JR East Group

CSR Report

2016

Aiming for a Sustainable Society

CONTENTS

Note: External Assurance on environmental performance and environmental accounting data

KPMG AZSA Sustainability Co., Ltd. has been engaged to provide external assurance on a set of selected environmental performance and environmental accounting indicators so that the reliability of the data is ensured. The particular indicators that are assured are marked with a ☆ for clarity.

The JR East Group conducts business pursuant to standards and rules such as ISO26000 and the Charter of Corporate Behavior established by Keidanren (Japan Business Federation).

Group Philosophy

The JR East Group aims to contribute to the growth and prosperity of the East Japan area by providing quality leading-edge services, with train station and railway businesses at its core, to customers and communities.

We will continue to embrace the challenge of pursuing "extreme safety levels" and service quality reforms. Through technological innovation and globalization, we will strive to attain goals such as nurturing personnel with an expansive perspective, spurring the advancement of railways, and making line-side areas more attractive and convenient. To this end, JR East will continue to rigorously pursue its unlimited potential.

We aim to grow continuously while meeting our social responsibilities as a *Trusted Life-Style Service Creating Group.*

Basic Principles

1. Together with customers and communities

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

2. Enhancing safety and quality

We will aim to enhance safe and reliable transportation services and service quality.

3. Pursuing unlimited potential

With an expansive perspective and based on our calling, we will pursue the JR East Group's unlimited potential.

Corporate Profile

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	57,576 (as of April 1, 2016)

Editorial Policy

The CSR Report 2016 sets forth various initiatives being taken in the JR East Japan Group. It is published for the purpose of providing an accurate and simple description of these initiatives as well as promoting communication with our diverse stakeholders.
This report presents activities and progress in line with the JR East Group Management Vision V- Ever Onward.
While our desire remains to offer as much information as possible related to the safety, society, and environment, the report itself focuses in particular on areas where there have been notable changes.
For more information on the overall activities of the JR East Group, please go to our website.

This report has been written in accordance with the Core option of GRI's G4 Sustainability Reporting Guidelines.
Furthermore, this report serves as a safety report required to be publicly announced by the Railway Business Act.

Reference guidelines
G4 Sustainability Reporting Guidelines [Global Reporting Initiative]

References
Environmental Reporting Guidelines 2012 [Japan Ministry of the Environment]
Environmental Accounting Guidelines 2005 [Japan Ministry of the Environment]

Reporting period
This report basically covers our activities from April 1, 2015 to March 31, 2016, although some events presented here happened earlier or in the period between the end of March 2016 and the publication of this report in October 2016.

Boundary of reporting
East Japan Railway Company
JR East Group (consolidated subsidiaries (67companies))
Economic report: JR East, consolidated subsidiaries, equity method affiliates (5 companies)
Environment report: JR East, consolidated subsidiaries
Social report: JR East, consolidated subsidiaries
Subsidiaries are listed on p.127.

Figures in this report
Totals may not match the sum of individual figures due to rounding.

Thriving with Communities, Growing Globally

In October 2012, we formulated our medium-term management plan called the "JR East Group Management Vision V—Ever Onward." Within this vision, we outlined our fundamental aspiration of "Thriving with Communities, Growing Globally." We will continue our endeavors to fulfill our Eternal Mission, as defined by the expectations of customers and indeed local communities. At the same time, we will remain steadfast in our daily mission to realize the "Unlimited potential" of our railways.

Eternal Mission

Our Eternal Mission is very straightforward. It involves contributing to the development of communities through the provision of safe and high-quality services. With the further improvement of safety and stable transport as our top priority, the JR East Group will gather all its strengths to solve these issues. Specifically, based on the JR East's Group Safety Plan 2018, we will reinforce safety-related facilities to eliminate any vulnerable points, review safety education and training to make them even more practical, and further enhance technical capabilities together with both Group and partner companies. We will steadily proceed with the improvement of platform doors, promote countermeasures against natural disasters such as earthquakes or heavy rainfall and against accidents at level crossings, while continuing our efforts towards a further enhancement of overall safety levels. Moreover, by responding to situations in recent times, we will further strengthen all security measures at train stations and on board our trains. Additionally, as detailed in our Medium-term Vision for Service Quality Reforms 2017, JR East will continue its efforts to further enhance the quality of its transport services by offering steady transport services and reinforcing its responsiveness at times of disruption to services.

In addition, following the opening of the Hokuriku Shinkansen line in March 2015, and by fully utilizing the expansion of its railway network as a result of the opening of the Hokkaido Shinkansen in March 2016, JR East aims to further increase the flow of people across regions by railway. At the same time, to increase tourist numbers, we are preparing for the commencement of operations of our cruise train, TRAIN SUITE SHIKI-SHIMA, and we will also continue our tourism campaigns for the Tohoku region, with the intention of achieving restoration from the earthquake disaster of March 2011. To invite active inbound tourist flows to JR East service areas, we are focusing on the improvement of products and systems to respond to their potential needs. Also, as part of our efforts for regional revitalization, we will work on the expansion of agriculture, forestry and fisheries to include food processing, logistics and marketing, and also urban development of major regional cities such as Akita.

Additionally, as measures for the future such as the JR SHINJUKU MIRAINA TOWER, we will develop large-scale terminal train stations at Chiba, Yokohama and Shibuya. Through development of line-side area brands that will be chosen by customers, such as our HAPPY CHILD PROJECT, we will work on the revitalization of wayside areas. In particular, for the area close to Shinagawa and Tamachi train stations, mainly a new station between the stations with a planned temporary opening in 2020, while continuing our coalition with the national government, the Tokyo Metropolitan Government and related wards in Tokyo, we will proceed with necessary arrangements for urban development. To make the area a new gateway to Japan, we hope to transform it into an attractive international hub.

In relation to the Tokyo 2020 Olympic and Paralympic Games, as an Official Passenger Rail Transportation Services Partner, JR East will support the operations of the games and work on generating momentum toward the actual opening of the Olympics itself.

Pursuit of unlimited potential

While working to fulfill these Eternal Missions, we will also continue to pursue our unlimited potential through a focus on technological innovation, globalization, and the provision of increased opportunities for motivated employees in our Group. Specifically, we will promote the evolution of railways with open innovation through

*East Japan Railway Company is an Official Passenger Rail Transportation Services Partner of the Tokyo 2020 Olympic and Paralympic Games.

the utilization of external development capabilities and intellectual properties and by vigorous technological innovation in fields such as artificial intelligence. We also aim to exploit our expertise in terms of rolling stock manufacturing, maintenance and railway operations to develop business enterprises in global markets. Through measures such as these, we are endeavoring to actively increase areas of business for our employees and to expand on opportunities to foster globally competitive individuals.
In response to the Paris Agreement at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 21) in December 2015, the Japanese government formulated its Plan for Global Warming Countermeasures to achieve certain set targets in May 2016. Based on the plan, for JR East's core railway business, the company has set new targets to reduce energy consumption by 25% and its CO_2 emissions by 40% in FY2031 from FY2014 levels.
As part of our continued efforts for the realization of environmental targets for our railway business with regard to the reduction of energy consumption to a level of 6.2% by FY2021 from FY2014 levels, we are working on the introduction of energy saving vehicles and LEDs for our lighting needs, while at the same time improving our “ecoste” ecological model train stations by incorporating various technologies for the preservation of the environment. In relation to the introduction of smart grid technologies, while expanding the introduction of energy management systems at our train stations, and to efficiently utilize regenerative energy generated from the deceleration of trains, in February 2016, we started the use of power storage systems at Kuki substation for the Tohoku Main Line.
Furthermore, to achieve all new targets set for FY2031, we will also review system evolutions such as the realization of automatic energy-saving driving and the utilization of high-performance storage batteries.

Towards the future

The JR East Group was established as a result of the reform of Japanese National Railways (JNR). Following privatization, we have long continued with our sound management to the present date.
In April 2017, we will celebrate our 30th anniversary since the foundation of the company. Going forward, the JR East Group remains committed to its collective efforts to fulfill the group's "Eternal Mission" to provide safe and high-quality services and contribute to local communities. At the same time, we aim to continue our efforts toward technical innovation and globalization, working together with neighboring communities to discover many new and exciting possibilities for the future.

October 2016
East Japan Railway Company
President and CEO
Tetsuro Tomita

JR East Group Management Vision V — Ever Onward —

The economic situation in Japan is expected to slowly move towards recovery as a result of various political measures such as continued improvements in the environment for employment and income. From medium to long-term perspectives, it is expected that the population of Japan will further decrease along with the aging of society. In addition, even more concentration of the population in the metropolitan areas is anticipated. Also, we are expecting to see more technological innovation, an advancement of globalization and an expansion of inbound tourism.
In such a business environment as this, and almost 30 years since its foundation, the JR East Group is facing various points of changes such as the changing of generations among its employees, the deepening of horizontal divisions of labor within the Group and its partner companies for various responsibilities and roles, system changes in terms of train speed increases and also direct through operations with other railways.
To properly respond and handle these changes, in October 2012, the JR East Group formulated a management vision entitled the "JR East Group Management Vision V—Ever Onward" and set forth a management policy of "Thriving with Communities, Growing Globally." Based on this, JR East has continued to make efforts to meet the expectations of its customers and local communities by fulfilling its "Eternal Missions," while also taking on the ongoing challenge of pursuing the "Unlimited Potential" of its railway network. In addition, to accelerate the realization of this "JR East Group Management Vision V," the company reviews progress on an annual basis under "Priority Initiatives Going Forward" and makes regular updates on all initiatives. In this current fiscal year, JR East's main focus is on improving the safety and stability of its transportation services.

Our Calling — Basic Courses of Action for Management

The JR East Group's New Key Phrase

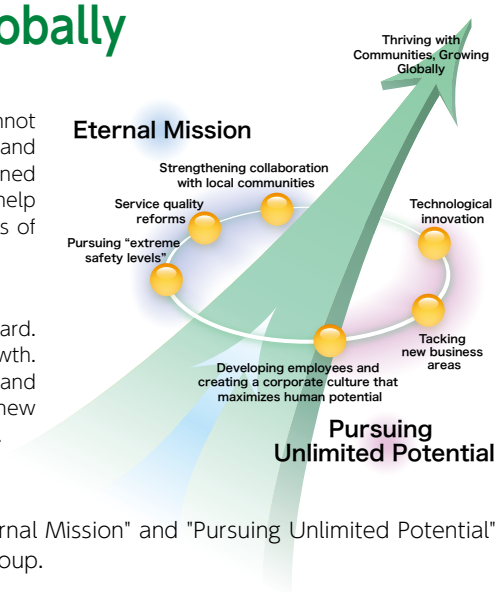
Thriving with Communities, Growing Globally

Thriving with communities

The Great East Japan Earthquake poignantly reminded us of the fact that companies cannot thrive without sound and vibrant communities. The East Japan area, our home ground, and Japan as a whole currently face a host of issues. As a corporate citizen, we are determined to fulfill our mission and execute businesses unique to the JR East Group in an effort to help solve those issues. The goal is to draw a blueprint for the future together with members of the community as we do our part to build vibrant communities.

Growing Globally

However, taking root in communities does not mean becoming complacent by turning inward. To continue to fulfill our mission, we must constantly transform ourselves and achieve growth. We must look outward and step out into the world, while actively seeking knowledge and technology externally. We believe that doing so will provide fertile ground for capturing new growth opportunities. To unlock our full potential, we must boldly step out into the world.



Eternal Mission and Pursuing Unlimited Potential

Under "JR East Group Management Vision V—Ever Onward," JR East has set "Eternal Mission" and "Pursuing Unlimited Potential" as two important pillars and has established six basic courses of action for the Group.

◆Eternal Mission

The JR East Group's fundamental mission is to provide safe and high-quality services that customers expect of the JR East Group and conduct railway and life-style businesses, with the aim of contributing to the growth and prosperity of communities. This fundamental mission will never change through the years. We have once again positioned this mission as a key tenet of management. At the same time, we will make relentless efforts to ensure that the content and quality of our services properly answer the expectations of society.

KIWAMERU	Pursuing "extreme safety levels"—Building a railway capable of withstanding natural disasters
MIGAKU	Service quality reforms—Enhancing the rail transportation network and other measures
TOMO NI IKIRU	Strengthening collaboration with local communities —Supporting earthquake recovery, stimulating tourism and revitalizing communities

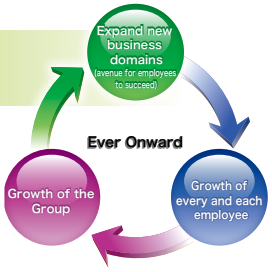
◆Pursuing Unlimited Potential

The JR East Group must achieve sustained growth in order to continue to fulfill its three-part eternal mission in the years ahead. In a fast-changing environment, maintaining the status quo will only mean falling behind. Unless we constantly take on the challenge of reaching new goals, we will be unable to achieve growth. The JR East Group and each and every Group employees will pursue the Group's unlimited potential.

HIRAKU	Technological innovation—Forging strategies for conserving energy and the environment, utilizing ICT (information and communication technology) and operating the Shinkansen at faster speeds
NOBIRU	Tackling new business areas—Globalization
HABATAKU	Developing employees and creating a corporate culture that maximizes human potential

Ever Onward

We have adopted "Ever Onward" as the subtheme of "JR East Group Management Vision V." This subtheme carries forward the spirit of"*Idomu*" championed in JR East 2020 Vision — *Idomu* —, our management vision formulated in March 2008. "Ever Onward" embodies our strong determination to drive the growth of our employees and the JR East Group as a whole by embracing new challenges such as technological innovation and globalization, as we pursue our unlimited potential.



JR East Group Management Vision V "Priority Initiatives Going Forward"

Eternal Mission

KIWAMERU (Excel) — Pursuing "extreme safety levels"

- ●Advance "Group Safety Plan 2018" steadily
- • Promote specific measures such as renewing facilities for practical safety education and training and reviewing the contents of educational materials, etc., as per the basic principles of the Group Safety Plan 2018
- • Promote measures to thoroughly prevent recurrences and future accidents by comprehending all risks and vulnerabilities, in response to the falling of electrical poles on the Yamanote Line
- • Improve technical capabilities as the entire JR East Group in cooperation with both Group and partner companies
- • Implement rigorous accident prevention measures (tangible and intangible) reflecting lessons from derailment accident in Kawasaki Station
- ●Build a railway capable of withstanding natural disasters
- • Approx. 80% of planned anti-seismic measures are due to be completed by the end of FY2017
- • Properly renew aging facilities such as structures, track equipment, and station buildings

MIGAKU (Improve) — Service quality reforms

- ●Advance "Medium-term Vision for Service Quality Reforms 2017"
- • Prevent the occurrence of transport disruptions by promoting countermeasures against natural disasters, while also improving security
- • Resume operations as soon as possible and respond to customers' needs rapidly and stop the impact of service disruptions from spreading further
- • Information provision and improved support by utilizing ICT, in the form of expanding coverage for train operation information services
- ●Promote usage of Hokuriku Shinkansen and Hokkaido Shinkansen
- • Promote the use of the Hokuriku Shinkansen and Hokkaido Shinkansen by improving wide-area sightseeing routes and developing tourism spots at destinations
- • Review business schemes, etc., with a view to developing specific plan for Haneda Airport Access Line

TOMO NI IKIRU (Together)
— Strengthening collaboration with local communities

- ●Advance three types of town development steadily
- • Improve convenience and ease of use at terminal stations such as Shinagawa and establish brand images for these terminal stations
- • Establish way-side brands, which will be selected by promoting the Chuo Line Mall Project and HAPPY CHILD PROJECT
- • Urban development in coalition with local municipalities at core regional train stations such as Akita
- ●Revitalize regional industry
- • Expand sales channels for local produce and step up publicity in Tokyo metropolitan area
- • Promote sextic industrialization of agriculture, forestry, and fisheries to include food processing, logistics, and marketing such as the NOMONO 1-2-3 Project
- ●Promote Japan as a tourism-oriented nation
- • Create appealing trains that are ridden for ride experience itself
- • Prepare for introduction of cruise train TRAIN SUITE SHIKI-SHIMA

Pursuing Unlimited Potential

HIRAKU (Pioneer) — Technological innovation

- Promote energy and environmental strategies
  - Introduce catenary and battery-powered hybrid railcars for through services with alternating current (AC) railway segments
  - Transform northern Tohoku region into a base for renewable energy production (Solar, wind, geothermal, biomass)
- Utilize ICT to innovate operations
  - Innovate maintenance work such as the introduction of monitoring equipment at model railway sections
  - Establish new sales systems such as on-line sales functions for View travel products
  - Transform transport systems with the introduction of wireless train control systems
- Advance technological innovation

NOBIRU (Grow) — Tackling new business areas

- Take on challenge of overseas projects
  - Advance Purple Line urban mass transit railway system in Bangkok, Thailand
  - Expand technological support, etc., for railway operators in Indonesia and Myanmar further
  - Advance initiatives aimed at participation in overseas high speed rail projects
  - Develop sustina actively to win overseas projects
  - Develop life-style service business overseas
- Introduce outstanding technology and products from outside Company

HABATAKU (Empower)

— Developing employees and create a corporate culture that maximizes human potential

- Motivate employees and provide them with further opportunities to grow
  - Expand and improve open-application programs for personnel transfers and training system
  - Reinforce global personnel development by providing overseas career opportunities
  - Promote diversity
- Promote cohesive group management
  - Establish "Group Stretch Targets"
  - Expand the JR East Group's JRE POINT services
- Reform work style and streamline organizational management

[Prepare for 2020 Tokyo Summer Olympic and Paralympic Games]

- Bolster capabilities of railway stations and other facilities near Olympic and Paralympic venues and transportation capacity during event
- Promote barrier-free environments by increasing the number of elevators, escalators, and multi-functional restrooms

[Advance Strategies for Inbound Tourism]

- Improve recognition of the Tohoku region in coalition with the Tohoku Tourism Promotion Organization
- Respond to inbound group tourist demands by increasing the number of duty-free stores
- Improve convenience and an environment to accepts overseas guests by expanding tourism centers for visitors to Japan

*East Japan Railway Company is an Official Passenger Rail Transportation Services Partner of the Tokyo 2020 Olympic and Paralympic Games.

Numerical Targets

In accordance with "JR East Group Management Vision V−Ever Onward" announced on October 30, 2012, we establish numerical targets that we seek to achieve over a three-year period. We review these three-year targets annually to reflect as appropriate any changes in the management environment or other developments, and update them each year to cover the next three-year period.

〈Numerical Targets for the Fiscal Year Ending March 31, 2019〉

		Targets for the fiscal year ending March 31, 2019	(Reference)Results for the fiscal year ended March 31, 2016
Consolidated operating revenues		¥2,967 billion	¥2,867.1 billion
Segment	Transportation	¥1,979 billion	¥1,954.5 billion
	Station Space Utilization	¥427 billion	¥399.9 billion
	Shopping Centers & Office Buildings	¥296 billion	¥255.9 billion
	Others	¥265 billion	¥256.6 billion
Consolidated operating income		¥498 billion	¥487.8 billion
Segment	Transportation	¥342 billion	¥348.5 billion
	Station Space Utilization	¥37 billion	¥35.0 billion
	Shopping Centers & Office Buildings	¥84 billion	¥71.6 billion
	Others	¥36 billion	¥35.0 billion
	Adjustment	¥(1) billion	¥(2.4) billion
Consolidated cash flows from operating activities		※¥2 trillion	¥673.1 billion
Consolidated ROA		Around 6%	6.3%
Consolidated ROE		Around 10%	10.4%

* Total amount covering three years from the fiscal year ending March 31, 2017 to the fiscal year ending March 31, 2019.

