ichinomiya Hachiman Daijin Yatai in Kanagawa Prefecture and to preserve Omejuku in Tokyo.

The current restoration of the Marunouchi side of Tokyo Station unfortunately required the foundation to temporarily close Tokyo Station Gallery. As alternatives, it now holds exhibitions at Old Shimbashi Station and other venues.

#### Toward the next generation

#### **Railway Museum**

The new Railway Museum to be constructed and operated by East Japan Railway Culture Foundation in Saitama City, Saitama Prefecture, is scheduled to open in October 2007. The Museum will exhibit and store cultural heritage exhibits that were taken over from the former Transportation Museum and a great number of documents about railways, and will also independently undertake studies and research.

The museum is expected to be one of the world's top railway related museums in terms of scale and quality, and will have two unique zones. The History Zonenhcih will exhibit 36 preserved railcars and other rolling stock and scenery reproduction panel displays will show the evolution of the railway system from the viewpoint of the industry's history. In the Learning Zone, children can experience and study the fundamentals and mechanisms of railways through unique learning programs.



The new Railway Museum scheduled to open in October 2007.

#### Children's Railway Association

The Children's Railway Association is managed by the Traffic Manners Association, with the aim of raising children's awareness of proper manners on public transportation. In our service area, there are approximately 500 active members in 12 branches. JR East has established related facilities in each of our branch offices and actively supports the association so as to contribute to an improvement of manners on public transportation by the next generation, and provides opportunities for such activities as clean-up work in train stations and field trips to railway facilities and branch offices.

## **Creating a favorable work environment**

The main driving force of Group development is job satisfaction of each and every employee. We will continue to make improvements in the creation of a workplace where employees can have pride in their work and constantly strive for higher ideals, and a system where all employees respect individual lifestyles and enjoy their work.

#### Human resources management

#### **Basic concept for employment**

Based on the New Frontier 2008 mediumterm management plan, JR East has promulgated a policy of hiring and developing employees "who can take on the challenge of achieving a higher level of standards without being daunted by any changes," and "who can think and act on their own initiative."

In railway operations, which form the core of JR East's business, we basically guarantee long-term employment in the belief that work experience will eventually lead to improved skills and support stable business operations.

#### Recruitment

As a cornerstone of corporate development into the future and from the perspective of advancing organizational vitalization and strategic management, JR East annually hires approximately 1,400 new recruits. Our selection and hiring of new employees is done in a fair and equal manner with due respect for human rights.

## Employing persons with disabilities

Believing the employment of people with disabilities to be an important social responsibility, JR East has actively recruited them, and as of June 2007, they accounted for 2.09% of our workforce. Although government safety regulations and ordinances place some restrictions on the types of work available in the railway business for people with disabilities, we are striving to secure positions for them based on the principle of normalization\*1.

### Trends in the recruitment rate of persons with disabilities (%)

June 2005	1.91
June 2006	2.07
June 2007	2.09

#### \*1 Normalization

A concept under which the normal form of society is seen to have senior citizens, persons with disabilities and healthy people live together in a community of mutual help and assistance, instead of a system of segregation.

#### Human resources development

## Acting independently and with initiative

It is indispensable for the development of JR East as whole to develop independently minded employees who can not only perform his or her assigned duties but also take on challenges at their own initiative. From this perspective, we are actively developing human resources based on our principles of "improving technological and management capabilities at work", "providing better services from customer perspectives", and "developing the next generation of management."

## Small groups and proposal activities

Our employees voluntarily form small groups to solve issues they discover in their workplaces. In fiscal 2006, for example, approximately 35,800 employees belonging to approximately 5,300 small groups participated in such activities.

Proposal activities which solicit ideas and opinions on improvements concerning employee tasks are also very actively carried out. In fiscal 2006, approximately 620,000 proposals, around 12 proposals per employee, were made.

#### Variety of training programs

JR East has established many training programs to help employees develop their own skills.

Besides offering a wide range of training programs relating to safety, service, and management at the JR East General Education Center and branch office training facilities, we also provide external correspondence courses to support employee learning of general knowledge and to enable them to earn specific qualifications. We also offer internal correspondence programs on railway business subjects as part of our effort to develop our personnel.

In order to assist our employees in broadening their perspectives, we also provide many opportunities for them to voluntarily take part in programs designed to develop their capabilities, including public seminars, ship-board training, and courses at domestic colleges or universities. In fiscal 2006, a total of 86,300 employees participated in such training programs.

#### **Corporate venture system**

The corporate venture system was renamed J-Tomorrow in 2000 and has been revitalized to operate in the fields such as finding and fostering human resources, and the expansion of our lifestyle services businesses.

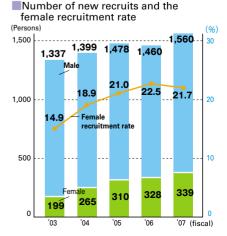
From fiscal 2000 to 2006, approx. 1,400 applications had been received and five have been commercialized, including Chabuzen station restaurants and a private mailbox service for Suica card members called Eki-ad.

## Creation of a favorable work environment

## Successful female employees (F Program)

Since the amendment of the Labour Standards Law and the Equal Employment Opportunity Law in 1999, JR East has actively implemented measures to employ more females and to expand their scope of employment. In April 2004, the "F Program" was inaugurated to encourage female employees to play more active roles. Under the auspices of the "F Program, in addition to the above-mentioned mesures" efforts are also being made to improve systems that support a balance between work and childcare, and to improve the work environment and our corporate culture for female employees.

The percentage of female employees hired has exceeded 20% since fiscal 2005, and in fiscal 2007, we hired 339 women. Their choice of position is expanding steadily, and as of April 2007, among our 3,040 female employees, there are about 60 train drivers, about 280 train conductors, and women who are Group company managers and in other important roles.



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#### Childcare and nursing care leave

At JR East, 134 employees took childcare leave in fiscal 2006; five of them were male employees. Since the introduction of the system, a total of over 70 male employees have benefited from this system.

For nursing care, a system is now in place where up to one year of leave can be taken; this far exceeds the legal requirement of 93 days. In fiscal 2006, 20 people benefited from this system.

#### **Senior citizen reemployment**

A Reemployment Opportunity System has been inaugurated to provide work opportunities in Group companies for those wishing to continue to work after retiring at the mandatory age of 60.

#### Work environment data

Total annual working hours	1,849 hours
Overtime working hours	129 hours
Rate of annual paid-vacation tak	ken 91%

(Number of vacation days granted: 19.6 / Number of vacation days used: 17.9)

## Raising employee awareness of human rights

JR East is constantly striving to raise awareness of human rights among all employees by establishing Human Rights Committees, providing training programs, and publishing newsletters.

#### COLUMN

#### Key to success is reform of employee awareness

JR East is continuing with the "F Program" with the aim of developing an environment where female employees can fully demonstrate their abilities. After its introduction three years ago, as the cases below show, the number of employees achieving a good balance between work and childcare is increasing.

In the belief that if we are to achieve a balance between work and childcare, the understanding and support of all those in the workplace, including male employees, are indispensable, we are actively working to reform employee awareness.

#### Five pillars of the F Program

- 1 Expand the number of female recruits and their work opportunities to play an active role
- 2 Enhance systems for supporting a balance between work and childcare
- 3 Increase the number of women in management positions
- 4 Improve workplace culture and atmosphere
- 5 Improve the self-esteem of female employees



A warm "Are you OK?"

Akiko Yamada Manager

#### Strategy & Planning Project Transport & Rolling Stock Department JR East Head Office

I am involved on a strategic work reform project with the goal of providing safer, more comfortable transport to customers.

For me, the workplace is a place for selffulfillment, but to achieve this, I need the support of all people in the workplace as well as the support of my family. Fortunately, the number of employee families with double incomes has increased around me and I sense a growing awareness of the necessity of a balance between work and family from most employees, no matter whether male or female. When an overnight business trip is being planned, for example, someone will ask "are you OK?" That kind of warm atmosphere helps considerably. I myself have taken one year of childcare leave for each of my two children, and was able to resume work smoothly.

I thank all workmates for their support and I am determined not to take too much advantage of it; instead, I would like to design each day carefully.



A culture of mutual help Sumiko Noguchi Manager Musashi-kosugi Station View Plaza Yokohama Branch Office

With the warm support and encouragement of others in my workplace, I am spending fulfilled days of work and childcare.

What is most memorable is that just after assuming the position of office manager, I had to leave early twice a week to pick up my child, but, as a manager, I was reluctant to leave before other members of staff who were still working to meet deadlines. Sensing my feelings they cheerfully said to me "You needn't worry. It's all right. Please leave." I will never forget my feeling of gratitude at that time.

I keenly feel that we can work to the best of our abilities, not just because there are systems of childbirth and childcare leave in place, but because the company has a culture of mutual help.

## **Basic Concept on Environmental Protection**

In 1992, the JR East Group adopted its Basic Philosophy of balancing environmental protection with its business activities. Based on this philosophy, we are carrying out specific environmental protection measures by establishing activity guidelines and numerical targets.

#### Basic philosophy and basic policies for promoting ecological activities Basic philosophy (established May 1992) Basic policies (established May 1992) To contribute to customers' lives and local communities by providing a comfortable environment The entire JR East Group, working to-To develop and provide the technology needed to gether, will diligently strive to balance enprotect the global environment vironmental protection with our business activities. To maintain an awareness of environmental protection and raise the environmental awareness of our employees Activity guidelines and targets for the promotion of ecological activities Activity guidelines (established March 1996) We work to prevent the waste of precious energy resources and to reduce CO<sub>2</sub> 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 such substances, and to

- adopt environmentally responsible substitutes when they are available.
   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 placed 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.