〈Planned consolidated capital expenditure〉

		Total over three years*	(Reference)Results for the fiscal year ended March 31, 2016
Capital expenditure	Investments for maintenance and upgrade (of which for safety)	¥1 trillion (¥600 billion)	¥358.5 billion (¥238.4 billion)
	Growth investments	¥600 billion	¥183.4 billion
	Total	¥1,600 billion	¥541.9 billion

* Total amount covering three years from the fiscal year ending March 31, 2017 to the fiscal year ending March 31, 2019.

GRI Content Index (General Standard Disclosures)

The G4 Sustainability Reporting Guidelines of GRI is a guideline for sustainability reporting. In accordance with the guidelines considered as a global standard, many companies prepare their sustainability reports.
Starting from this fiscal year, JR East Group CSR Report 2016 has been written in accordance with the Core option of GRI's G4 Sustainability Reporting Guidelines.

*GRI:Global Reporting Initiative is a cooperation organization (NGO) authorized by the United Nations Environment Programme (UNEP) aiming to establish guidelines for sustainability reporting.

The response status to the general standard of disclosure items for this report is as follows.

	Indicator		Relevant Pages in Reports Website Version
General Standard Disclosures	**Strategy and Analysis**		
	G4-1	Provide a statement from the most senior decision-maker of the organization (such as CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and the organization's strategy for addressing sustainability.	P4,5 (Top Message)
	Organizational Profile		
	G4-3	Report the name of the organization.	P3 (Corporate Profile)
	G4-4	Report the primary brands, products, and services.	P126,127(Business outline of the JR East Group)
	G4-5	Report the location of the organization's headquarters.	P3 (Corporate Profile)
	G4-6	Report the number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report.	P74 (Developing Our Business around the World)
	G4-7	Report the nature of ownership and legal form.	P3 (Corporate Profile)
	G4-8	Report the markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries).	P125 (Service Area)
	G4-9	Report the scale of the organization, including: • Total number of employees • Total number of operations • Net sales (for private sector organizations) or net revenues (for public sector organizations) • Total capitalization broken down in terms of debt and equity (for private sector organizations) • Quantity of products or services provided	P3 (Corporate Profile) P126,127(Business outline of the JR East Group) P128 (Management Information) P129 (Consolidated Financial Statements for Fiscal 2016)
	G4-10	• Report the total number of employees by employment contract and gender. • Report the total number of permanent employees by employment type and gender. • Report the total workforce by employees and supervised workers and by gender. • Report the total workforce by region and gender. • Report whether a substantial portion of the organization's work is performed by workers who are legally recognized as self-employed, or by individuals other than employees or supervised workers, including employees and supervised employees of contractors. • Report any significant variations in employment numbers (such as seasonal variations in employment in the tourism or agricultural industries).	P131 (Personnel-related data)
	G4-11	Report the percentage of total employees covered by collective bargaining agreements.	P131 (Personnel-related data)
	G4-12	Describe the organization's supply chain.	P126 (Business outline of the JR East Group)
	G4-13	Report any significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain.	Not applicable
	Commitments to external initiatives		
	G4-14	Report whether and how the precautionary approach or principle is addressed by the organization.	P17 (General principles of Safety) P35～41 (Preparedness against natural disaster)
	G4-15	List externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses.	P2 (Contents)
	G4-16	List memberships of associations (such as industry associations) and national or international advocacy organizations in which the organization: • Holds a position on the governance body • Participates in projects or committee. • Provides substantive funding beyond routine membership dues. • Views membership as strategic.	P75 (Global Contribution through International Institutions)
	Identified Material Aspects and Boundaries		
	G4-17	• List all entities included in the organization's consolidated financial statements or equivalent documents. • Report whether any entity included in the organization's consolidated financial statements or equivalent documents is not covered by the report.	P3 (Boundary of reporting) P127 (Businesses of the JR East Group)

General Standard Disclosures	G4-18	• Explain the process for defining the report content and the Aspect Boundaries. • Explain how the organization has implemented the Reporting Principles for Defining Report Content.	P12 (Materiality (material aspects) and Key CSR Activities of the JR East Group)
	G4-19	List all the material Aspects identified in the process for defining report content.	P13 (Materiality (material aspects) and Key CSR Activities of the JR East Group)
	G4-20	For each material Aspect, report the Aspect Boundary within the organization, as follows: • Report whether the Aspect is material within the organization • If the Aspect is not material for all entities within the organization (as described in G4-17), select one of the following two approaches and report either: ---The list of entities or groups of entities included in G4-17 for which the Aspect is not material or ---The list of entities or groups of entities included in G4-17 for which the Aspects is material • Report any specific limitation regarding the Aspect Boundary within the organization	P13 (Materiality (material aspects) and Key CSR Activities of the JR East Group)
	G4-21	For each material Aspect, report the Aspect Boundary outside the organization, as follows: • Report whether the Aspect is material outside of the organization • If the Aspect is material outside of the organization, identify the entities, groups of entities or elements for which the Aspect is material. In addition, describe the geographical location where the Aspect is material for the entities identified • Report any specific limitation regarding the Aspect Boundary outside the organization	P13 (Materiality (material aspects) and Key CSR Activities of the JR East Group)
	G4-22	Report the effect of any restatements of information provided in previous reports, and the reasons for such restatements.	Not applicable
	G4-23	Report significant changes from previous reporting periods in the Scope and Aspect Boundaries.	Not applicable
	Stakeholder Engagement		
	G4-24	Provide a list of stakeholder groups engaged by the organization.	P15 (JR East Stakeholders)
	G4-25	Report the basis for identification and selection of stakeholders with whom to engage.	P15 (JR East Stakeholders)
	G4-26	Report the organization's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process.	P15 (JR East Stakeholders)
	G4-27	Report key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting. Report the stakeholder groups that raised each of the key topics and concerns.	P15 (JR East Stakeholders)
	Report Profile		
	G4-28	Reporting period (such as fiscal or calendar year) for information provided.	P3 (Reporting period)
	G4-29	Date of most recent previous report (if any).	(Back cover)
	G4-30	Reporting cycle (such as annual, biennial).	(Back cover)
	G4-31	Provide the contact point for questions regarding the report or its contents.	(Back cover)
	GRI CONTENT INDEX		
	G4-32	• Report the 'in accordance' option the organization has chosen. • Report the GRI Content Index for the chosen option. • Report the reference to the External Assurance Report, if the report has been externally assured.	P3 (Editorial Policy) P122 (Independent Assurance Report) P10,11,14 (GRI Content Index)
	ASSURANCE		
	G4-33	• Report the organization's policy and current practice with regard to seeking external assurance for the report. • If not included in the assurance report accompanying the sustainability report, report the scope and basis of any external assurance provided. • Report the relationship between the organization and the assurance providers. • Report whether the highest governance body or senior executives are involved in seeking assurance for the organization's sustainability report.	P122 (Independent Assurance Report)
	Governance		
	G4-34	Report the governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental and social impacts.	P24 (Railway Safety Promotion Committee) P115 (Environmental Management Structure) P117,118 (CSR Management)
	Ethics and Integrity		
	G4-56	Describe the organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics.	P3 (Group Philosphy/Basic Prnciples) P119 (Compliance)

Materiality (material aspects) and Key CSR Activities of the JR East Group

Taking railway privatization and the Great East Japan Earthquake as starting points, we formulated Group Management Vision V: Ever Onward to re-consider the role that our corporate group should play in future and what we should aim for in order for the company to evolve.
Based on the basic concept of "Thriving with communities, growing globally," which defines the overall direction of our group, and on the expectations of various stakeholders, we established our core management pillars by specifying six key business issues and identified the key matters which the JR East Group should address (material aspects).
The present document will report on the material aspects and where impacts occur for them (boundaries). These aspects and boundaries are identified based on the steps below.

Step 1 Identification of relevant topics and boundaries	• We broadly selected topics in light of their relevance to the economic, environmental, and social factors indicated in the G4 guidelines and to the JR East Group's business (business areas, business flow) as well as their relevance to the management vision. • In order to identify the boundaries of the relevant topics, we considered their relevance to our business flow and relationship with stakeholders and the extent of their impact on both inside and outside the organization. *In identifying topics, with the future in mind, we have also taken the sustainability context into account, including social and environmental trends in our business territories, in Japan, and overseas.
Step 2 Prioritization of relevant topics	• We identified high-priority topics (material aspects) by considering various factors, such as key stakeholders' concerns, matters and information essential to decision-making, the extent of the impact on society and the environment, and topics and targets (KPIs) that are a focus of the management vision and business of JR East. *The management vision takes into account not just improving safety and services, which are fundamental to the railway business, but also issues such as disaster recovery and revitalization of the regional economy in eastern Japan—the area where we conduct our business—and addressing climate change and other environmental problems. In addition, with regard to overseas business expansion, it includes involvement in projects in view of the future development of regions where railways are deemed necessary from an economic, social, and environmental perspective, and takes into account the sustainability context, both domestically and internationally. Furthermore, it includes consideration of actions relating to the Tokyo Olympic and Paralympic Games.
Step 3 Defining and verifying validity	• We double-checked the validity of the identified material aspects in terms of their scope (scope of aspects covered in the report), aspect boundaries (the description of where impacts occur for each material aspect), and time (the completeness of selected information with respect to the reporting period). At this stage, we considered not only stakeholders' expectations and needs but also looked at the future needs of society, the impact on society, and the company's social responsibilities as well as a wide range of business areas, and we also took into account the completeness of material aspects by verifying that no matters had been overlooked. • At the same time as this step in the process, the identified material aspects were discussed with and approved by the Committee on Ecology Promotion (one of the internal committees that makes management-related decisions as stipulated by company regulations).
Step 4 Review	• In order to prepare the report for the next fiscal year, we will evaluate the validity of this report's content, taking into account feedback obtained from stakeholders in the meantime and the sustainability environment (based on social trends, etc.), and this evaluation result will be reflected in the identification of material aspects as necessary.

*East Japan Railway Company is an Official Passenger Rail Transportation Services Partner of the Tokyo 2020 Olympic and Paralympic Games.

○Identified Materiality (Material Aspects)

JR East Group Management Vision V			Material Aspects	GRI Indicators		JR East's KPI
Eternal Mission	KIWAMERU (Excel)	Pursuing "Extreme Safety Levels"	Customer Health and Safety	G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement.	Measures for improving safety in various aspects, etc.
				G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes.	Total number of injury accidents, fatal accidents.
			Occupational Health and Safety	G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender.	Total number of occupational accidents, fatal accidents, and lost-time injuries and leave frequency rate.
	MIGAKU (Improve)	Service Quality Reforms	Product and Service Labeling	G4-PR5	Results of surveys measuring customer satisfaction.	Results of surveys measuring customer satisfaction.
	TOMO NI IKIRU (Together)	Strengthening collaboration with local communities	Employment	G4-LA1	Total number and rates of new employee hires and employee turnover by age group,gender and region.	Total number of hires and employee turnover by region.
			Local Communities	G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs.	Summary of business contributing to community revitalization and tourism promotion and summary of business contributing to strengthening networks and urban development .
Pursuing Unlimited Potential	HIRAKU (Pioneer)	Technological innovation	Energy	G4-EN3	Energy consumption within the organization.	Consumption by energy type, purchased/self-generated power amount.
				G4-EN5	Energy intensity.	Electricity used for railway operations per unit of transport volume.
						Energy consumption per unit of floor area at branch offices, etc.
						Reduction Rate of Energy Consumption Intensity Established by Each JR East Group Company.
				G4-EN6	Reduction of energy consumption.	Changes in amount of energy consumed over time.
				G4-EN7	Reductions in energy requirements of products and services.	Energy consumption efficiency of rolling stock manufactured by JR East.
			Emissions	G4-EN15	Direct greenhouse gas (GHG) emissions. (Scope 1)	Greenhouse Gas (GHG) Emissions. (Scope 1)
				G4-EN16	Energy indirect greenhouse gas (GHG) emissions. (Scope 2)	Greenhouse gas (GHG) emissions. (Scope 2)
			Effluents and Waste	G4-EN23	Total weight of waste by type and disposal method.	Amount of waste generated by source (station/train waste, general rolling stock centers, facility construction, group companies) and recycling rate. (main disposal method)
				G4-EN24	Total number and volume of significant spills.	Number of such cases occurred.
	NOBIRU (Grow)	Tackling New Business Areas	Local Communities	G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs.	Active participation in international railway business projects.
	HABATAKU (Empower)	Developing Employees and Creating Corporate Culture That Maximizes Human Potential	Training and Education	G4-LA9	Average hours of training per year per employee by gender, and by employee category.	Average hours of training per year per employee by gender, and by employee category.
						Number of technical academy participants.
			Diversity and Equal Opportunity	G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity.	Number of female executives (ratio) and number of female managers. (ratio)
Others			Human Rights Grievance Mechanisms	G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms.	Number of inquiries to Compliance Hotlines Implementation status of barrier-free facilities. (vertical transportation, accessible washrooms)
			Overall	G4-EN31	Total environmental protection expenditures and investments by type.	Environmental accounting.
			compliance	G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.	Status of non-compliance, administrative guidance, etc.
				G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations.	Status of non-compliance, administrative guidance, etc.
				G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services.	Status of non-compliance, administrative guidance, etc.

*The extent of impact (boundaries) of the materiality (material aspects) identified above is all within the JR East Group.

GRI Content Index (Specific Standard Disclosures)

Materiality (material aspects) of JR East has been identified based on the procedure of Step 1 to Step 4. The response status to the identified standard disclosure items of this report is as follows.

	Indicator		Relevant Pages in Reports WEB
Specific Standard Disclosures	Environment		
	Energy DMA※ P6～8,89～92,115		
	G4-EN3	Energy consumption within the organization	P94 (Energy conservation and CO_2 reduction)
	G4-EN5	Energy intensity	P92 (State of progress toward FY 2021 goals)
	G4-EN6	Reduction of energy consumption	P98 (Saving energy at stations)
	G4-EN7	Reductions in energy requirements of products and services	P98 (Saving energy at stations)
	Emissions DMA P6～8,89～92,115		
	G4-EN15	Direct greenhouse gas (GHG) emissions (Scope 1)	P90 (JR East Group's environmental impact) P95 (Trends in CO_2 Emissions of JR East)
	G4-EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2)	P90 (JR East Group's environmental impact) P95 (Trends in CO_2 Emissions of JR East)
	Effluents and Waste DMA P89～92,115		
	G4-EN23	Total weight of waste by type and disposal method	P90 (JR East Group's environmental impact) P104 (Recycling waste collected from stations and trains) P105 (Recycling at General Rolling Stock Centers) P106 (Reducing construction waste)
	G4-EN24	Total number and volume of significant spills	Not applicable
	Compliance DMA P89,115,119～121		
	G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	Not applicable
	Overall DMA P89,93		
	G4-EN31	Total environmental protection expenditures and investments by type	P93 (Compliance with environmental laws and regulations)
	Social		
	Sub-Category: Labor Practices And Decent Work		
	Employment DMA P6～8,80		
	G4-LA1	Total number and rates of new employee hires and employee turnover by age group,gender and region	P131 (Personnel-related data)
	Occupational Health and Safety DMA P6～8,17,18		
	G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender	P29 (Current state of employee accidents)
	Training and Education DMA P6～8,80		
	G4-LA9	Average hours of training per year per employee by gender, and by employee category	P131 (Personnel-related data)
	Diversity and Equal Opportunity DMA P6～8,81～84		
	G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	P82 (Promoting Involvement of Female Employees)
	Sub-Category: Human Rights		
	Human Rights Grievance Mechanisms DMA P54,55,120		
	G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	P120 (Compliance hotline)
	Sub-Category: Society		
	Local Communities DMA P6～8,66		
	G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	The JR East Group upholds strengthening of collaboration with communities in our Group Management Vision V, and the item is mainly applicable to railway business. P66 (Strengthening Collaboration with Communities and Local Revitalization) P68,69 (Rediscover the Region Project) P70 (For Regional Revitalization~"Oyatsu TIMES"~)
	Compliance DMA P117～121		
	G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	Not applicable
	Sub-Category: Product Responsibility		
	Customer Health and Safety DMA P6～8,17～25		
	G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	The JR East Group upholds "pursuing of extreme safety levels" in our Group Management Vision V, and the item is mainly applicable to railway business. P30～34 (Efforts to further improve safety levels)
	G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes	P26～28 (Current safety record of JR East)
	Product and Service Labeling DMA P6,7,54,55		
	G4-PR5	Results of surveys measuring customer satisfaction	P54 (Relationship with Customers)
	Compliance DMA P117～121		
	G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	Not applicable

※DMA ((Disclosure on Management Approach): A company's management method for economy, environment and society concerning material issues.

JR East Stakeholders

①Customers

Because our railway and non-railway businesses are continued with fees and compensations from our customers, we have defined our customers as stakeholders.
Stations provide specific venues for customers who use them to interact with the JR East Group, and they also serve as key contact points for the company to provide customers with a wide range of services and information. Furthermore, the trains on which customers travel and non-railway service provision locations both inside and outside stations also serve as key contact points which complement each other.

②Regions/communities

As a group whose main focus is the railway business, JR East has a close relationship to regions and communities. Indeed, without local communities, our business could not exist. Accordingly, we have defined them as stakeholders.
We are connected to regions and communities every day through our railway lines and especially our stations. We also maintain contact with these stakeholders by providing information via various media.

③Shareholders and investors

Needless to say, as a stock company, our shareholders play an essential role, and investors are also key stakeholders for the purpose of maintaining our business.
We communicate with all our shareholders and investors via IR activities conducted both in Japan and overseas, such as our general shareholder meeting held once a year, and provide shareholders with financial information and so forth on our website.

④Employees

In the railway business, which is considered a labor-intensive industry, employees play an indispensable role in running the business, and they are defined as stakeholders.
We are able to interact with employees in various ways, including daily communication in the workplace and various types of on-the-job and off-the-job education and training, based on contractual relationships aligned with labor regulations and other rules.

- We strive to improve service quality through measures such as collecting extensive feedback from the customers who use our services via front-line employees, call centers, etc. and working to understand the needs of regions and communities by conducting monitoring surveys along railway lines.
- Through our general shareholders meeting and other IR activities, we listen to the diverse opinions and requests of our various stakeholders and do what we can as a company to address them, and when it comes to matters relating to safe, convenient transportation in particular, we promote concrete measures such as making proactive investments in order to pursue extreme safety levels.



Safety

CONTENTS

Ⅰ-1 Our fundamental concept of safety

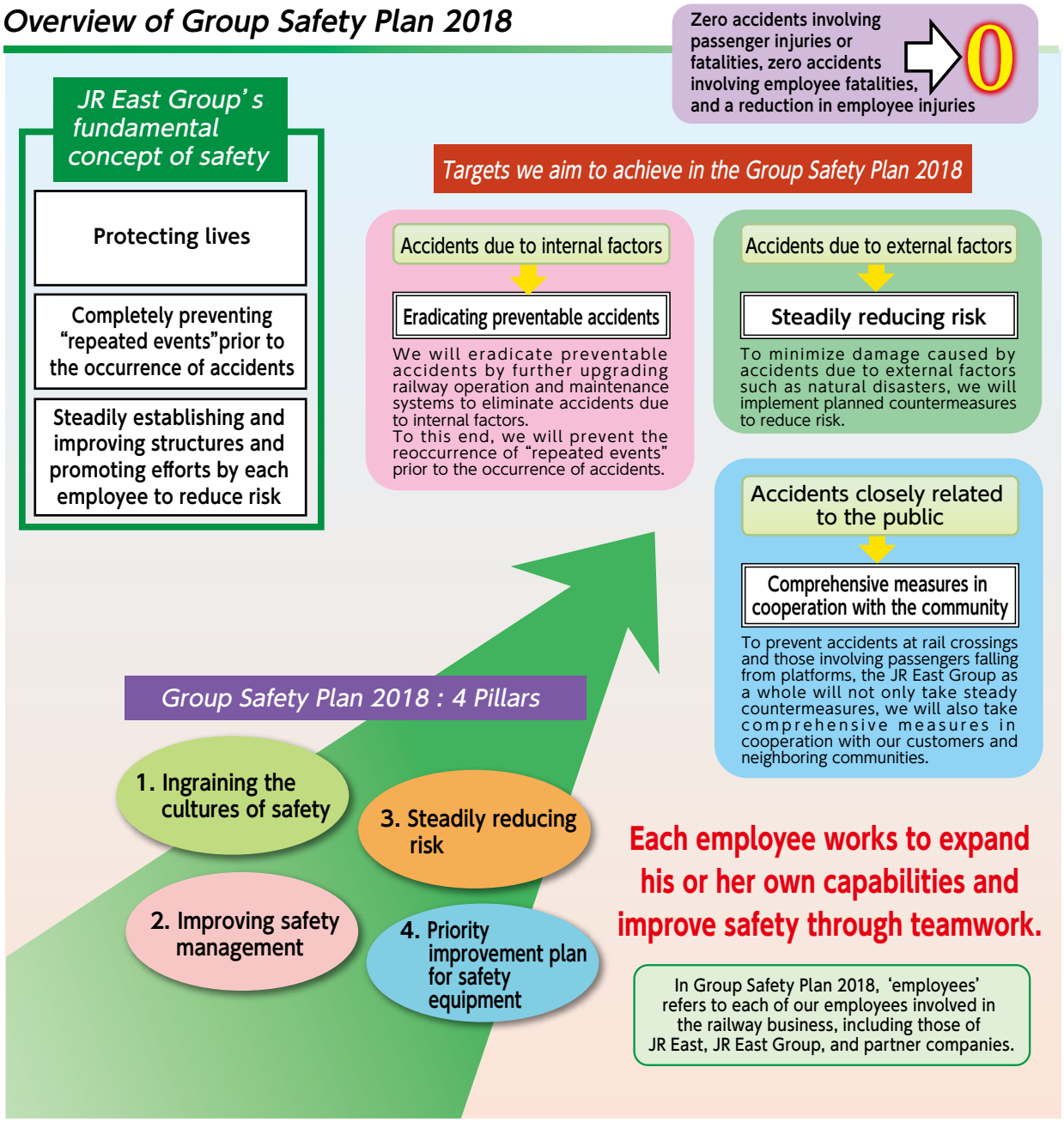
Since the establishment of JR East, safety has been our top management priority, and we have worked relentlessly to heighten our levels of safety. Our earnest efforts to learn from unfortunate accidents in the past have enabled JR East to further the prevention of future accidents with our continued developments in both tangible and intangible aspects. To further reduce potential risk, JR East is committed to steadily improve tangible countermeasures and also to ensure that each one of its employees takes all possible intangible measures.
Pursuit of safety measures can never end. We will continue to work tirelessly to improve safety by pursuing a goal of "zero accidents involving passenger injuries or fatalities and zero accidents involving employee fatalities (including employees of Group companies and partner companies)."

Ⅰ-1-1 General principles of Safety

JR East has prescribed General principles of Safety for the code of conduct for its safety-related employees.
① Safety is the most important mission in transportation.
② Ensuring safety is based on exact observance of rules and procedures, and is achieved through constant practice.
③ Enforcement of confirmation and complete contact is most important for ensuring safety.
④ For ensuring safety we should cooperate together and go beyond our official responsibility.
⑤ When we have questions or must choose among several options, we should remain calm, think by ourselves, and take the safest course after thorough consideration.

Ⅰ-1-2 Group Safety Plan 2018

Since our establishment, upholding safety as our top management priority, JR East has been implementing a series of five-year safety plans. With our current five-year Safety Plan, Group Safety Plan 2018, with each of us involved in the railway business committed to improving safety, JR East as a whole group will continue to challenge ourselves to achieve "extreme safety levels."
In Group Safety Plan 2018, together with redefining the direction we are taking as a company such as preventing accidents resulting from internal factors, we outline specific measures. Additionally, through our ongoing efforts to pass on technologies and promote measures to comprehensively understand the severity of accidents, we aim to further enhance safety management through the fostering of safety-conscious personnel.



Ⅰ-1-3 Group Safety Plan 2018 4 pillars ① Ingraining the cultures of safety

Ingraining the JR East Group's cultures of safety

5 cultures

A culture of proper reporting
The prompt and proper reporting of accidents and incidents, and the prevention of the recurrence of accidents.

A culture of noticing
The recognition and sharing of information regarding the potential sources of accidents in order to prevent accidents and incidents.

A culture of direct meeting and discussion
The open and honest discussion and exchange of opinion in investigating the causes of accidents and incidents in order to identify the causes of accidents and to take truly effective countermeasures against their recurrence.

A culture of learning
The continuous awareness of others, learning from accidents and incidents which occur in all places of work, not just in one's own workplace, and the implementation of appropriate countermeasures.

A culture of action
Safety can be ensured only by taking safe actions. Think and act by yourself. This is at the core of our safety.

Stopping trains when we feel it is not safe.

Safe and stable transport is important for our railways. Safety means protecting lives, while stability means ensuring on-time operations of our trains. However, though stable transport is important for us, safety comes first. Trying too hard to keep to schedule sometimes results in not properly following safety confirmation procedures, which leads to risking the safety of train operations. To secure the safety of our railway operations, the whole JR East Group will always follow our code of conduct to "stop trains" whenever we feel it necessary for safety reasons.


Train protection drill at General Training Center

Sangen Principle: Three Actualities Principle

Accidents and incidents always occur at the Genba.* This means that the sources of accident prevention can also be found at the Genba. JR East continues its search for answers which cannot be found on paper, based on the "Three Actualities Principle" as its standard for action: actual locations, actual objects, and actual people.

*Genba: "Genba" means actual locations, objects, people directly related to the safety of our operations including points of contact with our customers and fields or workplaces of transport or services.

The Three Actualities Principle

Actual locations:
Visiting actual locations to understand actual conditions

Actual objects:
Viewing actual objects in order to understand actual conditions

Actual people:
Meeting face to face with people involved to understand actual situations

Challenge Safety Campaign

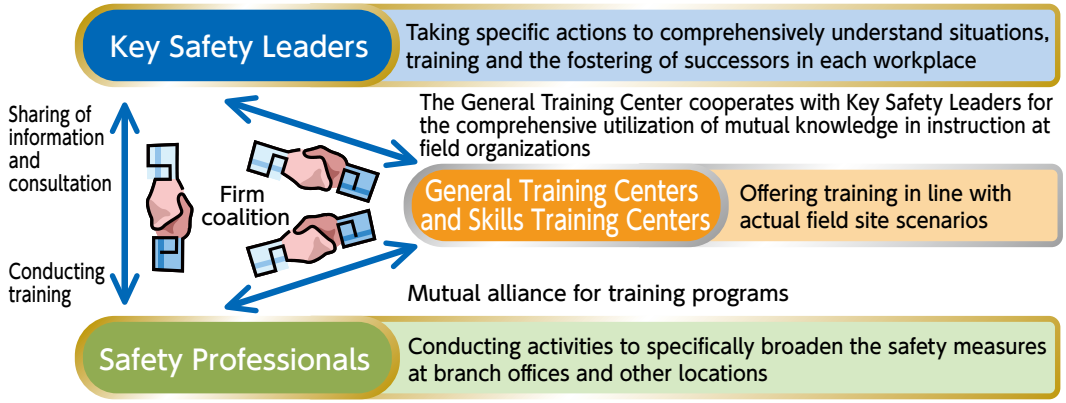
Since the company's foundation, we have been continuing our Challenge Safety Campaign with the aim of encouraging our employees to actively take on the challenge of further improving safety levels, rather than just passively maintaining safety. The campaign aims to encourage each one of our employees to actively endeavor to improve safety levels, think and discuss specific measures with each other and act upon them.

Ⅰ-1-4 Group Safety Plan 2018 4 pillars ② Improving safety management

▶Fostering safety-oriented personnel

The safety of our operations is supported by our frontline employees. To respond to the rapid changing of generations, we will steadily work on fostering safety-oriented personnel.

Fostering safety-oriented personnel with a strong mindset in cooperation between Key Safety Leaders, Safety Professionals, General Training Centers and Skills Training Centers



Fostering capabilities to flexibly respond to disasters

From the Great East Japan Earthquake on March 11, 2011, we have relearned the importance of being prepared for disasters on a daily basis and to think and act by ourselves at a time of a disaster.
To respond to an accident or a disaster immediately after its occurrence, we are required to remain calm to review our choices and make prompt decisions to ensure the safety of our operations and take the necessary actions. By discussing the actions required immediately after the occurrence of an accident or a disaster and preparing ourselves through training on a regular basis, JR East helps its employees to foster capabilities to respond flexibly to an accident or a disaster.

Steadily passing on necessary technologies

○**Passing experiences and knowledge to future generations**

JR East will steadily pass on valuable experiences and knowledge that veteran employees possess including the circumstances that led to accidents in the past and the processes that led to the creation of current rules and regulations. We will also continue our efforts to increase the volume of these valuable experiences and knowledge of veteran employees to be shared with future generations.

○ **Increasing opportunities for employees to learn and challenge themselves**

In passing on technologies, we place importance on offering opportunities for each one of our employees to voluntarily learn and challenge themselves and we believe that this will eventually lead them to acquire knowledge of the technologies and improve their capabilities.

○ **Passing on experiences through the Chroniclers of Safety (narrators of oral history)**

We have organized a group of ex-employees from various departments who possess an abundance of knowledge and applied skills in railway safety to act as our "Chroniclers of Safety." These Chroniclers of Safety share their safety-related experiences, such as the handling of accidents in the past, in the hope that they will pass their accumulated experiences and skills down to future generations.

Providing easy-to-understand learning materials and information

By utilizing ICT technologies, JR East offers an environment for employees to learn whenever needed from various learning opportunities such as Challenge Safety campaigns, regular trainings and drills, study sessions and individual learning. The necessary materials and information can be easily searched and processed for learning.

○ **Development and improvement of the safety portal**

JR East utilizes its safety portal site via the intranet as its safety-related information platform. Employees can access the necessary educational materials including videos whenever needed.

○ **Development of e-learning**

By utilizing devices such as tablets, we offer e-learning so that employees can learn whenever they want.

Further increasing the levels of safety through the concerted efforts of the whole JR East Group

To steadily and specifically promote our safety efforts, it is important that we share information and our safety values for the whole JR East Group including group and partner companies. We are committed to ensuring that all JR East Group employees share safety values and to continuing our efforts to further improve the levels of safety in our operations across the whole JR East Group.

Simplifying to minimize human errors

Devices and equipment requiring complex rules and numerous operations could result in human errors. JR East promotes the simplification of its operations by unifying the specifications of its devices and narrowing down its safety rules and regulations.
However, since many of the safety rules have been created from lessons from past accidents, as a condition of this simplification we make sure we understand the background to and objectives of each safety rule.

Deeply learning the dreadfulness of accidents

By engraving the dreadfulness of accidents in their memory, each one of our employees will take specific actions to prevent them from happening.

○ **Further utilization of the Accident History Exhibition Hall**

Since FY2015, all JR East employees visit the Accident History Exhibition Hall where actual trains from accidents and disasters are exhibited. We also continue to improve the educational materials available at the Accident History Exhibition Hall.

○ **Publication of major accident encyclopedia**

We will continue the publication of our major accident encyclopedia with notes from those who were involved in the accident response at the time.

Accident History Exhibition Hall

Ⅰ-1-5 Group Safety Plan 2018 4 pillars ③ Steadily reducing risk

Totally eradicating accidents due to internal factors

Our goal is to eradicate preventable accidents due to internal factors by further upgrading railway operation and maintenance systems. In addition to our risk reduction measures for personnel and management such as education and training, we will take all possible measures such as the utilization of technological developments in ICT, big data, and GPS. We will also review our safety-related procedures and further strengthen the countermeasures we have been putting in place.
To this end, we will focus primarily on preventing the reoccurrence of "events requiring attention" due to the same factors.

Reducing risk of accidents due to external factors

When the Great East Japan Earthquake occurred, the earthquake countermeasures that had been steadily implemented by JR East up to that time proved effective to a certain extent. On the other hand, we continue to acknowledge the importance of being prepared for unforeseen natural disasters. Additionally, we will steadily reduce the risk of damage being caused by the increasing incidence of natural disasters such as abnormal weather like torrential localized rain and gusts of wind, floods and volcanic eruptions. To minimize damage caused by natural disasters due to external factors immediately after an occurrence, JR East will take planned risk reduction measures.

Reducing risk of accidents closely related to the public

While we steadily take measures against accidents at rail crossings and customers falling onto tracks, we continue our efforts to ask our customers and neighboring communities to understand the risks associated with railways and to prevent the occurrence of such accidents.
We will take comprehensive measures including accident prevention campaigns on platforms, escalators, or railway level crossings, and the elimination of level crossings in cooperation with local municipalities.

○ Measures against major accidents

We will steadily implement countermeasures by learning lessons from major accidents in the past.
(Specific measures)

Measures taken after the Uetsu Main Line train derailment accident (Dec. 25th, 2005)

- Increased installation of anemometers and operation restriction zones for heavy wind
- Research and development to predict local gust
- Reviewing operational restriction methods by utilizing meteorological information
- Increased installation of windbreak fences

Measures taken after the Fukuchiyama Line train derailment accident (April 25th, 2005)

- Speed check by introducing ATS to curves, turnouts, terminals, and descending grades
- Increased introduction of automatic train protection radio transmission devices
- Complete introduction of emergency braking equipment

Measures taken after the Joetsu Shinkansen train derailment accident (Oct. 23rd, 2004)

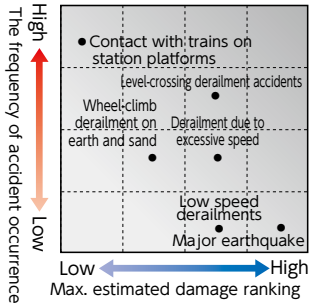
- L-shaped car guide and rail rollover prevention device
- Strengthening seismic reinforcement for embankment, cutting, elevated bridges, electric poles, ceiling and walls of station buildings and platforms
- Improvement of systems to promptly decelerate and stop Shinkansen trains immediately after an earthquake

○ Further prediction of possible risk and related countermeasures

Though some risk might not be recognized as risk, with changing circumstances surrounding railways some might evolve into a risk to operations in the future. We will monitor the changing risk on a regular basis so that we can predict the possible risk and implement proper countermeasures beforehand.

By reviewing the changing risk of possible accidents on a regular basis by using risk evaluation methods, we can determine the priority of the necessary countermeasures.

An example of our risk evaluation methods



Ⅰ-1-6 Group Safety Plan 2018 4 pillars
④ Priority improvement plan for safety equipment

Eradicating accidents due to internal factors

○ Those related to railway operations
- Increased introduction of ATS-P to prevent violation of signals and excessive speeding by trains
- Introduction of systems to transmit information such as temporary speed restrictions to train drivers in strong wind or heavy rain.

○ Those related to rolling stock and equipment
- Introduction of new type railcars with carbody structures for improved safety levels
- Increased introduction of backup equipment to further ensure the secure operation of level crossings when trains are passing
- Safety measures for aging facilities (extension of their life through planned renewals and repairs)
- Commercialization of technologies to monitor on-board equipment and ground facilities by commercial trains with inspection equipment.


Operation control information relay systems

○ Those related to maintenance and construction
- Commercialization of warning systems to alert staffs about approaching trains by utilizing GPS
- Systemization of procedures to prevent trains from entering sections under construction
- Measures to prevent collisions between commercial trains and maintenance vehicles involved in construction work.

Reducing risk of accidents due to external factors

○ Measures against large-scale earthquakes
- Increased seismic reinforcement for embankments, cuttings, elevated bridges, electric poles, and facilities such as the ceiling and walls of station buildings and platforms
- Improvement of systems to more promptly decelerate and stop Shinkansen trains immediately after an earthquake.


Measures against large-scale earthquakes (seismic reinforcement of embankment)

○ Disaster prevention measures against rainfall
- Improving durability of civil engineering facilities such as embankments and cuttings

○ Measures against rock falls and mud slides
- Improvement of rock fall protection work, slope protection work, and guard fences against landslides
- Development of systems to predict risk of large-scale landslides based on topographic and geographic conditions

○ Measures against localized gusts of wind
- Development of technologies to improve accuracy of predicting localized gusts by utilizing meteorological information such as the Japan Meteorological Agency's Nowcasts for tornados

○ Measures against strong wind
- Increased installation of windbreak fences
- Introduction of criteria for making judgments in operation control due to strong wind taking into consideration carbody shapes and topological conditions

○ Disaster prevention measures for Yamagata and Akita Shinkansen lines in mountainous areas

Reducing risk of accidents closely related to the public

○ Safety measures for station platforms
- Increased introduction of automatic platform doors
- Increased introduction of dot-Braille blocks that indicate which direction is away from the edge of the platform.


Automatic platform doors

○ Safety measures for level crossings
- Increased installation of level crossing warning systems to inform train drivers of incidents at level crossings.
- Upgrade of Class 4 level crossings (without alarms and crossing gates) to Class 1 level crossings (with alarms and crossing gates)


Emergency button


Obstruction warning signal

Level crossing warning system

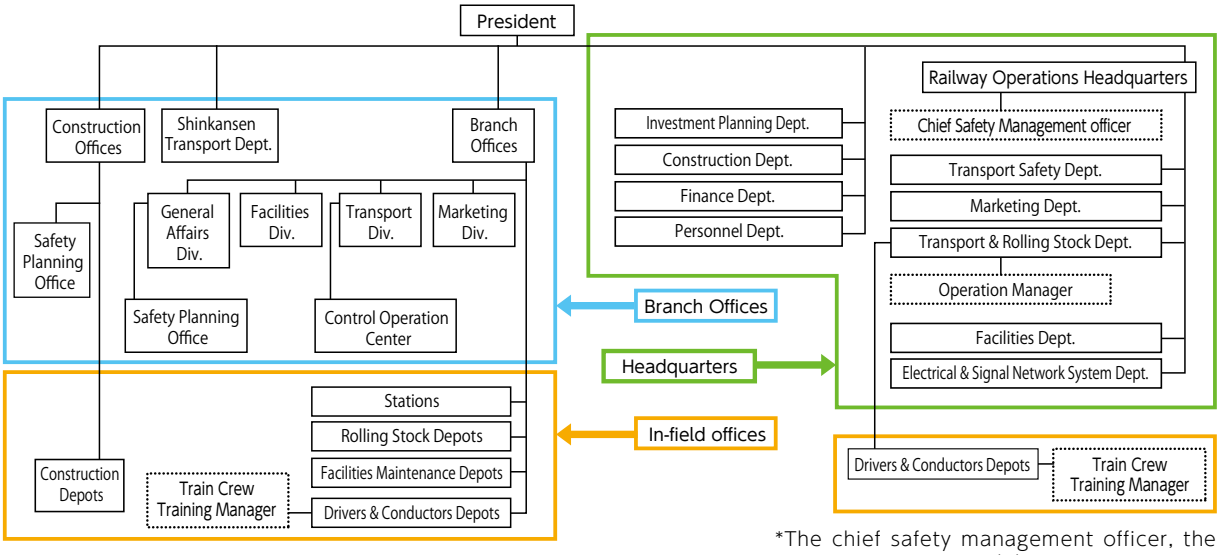
○ Countermeasures against crime and/or acts of terrorism
- Installation of security cameras along railways where there is a possibility of trespassing (Shinkansen tracks, stations, depots, storage tracks, close to level crossings, etc. within 30km from Tokyo.)