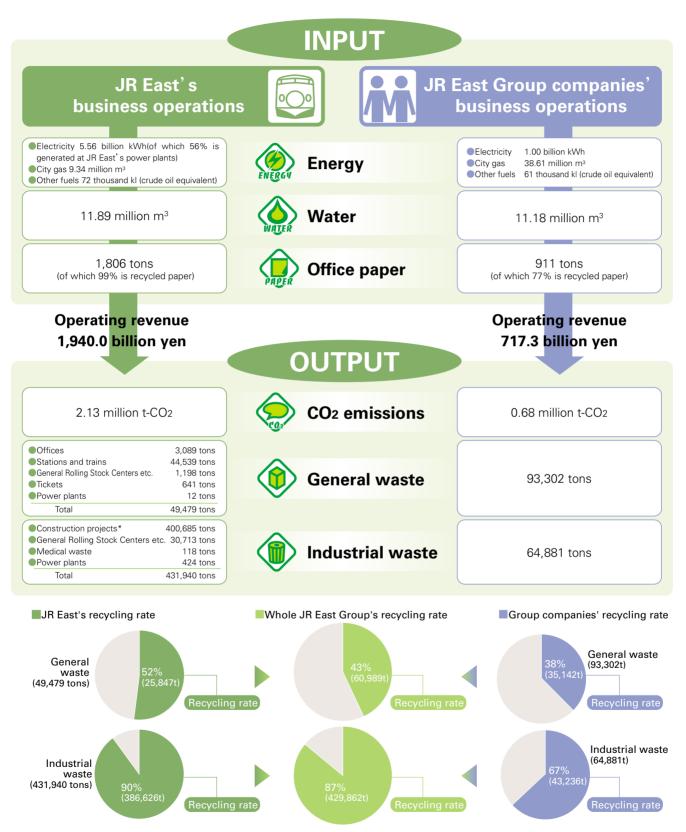
#### Targets to be met by fiscal 2008

(established March 1996; revised November 2000; partially revised September 2002; revised January 2005)

East Japan Railway Company	Target for fiscal 2008
CO2 emissions through business activities	22% reduction
CO2 emissions per unit of electricity generated at JR East's thermal power plant	40% reduction
Energy-efficient train utilization rate	82%
Train energy consumption per unit of transport volume	19% reduction
Number of large refrigerators using specified chlorofluorocarbons (CFCs)	100% reduction
Recycling rate for waste generated at stations and on trains	45%
Recycling rate for waste generated at General Rolling Stock Centers, etc.	85% (average for 4 years of plan)
Recycling rate for waste generated through construction projects	92% (average for 4 years of plan)
Reduction of noise to 75dB or less in designated residential areas along the Tohoku and Joetsu Shinkansen lines	100% (target to be met by fiscal 2009)
NOx emissions from JR East's thermal power plant	63% reduction
JR East Group	Target for fiscal 2008
Recycling rate for general waste	43%
Recycled paper utilization rate	100%
Annual environmental protection activities	Participation in tree planting activities, etc.
	Note: Base year for reduction targets is fiscal 1990

## JR East Group's Environmental Impact

The JR East Group consumes a large amount of resources through its operations and consequently emits a number of substances into the environment. The JR East Group keeps track of the quantities of these inputs and outputs (i.e., the balance of resources, energy and other factors) in an effort to reduce our impact on the environment.



\*Industrial waste includes waste generated by contractors through our construction projects.

## Accomplishments in fiscal 2006 in relation to targets to be met by fiscal 2008

JR East has set environmental targets to be met by fiscal 2008. Each fiscal year, we quantitatively and qualitatively review our performance in order to identify the causes of issues, and use this information for improvement in the following fiscal year.

Category of environmental conservation activities		Target to be met by fiscal 2008	Base value (base year: fiscal 1990)	Target value
Environmental management	<ul> <li>Environmental management led by the Committees on Ecology at JR East Head Office and branch offices</li> <li>Commencement of JR East Eco Activities</li> </ul>			
Measures to prevent global warming	<ul> <li>Introduction of energy-saving railcars</li> <li>Promotion of intermodal transportation (Park-and-ride schemes, Rail &amp; Rent-a-Car service, etc.)</li> <li>Reduction of CO<sub>2</sub> emissions from power generation and supply</li> </ul>	CO2 emissions through business ac- tivities CO2 emissions per unit of electricity generated at JR East's thermal power plant Energy-efficient train utilization rate Train energy consumption per unit of transportation volume Number of large refrigerators using specified chlorofluorocarbons (CFCs)	2.76 million t-CO2 726g-CO2/kWh – 20.6 MJ/car-km 82 units	22% reduction (2.15 million t-CO2) 40% reduction (436 g-CO2/kWh) 82% 19% reduction (16.7 MJ/car-km) 100% reduction (0 units)
Measures for resource circulation	<ul> <li>Reduction and recycling of waste collected from stations and trains (sorted waste collection, more recycling centers)</li> <li>Reduction and recycling of train tickets</li> <li>Recycling of waste generated at General Rolling Stock Centers and through construction projects</li> <li>Utilization of office paper made from recycled newspapers collected at stations</li> </ul>	Recycling rate for waste generated at stations and on trains Recycling rate for waste generated at General Rolling Stock Centers,etc. Recycling rate for waste generated through construction projects Recycling rate for general waste Recycled paper utilization rate	- - -	45% 85% average for 4 years of plan* 92% average for 4 years of plan* 43% 100%
Chemical substance management	<ul> <li>Reduction of environmental pollutants generated at the Kawasaki Thermal Power Plant</li> <li>Appropriate management and treatment of waste with PCBs</li> </ul>	NOx emissions from JR East's thermal power plant	994 tons	63% reduction (368 tons)
Environmental activities along railway lines	<ul> <li>Implementation of noise reduction measures along Shinkansen and conventional lines (soundproof walls, continuous welded rail, and other measures)</li> <li>Utilization of spring water in tunnels</li> </ul>	Reduction of noise to 75dB or less in designated residential areas*1 along the To- hoku and Joetsu Shinkansen lines	-	100% target to be met by fiscal 2009
Environmental communication	<ul> <li>Communicating environmental information through railcar advertisements and at stations</li> <li>Tree planting along railway lines</li> <li>Tree planting under the Adatara Hometown Forestation Program</li> <li>Publishing the Sustainability Report, environmental campaigns</li> </ul>	Taking part in specific environ- mental protection activities every year	-	
Research & development	<ul> <li>Development of fuel-cell hybrid railcar</li> <li>Development of noise reduction technology</li> <li>Research and development on cyclical use of resources</li> </ul>			

Targets for the JR East Group

\* "average for 4 years of plan" is the fiscal 2005-2008 average.

Results for fiscal 2005 *actual value in parentheses	Results for fiscal 2006 *actual value in parentheses	Evaluation	Described on pages
			42 - 43
7% reduction (2.58 million t-CO2)	23% reduction (2.13 million t-CO2): (calculated using new coefficient) 28% reduction (1.99 million t-CO2): (calculated using former coefficient) *2	Achieved 😰	
26% reduction (534 g-CO2/kWh)	38% reduction (453 g-CO2/kWh): (calculated using new coefficient) 41% reduction (431 g-CO2/kWh): (calculated using former coefficient) *2	Achieved 🖉	
81%	83%	Achieved 🕼	46 - 49, 53
15% reduction (17.6 MJ/car-km)	13% reduction (18 MJ/car-km): (calculated using new coefficient) 17% reduction (17.2 MJ/car-km): (calculated using former coefficient) *2		
88% reduction (10 units)	91% reduction (7 units)		
47%	50%	Achieved 🕼	
90%	90%		50 - 52
89%	90%		
42%	43%	Achieved 🕼	
92%	92%		
54% reduction (462 tons)	71% reduction (289 tons)	Achieved ()	53
Target was met in residential areas	25%	0	54 - 55
31,000 trees planted at 18 locations by 3,600 participants	35,000 trees planted at 17 locations by 4,400 participants		56 - 57
			45

#### \*1 Measures to reduce noise along the Tohoku and Joetsu Shinkansen lines

As we have expanded the coverage of noise reduction measures along Shinkansen lines since fiscal 2006, we are now working on the targets to be achieved by fiscal 2009.

#### \*2 Change in calculation methods

For CO2 emission volumes due to use of electricity and fuel and energy consumption volume, up until fiscal 2005 calculations have been done with reference to Nippon Keidanren's Keidanren Voluntary Action Plan on the Environment. From fiscal 2006, JR East changed the methods to those stipulated in the Act Concerning the Rational Use of Energy and Act on Promotion of Global Warming Countermeasures. For fiscal 2006, figures calculated by both former and revised methods are shown.

#### **Results for Fiscal 2006**

In fiscal 2006, we achieved our targets in 6 activities.

Beginning in fiscal 2006, due to law revision, newly defined coefficients were used for 3 of our performance indicaters among the measures to prevent grobal warming. However, to clearly represent the effects of our measures on a year-to-year basis, we also reported values calculated using the former coefficients. In working toward our targets, we have chosen to use values calculated using the former coefficients.

In CO2 emissions, we were successful in making massive reductions. Since JR East owns its own hydroelectric power plant and thermal power plant, an increase in the production of electricity at the hydroelectric power plant, which does not consume fossil fuel, led to the reduction in the volume of CO2 emissions. In March 2006, our hydroelectric power plant, damaged by the Niigata Chuetsu Earthquake in October 2004, was restored, with repair of all components affected by the earthquake. Substantial improvements also resulted from our partial shifts from kerosene to natural gas at our thermal power plant in June 2006, along with progress in the introduction of energysaving railcars. There were also external causes, such as an increase in electricity generation volume at our hydroelectric power plant because the volume of river water was greater than usual. We will strive even harder in the future to reduce our total CO2 emissions.

Two of the four years of working toward our fiscal 2008 targets have now passed. In the two years to come, while continuing to work on measures for targets we have already achieved, we will work harder on areas in which we are behind schedule.





## A management system to promote environmental conservation activities

To lessen the burden on the environment that is created from our business operations, we at JR East promote environmental conservation activities across our departments. To support these activities, we have a cross functional management system for the whole group and offer environmental education to promote employee awareness.

## Promotion of environmental activities as an entire group

## Expansion of environmental activities

JR East believes that it is important to promote environmental activities in which every JR East Group employee can voluntarily and actively engage. We set goals for these activities and implement effective measures.

To be more specific, we are trying to expand the scale of our environmental activities through the development of the "JR East Eco Activities", measures to promote environmental activities at each work place, the education of leaders through environmental education, and sharing of exceptional environment measures through the presentation of awards. In addition, the Committee on Ecology, which serves to link together all the work sites, sets specific numerical targets for promotion of these activities.

## Promotion of environmental activities at each work place

"JR East Eco Activities" is promoted to create "a business climate to think about the environment" at each work place and to initiate specific environment conservation activities. By having each employee work on what they can do in their day-today work, we plan to lessen environmental burdens and at the same time enhance the environmental awareness of our employees. We started trial use of "JR East Eco Activities" in fiscal 2004. By the end of fiscal 2006, the activities began at all work places, including the head office, all branch offices, and all construction offices.



In-house magazine "JR Higashi" carries information on environmental activities, the "JR East Eco Activities", at each work place to be shared among our employees.

## Implementation of environmental education

For effective environmental management, it is essential that all employees have appropriate knowledge on environmental issues. We provide environmental education lectures to a large number of our employees, ranging from new employees to people who promote environmental activities in JR East and group companies. Through these lectures, we aim to expand the scale of our environment activities. In 2006, to enhance environmental activities at each group company, we began an "Environment management training" program for people in charge of environmental matters in those companies. In addition, we distribute a summary version of the JR East Group Sustainability Report to all of our employees.



Educational training for employees who promote environmental activities

#### Environmental education system

#### Education of environmental-activity promoters at organizations of JR East and group companies Environment management training (group companies) Persons trained: those responsible for environment at group companies Objective: improvement of ability in environment management Number of participants: 30 Environment management practical training

Persons trained: those responsible for environment at local
 organizations, etc.

- Objective: improvement of ability in environment-related
- matters as trainers to field offices, etc
- Number of participants: 27
- Training for personnel responsible for environmental measures
- Persons trained: those responsible at each branch office
   Objective: acquisition of basic knowledge such as environment-related laws
- Number of participants: 21
- Environment education targeting a large number of participants Training for new recruits: 1,455 Training for work-implementation managers: 219 Training for new on-site supervisors: 161 Other training at branch offices. etc.: 21

## Recognition and awards for employees' environmental initiatives

To reward outstanding environmental activities and in an effort to share the activities with other employees of JR East group, we began rewarding organizations that had made environmental contributions in fiscal 2005. In fiscal 2006, awards were given to 2 organizations and 3 group companies for their active and voluntary engagement in environment activities.