I-2 JR East's safety management organization

I-2-1 Safety management regulations

In response to a revision of the Railway Business Act, JR East formulated its safety management regulations on October 1st, 2006. The safety management regulations make stipulations on various safety management-related matters such as the responsibilities of top management executives in ensuring the safety of operations and on organizational matters such as the selection of chief safety management officers, operation managers, and train crew training managers. The chief safety management officer is selected from the Director General of Railway Operations Headquarters, or its equivalent. The operation manager is selected from the General Manager of Transport & Rolling Stock Dept. or its equivalent. The train crew training manager is selected from the Manager of Drivers & Conductors Depots.

Management structure for transport safety

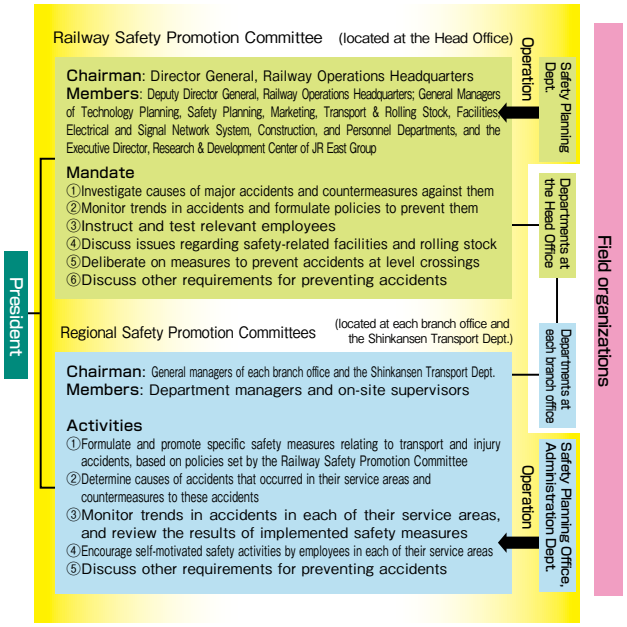


*The chief safety management officer, the operation manager, and the train crew training manager are terms designated by the Railway Business Act and related regulations.

I-2-2 Railway Safety Promotion Committee

JR East established the Railway Safety Promotion Committee at its Head Office, chaired by the Director General from Railway Operations Headquarters, as its safety promotion network in 1987 at the time of its corporate establishment. The committee aims to improve safety in railway operations and prevent accidents by investigating the causes of major accidents, formulating preventative measures to avoid reoccurrences, and implementing safety-related countermeasures for facilities and trains.

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 cooperation 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.



Ⅰ-2-3 Safety Planning Department at Head Office and Safety Planning Office at branch offices, etc.

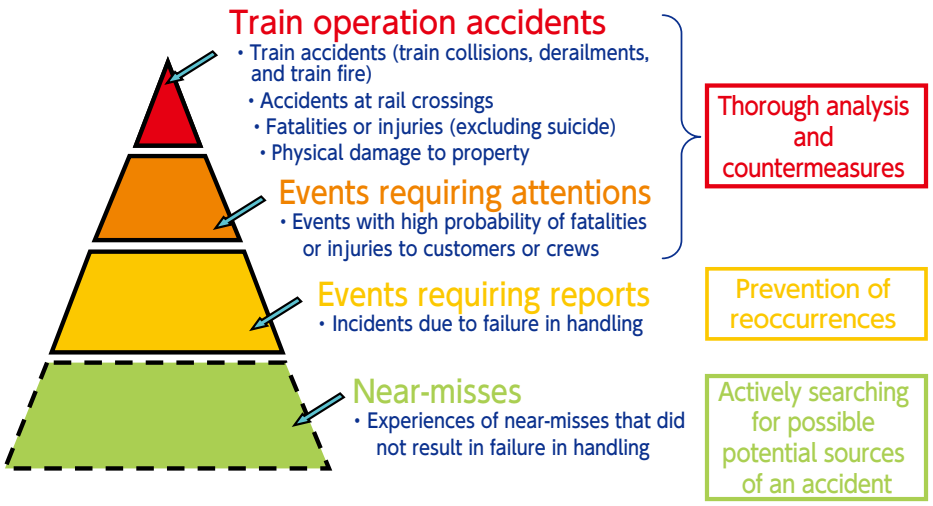
We placed the Safety Planning Department at the head of the Railway Operations Headquarters to clearly indicate JR East's stance on taking all possible countermeasures before potential risks arise, in addition to measures against reoccurrences of past accidents.
The Safety Planning Department at Head Office and Safety Planning Offices at branch offices work together on measures to improve the safety levels of our railways with respect to both tangible and intangible aspects by formulating safety-related medium-term plans.

Ⅰ-2-4 Rules for reporting accidents and incidents

To prevent the occurrence and reoccurrence of railway accidents, it is crucial to properly understand the details of accidents and incidents, analyze their causes and take appropriate countermeasures. To this end, JR East has set rules to report accidents and established categorizations.

① To implement thorough analysis and countermeasures against potential sources of accidents with high risk of fatality or injury of customers and employees
② To actively search for hidden potential sources of accidents that were not recorded as incidents

Field sites, branch offices, and Head Office each play their own role in further improving their capabilities to properly understand and analyze the causes of accidents and incidents, and to take preventative measures against occurrences and reoccurrences of accidents. Additionally, by actively searching for hidden risks for near-misses and taking preventative measures, JR East aims to further heighten the safety levels in its railway operations.



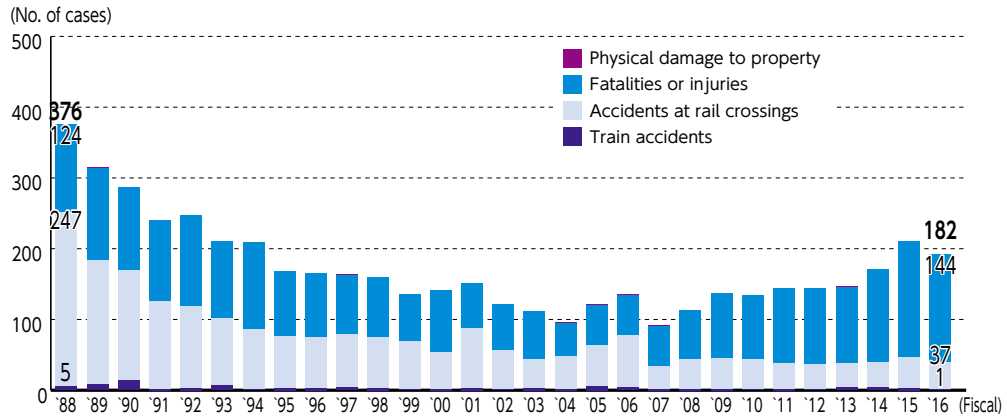
I-3 Current safety record of JR East

I-3-1 Railway accidents

In FY2016, JR East recorded 182 railway accidents. Approximately 80 percent of the total number of accidents involved an injury or fatality.

Train accidents	Train collisions, derailments, and train fire
Accidents at rail crossings	People or automobiles being hit by trains
Fatalities or injuries	People killed or injured by train operation excluding suicide
Physical damage to property	Accidents causing more than 5 million yen damage to property by train operation

■ Occurrences of railway accidents



▶Train accidents

JR East recorded one train accident in FY2016.

・On Dec. 11th, 2015, between Matsukusa and Hiratsuto stations on the Yamada Line, a train was derailed as it traveled over a landslide.

▶Accidents at rail crossings

JR East recorded 37 accidents at rail crossings in FY2016. The causes of the accidents included automobiles stalling on the tracks (nine cases) and crossing immediately prior to the passing of trains (28 cases).

▶Fatalities or injuries

JR East recorded 144 accidents involving injury or fatality in FY2016. A total of 83 of such accidents included customers on platforms or trespassers on tracks coming into contact with trains, and customers falling onto the tracks from platforms. Approximately 50 percent of these involved intoxicated customers.

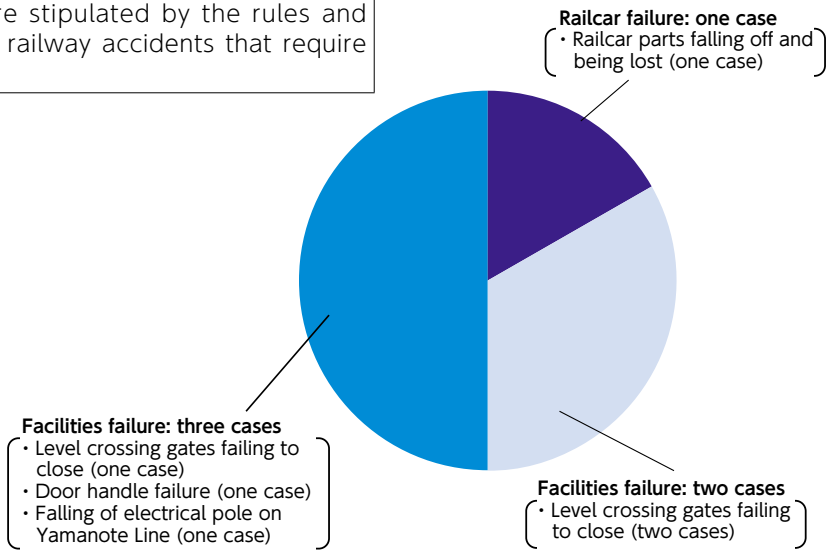
▶Physical damage to property

JR East recorded no accidents involving physical damage to property in FY2016.

I-3-2 Incidents*

JR East recorded six incidents in FY2016.

*Incidents	In addition to JR East's definition (please see p.25), "incidents" mean situations that could lead to a railway accident. The definitions of incidents are stipulated by the rules and regulations for railway accidents that require reporting.



▶Overview of major incident and subsequent preventative measures (Falling of electrical pole on Yamanote Line)

・On April 12th, 2015, between Kanda and Akihabara Stations on the Yamanote Line regarding the major incident involving electric poles leaning over the tracks.

● Overview

At around 6:10 a.m. on April 12th, 2015, between Kanda and Akihabara Stations on the Keihin Tohoku Line, the train crew activated the emergency brake to stop the train when finding electric poles leaning over the track. According to maintenance crews, a pair of electric poles installed between the tracks of the inbound and outbound Yamanote Lines was leaning toward the direction of Kanda Station and partially blocking the tracks of the inbound and outbound Yamanote Lines. Additionally, another pair of electric poles next to the leaning poles was also leaning over but did not have an impact on the trains.

● Major countermeasures

(1) Strengthening risk management and technical support
① Strengthening technical support to properly conduct safety confirmation in design and construction
② Management of facilities requiring priority safety confirmation in construction as special structural facilities
③ For repair and installation of special structural facilities, occasions for risk reviewing were newly created.

(2) Setting of judgment criteria and thorough information sharing
① Setting criteria to stop trains when incidents such as leaning electric poles are observed
② Thorough information sharing among relevant personnel

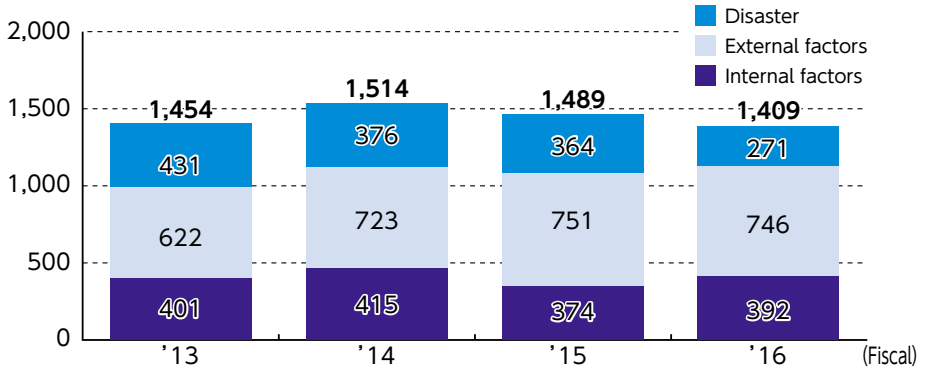
(3) Strengthening of safety awareness and succession of technologies for future generations
JR East will continue with its efforts toward an overall improvement of safety awareness and succession of technologies, in addition to making further improvements to our technological capabilities.

I-3-3 Transport disorders

JR East recorded 1,409 cases of transport disorders in FY2016.

Transport disorders	Apart from railway accidents, transport disorders means train service cancellations due to failures of trains or facilities, or mishandling by attendants, or disasters, or delaying passenger trains for over 30 min. or other trains for over 1 hour.

Disaster	Natural phenomena such as powerful storms, heavy rainfall, heavy snowfall, flooding, high tides, earthquakes, tsunamis, etc.
External factors	External factors such as trespassing or suicide
Internal factors	Internal factors such as those related to crews, trains, or facilities

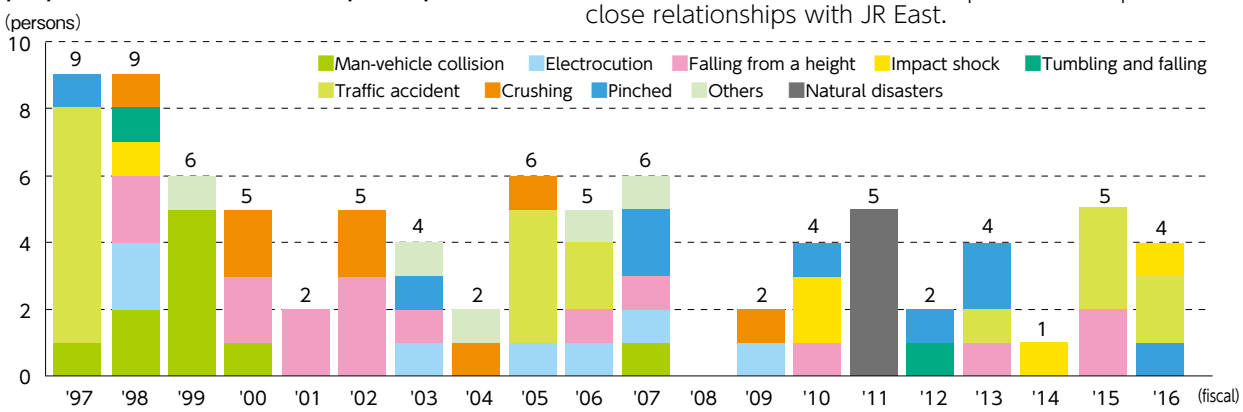


I-3-4 Current state of employee accidents

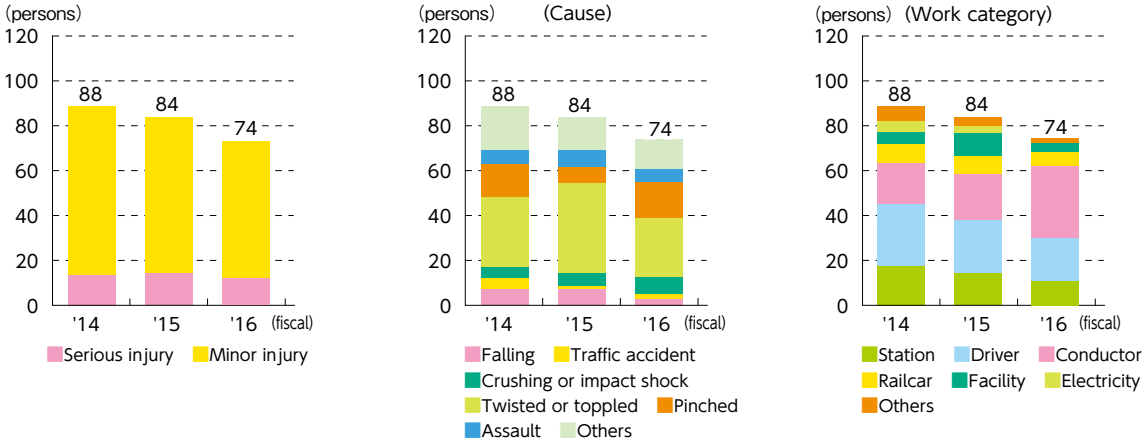
In FY2016, four lives were lost due to fatal accidents, with 175 accidents accompanied by lost work time. Accordingly, as set out in Group Safety Plan 2018, we will continue our efforts to ensure that safety systems and rules are clearly defined and complied with across the entire JR East Group in our aim to achieve zero passenger accidents involving injury or fatality, and zero employee fatalities for both Group and Partner companies.

■ Status of accident fatalities (*Employees of JR East and Group companies, etc.)

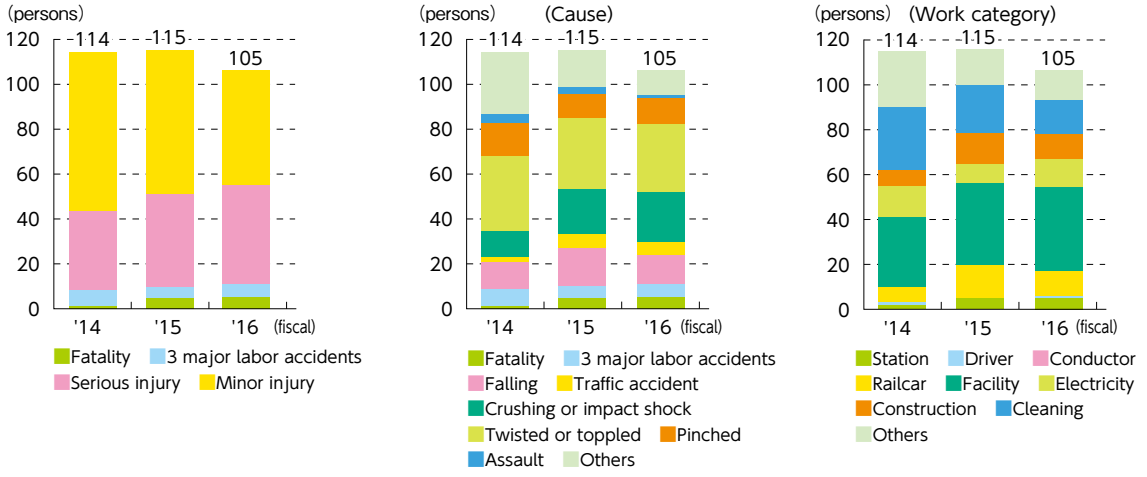
*Employees of Group companies, etc. include those of consolidated subsidiaries and partner companies with close relationships with JR East.



■ Accidents with lost work time and fatality (JR East employees)



■ Accidents with lost work time and fatality (employees of Group companies, etc.)



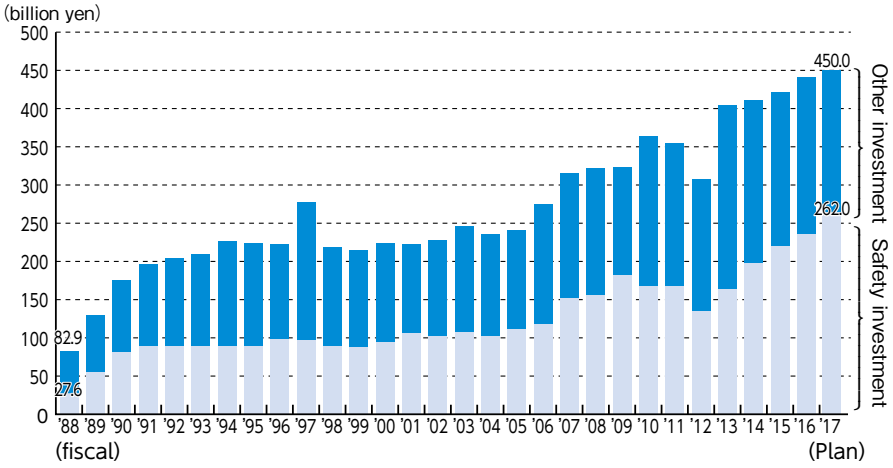
Ⅰ-4 Efforts to further improve safety levels

Ⅰ-4-1 Investment in safety equipment

▶Safety facilities investment

JR East has invested more than three trillion yen during the 29 years following the company's establishment. In our Group Safety Plan 2018, JR East's Five-year Safety Plan, which was announced in Feb. 2014, JR East plans to invest approximately one trillion yen in safety measures during the five years from FY2015 to FY2019.

■ Trends in safety investment



▶Major safety investment in FY2017

In FY2017, JR East will steadily implement improvement of ATS, measures against large-scale earthquakes, local gusts and gales, improvement of platform doors for the Yamanote and Keihin Tohoku Lines, and safety measures for level crossings.
JR East plans to invest 450 billion yen in total in its facilities and 262 billion yen of that total will be invested in safety.

■ Major safety investment

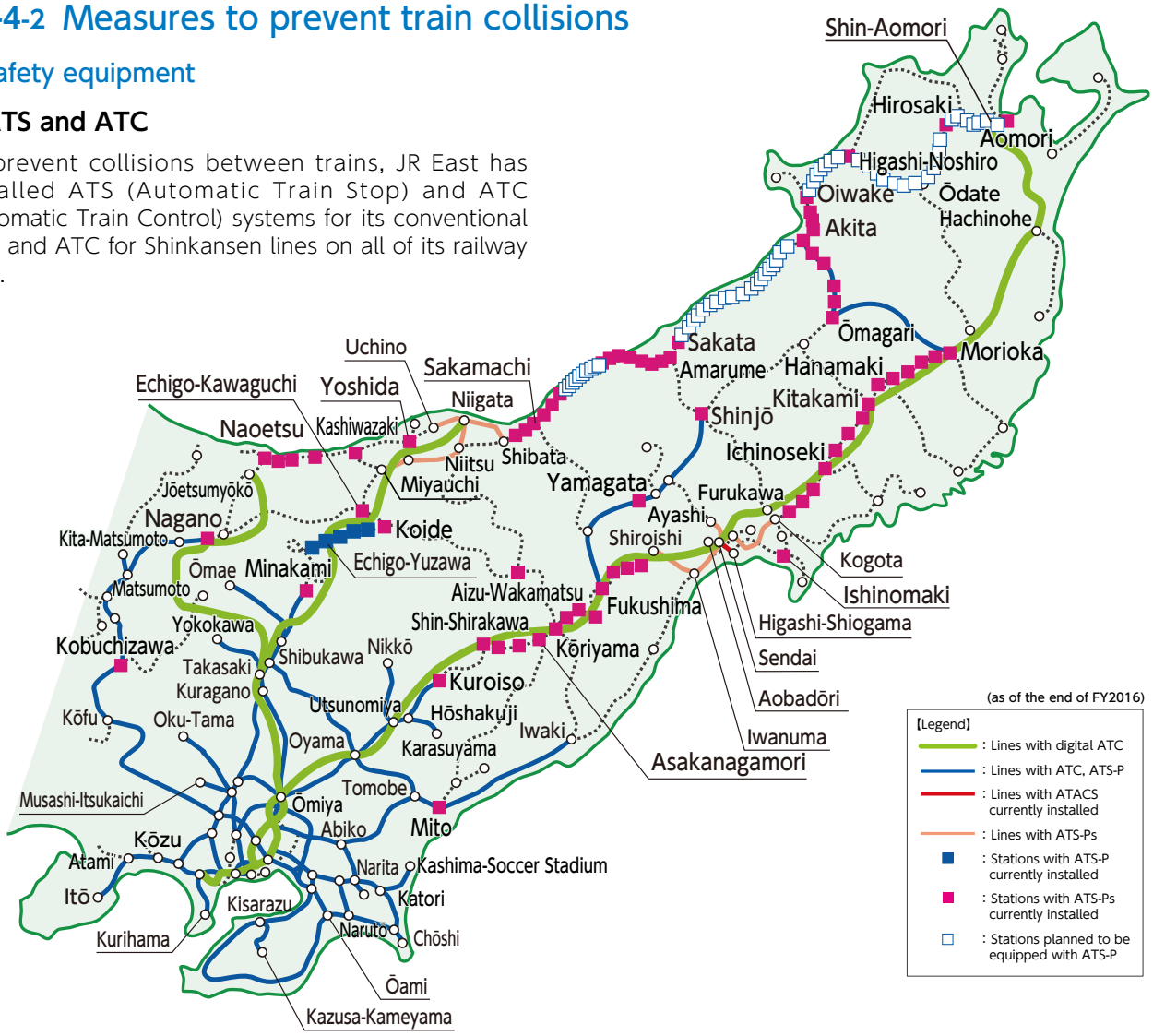
- Improvement of ATS, etc.
- Measures against large-scale earthquakes (seismic reinforcement of elevated bridges, embankments, buildings)
- Measures against natural disasters (rainfall, local gusts, and gales, etc.)
- Improvement of automatic platform doors for Yamanote and Keihin Tohoku Lines, etc.
- Improvement of dot-Braille blocks that indicate which direction is away from the edge of the platform
- Safety measures for level crossings (level crossing warning systems, obstacle detectors, etc.)

I-4-2 Measures to prevent train collisions

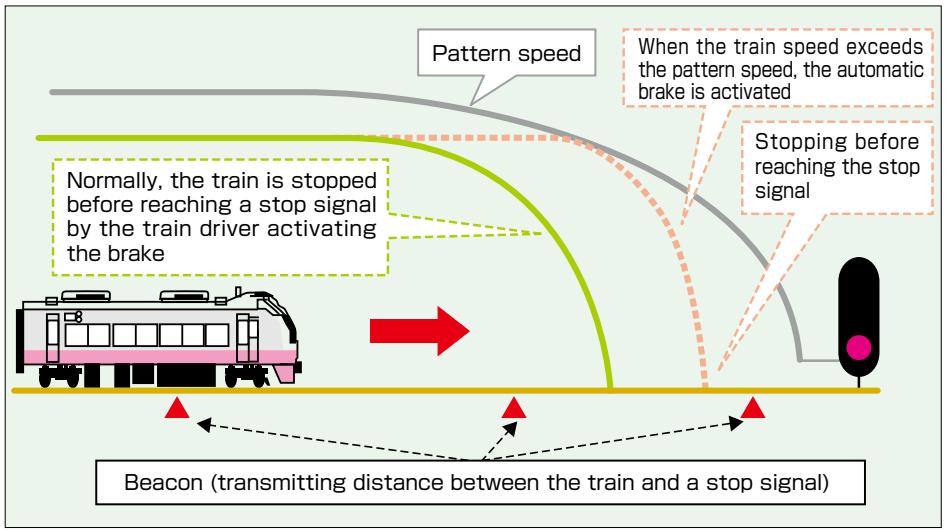
▶Safety equipment

■ ATS and ATC

To prevent collisions between trains, JR East has installed ATS (Automatic Train Stop) and ATC (Automatic Train Control) systems for its conventional lines and ATC for Shinkansen lines on all of its railway lines.



■ Overview of ATS-P system



■ ATS (Automatic Train Stop)

ATS stands for Automatic Train Stop. It is a system to automatically activate brakes so that a train can stop before reaching its stop signal. Currently, JR East is installing ATS-P and ATS-Ps systems with improved safety capabilities on its railway lines.
With ATS-P and ATS-Ps, based on information from ground equipment, on-board equipment calculates the allowed train speed to stop at a stop signal. When the train exceeds the speed pattern, the system automatically activates its automatic brake to stop the train. The system also responds to speed limits for curves and turnouts.

■ Installation plan for ATS-P and ATS-Ps systems

	Areas for planned installation	Installation status as of the end of FY2016
ATS-P system	Mainly for railway sections with frequent train operations in Tokyo metropolitan area	Completed installation in railway sections for 2,405.8km (service km)
ATS-Ps system	Provincial city areas and major railway sections excluding Tokyo metropolitan area	Completed installation in 72 major stations and railway sections for 210.8km

We have completed installation of ATS at curves, turnouts, track ends, and descending gradients by the end of FY2016 to comply with the 10-year time limit for installation that is required by the July 2006 revisions to the Ministry Ordinance for technological standards for railways.

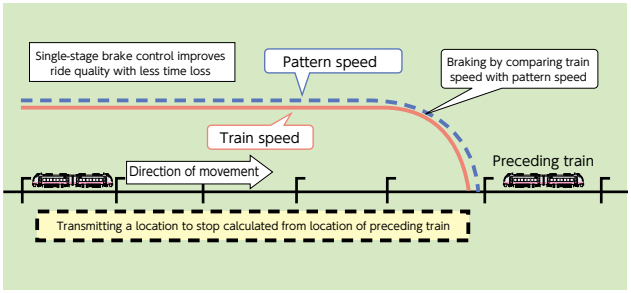
■ Installation status of ATS (For locations required by ordinance and time limit)

Category	Target locations	Installations as of the end of FY2016	Completion
Curves	934 locations	934 locations	FY2010
Turnouts	465 stations	465 stations	FY2016
Track ends	38 stations	38 stations	FY2016
Descending gradients	707 locations	707 locations	FY2012

■ ATC (Automatic Train Control)

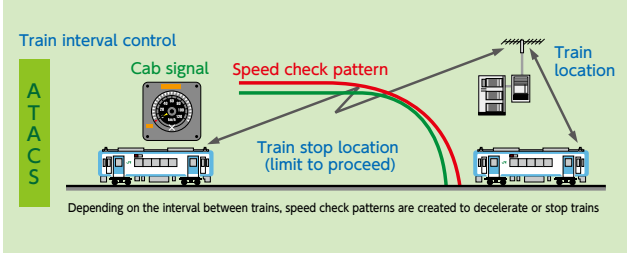
ATC stands for Automatic Train Control. In this system, ground equipment continuously transmits signals to trains via the rails. The transmitted signals are indicated on the driver's cab and the system automatically activates the emergency brake if the train exceeds its permitted speed.
On the Shinkansen and the Yamanote, Keihin Tohoku and Negishi Lines, we have replaced the systems with digital ATC. This system transmits the location information of the preceding trains to the following train so that on-board equipment can control the train speed based on a speed pattern calculated from the information. With the introduction of the digital ATC, we can further improve the safety levels of our railway operations, as well as enhance the ride quality, shorten headways, and simplify facilities.

■ Digital ATC



■ ATACS (Advanced Train Administration and Communications System)

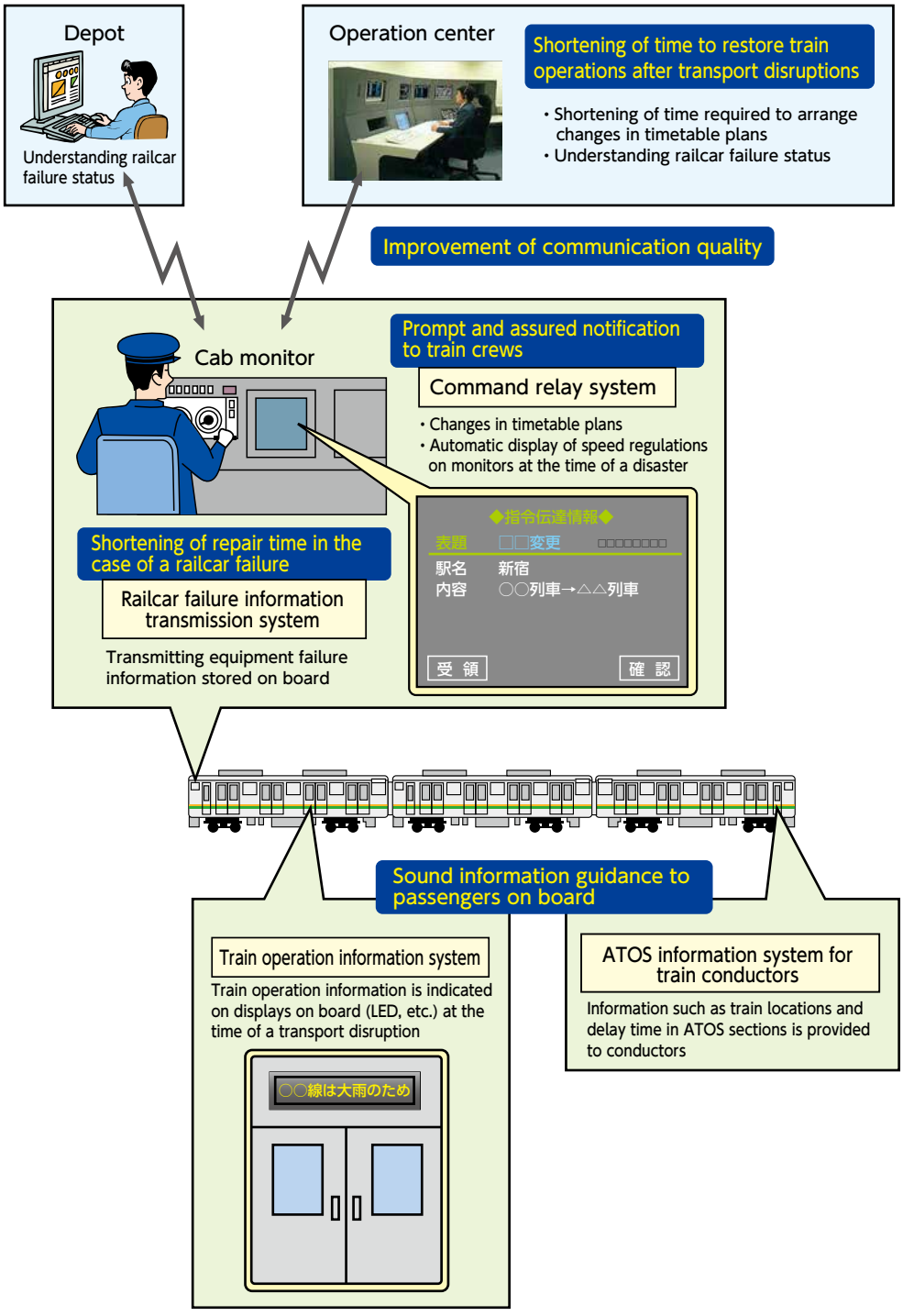
ATACS is a train control system that utilizes radio transmissions. It is a totally new system for trains to detect their own locations instead of using traditional methods of train location detection with track circuits. By using radio communications for the transmission of train location information between ground and on-board facilities, we can control train operations. JR East began using ATACS in October 2011 on the Senseki Line between Aobadōri and Higashi-Shiogama.



▶Others

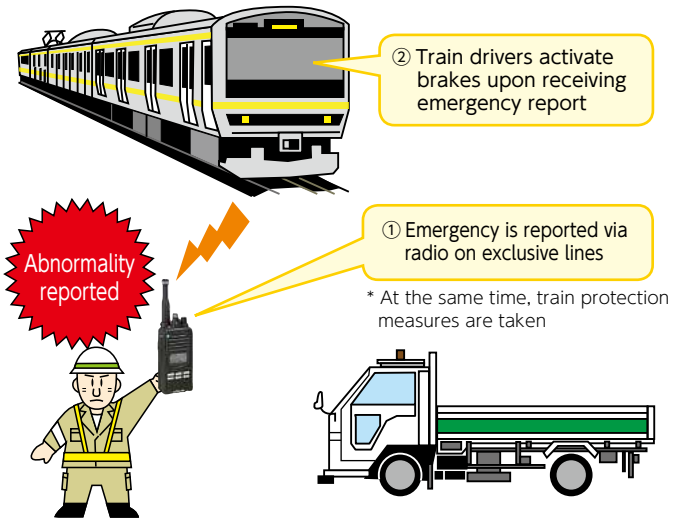
■ Digital train radio system for conventional lines

We completed the introduction of a digital train radio system for conventional lines for railway sections in the Tokyo metropolitan area in July 2010. Currently, we are extending the introduction of this system to other areas outside the Tokyo metropolitan area.
In comparison to traditional analog systems, digitalized systems improve audio communication quality and make the communication between train dispatchers clearer. Additionally, the digital train radio systems for conventional lines introduced for railway sections of the Tokyo metropolitan area have made various data communications possible so that we can offer information to customers when an issue occurs, and prompt and accurate notifications to train crews are possible.



■ Collision prevention support radio system

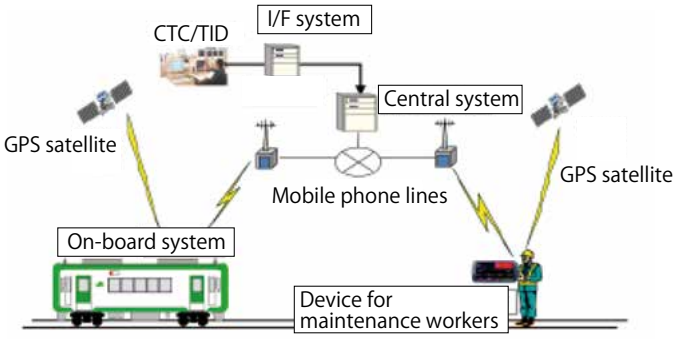
Learning lessons from the derailment accident at the Kawasaki Station premises of the Keihin Tohoku Line in Feb. 2014, JR East introduced a collision prevention support radio system to help maintenance workers stop trains in case of an emergency during maintenance work.
The collision prevention support radio system alerts neighboring trains of an emergency by operating exclusive radio terminals in the case of an abnormality to immediately stop trains. The system is installed on all conventional line trains and when the emergency signal is transmitted, drivers receiving the signal promptly stop their trains.
However, depending on radio and line availability, the signal might not reach all neighboring trains. For this reason, the collision prevention support radio system is used as a supplementary method for train protection.



■ Train approach alarm system

JR East utilizes alarm systems to warn maintenance workers on tracks of approaching trains. For railway sections with track circuits installed, we use a TC-type wireless train approach alarm system to warn workers of approaching trains by track circuit. For railway sections without track circuits, we developed a GPS train approach alarm system to inform workers of train locations by locating the positions of trains and workers on GPS. We started use of these systems on both the Iiyama Line and the Hachikō Line from April 2016.

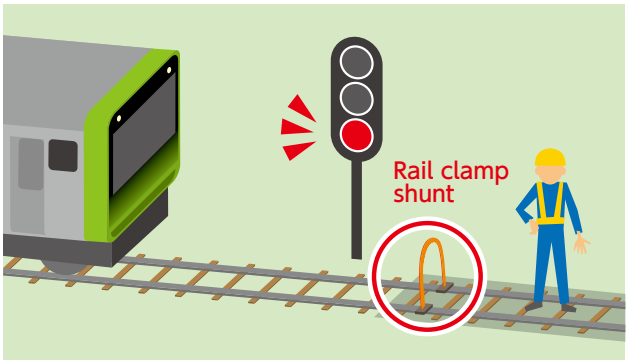
■ GPS train approach alarm system



■ Dual safety measures

When conducting track construction, maintenance, or inspection, we close tracks so that other trains cannot enter these particular railway sections. However, in the case of a failure of a track closure as a result of human error, it could result in a train mistakenly entering a closed section during construction, maintenance or inspection. To prevent this from happening, we undertake dual safety measures. In addition to the above-mentioned track closure procedure, by installing rail clamp shunts on the closed section, signals will change to a stop signal to prevent trains from proceeding to said closed section.