Award presentation ceremony in fiscal 2006

#### Award winners for fiscal 2006

Award winners	Contents of activities				
[Recognition from President]					
JR East Sendai Branch Office	Active promotion of JR East Eco Activities and tree planting activities				
JR East Consultants Company	Promotion of rooftop afforestation at each group company				
[Recognition from Director General of Corporate Planning Headquarters]					
JR East Takasaki Branch Office	Promotion of recycling of waste from stations and trains, and active provision of environmental information				
JR Utsunomiya Planning & Development Co., Ltd.	Setting of environment targets at all work places and promotion of specific activities				
JR Technoservice Sendai Co., Ltd.	Development and introduction of detergent with less toxic substances for washing railcars				

#### **Environment management system**

## **Cross-functional environmental** activities for the whole JR East group

JR East's Committee on Ecology studies the impacts of our business activities on the environment; sets environmental targets; implements environmental conservation activities; evaluates the levels of achievement regarding the targets; and ensures supervision by the top management.

The Committee was established in 1992 with its office at the Management Planning Department, and functions as a cross-departmental body, chaired by the President and CEO of JR East, with members consisting of the General Managers from each department.

In fiscal 2006, we comprehensively reviewed the "subcommittees" in the Committee on Ecology in order to investigate the measures for each theme and establish a new system to sort out emerging issues and increase the speed of investigation.

We hold an annual JR East Group Environmental Management Promotion Conference which includes representatives from all JR East Group companies. At the fiscal 2006 conference, the representatives shared issues affecting the whole group and recognized the excellent efforts of those among the participants.

#### **ISO14001 certification**

JR East has been striving to acquire ISO14001 certification. The certification is an international standard for environmental management systems. At JR East we are working to acquire the certification mainly at facilities that have relatively large environmental impacts.

All of our General Rolling Stock Centers, which are responsible for train maintenance, are certified under ISO14001.

#### ISO14001-certified facilities

Certified facilities	Year and month of certification				
⟨JR East⟩					
Niitsu Rolling Stock Manufacturing Factory	Feb-99				
Kawasaki Thermal Power Plant	Mar-01				
Tokyo General Rolling Stock Center	Mar-01				
Niigata Mechanical Technology Center	Mar-01				
Omiya General Rolling Stock Center	Mar-02				
Shinkansen General Rolling Stock Center	Nov-02				
Koriyama General Rolling Stock Center	Dec-03				
Nagano General Rolling Stock Center	Feb-05				
Akita General Rolling Stock Center	Jul-05				
<group companie<="" td=""><td>s&gt;</td></group>	s>				
East Japan Eco Access Co., Ltd.	Nov-99				
LUMINE Co., Ltd.	Dec-00				
Nippon Restaurant Enterprise Co., Ltd. (manufacturing section)	Sept-02				
Nagano Railway Servicing Co., Ltd.	Jan-07				

#### Internal environmental audits

At our General Rolling Stock Centers, for example, in-house auditors are trained through external training programs, and conduct routine audits at the centers in order to evaluate environmental activities. On one occasion, internal environmental auditors pointed out that a Material Safety Data Sheet (MSDS) for some coating materials had not been obtained, and this was subsequently corrected.

#### **Environment risk management**

JR East is working to establish a system to prevent environmental accidents by more rigidly managing chemical substances. We prepared emergency response manuals for on-site locations such as our thermal power plant and General Rolling Stock Centers that handle chemical and hazardous substances. We are also preparing ourselves to properly respond to any contingencies by holding workshops and training sessions on how to handle such substances, and ensuring that related information reaches all related personnel.

#### **Environment-related accidents**

In fiscal 2006, there were no environmentrelated accidents and no cases of violation of any environmental law or and regulation in the JR East Group.

President : President and CEO, JR East Chair Vice-Chair : Director Generals of Corporate Planning Headquarters, Railway Operations Headquarters, and Life-Style Business Development Headquarters Members : Deputy Director General of Corporate Planning Headquarters, General Managers of Management Planning Dept., Investment Planning Dept., Technology Planning Dept., Marketing Dept., Transport & Rolling Stock Dept., Facilities Dept., Life-Style Busin General managers and department Development Headquarters, Construction Dept., Public Relations Dept., Finance Dept., managers of branch offices Personnel Dept., Health & Welfare Dept., Legal Dept., and Administration Dept. Promotion of environment conservation activities at each work place, pro \* JR East Eco Activities WG Environmental JR East Group environment motion of environment management as a whole group, management of management environmental targets and publication of environmental activities, etc. management promotion WG \* Eco station WG Reduction of CO2 emissions through reduced electricity use Measures to prevent and new energy technologies, reduction of  $\text{CO}_2$  emission volume throughout the entire transport system,etc. Eco railcar WG global warming \* Railway usage promotion WG Recycling of wastes from stations and trains, reduction and recycling of industrial waste, eco-friendly procurement, etc. Measures for \* Station & train waste WG resource circulation Chemical substance Management of ozone depleting substances, chemical sub-\* PCB waste WG stances, PCB, etc. management \* Railway trees conservation & Environmental activities Measures against noise, utilization of spring water in tunnels, conserutilization WG vation and utilization of railway trees, proper use of herbicide, etc. along railway lines \* Proper herbicide usage WG

Organizational structure to promote environmental management (as of March 31, 2007)

### Utilization of environmental accounting and the environmental management indicator in our management

JR East utilizes environmental accounting to ascertain our environmental conservation investments and expenses, as well as environmental conservation benefits. The results, along with our own environmental management indicator, are used as part of the bases for management decision-making.

#### **Environmental accounting**

#### Summary of fiscal 2006

In fiscal 2006, our environmental conservation costs amounted to approximately 63.3 billion ven in investments and 15.4 billion yen in expenses.

Global environmental conservation activities, which accounted for a major part of the investments, were primarily the introduction of energy-efficient trains on the Chuo, Joban, and other conventional lines and the reconstruction at our own thermal power plant to change its fuel to natural gas.

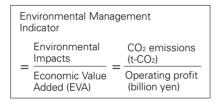
We estimate that the introduction of energy-efficient trains will reduce CO2 emissions by 0.45 million tons over their total service life.

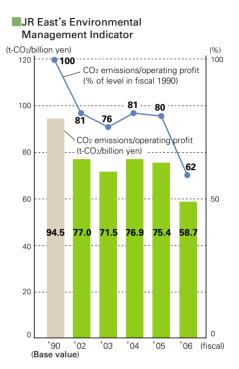
JR East has its own Environmental Management Indicator to assess the relation between our business activities and envir-

#### Environmental accounting for fiscal 2006

onmental impacts. It is calculated by dividing CO<sub>2</sub> emissions, which are a major factor in environmental impacts, by operating profits, which represent our Economic Value Added (EVA)

This means that the smaller the number calculated by this formula is, the more Economic Value Added we have created with smaller impacts on the environment. For fiscal 2006 the value of the indicator was 58.7 t-CO<sub>2</sub>/billion ven, compared with 94.5 t-CO<sub>2</sub>/billion yen for fiscal 1990.





Category	Environmental conservation costs (billion yen)		Environmental conservation benefits in relation to environmental targets			Economic benefit c environmental cons	
	Investments	Expenses		Fiscal 2005	Fiscal 2006	vation activities (billion yen)	
Environmental conservation (pollution prevention) activities along	5.38	5.41	Implementation of noise reduction measures along Shinkansen and conventional lines (sound- proof walls, continuous welded rail, and other measures)	Completed in residential areas	25%	_	
railway lines			NOx emissions from JR East's thermal power plant	462 tons	289 tons		
			CO2 emissions through business activities	2.58 million t-CO2	2.13 million t-CO2		
Global environmental			CO2 emissions per unit of electricity generated at JR East's thermal power plant	534g-CO2/kWh	453g-CO2/kWh		
conservation activities	57.89	_	Energy-efficient train utilization rate	81%	83%	27.99	
activities	57.89		Train energy consumption per unit of transportation volume	17.6 MJ/car-km	18.0 MJ/car-km	27.00	
			Number of large refrigerators using specified chlorofluorocarbons (CFCs)	10 units	7 units		
		- 4.73	Recycling rate for waste generated at stations and trains	47%	50%		
-			Recycling rate for waste generated at General Rolling Stock Centers, etc.	90%	90%		
Resource circulation activities	_		Recycling rate for waste generated through construction projects	89%	90%	1.89	
			Recycling rate for general waste	42%	43%		
			Recycled paper utilization rate	92%	92%		
Environmental management	0	0.53	Taking part in specific environmental protection activities every year         (Railway Line Forestation Programs and Tree Planting under the Adatara Hometown Forestation Program	31thousand trees planted at 18 locations by 3,600 participants	35thousand trees planted at 17 locations by 4,400 participants	_	
Environmental research & development	—	4.68				_	
Societal activities	—	0.05				-	
Total	63.27	15.40				29.88	

Capital investment for the period 315.3 billion yen Total R&D costs for the period:

16.9 billion yen \*1 Targets for the JR East Group

#### \*1 Total R&D cost

Total R&D costs include 5.7 billion yen of costs for basic research and development commissioned to the **Bailway Technical Research Institute** under a research agreement.

Targets and results pages 40-41 as fol-

"Environmental conservation activities along railway lines" = "Environmental ac-tivities along railway lines" and "Chemic-al substance management" "Global environmental conservation acti "= "Measures to prevent global warming" Vites = Nreasures to prevent good warming and "Chemical substance management" "Resource circulation activities" = "Measures for resource recycling" "Environmental management" = "Environ-mental management" and "Environmental communication"

"Environmental research & developmen

" = "Research & development" 'Societal activities" = "Environmental

communication

communication?

Environmental conservation costs

Environmental conservation costs Obata are for East Japan Railway Company only (i.e., non-consolidated data). OEnvironmental conservation costs are mainly based on data available in the current management system. The total costs are treated here as environmental costs where the costs have multiple objectives and result in large environmental benefits. (e.g., Global environmental conservation costs include the total amount invested in energy-efficient trains). OExpenses do not include depreciation charges.

OExpenses do not include depreciation charges. Of the costs for resource circulation activities, expenses for treating waste generated at stations and trains are calculated by multiply-ing the allocations by the Expenses for cleaning stations and train cars, based on a model for cleaning stations and trains. On the costs for resource circulation activities, the expenses for treating waste generated through construction projects are calcula-ted by multiplying waste volume for fiscal 2006 by standard unit prices for the type of waste in that region. Environmental conservation benefits are calculated based on figures set as our environmental targets. Economic heapting the integration activities.

Economic benefit of environmental conservation activities

OEconomic benefit of global environmental conservation activities is calculated by multiplying annual savings (estimates are used in some cases) in electricity and repair costs resulting from the introduction of energy-efficient trains by the expected useful life, to determine useful-life economic benefit.