■ Dual safety measures



Ⅰ-4-3 Preparedness against natural disaster

▶Our measures against earthquakes

Learning from earthquakes in the past, JR East has employed the following three anti-earthquake measures:
①Preventing structural damage (seismic reinforcement measures)
②Stopping trains immediately (emergency train stop measures)
③Minimizing secondary accidents following derailment (preventive measures against derailed trains leaving the track area)

① Seismic reinforcement measures

In response to the 1995 Great Hanshin-Awaji Earthquake, JR East steadily progressed its seismic reinforcement measures and completed all the reinforcement for Shinkansen lines. As for conventional lines, excluding part of the Southern Kanto and Sendai areas involving other construction work, reinforcement is complete.
Additionally, to further improve safety in the event of an earthquake, we are reinforcing elevated bridge columns susceptible to failure due to bending by strong earthquake motion. Furthermore, from FY2013, to be prepared for a possible earthquake with an epicenter directly beneath the Tokyo metropolitan area, JR is reinforcing its embankments, cuttings, bricked arch elevated bridges, and electric polls and also taking preventative measures against the collapse of ceilings and walls at stations and on platforms. We are also undertaking seismic reinforcement of elevated bridge columns and other bridge columns ahead of schedule. Moreover, by learning from the Great East Japan Earthquake, JR East is also reinforcing station buildings serving more than 3,000 passengers per day and electric polls for Shinkansen lines.

<table>
<tr><th colspan="3"></th><th>Southern Kanto area</th><th>Sendai areas</th><th>Other areas</th></tr>
<tr><td rowspan="4">Shinkansen</td><td>Susceptible to shear failure</td><td colspan="2">Elevated bridges, bridge columns</td><td>Approx. 1,900 columns, approx. 310 units</td><td colspan="2">Approx. 16,600 columns, approx. 2,030 units</td></tr>
<tr><td rowspan="3">Susceptible to failure due to bending</td><td rowspan="2">Elevated bridges</td><td>Without retail premises</td><td>Approx. 3,800 columns</td><td>Approx. 2,900 columns</td><td>Approx. 7,130 columns</td></tr>
<tr><td>With retail premises</td><td>Approx. 1,100 columns</td><td>Approx. 410 columns</td><td></td></tr>
<tr><td colspan="2">Bridge columns</td><td>Approx. 680 units</td><td></td><td></td></tr>
<tr><td rowspan="4">Conventional lines</td><td>Susceptible to shear failure</td><td colspan="2">Elevated bridges, bridge columns</td><td>Approx. 12,500 columns, approx. 530 units</td><td>Approx. 100 columns, approx. 10 units</td><td>Approx. 940 columns, approx. 820 units</td></tr>
<tr><td rowspan="3">Susceptible to failure due to bending</td><td rowspan="2">Elevated bridges</td><td>Without retail premises</td><td>Approx. 5,460 columns</td><td>Approx. 40 columns</td><td></td></tr>
<tr><td>With retail premises</td><td>Approx. 5,630 columns</td><td>Approx. 30 columns</td><td></td></tr>
<tr><td colspan="2">Bridge columns</td><td>Approx. 1,090 units</td><td></td><td></td></tr>
</table>

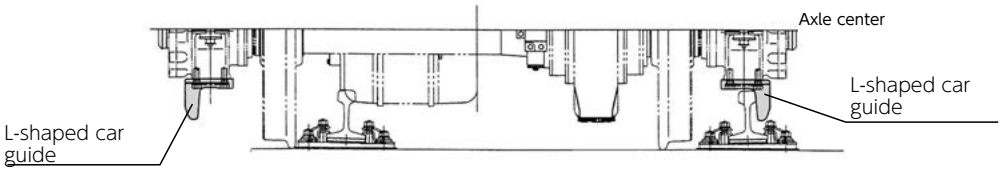
Completed by FY2009　Completed by FY2016　In progress

② Emergency train stopping measures

For Shinkansen lines, to automatically stop trains as quickly as possible JR East utilizes the Shinkansen early earthquake alert system, which is based on the installation of wayside and coastal seismometers to detect primary tremors (P-waves). Additionally, by installing power failure detectors, the time required for the activation of emergency braking is shortened by approx. one second compared to activating the brake using an on-board digital ATC system that detects power failures of overhead contact lines. To be prepared for an earthquake with an epicenter directly beneath the Tokyo metropolitan area and also for inland earthquakes, seismometers are installed at 30 locations and JR East started using the Earthquake Early Warning of the Japan Meteorological Agency from October 2012. For conventional lines, using information from the Shinkansen early earthquake alert system and also the Earthquake Early Warning of the Japan Meteorological Agency, JR East utilizes the Early Earthquake Alert System for conventional lines to activate the emergency brake of trains in the necessary sections at the time of a large-scale earthquake.

③ Prevention of secondary accidents after derailment

During the Niigata Chuetsu Earthquake in Oct. 2004, one of our Joetsu Shinkansen trains derailed. Fortunately, passengers and crew were uninjured. However, by learning lessons from the earthquake, JR East has taken preventative measures for Shinkansen trains and tracks. For Shinkansen trains, we have installed L-shaped car guides on bogies to prevent Shinkansen trains from completely leaving the track in a derailment. We have also improved glued insulated joints to reduce the impact of wheels and bogie parts in the event of a derailment. Additionally, we completed the installation of rail rollover prevention devices to guide the wheels along the rails following a derailment, thereby preventing a rail rollover and the rails from completely deviating from the track even after a train derails and the rail fasteners are broken.



L-shaped car guide

Before improving glued insulated joints

After improving glued insulated joints

Rail rollover prevention devices

■ Efforts to save lives

In the case of an earthquake directly beneath the Tokyo metropolitan area, numerous passengers might be injured and we might need to save the lives of passengers with the help of a limited number of our employees before the arrival of rescuers. For a major earthquake, placing top priority on saving the lives of the injured, JR East has prepared the following first aid kits and is also conducting drills to give personnel necessary first aid skills.

Rescue kits to save injured persons

We installed rescue kits (crowbars, jacks etc.) at each station of the five branch offices in the Tokyo metropolitan area to save injured persons from collapsed walls, furniture and fixtures.

Rescue kits

First aid kits to provide first aid to injured persons

We installed first aid kits (triangular bandages, etc.) to care for people's external injuries such as bleeding and fractures at each station within 30km of Tokyo.

First aid kits

Rescue and life-saving training

■ General emergency drills

JR East conducts general emergency drills to prepare for an earthquake during disaster preparedness week around Sep. 1st, every year. The drills include the following:

- Drills to operate an on-site disaster countermeasure headquarters at Head Office and each branch office
- Drills for rescuing, life-saving, guiding passengers during an evacuation, and initial firefighting in each district
- Safety confirmation drills for employees and their family members

in cooperation with Head Office, branch offices, and field organizations. Additionally, we participate in disaster drills run by local municipalities.


General emergency drills

Participation in drills run by local municipalities

▶Measures against tsunamis

Before the Great East Japan Earthquake, we had set operational restriction methods and tsunami danger zones for each location, prepared manuals, and were holding study sessions and conducting drills on guiding passengers to de-board trains for evacuation. We believe that these efforts led to the prompt evacuation of passengers away from tsunami danger zones at the time of the earthquake.

Tsunami evacuation manual

Signs at stations showing evacuation areas

Drill to guide passengers to alight from a train for evacuation

Based on our experience with tsunamis at the time of the earthquake, we reviewed the rules, manuals and drills for the entire JR East Group and formulated action guidelines for evacuation during a tsunami for our employees in January 2012.

■ Formulating action guidelines for evacuation to avoid tsunamis

To prepare for a case when there is no time before the arrival of a tsunami, JR East formulated action guidelines for evacuation during tsunamis for each one of its employees to follow in January 2012.

■ Improvement of evacuation signs and routes and conducting drills for evacuation during tsunamis

For railway lines such as the Hachinohe Line, which resumed operations following damage caused by tsunamis, we have improved the signs and routes for evacuation from tsunamis. We will also improve evacuation signs and routes for other railway sections.
Furthermore, in FY2016, we conducted drills on guiding passengers to alight from trains and escape from a tsunami at tsunami-prone locations, assuming that there was no time before the arrival of the tsunami. We will continue these drills every year at the same time of year.


Tsunami evacuation sign (Hachinohe Line)


Evacuation route (Hachinohe Line)


Drill to guide passengers to alight from a train during a tsunami

■ Action guidelines for evacuation to avoid tsunamis

1. At a time of a large earthquake, be prepared for tsunamis. Gather information by yourselves and if communication lines are disconnected, make your own decisions for evacuation. (Do not be afraid to make a mistake.)
2. Once decided to evacuate, by judging the conditions of customers, promptly guide customers to evacuate.
3. In alighting from trains, evacuating and gathering information, ask customers and local people to cooperate.
4. Even after evacuation, go to a higher place without being satisfied and thinking this would be high enough.
5. Stay evacuated with customers and do not return to field offices or trains while tsunami warnings are still issued.

▶Measures for rainfall

To protect tracks from landslides due to rainfall, JR East takes disaster prevention measures for wayside embankments in all railway sections in accordance with its plans. Especially, in the Tokyo metropolitan area and for all Shinkansen routes we take thorough measures to secure safe and stable transport.

■ Countermeasures for rainfall


Cutting slope protection (spray frame work)

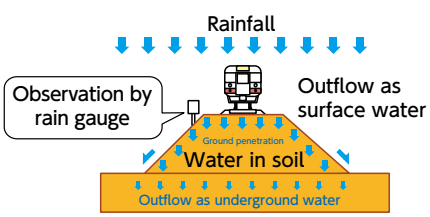

Embankment slope protection (spray frame work)

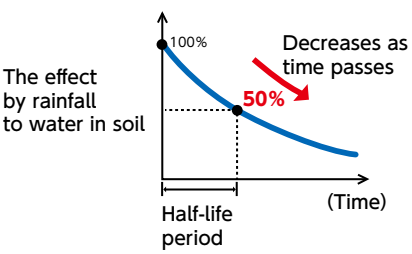

Natural slope protection (spray frame work)

▶Operational restrictions for rainfall

For heavy rainfall, JR East ensures the safety of train operations by introducing operational restrictions such as limiting train speeds and suspending operations. Since June 2008, we have been using effective rainfall values which are highly related to landslide disasters due to rainfall. Effective rainfall is the amount of underground water remaining after changes over time in ground penetration and outflow. Since many of the disasters due to rainfall result from rainwater seeping into the ground, the effective rainfall index is more appropriate as an operational restriction index for railways. With this indicator, we can more precisely predict the occurrence of landslide disasters, thereby improving the safety and reliability of our train operations.

■ The concept of the effective rainfall





▶Efforts against wind

■ Uetsu Main Line train derailment accident

On December 25th, 2005, a derailment of the limited express train Inaho No.14 on the Uetsu Main Line between the Sagoshi and Kita-Amarume Stations caused the death of five passengers and injured 31.


State of derailment accident

We would like to report on the measures we have taken since this accident.

Increased number of anemometers (wind meters)

From 2005 to date, JR East has increased the number of anemometers at the accident site between Sagoshi and Kita-Amarume Stations on the Uetsu Main Line. In addition, for sections with operational restrictions for strong winds, we have installed multiple anemometers as standard. We have also increased the number of anemometers at places with windbreak fences.

Anemometer

	As of Dec. 25, 2005: A	As of Mar. 31, 2016: B	Increase (B-A)
Conventional lines	228 units	808 units	+580 units
Shinkansen lines	89 units	163 units	+74 units
Total	317 units	971 units	+654 units

Issuing tentative early restrictions for all lines

For all railway sections of conventional lines with operational restrictions for wind, after the resumption of operations of the Uetsu Main Line on January 19th, 2006 we reviewed the criteria for operational restrictions as indicated below. For locations with windbreak fences, we use prior general restrictions.

Restriction type	Wind speed (meters/sec.)	
	General restrictions	Early restrictions
Speed restriction (max. 25 km/h)	25 - 30	20 - 25
Operation halted	30 -	25 -

Reviewing operational restriction sections

We have been deciding on the operational restriction sections for strong winds based on a past field study and the experiences of field staff. We have newly utilized gale maps of the areas based on wind conditions and topography and reviewed operational restriction sections based on information from field staff. As a result, we have newly installed 75 operational restriction sections.

Installation of windbreak fences

In order to reduce wind force on trains, we have installed wind break fences at the following locations:

(as of the end of March 2016)

	Line name	Section	Location of installation	Time completed
1	Tōkaidō Main Line	Bridge next to Nebukawa Station	Both sides of the line	Jul. 1991
2	Jōban Line	Between Yonomori and Ōno	West side only	Feb. 1996
3	Kawagoe Line	Between Sashiōgi and Minami-Furuya	North side	Apr. 1998, extended in Jun. 2009
4	Uetsu Main Line	Between Sagoshi and Kita-Amarume	West side only	Nov. 2006
5	Tōhoku Main Line	Between Fujita and Kaida	West side only	Nov. 2006
6	Tōhoku Main Line	Between Kurihashi and Koga	Both sides of the line	North side: Mar. 2007 South side: Jun. 2007
7	Jōban Line	Between Fujishiro and Sanuki	Both sides of the line	Mar. 2007
8	Keiyō Line	Between Kasairinkaikōen and Maihama	South side only	Mar. 2007
9	Keiyō Line	Between Ichikawashiohama and Futamatashinmachi	South side only	Mar. 2007
10	Keiyō Line	Between Kaihinmakuhari and Kemigawahama	South side only	Mar. 2007
11	Musashino Line	Between Misato and Minami-Nagareyama	Both sides of the line	South side: Mar. 2007 North side: Jun. 2009
12	Keiyō Line	Between Shiomi and Shin-Kiba	Both sides of the line	South side: Jun. 2007 North side: Oct. 2012 South side: extended in Oct. 2012
13	Keiyō Line	Between Shin-Kiba and Kasairinkaikōen	Both sides of the line	South side: Aug. 2007 North side: Oct. 2012 South side: extended in Oct. 2012
14	Keiyō Line	Between Futamatashinmachi and Minami-Funabashi	South side only	Aug. 2007, extended in Oct. 2012
15	Musashino Line	Between Minami-Koshigaya and Yoshikawa	Both sides on bridge section North side	Both sides on bridge sections: Mar. 2009 North side: Feb. 2010
16	Musashino Line	Between Kita-Asaka and Nishi-Urawa	Both sides of the line	South side: Dec. 2009 North side: Aug. 2010
17	Uetsu Main Line	Between Atsumi-Onsen and Kobato	West side only	Dec. 2011
18	Uchibō Line	Between Sanukimachi and Kazusa-Minato	West side only	Mar. 2012
19	Keiyō Line	Between Shin-Narashino and Kaihinmakuhari	South side only	Dec. 2013
20	Sōbu Main Line	Between Koiwa and Ichikawa	South side only	Mar. 2014
21	Sōbu Main Line	Between Hirai and Shinkoiwa	South side only	May 2014
22	Shinetsu Main Line	Between Yoneyama and Kasashima	West side only	Oct. 2014
23	Jōban Line	Between Kanamachi and Matsudo	South side only	Mar. 2015
24	Jōban Line	Between Tennōdai and Toride	Both sides of the line	Mar. 2015
25	Jōban Line	Between Mito and Katsuta	North side only	Mar. 2015
26	Senseki Line	Between Rikuzen-ōtsuka and Tōna	South side only	May 2015
27	Senseki Line	Between Nobiru and Rikuzen-Ono	North side only	May 2015

Uetsu Main Line, between Sagoshi and Kita-Amarume

Keiyō Line, between Shiomi and Shin-Kiba

■ Foundation of Disaster Prevention Research Laboratory

JR East founded the Disaster Prevention Research Laboratory at the Research & Development Center of the JR East Group on February 1st, 2006. The Laboratory undertakes various research and development activities related to meteorological and terrestrial phenomena.

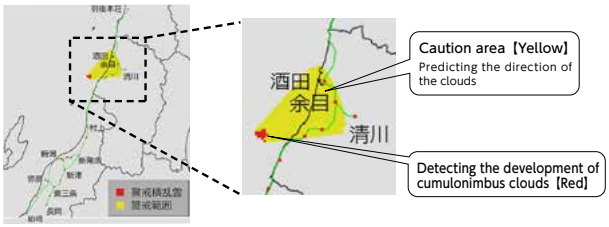
■ Gale warning system

JR East has been using gale warning systems on the Keiyō Line since Aug. 2005 and has installed the systems in all 296 locations as of Mar. 2016 on its conventional lines with a gale operational restriction, including the accident location between Sagoshi and Kita-Amarume of the Uetsu Main Line. Since 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, we can further raise the level of safety of our operations.

■ Utilizing meteorological information to test methods for operational restrictions

Local gusts are meteorological phenomena, and are difficult to observe with conventional observation equipment such as anemometers. Through meteorological information such as the intensity of rainfall obtained from the Japan Meteorological Agency's radars and Nowcast that supports detection of tornados, and by detecting the development of cumulonimbus clouds, we have been investigating how to forecast the occurrence of local gusts and to apply that information to our operational restrictions. Every year between November and the following March, we test the system in six sections of railway lines along the Sea of Japan including the Uetsu Main Line between Niitsu and Ugo Honjo.

■ Display of operational restriction area by utilizing meteorological information (image)

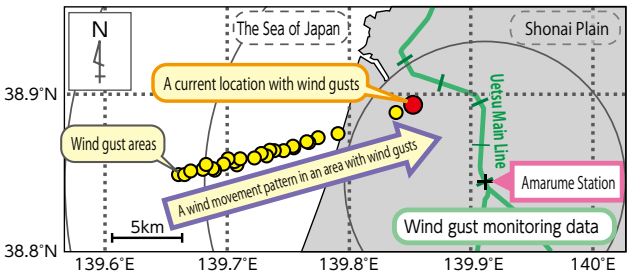


■ Research on a Doppler radar observation method

JR East has been researching the possible application of Doppler radar observation for train operation restrictions. Doppler radar can detect wind conditions from the movements of rain drops and rain clouds and is utilized for monitoring local gusts at some airports.
Since 2007, in cooperation with specialized institutes, we have been developing systems to detect the development of cumulonimbus clouds using a Doppler radar installed at Amarume Station and produce alerts for railway sections for trains' planned routes. From observation of test results, the detection capability of the radar has been improving. JR East is currently working on the construction for the installation of a higher performance Doppler radar in Sakata city, Yamagata prefecture.

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

Doppler radar main body



Monitoring of the development of a local gust (image)

■ Introduction of operational restriction methods by evaluating wind force on trains

The wind force on trains constantly changes. We have been researching the following methods to properly evaluate the wind force on our trains and to further improve our operational restrictions to enhance the safety levels of our operations, while incorporating opinions from external experts.

1) Further improved wind observation methods by anemometers
2) Calculation methods for rolling stock windproof stress taking account of track conditions and railcar shapes

These two methods have been utilized for two sections on the Uetsu Main since Dec. 2011.

Restoration of railway sections along the Pacific Ocean that were devastated in the Great East Japan Earthquake

We have been steadily proceeding with restoration work and resumption of operations in railway sections on the Pacific Coast that suffered extensive damage due to the tsunami, beginning with sections where safety can be ensured.