Olncome from the sales of waste generated at General Rolling Stock Centers and through construction projects is included in economic benefit of resource circulation activities

## Research and development contributing to environmental conservation

JR East is committed to contributing to environmental conservation through research and development, and has set "Contribution to the Global Environment" as one of the five fundamentals of our R&D initiatives.

Specifically, our main R&D initiatives related to environmental conservation are the creation of new energy-saving systems; the promotion of resource circulation efforts by considering 3R (reduce, reuse, and recycle) in designing and manufacturing; and the conservation of the environment along railway lines by reducing noise and environmental pollution.

In this column we present the latest examples of new energy-saving systems.

#### Operation of the world's first diesel hybrid railcar in the Shinshu region

In July 2007, the world's first diesel hybrid railcars, the Kiha E200 Type, entered service on the Koumi Line. Diesel hybrid railcar operate efficiently by using electricity generated by a diesel engine to charge a battery which reduces emissions and by regenerative brakes, which charge the battery when braking.

Efficiency in tests was approximately 20% better than a standard diesel railcar\*. The diesel hybrid railcar is quiet when idling at a station (approx. 30dB). Hazardous substances in the exhaust, such as NOx and graphite, are reduced by approximately 60%.

\*Results are based on test runs on level ground. On the Koumi Line, which has steep grades, efficiency improved by approximately 10%.



Five fundamentals of research and development



The world's first diesel hybrid railcar operating on the Koumi Line

#### For the future, the world's first fuel-cell hybrid railcar

Hopes are rising for fuel cells as an electricity-generation technology with low environmental impact. Fuel cells feature high electricity-generation efficiency, and the only byproduct generated through their reactions is water.

JR East is currently proceeding with research and development of fuel cell systems for railway applications. In 2006, we began test runs of the world's first fuel-cell hybrid railcar. In spring 2007, we started test runs on operational lines. The fuel-cell railcar is currently being tested at around 100km/h. We continue to develop control, safety, and other technologies, and are advancing to meet future challenges.

There are still many challenges to overcome with fuel cell technology, and it will take some more time before its commercially viable application, but we are committed to the development of this technology with an eye on the future.

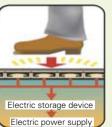


#### Turning the commuter rush into energy: a power-generating floor

We are working on research and development of a "power-generating floor" which generates electricity from the vibration caused by people walking on it. Pressure of footsteps on the floor is transformed into electricity by piezoelectric elements under the floor. From October to December 2006 the powergenerating floor was installed on the passageway at the Tokyo Station Marunouchi North Exit ticket gate, as a demonstration experiment. The output is small and it is still in the development phase; we are working on this development as one of our new challenges.



Demonstration experiment at Tokyo Station



Mechanism of the powergenerating floor

## What JR East Group is doing to prevent global warming

In our efforts to reduce  $CO_2$  emissions, the JR East Group pursues the efficient use of energy and the effective use of renewable energy. We also promote intermodal transportation with the aim of reducing  $CO_2$  emissions from all forms of transportation.

#### Measures to prevent global warming

## Current state of energy supply and consumption

The electricity consumed by JR East for train operations as well as lighting and air conditioning at stations and in offices is supplied from two sources: JR East's own power plants and electric power companies. Besides electricity, we also use diesel fuel and kerosene for diesel train operation and air conditioning at stations and in offices. Although our transportation volume is on the rise year after year, our energy consumption has remained at about the same level.

## CO<sub>2</sub> emissions and reduction measures

Our CO<sub>2</sub> emissions in fiscal 2006 amounted to 2.13 million tons, a significant decline from the level of fiscal 2005. The principal reason was that the hydroelectric plant that was damaged in the Niigata-Chuetsu Earthquake in October 2004 was restored to operation in March 2006.

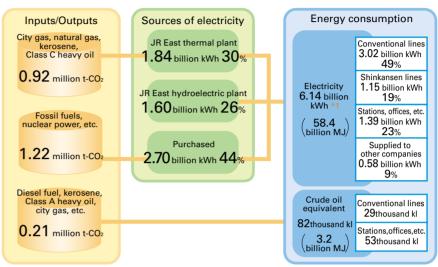
Partial replacement of kerosene by natural gas in June 2006 in the fuel we consume at our own thermal power plant and several other measures we took, were additional factors in this reduction.

Also, water flow in the rivers used by our hydroelectric plant was larger, and this resulted in greater power output. External factors like this may have had an impact.

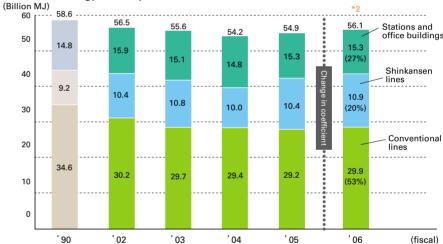
We are determined to continuously implement a wide range of CO<sub>2</sub> reduction measures, while putting priority on the reduction in energy for train operation, which accounts for 73% of the total energy we consume.

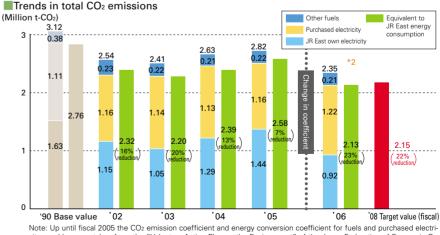
The amended global warming countermeasures law sets forth methods for calculating  $CO_2$  emissions. Beginning with fiscal 2006 performance data, we used coefficients stipulated in the law to calculate total  $CO_2$  emissions and energy consumption.











Note: Up until tiscal 2005 the CO<sub>2</sub> emission coefficient and energy conversion coefficient for fuels and purchased electricity used here are taken from the "Voluntary Action Plan on the Environment" of the Japan Federation of Economic Organizations and the Federation of Electric Power Companies of Japan. Beginning with fiscal 2006, coefficients used are those stipulated in the energy saving law and the law to promote countermeasures against global warming. \*2 Change in calculation methods

#### \*1 6.14 billion kWh

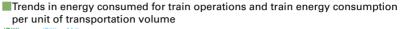
Excluding electricity supplied to other companies, JR East consumed 5.56 billion kWh, which is equivalent to power consumed by 1.45 million ordinary homes over a period of 1 year. Up until fiscal 2005 CO<sub>2</sub> emissions from use of power and fuels and energy consumption were calculated with reference to the "Voluntary Action Plan on the Environment" by the Japan Federation of Economic Organizations. Beginning in fiscal 2006, we have adopted a new method based on the law for rationalization of energy usage and the law to promote countermeasures against global warming. Using the former coefficients, emissions for fiscal 2006 were 1.99 million t-CO<sub>2</sub> (a reduction of 28% compared to fiscal 1990). Also, CO<sub>2</sub> emissions as a specified transportation operator designated by the energy saving law (the emissions generated only by railway operation, excluding offices and hospitals) will be shown to be 2.02 million t-CO<sub>2</sub> in the fiscal 2006 report.

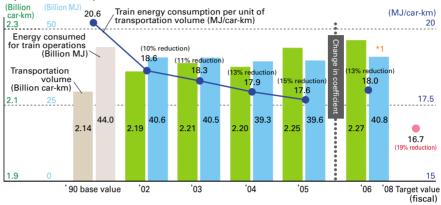
#### **Reducing energy consumed** for train operations

As of the end of fiscal 2006, JR East had 10,376 energy-efficient railcars in operation. This accounts for 83% of our railcar fleet.

We introduced more new-generation energy-efficient railcars, with features such as regenerative brakes, which can convert kinetic energy during deceleration into electric energy, and variable voltage variable frequency (VVVF) inverters, which control motors without wasting electricity.

Energy consumption per unit of transportation volume during fiscal 2006 was reduced by 13% compared with fiscal 1990. This was calculated using revised coefficients in accordance with the amended global warming countermeasures law. \*1







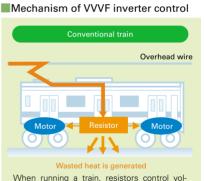
cember 2006



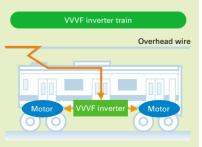
E233 series: State-of-the-art cars in-E2 series: VVVF inverter railcars troduced on the Chuo Line in Deused for Shinkansen "Asama" and 'Hayate" trains.

# Seal L

E231 series: VVVF inverter cars for commuter and suburban transportation

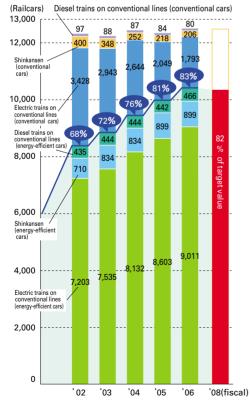


When running a train, resistors control voltage needed for motors, generating heat that is wasted



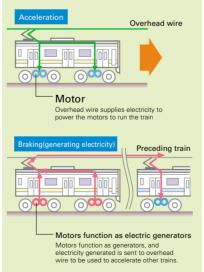
Efficient operation is possible A VVVF (variable voltage/variable frequency) inverter can control electricity without wasting it, making train operation more efficient.

#### Trends in energy-efficient railcars



Regenerative brake mechanism

durina brakina Motors of an energy-efficient railcar function as electric generators when brakes are applied, and electricity generated in this process is transmitted to the overhead wire, making more efficient use of this energy. (In case of a conventional railcar, energy generated by applying brakes is simply discharged as heat.)



\*1 Change in calculation method

Through fiscal 2005 energy consumption was calculated with reference to the Voluntary Environmental Action Program of the Japan Federation of Economic Organizations. Beginning in fiscal 2006, we have adopted a new method based on the law for rationalization of energy usage. Un der the former method, energy consumption for train operation for fiscal 2006 was 39.0 billion MJ and the energy consumption per unit of transportation volume was 17.2 MJ per car-kilometer or a reduction of 17% from the level of fiscal 1990.

#### Reducing CO<sub>2</sub> emissions throughout the transportation system

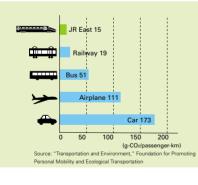
**Environment Measures to prevent global warming** 

#### Reduction of CO<sub>2</sub> emissions throughout the entire transportation system, taking advantage of railway superiority in environmental performance

A railway is a highly energy-efficient mode of transportation with low environmental impact, but railways alone cannot completely satisfy transportation needs of customers. JR East is working to reduce CO2 emissions of the entire transportation system by promoting intermodal transportation \*1 - combining the use of railways with use of other modes of transportation.

Also, to promote intermodal transportation, it is essential that railways improve their convenience and riding quality. We are opening new railway lines to allow passengers to go to their destinations smoothly; we are adding services that operate through on JR East and other companies; we are expanding the area in which one Suica is valid for travel on JR East and also on other lines; we are making our stations and cars barrier-free. All these efforts to create easy-to-use railways for customers can lead to reduction of CO<sub>2</sub>.