With the aim of integrating restoration with urban planning, we have been proceeding with construction work between Soma and Hamayoshida on the Joban Line, aiming for the resumption of operations by December 2016 .

In terms of our future policy for railway sections within 20km of the Fukushima Daiichi Power Station, in areas that are preparing to lift evacuation orders, with the support and collaboration of national and local governments, we are continuing to make preparations to resume operations through the necessary environmental improvements, such as decontaminating trackside areas and starting preparations for the return of residents. For difficult-to-return zones, we are aiming to open services after restoring damaged facilities as well as to complete the required decontamination and measures to ensure users' safety in the event of an emergency, again with the support and collaboration of national and local governments. Based on this policy, in line with the lifting of the evacuation order by the city of Minami Soma, we resumed operations for the section between Odaka and Haranomachi, in July 2016. We are currently working on the restoration of the line, aiming for the resumption of operations for the section between Namie and Odaka in spring 2017, the section between Tatsuta and Tomioka by the end of 2017, and the section between Tomioka and Namie by the end of FY2020.

For the section between Yanaizu and Kesennuma on the Kesennuma Line and the section between Kesennuma and Sakari on the Ofunato Line, with the aim of rapidly providing safe, highly convenient transportation services, we have been offering an interim Bus Rapid Transit (BRT) service. In line with progress made in urban development in the disaster-hit areas, for the further development of communities JR East proposed that the operations of the BRT service continue as a sustainable transport mode to contribute to the restoration, and reached an agreement on this plan with all wayside municipalities.

As for the section between Miyako and Kamaishi on the Yamada Line, we are restoring this section with the aim of re-opening it by the end of FY2019.

As of August 1st, 2016, the total length of the sections where operations were suspended had been reduced from approximately 400km immediately after the earthquake to approximately 115km, with resumption of services for approximately 186km by railway and for approximately 117km by BRT.

Restoration of operations between Odaka and Haranomachi


Kesennuma Line BRT on exclusive lines

I-4-4 Safety measures for customers on platforms and measures to prevent accidents at level crossings in collaboration with local communities

▶Safety measures at platforms

To secure the safety of customers on platforms, we are installing emergency train stop warning systems and image-processing fall detection equipment.
Moreover, we are proceeding with the introduction of platform doors for the Yamanote Line. Excluding five stations with planned large-scale improvements (Hamamatsucho, Tokyo, Shimbashi, Shinjuku, and Shibuya Stations), by the end of August 2016 we plan to start using platform doors at 24 stations. Additionally, we are considering the introduction of platform doors at Akabane, Ueno, Oimachi, Tsurumi, Urawa, Saitama-Shintoshin, Yurakucho Stations on the Keihin Tohoku Line; at Shin Koiwa Station on the Sobu Rapid Line; and Shinano-machi and Sendagaya Stations on the Sobu Local Line.
JR East is currently working to install an increased number of dot-Braille blocks that indicate which direction is away from the edge of the platform. For stations where the daily number of passengers exceeds 100,000, we have completed their installation. For stations where the daily number of passengers is less than 100,000, we are proceeding with the installation of dot-Braille blocks, mainly at stations used frequently by visually challenged customers.

Emergency stop buttons on platforms

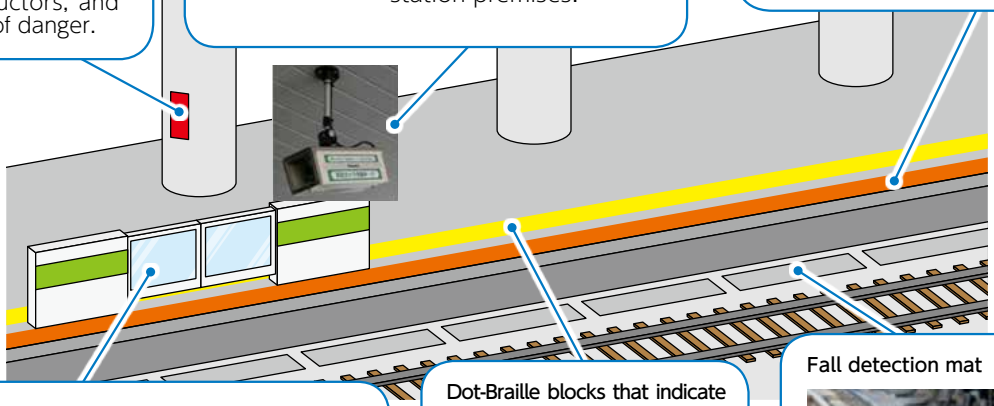
By pushing an emergency stop button installed on platform pillars, people on platforms can notify drivers, conductors, and station staffs of danger.

ITV for station platforms and concourses

By installing monitoring cameras on station platforms and in concourses, we continue our efforts to improve safety on platforms and strengthen security in station premises.

CP lines

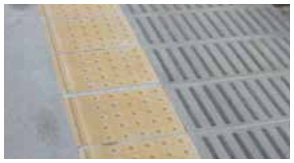
Painting the ends of platforms red or orange to create CP lines promotes awareness among railway users and also improves visibility for station staff and train conductors. JR East is currently introducing CP lines to test their effectiveness.



Platform doors

To improve visibility, glass is used for platform doors.

Dot-Braille blocks that indicate which direction is away from the edge of the platform



The inner line of the blocks is trimmed with lined bumps so that visually challenged customers can tell which side is away from the edge of the platform.

Fall detection mat

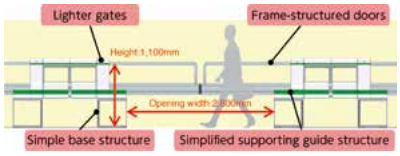
A mat placed on the tracks along the platform detects whether a person has fallen onto the tracks and notify incoming trains to stop.

■ About the trial introduction of elevating platform fences

On the inbound platform of the Hachiko Line at Haijima Station, we will introduce elevating platform fences on a trial basis. As the openings of the fence can be widened, it can accommodate trains that have different door locations.

■ About the trial introduction of new-type platform doors

On a trial basis, we will introduce new-type platform doors with wider openings, at lower costs and a shorter construction period at Machida Station on the Yokohama Line by the end of FY2017.



Platform doors to be introduced (image)

Functions to detect persons or objects stuck between railcar doors

209 Series and later railcars are equipped with a function to weaken the closing power of doors when the system detects that the bodies of customers or their belongings are stuck between train doors. For the rubber part of the door, from the floor to 30cm height, hard rubber is used so that the system can detect objects such as strollers.

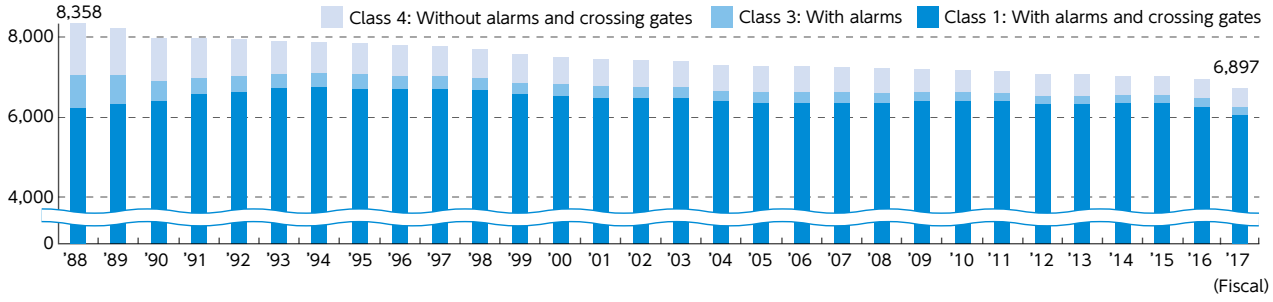
Station platform safety campaign

We are running station platform safety campaigns to ask for the cooperation of customers by utilizing station posters and the Train Channel to promote safety on platforms. The Train Channel is an onboard information display installed on railway lines including the Yamanote and Chuo Rapid Lines. In FY2015, JR East conducted a station platform safety campaign together with 24 other railway operators.

▶Measures to prevent accidents at level crossings

As safety measures at level crossings, in cooperation with local communities, JR East is working on the elimination of level crossings with the introduction of grade separated crossings, thereby integrating and reducing the number of level crossings.
To further improve our safety measures, we are further increasing the installation of large obstacle detectors and level crossing alarm systems. Additionally, as a measure to improve visibility at level crossings, we are installing crossing warning devices in a higher position for better visibility.
Moreover, we are promoting level crossing zero accident campaigns to ask for the cooperation of pedestrians and automobile drivers in accident prevention at level crossings.

■ Changes to the number of level crossings (as of April every year)



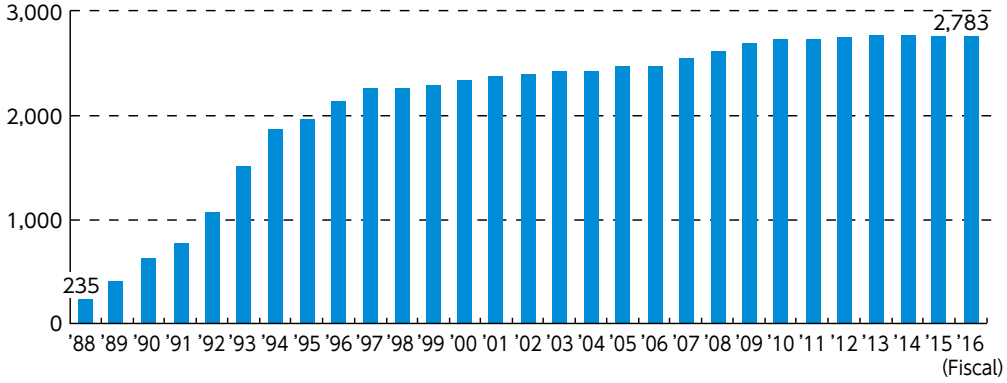
■ Efforts to abolish level crossings

No. of level crossings abolished due to measures such as the introduction of grade-separated crossings (excluding those transferred to semi-public sectors)

FY	2011	2012	2013	2014	2015	2016
No. of abolished level crossings	22	11	24	12	37	17

■ Obstacle detectors

The detectors notify trains of danger by detecting a stalled automobile or an obstacle on a level crossing.

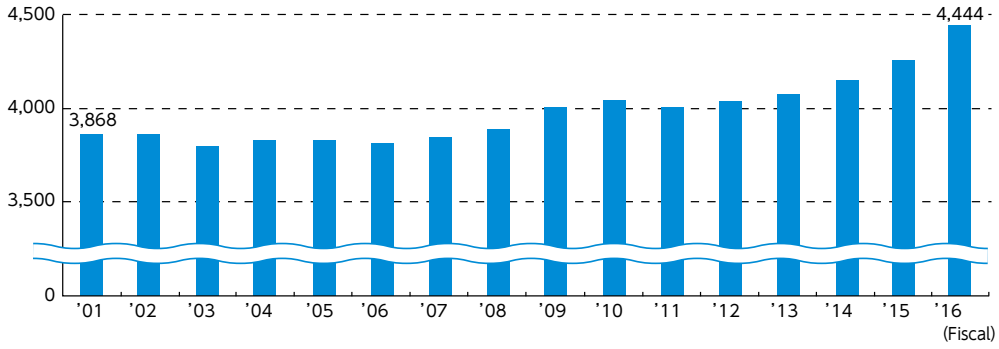


Three-dimensional laser radar obstacle detection method (large obstacle detector)

Based on three-dimensional data measured by laser beams, the system detects obstacles in predetermined monitoring areas.

■ Level crossing alarm system

Automobile drivers or pedestrians can notify trains of dangers by using the system when they are stuck on level crossings.



Level crossing alarm system

■ Measures to improve visibility at level crossings

JR East implements various measures to improve visibility at level crossings for pedestrians and automobile drivers.

A crossing warning device located in a higher position for better visibility

By installing alarms at a higher position, level crossings become more visible to pedestrians and drivers.

A large crossing gate

Larger crossing gates have been installed; the barrier arms are thicker than usual.

■ Separating level crossings for pedestrians and for automobiles

In cooperation with road administrators, we are increasing the width of level crossings and separating crossings for pedestrians and for automobiles.

■ Efforts in snowfall areas

We utilize road heating for level crossings with heavy traffic in snowfall areas.

■ Measures to prevent accidents at Class 4 rail crossings without crossing gates and alarms

To prevent accidents at Class 4 level crossings that do not have crossing gates or alarms, we take measures such as installing solar-powered illuminated signs to alert pedestrians and automobile drivers of the rail crossings. We are also continuing our efforts to install crossing gates and alarms for these Class 4 crossings to make them Class 1 crossings with crossing gates and alarms. Additionally, mainly for level crossings with prohibition of automobile crossings, we have installed fences to block automobile traffic.

We have installed solar-powered illuminated alarm signs for all Class 4 level crossings without crossing bars and alarms to notify pedestrians and drivers of the crossings by blinking of lights for improved visibility.

Installation of fences to prohibit automobile traffic at level crossings where automobile crossings are banned

■ Level crossing zero accident campaigns

For this reason, we ask our customers and neighboring communities to understand the risk involved in railway operations and cooperate in the safe use of level crossings.

During the campaigns, we post campaign posters and distribute pocketable tissue packs with campaign information at stations.

In cooperation with local police stations, we visit local elementary schools near Class 4 level crossings without crossing gates and alarms for educational activities.

I-4-5 Fostering safety-oriented personnel

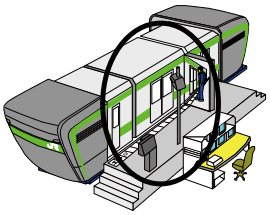
▶Safety education and training

To heighten safety awareness among employees, by placing priority on safety education and training JR East is offering educational and training opportunities to its employees at the JR East General Education Center (Shirakawa City, Fukushima Prefecture) and General Training Centers (branch offices), and on-the-job training in each workplace.
The JR East General Education Center offers group training for personnel development and improvement of knowledge and skills, fostering the development of new train crews and also providing the necessary training for job transfers.
The General Training Centers in each of our branch offices offer education and training to improve the skills of train crews by utilizing accident prevention simulators on a regular basis.
In OJT (on-the-job training), we offer education and training to suit the situations of each workplace.


JR East General Education Center


Cab simulator


Train protection drills on training tracks


Accident prevention simulator installed at General Training Centers at branch offices

▶Enhancement of educational and training facilities

By introducing cut models and mock-ups of actual devices and equipment at General Training Centers at all of our branch offices, educational and training facilities are being further enhanced. Through the provision of more practical training, we will promote educational efforts to teach about purposes, objectives and sense of values as to the reasons for each action, in addition to the structures and working principles of all devices and equipment that we deal with.


Example of training facility

▶Fostering integral safety leaders and professionals

In this time of rapid change in generations, since it is of the utmost importance to enable our employees to play major roles in securing safety in our operations, we are taking various measures as indicated below.

■ Key Safety Leaders

We are fostering three capabilities in Key Safety Leaders in field organizations: comprehensively understand situations, training and fostering successors in each workplace. Key Safety Leaders have a thorough understanding of the safety rules, details of past accidents and safety weaknesses in their own workplace, offer guidance to other employees on a regular basis in the workplace, and contribute to the betterment of safety levels in field organizations.

Key Safety Leaders' meeting

■ Safety Professionals

We have selected Safety Professionals from each branch office and construction work office to train them as Safety Professionals. They are expected to be professionals capable of guiding other employees through their long experience in railways and abundance of knowledge of safety rules and details of past accidents as well as their countermeasures.

Safety Professional certification ceremony

■ Chroniclers of Safety (narrators of oral history)

JR East is currently experiencing a rapid change in the generations of its employees including frontline staffs and therefore needs to steadily instill successors with safety-related knowledge, leadership, and technical capabilities. We assigned ex-employees of JR who possess an abundance of knowledge and applied skills in railway safety to act as our "Chroniclers of Safety" (narrators of oral history).

Assignment of ex-employees of JR East who possess an abundance of knowledge and applied skills in railway safety to act as our "Chroniclers of Safety" (narrators of oral history)

■ Accident History Exhibition Hall

Many of the safety-related rules and facilities have been created from our experiences of and reflection on past accidents. With the objective to further improve our safety levels by learning lessons from accidents, which is our basic policy for safety, we will never forget past accidents and are committed to pass on these valuable experiences learned from those lost lives. To this end, JR East established the Accident History Exhibition Hall at JR East General Education Center and the hall is used for various trainings to learn the importance of safety in railway operations.

Accident History Exhibition Hall

Accident History Exhibition Hall
(Accident Train Preservation Center)

■ The Challenge Safety Campaign

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, with each one of our employees thinking about safety and autonomously taking actions. With initiatives of field staffs, in a consorted campaign with all employees JR East is working to create a corporate climate in which its employees actively engage in pursuing higher safety levels in our operations. In the campaign, each one of our employees finds their own safety issues and takes actions to solve these safety issues with support from branch offices and Head Office.

Development of safety-related discussions in each workplace

Examples of CS Campaigns (realizing and sharing)

■ Challenge Safety Aoshingo (Challenge Safety Green Light)

Since April 1989, we have been publishing a monthly safety information magazine, Challenge Safety Aoshingo, to comprehensively distribute safety information to our employees. The magazine offers useful information for CS Campaigns in each workplace such as specific efforts of the campaigns in each workplace and details of past accidents.

Challenge Safety Aoshingo (Aug. 2016 issue)

■ Safety portal

JR East established an intranet portal site, the Safety Portal, to offer tools for accident prevention. Employees can search for necessary educational materials for CS Campaigns and their study sessions. We are increasing the amount of safety-related information so that employees can learn whenever they want.

Safety portal

■ Railway Safety Symposium

With objectives to improve the safety awareness of each one of our employees and to further vitalize various safety improvement activities including Challenge Safety Campaigns, JR East started Railway Safety Symposiums in 1990. Symposiums are attended by approximately 700 people including employees of group companies. We invite key figures from outside of the company to host panel discussions and introduce detailed safety examples of other companies. Participants bring back what they learn at symposiums to their workplaces and share safety awareness with other employees.

The 24th Railway Safety Symposium in FY2016

Opening speech by Tetsuro Tomita, President and CEO, JR East


A scene of the symposium①


A scene of the symposium②

■ JES-Net (JR East Safety Network)

JR East and its group and partner companies are required to share common safety values and offer railway services trusted by our customers.
To this end, the JR East Safety Network (JES-Net) was established in FY2005 as a safety promotion network consisting of 25 JR East Group and partner companies that are engaged in work directly affecting train operations. As of March, 2016, the number of companies in this network had expanded to 37.


JES-Net presidents' meeting

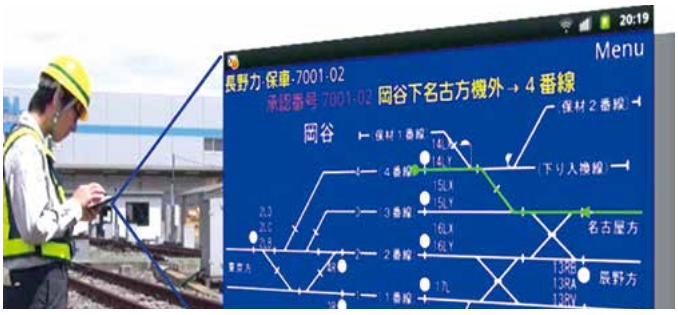

Safety review

Through JES-Net presidents' meetings with presidents of each group and partner company and JR East's top management and through safety reviews where frontline staffs of each office and Transport Safety Department exchange various opinions, the JR East Group continues to promote measures for improvement and share issues to enhance safety levels across the whole group.