#### CO2 emissions by mode of transportation



#### **Park-and-ride schemes**

We are currently promoting park-and-ride schemes, under which we provide parking spaces in front of railway stations so that our customers can drive their cars from home to nearby stations and use our trains from there. By the end of March 2007, 124 JR East stations had prepared parking spaces for eleven thousand cars. \*2.



At 10 stations between Tomobe and Iwaki on Joban Line, parking charges are free for express train customers going farther than a specified distance

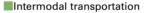
#### **Rail and car rental**

To promote travel by a combination of railways and automobiles, so that travelers can continue to their destination by car after arriving at a railway station, JR East has been offering a car rental service called "Train-ta-kun" since 1995, with discounted rental charges

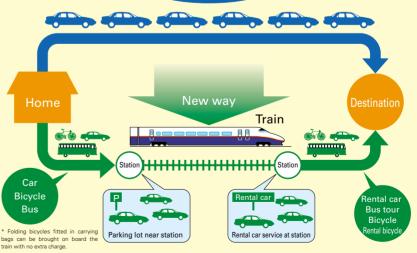
We also offer a service called "Rail & Rent-a-Car," which offers discounts on both train fares and car rental fees. Furthermore, we are facilitating intermodal transportation by introducing new classes of automobiles, such as light cars, by offering attractive rates, and by installing car navigation systems as standard equipment in rental cars.

#### **Travel packages and railways**

JR East is energetically promoting travel packages that use trains as a means of transportation with lower environmental impact, while capitalizing on rich natural and tourist resources in various regions. We propose a wide range of travel options that do not depend solely on automobiles. Examples include car rental plans that allow travelers to enjoy a train journey while benefiting from the mobility of rental cars, and plans for sightseeing by taxi in cooperation with local businesses.







\*1 Intermodal transportation Intermodal transportation means transporta-

tion systems that allow a person to get from a given point to a final destination by connecting different modes of transportation

#### \*2 Parking spaces for eleven thou-

sand cars at 124 stations Parking spaces for eleven thousand cars at 124 stations represent the total number of parking spaces near our stations, including those owned by JR East, operated by our Group companies, and run in collaboration with local municipalities.

#### Reducing CO<sub>2</sub> emissions in supplying electricity

#### More efficient generation and supply of power

Electric power is indispensable for reliable train operation. At JR East we are making power generation more efficient and utilizing more renewable energy, by replacement of facilities in our own power plants, with a view to reducing CO2 emissions.

We adjust the supply of electricity by effectively combining various sources of energy \*1 — electricity generated at our thermal and hydroelectric plants and electricity purchased from outside sources-in accordance with fluctuating electricity demand. Our load dispatch command function plays a vital role in monitoring and controlling the supply of electricity in real time to make power generation more efficient.

#### Our own thermal and hydroelectric power generation

JR East operates a thermal power plant in Kawasaki City, Kanagawa Prefecture, with a total output of 655 thousand kW. By gradually replacing its current four generation units with more efficient combined-cycle power generation units \*2, and by optimizing plant operations, we have reduced CO<sub>2</sub> emissions per unit of electricity generated at the plant by 38% \*3 compared to fiscal 1990. Beginning with fiscal 2006 performance data, we use coefficients stipulated by the national government under the amended global warming countermeasures law. In June 2006, we replaced kerosene with natural gas as fuel for the No.3 generation unit, in our efforts to further reduce CO<sub>2</sub> emissions.

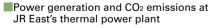
JR East has a hydroelectric plant on the Shinano River (Ojiya City/Tokamachi City, Niigata Prefecture), with a total output of 449 thousand kW. The plant generates 1.4 to 1.8 billion kWh yearly and emits no CO2.

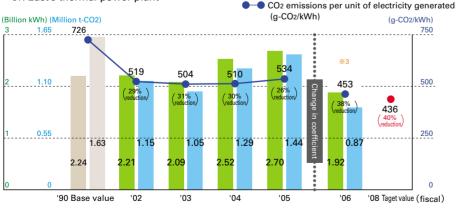


Fuel for the No. 3 generator at the Kawasaki thermal power plant was changed from kerosene to natural gas in June 2006



The disaster-damaged Shinanogawa hydropower plant has been restored.







PV panels installed on the roof of the platforms at Takasaki Station.

Power generation (Billion kWh)

CO<sub>2</sub> emissions (Million t-CO<sub>2</sub>)

Utilization of renewable energy

JR East also utilizes renewable energy such as solar and wind power. Photovoltaic (PV) panels have been installed at Tokyo Station, Takasaki Station, the JR East General Education Center, and the JR East Research and Development Center. In March 2004, we doubled the number of PV panels at Takasaki Station

Reduction of energy consumption at stations

#### **Reduction of air conditioning** energy at large stations

We are working to reduce energy consumption at stations. At large stations it is air conditioning units that consume the most energy.

At Ueno station, in conjunction with the replacement of heat exchangers (air conditioning units) that use CFCs, we analyzed our energy use, and made an optimum energy design by reviewing equipment capacity and introducing inverter controls. As a result of these efforts, we also expect to reduce energy consumption of freezers by 52%. We are making similar efforts for energy reduction at Tokyo station as well.

#### Reducing impact of the heat island phenomenon

#### **Promoting greening of rooftops**

As part of efforts for environmental preservation by the JR East group, which owns many station buildings and office buildings, we have been promoting green plantings on rooftops since fiscal 2004. As of May 2007 we have covered an area of about 5,500 m<sup>2</sup> (equivalent to about 70% of the lawn area of the National Athletic Stadium) in 12 projects. They reduce the effect of the heat-island phenomenon. The plants also absorb CO<sub>2</sub>, and they help reduce air conditioning energy consumption in the buildings because they block some of the sun's heat.

JR East's sources of electricity supply in fiscal 2006 JR East's thermal power plant: 30% JR East's hydroelectric plant: 26% Purchased electricity: 44%

#### \*2 A combined-cycle power generation unit

A combined-cycle power generation unit is a power generation unit that combines gas turbines propelled by combustion gas with steam turbines driven by steam from the exhaust heat

#### \*3 Change in calculation method

Up until fiscal 2005 CO<sub>2</sub> emissions were calculated with reference to the Voluntary Environmental Action Program of the Japan Federation of Economic Organizations. Beginning in fiscal 2006, we adopted a new method based on the law for promotion of countermeasures against global warming. Under the former method, CO<sub>2</sub> emissions per unit amount of generation are 431 g-CO<sub>2</sub>/kWh, down 41% from the level of fiscal 1990

## JR East is recycling and reusing waste materials as resources

A great deal of waste is produced from railway business and lifestyle business. JR East is making efforts to help build sound material cycles by taking three approaches: reducing waste as much as possible, reusing resources repeatedly, and recycling waste into resources.

#### Turning Waste into Usable Resources

## Recycling goals are set for each type of waste

JR East generates many kinds of waste through our railway operations, such as daily trash removed from trains and stations and industrial waste from our General Rolling Stock Centers. In addition, restaurants and retail stores in our lifestyle business produce garbage and general waste. In fiscal 2006, the JR East Group generated 640 thousand tons of waste, 77% of which was reused or recycled.

The amount of waste from construction projects, which are the largest source of waste, varies from year to year with changes in the extent and type of construction. Accordingly, JR East does not set a target for the amount of waste, but sets a target recycling rate for each waste category, and strives to achieve it.

For general waste, the JR East Group is aiming at achieving a recycling rate of 43% by fiscal 2008, and has already reached 43% in fiscal 2006.

## Recycling waste collected from stations and trains

On the average, approximately 16 million passengers use JR East's trains daily. In fiscal 2006, waste collected from our stations and trains amounted to 45 thousand tons, which is equivalent to the amount of household waste generated by 110 thousand people per year in Japan. Since waste collected from our stations and trains includes recyclable materials such as newspapers, magazines and cans, we endeavor to properly sort it and recycle it. JR East has installed separate refuse bins for different types of waste at stations and established our own recycling centers in the Tokyo metropolitan area to ensure thorough sorting of waste after it has been collected

We set the recycling target at 45% to be met by fiscal 2008. In fact, we have already achieved the target and were at 50% in fiscal 2006.

#### **Operation of recycling centers**

JR East has set up our own recycling centers in the Tokyo metropolitan area, where the amount of waste collected from our stations and trains is extremely large, in three locations (Ueno Station, Omiya and Shin-kiba). In fiscal 2006, the recycling centers at Ueno Station and in Omiya collected 5,076 tons of cans, glass bottles and PET (polyethylene terephthalate) bottles from our stations in the Tokyo metropolitan area and Saitama Prefecture, which were then sorted, compressed, and sent to recycling contractors. Meanwhile, 6,780 tons of newspapers and magazines collected at the recycling center in Shinkiba were sent to paper factories and recycled into copy paper. These recycling centers are operated by East Japan Eco Access Co., Ltd., a JR East group company.



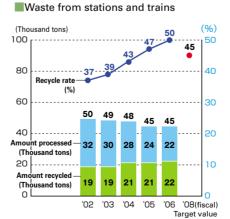
Omiya Recycling Center is sorting and compressing cans, bottles and PET bottles.

## Recycling initiatives at General Rolling Stock Centers, etc.

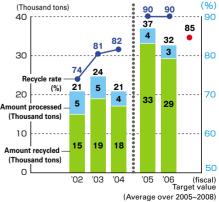
JR East Group is recycling waste generated during the manufacture and maintenance of rolling stock. At Niitsu Rolling Stock Manufacturing Factory where commuter and suburban trains are manufactured, we promote waste reduction and recycling by taking into account the railcars' entire life cycle from designing to disposal. Also, to reduce waste and improve recycling, regional General Rolling Stock Centers, where rolling stock is maintained and repaired, sort waste into 20 to 30 categories and send it to specialized waste disposal contractors. We are thus making efforts to improve the recycle ratio by thorough sorting. Starting in fiscal 2005, we have included our retired railcars that were sold to outside parties and later scrapped as part of the quantities recycled by the JR East Group when calculating our recycle rates.



At Nagano General Rolling Stock Center, retired wheels are recycled into brake disk parts.



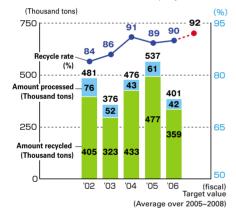
#### Waste from General Rolling Stock Centers



#### **Reducing construction waste**

Although Japan's Waste Disposal and Public Cleansing Law treats subcontractors as the generators of waste from subcontracted work, we, as an organization that orders this work, strive to reduce the amount of waste that they generate by preparing civil engineering specifications that require subcontractors to properly dispose of construction byproducts, and use designs and construction methods to minimize waste In fiscal 2006, JR East generated 401 thousand tons of waste through construction and maintenance projects at our stations and other structures, including 75 thousand tons of waste through work entrusted to JR East. \*1

Waste from construction projects



#### Initiatives at offices

JR East is taking steps to make our head office and branch offices "paperless," and to reduce and recycle the waste that they generate. In fiscal 2006, our thoroughgoing efforts to sort waste into various categories made it possible for us to recycle 2.219 tons of waste, which accounts for 72% of the total of 3,089 tons generated at our offices

#### Initiatives in the lifestyle **business**

The JR East Group is actively working to reduce or recycle waste generated at stations and station buildings.

Ekiben (box lunch) maker and vendor Nippon Restaurant Enterprise Co., Ltd., for example, is operating a system to recycle food waste. Under this system, food waste is recycled into compost, which is later used in its own organic recycling farm and contracted farms. Then, vegetables grown in these farms without using pesticides and chemical fertilizers are used as food ingredients in restaurants. Meanwhile, efforts to reduce and recycle raw garbage are going on in many station buildings. For example, Kichijoji Lonlon Co., Ltd. has built a compost facility in its station building, and the Granduo Tachikawa store sells its own-brand compost made in the station building.



Vegetables (taro) harvested from an organic recycle farm

#### Efficient use of water resources

As JR East uses 11.89 million m<sup>3</sup> of water annually, we actively use recycled wastewater \*2, such as rainwater and water used in washing hands, to flush toilets. Out of 42 thousand m<sup>3</sup> of water used in our Head Office building, 21 thousand m<sup>3</sup> were reused in fiscal 2006.

#### Joint efforts with customers to reduce load on environment

Today in Japan 30 billion plastic shopping bags are discarded after use. Our NEW-DAYS stores, operated by JR East Retail Net Co., Ltd. \*3, are trying to reduce this waste from plastic shopping bags by asking customers if they really need them and by reducing the thickness of the bag by 2 to 5 microns

Also, we distributed Suica Eco Bags made of cloth to the first 200,000 customers to arrive to commemorate the 5th anniversary of the introduction of Suica. After the distribution we ran a campaign to give credit points to those customers who would continue to use the Suica Eco Bags in order to encourage their continued use and to help reduce the number of plastic shopping bags.

At other station buildings, Perrie Chiba/Inage and Merrina Nishichiba are offering discounts by means of stamp cards to customers who bring their own bags. Granduo Tachikawa is promoting simpler wrapping by designating the 5th day of each month as Smart Wrapping Day.



rying out a campaign to reduce the number of plastic shopping bags used and to reduce their thickness.

\*1 work entrusted to JR East Construction work contracted to JR East by local govern-

ments etc. to be done at non-JR East facilities, for purposes such as to ensure safe train operations.

<sup>2</sup> **Recycled wastewater** Vater classed midway between clean water and sewage water by use: recycled water used for limited purposes

#### \*3 JR East Retail Net Co., Ltd. Formerly known as, East Japan Kiosk Co., Ltd. On July 1,

2007 the company's name was changed to JR East Retail Net Co., Ltd. and the stores were renamed "Kiosk."

## Reducing and recycling train ticket waste

IC Suica fare cards are effective in reducing waste generation. Suica eliminates the need to purchase tickets, can be used repeatedly and contributes to saving a great deal of resources. As Suica is used more, the waste reduction is increased. To discourage customers from throwing away the card after use, they are required to pay a deposit when they buy their first Suica. The increase in Suica users also leads to a reduction in the number of magneticbacked commuter passes issued. The annual issuance of magnetic-backed commuter passes in fiscal 2006 was about 17.1 million passes fewer than that in fiscal 2000, which was before the introduction of Suica

Almost 100% of used tickets and magnetic-backed commuter tickets are recycled. Used railway tickets collected are sent to paper factories for separating iron powder on their back from paper. In fiscal 2006, all of the 640 tons of used tickets sent to the factories were recycled into toilet paper, cardboard, and business cards.

All magnetic-backed commuter passes used and collected are utilized as solid fuel.

#### **Green procurement**

In line with our Green Procurement Guidelines established in 1999, JR East strives to procure materials with low environmental impact and encourages our suppliers to use recycled materials and reduce waste.

Since fiscal 2000, we have used uniforms made of polyester fiber that is recycled from PET bottles. Additionally, 51% of items used at our offices are covered under the Law on Promoting Green Purchasing, and recycled paper accounts for 99% of all copy paper used in our company.

We gather information on environmental and CSR efforts taken by our suppliers, and use it as a factor in selecting desirable suppliers.

## Cyclical use of waste collected from stations

JR East is making efforts to expand the cyclical use of waste collected from stations, not only by recycling it, but also by reusing it in our company.

For example, paper recycled from train tickets is utilized as toilet paper at major stations in the Tokyo metropolitan area, and as business cards for our employees.

Also, magazines collected from separate refuse bins at our stations and trains are recycled into coated paper, which is then used to produce Tranvert, an informational magazine made available to passengers on Shinkansen trains. Newspapers collected are recycled into copy paper and used at JR East offices.



Uniforms made of recycled polyester fiber from PET bottles and other sources



Newspapers collected at stations are recycled into copy paper, which JR East buys for in-house use.



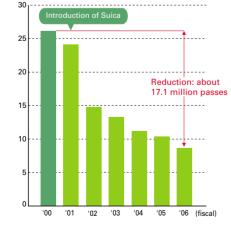
Used tickets collected at stations are returned to major stations in the Tokyo metropolitan area as toilet paper.



Tranvert, an information magazine placed in Shinkansen cars, uses recycled paper from magazines discarded in stations and passenger cars.

Number of magnetic-backed commuter passes issued
Magnetic-backed commuter passes

(Million passes)



## **Compliance with laws and setting goals for reduction of chemical substances**

In view of the significant impact of chemical substances on human bodies and the ecosystem, their control and replacement is of pressing urgency. JR East strictly follows legally prescribed standards and also sets its own goals to achieve.

#### **Reducing chemical substances**

#### Reducing and replacing ozonedepleting substances

JR East is making efforts to accelerate reduction and replacement of chlorofluorocarbons (CFCs) that deplete the ozone layer.

•Large heat exchangers – While JR East has been using air-conditioning units with CFCs as refrigerants, we are gradually replacing them with non-CFC equipment. By the end of fiscal 2006, we reduced the number of air conditioning units using CFCs to 7, down from 82 in fiscal 1990. We expect to complete the replacement of all units by the end of fiscal 2008.

•Rolling stock – Except for some diesel railcars, all of our cars use CFC substitutes. As of the end of fiscal 2006, we were using 93 tons of CFC substitutes and only 0.6 ton of CFCs. We routinely check for gas leaks, and recover the refrigerants when scrapping retired railcars in accordance with applicable laws and regulations.

•Fire-extinguishing agent – Although 71 tons of halon gas was still in use as a fireextinguishing agent as of the end of fiscal 2006, we have it under proper control and are replacing it with non-halon agents (such as powder agents and CO<sub>2</sub>) when building new facilities or renovating existing ones.

## Chemical substance management

As JR East uses chemical substances primarily for painting and repairing our railcars, we take rigorous steps for their use and management in order to prevent their leakage. As a company that handles more than a certain amount of specified chemical substances, 15 JR East facilities submitted release and transfer data for these substances to relevant authorities in fiscal 2006, pursuant to the PRTR Law. \*1

We are also promoting the introduction of stainless steel railcars that do not require painting. As of the end of fiscal 2006, as many as 70% of the 10,804 cars operated on our conventional lines were stainless steel railcars.

Beside our initiatives for railcars, we used 372 tons of organic solvents for painting railway facilities and stabilizing track beds in fiscal 2006.

#### Amount released and transferred from 15 reporting-required facilities

			(kg)
Chemical substance	Released into air	Released into sewerage	Transferred to other facilities
HCFC-141b	2,281	0	0
2-Aminoethanol	0	1,460	216
Bisphenol A-type epoxy resin	0	0	2,006
4,4'-methylenedianiline	0	0	523
o-toluidine	0	0	144
Ethylbenzene	5,391	0	2,072
Ethylene glycol	4	0	15,017
Xylene	29,747	7	2,030
Chromium and chromium (III) compounds	0	0	111
Dichloromethane	5,934	0	2,308
Styrene	2,440	0	0
Toluene	33,053	7	16,981
m-tolylene diisocyanate	1,105	0	117

#### \*Note:

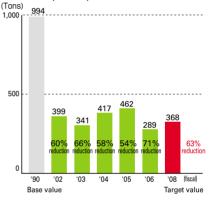
There was no release to soil, public water supply or disposal by landfills.

Among the substances for which reporting is required, those that were actually released or transferred are posted here.

## Initiatives at JR East's thermal power plant

Our own thermal power plant uses natural gas, kerosene, and low-sulfur heavy oil as fuels with relatively low environmental impact. Since the plant emits nitrogen oxides (NOx), sulfur oxides (SOx), and soot, we are making efforts to reduce the emission of these pollutants by using desulfurization equipment, dust collectors, and other devices.

### NOx emissions from JR East's thermal power plant



#### **Control of PCBs**

Although JR East has long used polychlorinated biphenyls (PCBs) as insulating oil in locations such as railcars and transformers, we are actively replacing PCB-using devices with ones that do not contain PCBs. We now store the retired PCB-equipment at 82 locations under stringent supervision, and report its status as stipulated by applicable laws and regulations.

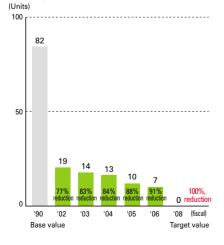
We are currently studying ways to render PCBs harmless, taking into account the status of PCB waste treatment facilities and government policies.



### PCBs are kept in special storage under stringent control

# Environment

#### Number of large heat exchangers using CFCs



\*1 PRTR stands for "pollutant release and transfer registers." The formal name of this law is the Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical

The formal name of this law is the Law Concerning Heporting, etc. of Heleases to the Environment of Specific Chemical Substances and Promoting Improvements in their Management. The law promotes the assessment and control of toxic chemical substances emitted into the environment, and encourages measures to prevent negative impact on the environment.

## JR East conserves the environment along railway lines

As a railway operator, it is of crucial importance for the JR East Group to conserve the environment along our railway lines. We give due consideration to the surrounding living environment by undertaking a wide range of actions to reduce noise, protect the landscape, and prevent pollution.

### Reducing impact on the environment along railway lines

## Measures to reduce noise from Shinkansen

In accordance with the Japanese government's Environmental Quality Standards for Shinkansen Railway Noise, JR East takes a variety of steps to reduce this noise, such as the installation of soundproof walls and sound-absorbent materials, rail grinding \*1 and the modification of our railcars to operate more quietly.

Although we have already completed the implementation of measures to reduce noise levels to 75 dB or lower in densely populated residential areas along our railway lines, we plan to take further steps by expanding the scope of areas where noise levels need to be reduced to 75 dB or lower. We are determined to continue to work to prevent or minimize noise, with the aim of improving the living environment along

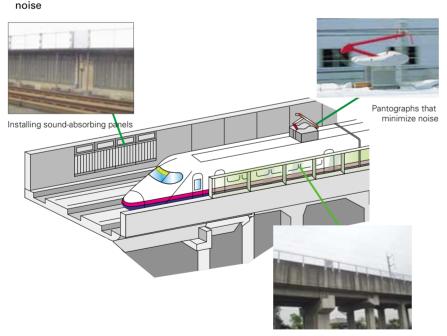
Major strategies to reduce Shinkansen

our railway lines and achieving our environmental targets.

As part of our research and development efforts, we have conducted test runs of a prototype high-speed Shinkansen train, FASTECH 360. We are striving to establish a high-speed, eco-friendly Shinkansen technology that could reduce noise and micropressure wave in tunnels. \*2



Test train "FASTECH 360" uses a low-noise singlearm pantograph.



Raising the height of soundproof walls

## Measures to reduce noise along conventional lines

Although there are no government-mandated environmental standards for conventional lines, we have implemented voluntary measures to minimize noise by installing long rails \*3 and performing wheel truing \*4. We also comply with the Japanese government's Policy on Noise Measures for Construction of New Conventional Railways or Large-Scale Remodeling when we carry out such construction or modification of our conventional lines.

## Measures to reduce noise during maintenance work

Noise can be generated during track and other maintenance work. As maintenance work is usually done at night when trains are not running, we give advance notice about the schedule and details of this work to residents in surrounding areas. We also make utmost efforts to minimize noise by using modified equipment making lower noise. On double-track lines, we carry out maintenance work on one track during daytime while trains in both directions use the other track. We also endeavor to lessen the need for maintenance itself by increasing the number of labor-saving tracks with deformation-resistant rails.

### Dioxin measures at waste incinerators

JR East used to incinerate some waste in its own incinerators. They could generate dioxins under certain internal conditions. During fiscal 2002 we stopped using all but one of our incinerators, and this one, which was large, was retired in fiscal 2004. We are now dismantling and removing them.

#### \*1 Rail grinding

A measure to smooth out the unevenness of rails caused by wheels traveling over them. The measure allows trains to run more quietly because wheels are in close contact with rails at all times.

#### \*2 Micro-pressure wave in tunnels

An explosive sound caused by compressed air being forced out of a tunnel when a Shinkansen train enters it at a high speed. The sound is produced at the end of the tunnel.

#### \*3 Installing long rails

Rails that are made more than 200 meters long by welding rail joints. With fewer rail joints, these rails reduce noise produced at joints when trains pass.

#### \*4 Wheel truing

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

#### **Visual impacts**

Large structures such as bridges, stations, and station buildings affect the landscape and cityscape of surrounding areas. In order to harmonize structures with the surrounding landscape and cityscape, JR East has set up Design Committees in our construction offices responsible for planning and designing of these structures. We also encourage our employees to pay more attention to the surrounding areas in the design stage by giving awards to those who designed scenically attractive structures.



The bridge over River Tenma between Kamikita-cho and Ottomo on Tohoku Main Line, where serial concrete arch design is adopted in an effort to create harmony with the beautiful scenery of the mountains of Aomori.

#### Reducing the usage of herbicides

For safe train operation, we must periodically remove weeds around railway tracks. In addition to manual weeding, we also use some herbicide.

We minimize the amount and area of herbicide usage, and use herbicides with the lowest of three toxicity levels (ordinary substances) for humans and animals and with the lowest of five toxicity levels (Atype substances) for fish. We have also established rules to lessen the herbicide effects on surrounding areas, such as suspeding herbicide spraying when conditions are not suitable. In fiscal 2006, our usage of herbicides amounted to 261 tons.

#### **Protecting railway trees**

Railway trees are planted to protect railway tracks from being blocked or damaged by snowdrifts, landslides, fallen rocks, and avalanches. The planting of railway trees began during the Meiji Period (1868–1912) in Japan, and at that time it was also profitable as a forestry business. Besides playing their original role in preventing natural disasters, these trees now help protect the natural environment along our rail lines.

JR East owns approximately six million railway trees on a total of about 4,200 hectares of land—about 1,000 times as large as the area of the National Stadium—along our railways. These trees help prevent global warming by absorbing 17thousand tons of CO<sub>2</sub> per year, an amount equivalent to 0.8% of the annual CO<sub>2</sub> emissions by JR East.

We are determined to preserve the trees along our rail lines as a means to secure safe railway operation and to protect natural environment.

#### Utilizing spring water in tunnels

In cooperation with local governments, we have made joint efforts to improve the quality of river water by supplying spring water welling up from our underground tunnels to rivers nearby. In the Tokyo metropolitan area, we started supplying such spring water to the No River in fiscal 2001 and the Tachiai River in fiscal 2002, and began pumping spring water welling up from the ground near Ueno Station into the Shinobazu Pond in fiscal 2003.

We also have been using spring water to melt snow on Joetsu Shinkansen tracks in the Echigo-Yuzawa area ever since this line opened.

#### **COLUMN**

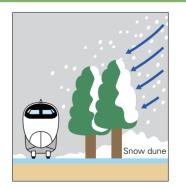
#### **Role of Railway Trees**

Railway trees along JR East are mostly found in the Tohoku and Joshin-etsu areas, and about 80% of these are snowbreak trees, planted where they will block snowdrifts or stop avalanches.

Trees to block snowdrifts are to keep railway tracks free of drifting snow. Trees to stop avalanches prevent snow on the slopes along the railway tracks from sliding down. Evergreens also can keep the snow on the slopes from being exposed to direct sunlight and melting suddenly. In the long history of railway trees, they were installed for many different purposes. For example, in the days of steam locomotives, watershed trees were used to protect water sources near water supply points. We still have one such location on the Ou Line.



Snowbreak trees along the Tohoku Line



The snowdrift problem arises when fallen snow is blown by strong winds and buries the railway tracks. Snowbreak trees act as a windbreak to keep tracks clear of snow.

## Communicating environmental information and working with communities

The JR East Group is increasing points of contact with our stakeholders through a variety of media and events with a view of making our dayto-day communications on environmental activities interactive and facilitating their further progress.

#### Communicating environmental information

## Providing information through a wide range of media

We have published an environmental report each year since 1996 (in 2002, the name of the report was changed to JR East Group Sustainability Report) to provide stakeholders with accurate and easy-to-understand information about JR East activities for the environment and society. Among our group companies, JR East Department Store Co., Ltd. has issued an environmental report annually since 2004.

In order to make our environmental information available to more people, we have published and widely distributed a children's illustrated booklet "Thinking more about the Environment," and a digest version of the JR East Group Sustainability Report. Since fiscal 2005, we have featured abstracts of our Sustainability Report in Tranvert, an information magazine for Shinkansen passengers. We have received a great deal of reader feedback about these publications. We have also



Our environmental activities website had 480,000 hits in fiscal 2006.



Environmental information is provided in Tranvert, a magazine for Shinkansen passengers.

provided environmental information via the Internet, train posters, and other media. We remain committed to disclosing information in an easy-to-understand format, and to actively promoting environmental communications.

#### **Providing information at events**

In 2006, we participated in the Eco-Products 2006 Exhibition, among the largest of such events in Japan, to present the environmental conservation activities of the JR East Group. We demonstrated the power-generating floor shown on page 45 and showed a model of the regenerative brakes described on page 47. About 2,300 people took part in a quiz program about these exhibits.

In addition, every year we co-organize events with local governments, business, and others, with the goal of communicating information on the environment. In March 2007, we jointly organized "Gas & Railways —the Fourth Exhibition of Environmental Initiatives by Tokyo Gas and JR East" with Tokyo Gas Co., Ltd. at Ueno Station. At the exhibition, we introduced environmentally friendly lifestyles, as a corporate member of the nationwide Team Minus 6% campaign. We also ran an exhibition to deepen people's understanding of global warming with the cooperation of the Ministry of the Environment's Japan Center for Climate Change Actions.

We also introduced an event at Omiya General Rolling Stock Center and our environmental initiatives at Sendai station, and are taking part in local events at Hachioji and in Akita, Ibaraki, and Gunma prefectures in cooperation with local governments.

#### Promoting ecotourism

Ecotourism cultivates deeper understanding and affection for Japan's nature and culture through tourism. JR East has offered a wide



The power-generating floor was very popular at "Eco-Products 2006."

range of tours enabling people to experience nature, under the theme of interaction with the wonderful nature to be found throughout Japan. In fiscal 2006, about 5,300 people joined ecotours.

In April 2006, we established a membership club called the Shirakami Mountains Beech School which allows its members to experience the attraction of Shirakami Mountains, the first location in Japan to be designated as a UNESCO World Natural Heritage site. We have held classes on demand for members in the Tokyo metropolitan area and elsewhere, and communicated information through a member newsletter. During the past year about 400 people took part in Shirakami Mountains trekking.

We continue to offer our "Hiking from Stations" program, in which participants can enjoy nature near our stations. In fiscal 2006, we held 480 tours with about 220,000 participants.



Our membership club, the Shirakami Mountains Beech School, provides information about the Shirakami Mountains, aimed at achieving compatibility between tourism and nature conser-



vation

Environment

### Forest development in partnership with communities

#### **Railway Line Forestation Program**

Since 1992, each of our branch offices has planted trees with the participation of local community members. As of fiscal 2006, we have planted 250,000 trees, and about 36,000 people have been involved.

Each of our branch offices has used innovative approaches to attract broad participation, including tie-ups with local governments and others, and combining hiking events with tree planting. For example, the JR East Omiya Branch Office held the event in cooperation with the city of Kawagoe and planted trees with local residents, including children.

## Adatara Hometown Forestation Program

We have conducted a forestation program on national forest land in the Adatara district of Fukushima Prefecture since 2004. First, we selected 22 varieties of native trees, and planted 45,000 saplings in Otama village, Adachi-gun, over a three-year period. The 4th year of this program will begin in 2007 and over the next three years 50,000 saplings of 17 different varieties will be planted in the city of Nihonmatsu in Fukushima. Our plan is to plant various kinds of trees close together in a state similar to nature and to have a "hometown forest" develop through natural selection. In 2007 a total of 800 people, including JR East Group employees and local residents, participated.

## Akita Shimohama Coast Forestation Program

JR East owns railway trees along the Uetsu Line on the Shimohama Coast in Akita city, mainly consisting of Japanese black pine. Over the past few years, however, damage from pine weevils has caused blight.

In April 2007, the JR East Akita Branch Office co-organized the Akita Shimohama Coast Forestation Program with the AEON Environmental Foundation. With the participation of 1,400 volunteers recruited from major stations and AEON Group stores throughout Akita Prefecture, we planted 12,000 saplings consisting of 9 different varieties of trees, mainly broad-leaf trees. We plan to organize this event again in 2008, as part of our efforts to conserve the natural environment along railway lines through the restoration of railway trees.



By fiscal year 2006 the Railway Line Forestation Programs sponsored by JR East branch offices have had 36,000 participants.



With the cooperation of local residents of Nihonmatsu city in Fukushima Prefecture, we will be planting 50,000 trees within the next 3 years.



Jointly sponsored by AEON Environmental Foundation, the Akita Shimohama Coast Forestation Program had 1,400 participants who planted 12,000 trees.

#### COLUMN

#### Adatara trees are growing fast

At Otama Village, Adachi-gun, Fukushima Prefecture, we planted mostly evergreen oak trees, such as Quercus myrsinaefolia and Quercus salicina as well as deciduous oak trees, such as Quercus crispula and Quercus serrata. We completed forestation program at Otama Village in 2006 when we planted the scheduled number of trees. During the past three years 2,100 people took part in the program. Through planting trees, we believe the participants came to realize the importance and preciousness of life and the grandeur of nature.

While the saplings were no more than knee-high and looked vulnerable immediately after planting, after three years they grew to exceed the people's height. Chestnut trees planted during the first year of the pro-



May 2004 - when saplings were planted

gram have grown enough to bear fruit. The hometown forest is growing well. Our website shows how the trees were planted and are growing.

http://www.jreast.co.jp/eco/adatara/



June 2007- trees are shown growing rapidly.

#### **Independent Review Report**

#### K PAAR

Initambat Refer, Rantton, "JR Last Gross Instaladulit: Report 2007

To the Board of Directory of East Sayes Rultwey Company

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- Procedures Performed We have performed the following
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   With respect to the way of colluming the Indicators and the process flow of colonizing them.
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As the railway business consumes a vast amount of electricity, JR East Group has set as its main objective the reduction of CO<sub>2</sub> emissions generated by the use of electricity. JR East has promoted use of its hydroelectric power plant, replaced some portion of fuel for its thermal power plant which generates 30% of the electricity it uses, and, in addition, has introduced more energy-efficient railcars. As a result of these efforts, CO2 emissions were reduced by 28% from the level in 1990 (for management of target values, calculated using the former coefficient). Qualitative and quantitative information provided in this report illustrates that JR East is promoting research and development of new energy-efficient systems in the long term and is engaged in diversified preventive measures against global warming.

In addressing social impacts, even though there has been a decline in the number of railway accidents over the long term, JR East has included "Measures for reducing transport disruptions in the Tokyo metropolitan area" in its report, with due consideration to the recent serial transport disruptions as well as stakeholders' concerns. Continuing disclosures of these transport disruptions and measures against them are advisable, as is the case with measures against railway accidents.



Maho Yao Chief of Assurance Division AZSA Sustainability Co., Ltd.

#### Third party opinion: After reading JR East Group Sustainability Report 2007

Society always expects public transportation to be "more convenient" and "faster". However, we can clearly see from the "Top message" that JR East has adopted a stance to put the highest priority on safety, while aiming to provide a "comfortable" railway to serve regional requirements. At the same time, the report illustrates specific measures taken in each field from the 3 perspectives of safety, services, and environment. From this, I have felt a greater "peace of mind" and "faith" in these efforts with a heightened level of awareness among each employee. In addition, I evaluate highly their sincere attitude for providing information disclosure including the investigation of accidents.

Moreover, with the present obviousness of global warming, the company is actively involved in the development of the world's first diesel hybrid railcar and also in improving the transportation flow by Suica. These can be expected to attain further development in terms of both technology and convenience. Especially, now that the long term target of halving CO<sub>2</sub> emission by 2050 has been adopted in post Kyoto Protocol agreements, there are greater expectations for railways implementing intermodal transport by the use of railways and other transport modes, eco-friendly commodity distribution, regional revitalization with LRT, and urban redevelopment for a more compact cityscape. I sincerely hope that JR East harnesses their leadership in achieving the realization of a sustainable society in close coalition with municipalities, residents, and business operators.



Yuko Sakita Journalist and environmental counselor



Toru Owada Director and General Manager Management Planning Department

#### Future prospects

Global warming has become a universal issue with the release of the 4th report by the Intergovernmental Panel on Climate Change (IPCC), which demonstrates an increasing awareness of its importance.

JR East has been working on the reduction of  $CO_2$  emissions through actions such as changes to our thermal power plant and introduction of energy-saving railcars. As a result, we were successful in achieving 6 of our targets that were set for fiscal 2008 as part of our work to reduce environmental impacts, including  $CO_2$  emissions. Though we have been working on the reduction of environmental impacts through research and development, we will again go back to our starting point and, in consideration of medium and long term goals, we will prioritize which issues we should be tackling and investigate additional preventive measures.

We will continue our efforts in playing an active role in creating a sustainable society while maintaining a balance between our business interests and environmental conservation activities.

## History of JR East Group's environmental and social activities

				Eab	Cofety Dias 21 approved
Year	Month	Environmental and social activities		Feb.	Safety Plan 21 announced.
4007	Apr.	Japanese National Railways divided, and East Japan Railway Company established. First Railway Safety Promotion Committee meeting held.	1999	Mar.	Omiya Recycling Center started operation (for automatically separating used cans from bottles).
1987	Jun.	Green Campaign began. Green Counter (now renamed customer help desks) opened for receiving customer feedback.	1999	Apr.	Service managers deployed at some stations.
	Sep.	Company-wide "Challenge Safety Campaign" launched.		May	Started utilizing copier paper recycled from newspapers collected at stations.
1988	Dec.	ATS-P, an improved safety train-control system, installed on the Keiyo Line.		Sep.	Information service on train operations made available by cell-phone.
1989	Apr.	Safety Research Laboratory and General Training Center established.		Apr.	JR East General Education Center established. Uniforms made from recycled PET bottles introduced.
1000	Sep.	"First Railway Safety Symposium" held.	2000	Sep.	Environmental accounting included in annual Environmental Report.
1990	Oct.	"Future 21," a management plan for the twenty-first century, announced. "Ladies' Car," a train car exclusively reserved for female passengers, introduced in sleeping-car limited express trains.		Nov.	Environmental targets revised with the announcement of New Frontier 21, the Group's medium-term management plan.
	Mar.	East Japan Railway Culture Foundation established.		Mar.	Oi Workshop, Kawasaki Thermal Power Plant, and Niigata Mechanical Technology Center acquired ISO14001 certification.
	Apr.	Committee on Ecology established.	2001	Jul.	"Women-Only" cars for female passengers introduced on the Saikyo Line on a trial basis.
1992	May	Trees planted to commemorate the 5th anniversary of JR East's founding (later, an annual event called "Railway Lines Forestation Program" began).		Dec.	JR East Research & Development Center established.
	Aug.	Waste collection sorted into three categories began on a trial basis at Sugamo		Feb.	Test runs of the AC Train, a next-generation commuter train, began.
1000		Station on the Yamanote Line.		Mar.	Orniya Workshop acquired ISO14001 certification.
1993	Mar.	All-day smoking ban extended to major stations in the Tokyo suburban areas.	2002	Sep.	Sustainability Report including social and economic aspects published.
	Feb.	Ueno Station Recycling Center started operation (for automatically separating used cans from bottles).		Nov.	Sendai General Rolling Stock Workshop acquired ISO14001 certification.
1994		Waste collection sorted into three categories started at 36 stations on the Yamanote and other lines.		Mar.	Third set of measures to reduce Shinkansen noise completed. "Guide to Barrier-Free Station Facilities" pamphlet distributed.
	Mar.	"Basic Safety Plan" announced.		May	Test runs of the NE Train, world's first hybrid railcar, began.
	Feb.	Recycling of used train tickets began in the Tokyo metropolitan area.	2003	Sep.	First JR East Group Environmental Management Promotion Conference held.
1995	Mar.	First measure to reduce Shinkansen noise completed.		Dec.	Koriyama Workshop acquired IS014001 certification.
	Apr.	Ecology education for all new recruits initiated. "Train-ta-kun," a discount car rental service for train passengers, launched.		Mar.	"Safety Plan 2008" announced.
1996	Mar.	JR East website set up. Quantitative environmental targets set for CO2 emissions and others. First annual Environmental Report published.	2004	Apr.	"F Program" launched, with the aim of creating a better working environment for female employees.
	Dec.	Autonomous Decentralized Transport Operation Control System (ATOS) became operational.		May	Adatara Hometown Forestation Program held.
	Mar.	Recycling facility at Minami-Akita Operations Center started operation. Separate smoking zones established at all stations. Smoking banned on all local trains.		Jan.	Environmental targets revised with the announcement of "New Frontier 2008", the Group's medium-term management plan.
1997	Oct.	Recycling facilities at Nagano Shinkansen Rolling Stock Center and Tokyo Station	2005	Feb.	Nagano General Rolling Stock Center acquired ISO14001 certification.
	Dec.	started operation. Participated in COP3 with the UIC (International Union of Railways).	2000	Jul.	Akita General Rolling Stock Center acquired ISO14001 certification. Customer Service Department established.
	Mar.	Second set of measures to reduce Shinkansen noise completed.		Dec.	Office-wide JR East Eco Activities started at JR Hachioji Branch Office.
1998		Shinkiba Recycling Center started operation (for separating used newspapers from magazines). JR East ranked as 27th on the list of world's most respected enterprises by Financial Times.	2006	Feb.	Disaster Prevention Research Laboratory established.
1990	Nov.		2000	Mar.	Smoking banned in all cars of Shinkansen and limited express trains.
					Former names are used for some facilities
Year	Month	JR East Group: History of Awards	1998	Apr.	1st Green Reporting Award Third Prize (Co-organized by Toyo Keizai Inc. and Green Reporting Forum)
		Poster category at the 5th Awards for Environmental Advertisements and the	2001	May	4th Green Reporting Forum) Green Reporting Award Third Prize (Co-organized by Toyo Keizai Inc. and Green Reporting Forum)
1995	Oct. Apr.	Director of Environmental Agency's Awards (Organized by Japan Eco-Life Center) 6th Global Environment Award (Organized by Nihon Kogyo Shimbun in special cooperation with WWF Japan)	2005	Jan.	Green Reporting Forum, Grand Prize for Environmental Report in Environmental Report Category at En- vironmental Communication Awards 2004 (Organized by the Global Environ- mental Forum and sponsored by the Ministry of the Environment)
					and the spectrum and spectrum of the training of the Environment,

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 Poster category at the 7th Awards for Environmental Advertisements and the Director of Environmental Agency's Awards (Organized by Japan Eco-Life Center)

1st Environmental Action Plan Award and the Director of Environmental Agency's Awards (Organized by the National Association of Environmental Conservation and

#### work and want to do a good job by cooperating with each other. Through working to summarize such feelings, which are not often expressed, we once again keenly felt that the passion and teamwork of employees are the driving forces of the JR East Group.

2006 Environment Minister's Award for Global Warming Prevention Activity in

two categories: countermeasure technology introduction and dissemination, and implementation of countermeasures (organized by the Ministry of the Environment)

16th Global Environment Award Education, Culture, Sports, Science and Technology Minister'sAward (Organized by Fuji Sankei Group in special cooperation with WWF Japan)

To make the Sustainability Report richer in content in the future, we look forward to receiving your opinions and noting any comments you may care to make.

#### **Editorial postscript**

Jun.

1997

In editing this year's report, we included as many comments as possible of employees working on Group social environmental activities in the front line.

Through interviews and comment sheets, we were able to listen to the voices of many employees. What we feel our employees have in common is that they cherish their responsibilities, have pride in their







-ACCEI mark indicates that the reliability of the environmental information in the JR East Group Sustainability Report 2007 meets the standard for environmental report screening and logo use defined by the Japanese Association of Assurance Organizations for Environmental Information

Environmental Information.

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#### Sustainability Report 2007

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