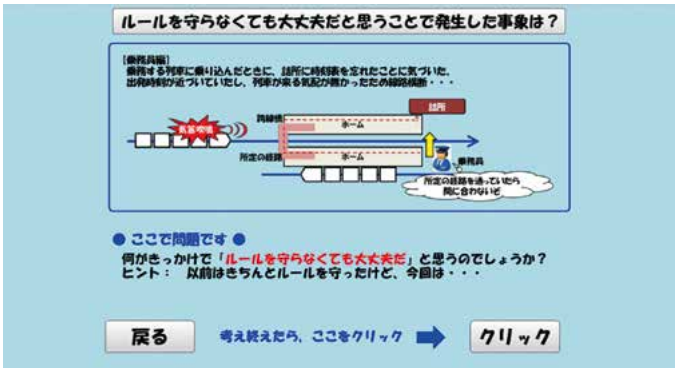
▶Safety-related research and development

JR East Group conducts various safety-related research and development activities with the Research & Development Center of JR East Group as its core.
At the center, depending on roles and missions, six research organizations promote their research and development in each specific field to pursue extreme safety levels, while at the same time working in unison. These six research organizations are the Frontier Service Development Laboratory, Advanced Railway System Development Center, Safety Research Laboratory, Environment Engineering Research Laboratory, Technical Center and Disaster Prevention Research Laboratory.
Research themes at these organizations include those related to promoting the sharing of safety information and knowledge, in addition to efforts among employees; development of systems to prevent accidents due to failures in maintenance work procedures; research on safety evaluation of natural disasters such as wind, earthquake, heavy rain and snow; research on the safety of railcars to prevent flange climb derailment at low speed; and research to ensure the safety of customers at stations.

Safety portal bulletin board

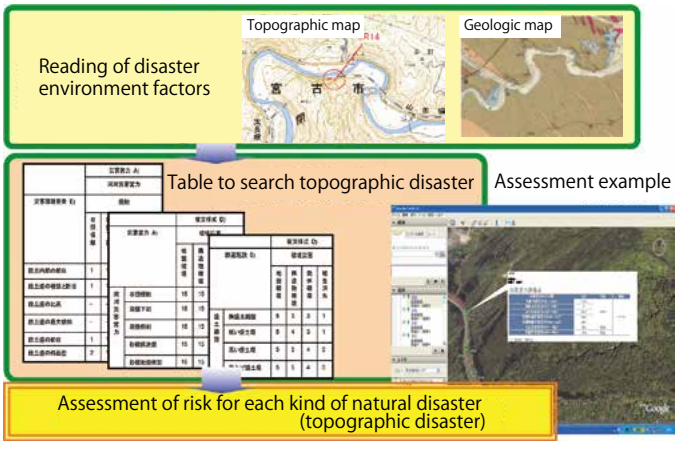


Visualization of maintenance work procedures



Educational programs on the intranet to learn how to prevent errors through actually experiencing human error


Utilization of areal precipitation information from weather radars in decision making for train operations



Large-scale natural disaster risk evaluation

Special Topic I Aiming to "Raise Safe and Reliable Transport to the Next Level"

We have caused a series of accidents and incidents since April 2015. These accidents and incidents are attributable to the JR East Group facing various "inflection points" both within and outside the company, including rapid generational change, advances in technology, and a broadening of the horizontal division of labor. With an aim to further improve the "safe and reliable transport" of JR East, our group companies, partner companies, front line, branches, and headquarters are implementing full-scale efforts to solve the issues one by one.

Major incidents since April 2015

April 12, 2015
Electric post collapsed between Kanda and Akihabara on the Yamanote line (serious incident)

April 29, 2015
Transport disrupted by cut overhead contact line at Koriyama station on the Tohoku Shinkansen route

Aug. 4, 2015
Transport disrupted by cut overhead contact line between Yokohama and Sakuragicho on the Negishi line

Aug. 9, 2015
Broken window pane on a Tohoku Shinkansen train

March 15, 2016
Transport disrupted by breakdown of electrical equipment at Kagohara station on the Takasaki line

Inflection points (background factors)

- Changes in railway system
- Broadening "horizontal division of labor", mainly for group companies
- Rapid generational change among employees

Aiming for solutions

To solve these issues, we will go back to the basics and consciously and steadfastly perform "basic actions" such as daily conversations for confirmation and pointing and calling, as well as reviewing safety education and training, improving the whole group's technological strength in cooperation with partner companies, enhancing response capacity in emergencies, and strengthening facilities and rolling stocks of Shinkansen.

Reviewing safety education and training

⇒By training in not only "procedures" (such as manuals) but also the "essentials" (such as the point or purpose, and systems or operating principles) in a practical manner, we will improve safety awareness and sensibility.

Improving the whole group's technological strength in cooperation with partner companies

⇒Streamline the implementation system to strengthen railway work management, expand and deepen personnel exchanges, and share information on risk

Enhancing response capacity in emergencies

⇒Limit the impact and enhance early-recovery system
⇒Save customers swiftly and convey appropriate information
⇒Improve ability to manage and control each emergency task force

Strengthening facilities and rolling stocks of Shinkansen

⇒Implement firmer measures that consider "inflection points" of acceleration, deterioration, etc.

Strengthening electrical equipment in the Tokyo metropolitan area

⇒Make it resilient and secure dual systems to minimize impact on transport

- ●Ensure "recurrence prevention" (monitor whether countermeasures for past serious incidents are being implemented)
- ●Conduct "preventive measures" by grasping risks and weak points (identify risks and weak points, then take measures before a serious incident happens)



Society

CONTENTS

II-1 Relationship with Customers

II-1-1 Our fundamental concept of service quality

The "JR East Group Management Vision V" states that "Service Quality Reform" is one of the group's eternal missions. In order to become a corporate group that is the preferred choice of customers and local communities, JR East will reform service quality through cross-divisional and cross-sectional teamwork with the aim of becoming Japan's number-one railway in terms of customer satisfaction. In order to achieve this, we will work to increase safety and convenience and further improve transport quality while promoting the creation of railways that passengers can use confidently and pursuing the comprehensive delivery of customer-friendly railway services.

II-1-2 Medium-term Vision for Service Quality Reforms 2017

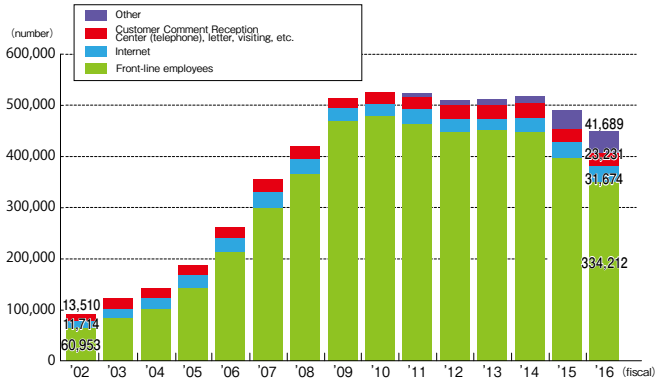
Customer satisfaction levels have continued to increase since the first year of service quality reforms in 2011. However, in order for the JR East Group to continue growing amid the various changes occurring in the surrounding environment, we formulated the "Medium-term Vision for Service Quality Reforms 2017," a three-year plan starting in 2015. With the aim of being number one in the Japanese railway industry when it comes to customer satisfaction, this vision is founded on enhancing mutual communication with customer feedback as the starting point and developing personnel and organizations that proactively think and act from the customer's perspective. It specifies five pillars for further improvement: safety, information provision during service disruptions, confidence, comfort, and service.

II-1-3 Increase mutual communication with customer feedback as the starting point

▶Constant attention to customer comments

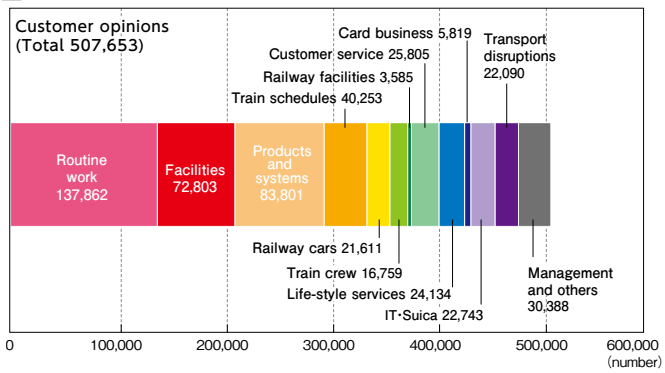
The core of improved quality of service in JR East has been our constant attention to customer comments. To constantly improve our services it is vital for us to listen carefully to customer comments, including their interests and complaints, and then promptly respond to their requests through service improvements. JR East has various methods of collecting large numbers of customer comments on a daily basis, including those passed directly to front-line employees, those posted on the Internet, and those given over the telephone. All of these comments are quickly shared and analyzed on a companywide basis, and form the core of our improvements. We believe that each and every individual customer comment contributes to the core of improved customer satisfaction.

■ Trends in the number of customer comments by channel (FY2002～)



*Since the number of comments collected via "others," which are comments collected through the Group companies, etc., grew among the number of comments collected via customer Comment Reception Center (telephone), letter, visiting, etc., such has been categorized separately under a new "Others" category.

■ Customer comments in FY2016

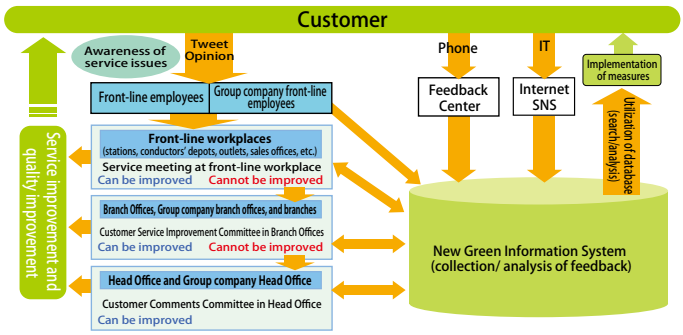


* The chart shows the number of comments on each subject. Some customers commented on more than one subject.

▶Prompt service quality improvements based on customer comments

Customer comments are considered at various levels within the company. Initially, a decision as to whether or not some action of improvement is possible is made at the level that initially received the original customer comments. The action will reflect this decision. If action is difficult to take at that level, then the comments are passed on to higher levels, where potential improvements can be discussed. At the very top level, we have also established the Customer Comments Committee comprised of concerned executive officers, which considers the possible implementation of improvement measures based on collected customer comments. Through this system, we are constantly striving for the attainment of improved customer services.

■ Systematic improvements based on customer comments



■ Case of improvement based on customer comments

▶Confirm grasp of issues and effects of measures implemented through customer satisfaction surveys

We conduct customer satisfaction surveys via our JR East Customer Questionnaires to enable us to gain an understanding of how customers evaluate our services that we cannot get simply through customer feedback and to quantitatively check levels of customer satisfaction. The survey results are used to decide which issues JR East should most urgently address as well as to confirm the efficacy of previous measures.

▶Two-way communications with customers using various channels

JR East considers it necessary not simply to wait for information from customers, but also to be active in ascertaining what they really need. We therefore strive to understand their opinions by making use of social media. Through the "JR East Official Facebook" launched in May 2012, we proactively provide information about our various campaigns and proposals as well as collect customer voices.
Furthermore, the "Projects for Improving Service Quality," designed to identify customer needs and to promptly improve service quality and transmit information, began in March 2013. As part of the project, we have been conducting Railway Line Wayside Monitors to gain an understanding of the potential needs of our customers and to expand two-way communications with customers.

JR EAST Official Facebook

Projects for Improving Service Quality (JR EAST APP edition)


Railway Line Wayside Monitors for Musashino Line (image)

《Railway Line Wayside Monitors for Musashino Line》

- Dividing the Musashino Line into three blocks, we conducted interviews along with online questionnaires.
- Employees of JR East participate in interview and directly listen to customers' opinions to gain an understanding of potential needs.

II-1-4 Develop personnel and organizations that proactively think and act from the customer's perspective

▶Service Quality Coordinator

For overall improvement of railway service quality focused on team efforts for service improvement and for providing reliable railway transport, we stationed Service Quality Coordinators in district and branch offices beginning in October 2011. The coordinator's job is to supervise the area-wide improvement of service quality, as well as to support and promote solutions for cross-organizational problems. In this way efforts will be made to improve service quality rapidly from the front-line field operations.

▶Group-wide SQ Network

To promote improvements in the quality of our services by reflecting customer comments, with the entire Group working as a single team, our Company and group companies closely involved in transport service established the SQ (Service Quality) Network in October 2011. The SQ Network holds meetings of representatives of JR East and group companies at the operating fields such as stations, branch offices and the head office, to share customers' comments and devise solutions and improvements through teamwork, which goes beyond individual departments or group companies. In this way the JR East Group as a whole can dedicate itself to enhancing customers' satisfaction.

▶Service Quality Meetings

To improve our service quality further with operating fields, branch offices and the head office working as a team, we instituted Service Quality Meetings, in which senior executives from our head office visit operating fields and exchange views with field supervisors. In the fiscal year ended March 2016, with "the strengthening of collaboration in an emergency of Shinkansen" set as the main theme as was in the previous fiscal year, "establishment of a structure to strengthen collaboration among Shinkansen Transport Department, branch offices and the field in an emergency" and "responses to operation schedule when conducting turn-back operations and provision of information to customers" were discussed. JR East identifies the problems faced by each railway section and area and strives to improve quality of service by means of teamwork.


Service quality symposium

▶Service Quality Symposiums

With the goal of achieving even more service improvements, we hold service quality symposiums, and are working to create a workplace environment in which employees think and act by themselves.

II-1-5 Provide reliable transportation services

▶Transport disruption prevention and prompt resumption of train operation after transport disruptions, and minimization of the effects of disruptions to other sections

We are implementing various measures to improve transport quality by striving to prevent transport disruptions and by stepping up early resumption of operations after transport disruptions, as well as preventing disruptions impacting on connecting lines.
We continue to implement expanded introduction of railcars with dual systems* and installation of track switches of next-generation design to make equipment failure less likely, measures to prevent lightning strike damage to electric facilities and other disruption countermeasures.
For early resumption of operations, we maintain efforts to enhance our post-disruption response abilities by such measures as drills to deal with accidents resulting in casualties and rescuing passengers. Notably, concerning accidents resulting in casualties, cooperation with police and fire services is important and we thus implement drills, etc. for employees jointly with police and fire services on a regular basis. In addition, we try to turn trains back before they enter the disrupted section or operate other routes wherever possible in an effort to minimize the impact on customers.


Rescue drill

When a disruption has occurred, each worksite involved reflects on how it was dealt with, learns the lessons from this, and uses the knowledge to study and implement measures to prevent recurrences, which are then widely disseminated in-house to raise the level of each and every employee.

*Railcars with dual systems Railcars with increased reliability through duplication of major equipment.

Ⅱ-1-6 Enhance information provision during transportation service disruptions

▶Information Enhancement

For better information provision in an emergency, JR East is taking steps to provide our customers with more accurate information by having the anticipated time at which operations should resume announced within ten minutes of a suspension of operations following an accident that caused casualties, and giving subsequent updates depending on the situation. In addition, as tools for providing transport information, we have installed emergency information displays and are working to enhance display functions, such as displaying in four languages and showing information on turn-back operations, disruptions on other lines and other events as well as to continue installment of displays (installed at 249 stations as of March 2016). We also provide information through various media, such as onboard liquid crystal displays and the content of cell phone carriers. In addition, on our website, we provide information on service suspensions of conventional line limited express trains, etc. and distribute delay certificates on major lines in the Tokyo metropolitan area.

Information display during transport disruptions

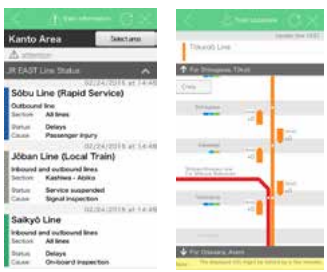
▶Timely Information Provision through Smartphones

In order to provide timely information to meet individual customer needs, we released the smartphone app "JR EAST APP" on March 10, 2014.
"JR EAST APP" allows customers to view information on train operations of not only JR East's trains but also of 15 companies including private railway companies, all our stations and real-time information on the location of 17 lines in the Tokyo metropolis such as Yamanote, Keihin-Tohoku and Ueno-Tokyo Lines. The app also allows customers to easily access information on lines and stations they frequently use. In addition, customers using the Yamanote Line can view their boarding position (car number), information on stops for the section (transfer routes, platform map and station map), and the congestion status and temperature of each car of the Yamanote Line train they have boarded or that is in operation.
In addition to the above services, we launched "JR-EAST Train Info," an English version of the JR EAST APP which is made based on the JR EAST APP and delivers information on operating status of individual trains, maps of major stations and such in English, on March 20, 2015.
Furthermore, for smartphones, we instituted "JR East Train Operation Information Push Notification," a service for notifying information on our train operations. In addition, we provide "Doko-Train," a train operation information service that enables customers to confirm the operating status of individual trains on their own.

JR EAST APP

Train Operation Information Push Notification app


Doko-Train



JR-EAST Train Info

Ⅱ-1-7 Railway services customers can use confidently

▶Barrier-free Stations

JR East has been working with local governments and other entities to install elevators at stations in accordance with the "new barrier-free law (Act on Promotion of Smooth Transportation, etc. of Elderly Persons, Disabled Persons, etc.)" As of the end of March 2016 we had completed the installation of elevators in 524 stations.

Chuo Line (Rapid Service) platform in Shinjuku Station

Saikyo Line up-direction train platform in Jujo Station

▶Barrier-free Railcars

To improve accessibility for persons with impaired vision, in the fiscal year ended March 2006 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.
In December 2006, the universal design E233 series railcars started being introduced sequentially to the Chuo Rapid, Saikyo, Yokohama and other Lines. Spacious toilet rooms capable of accommodating advanced electric wheelchairs with handles have been introduced on new Narita Express E259 series cars; on the Shinkansen E5 series "Hayabusa" and the new limited-express E657 series trains on the Joban Line since October 2009; and on the Shinkansen E7 series railcar since March 2014.
Furthermore, E235 series trains, which started operation on the Yamanote Line in November 2015, now have priority seats in each railcar as well as feature free space in all railcars that can be used more safely by wheelchair users and baby stroller users (whereas there used to be a space for wheelchair users only in the front railcar).

Free space on E235 series

▶Creating an environment where customers with baby strollers can use our services safely

To increase safety for customers with baby strollers who use our stations and trains, we have been working to improve the response of railcar doors in the event that baby stroller frames and other devices are caught by the doors. In addition, we carried out a campaign organized by the "Council for Use of Baby Strollers on Public Transportation, etc.," which was formed by the Ministry of Land, Infrastructure, Transport and Tourism, transport operators including our company, baby stroller manufacturers and others, to urge customers with baby strollers to be careful, as well as asking customers with baby strollers and other customers to give way to each other when boarding trains. In FY2015, we posted baby stroller signs, which were selected by the council, in the spaces for wheelchair users on local trains, to create an environment where baby stroller users can safely use our services. In addition, we have baby rooms installed at 42 stations as of the end of March 2016.

Baby stroller campaign

Baby stroller sign

▶Escalator Safety Measures

To prevent injuries to customers when they use escalators, we are carrying out safety enhancements, including measures that will prevent sandals from getting caught, prevent falls during emergency stops, and prevent steps from descending when escalators stop. In addition, we are also working together with other railway companies, retailers and other facilities to carry out campaigns in an effort to draw the attention of customers through such means as posters and handing out free pocket tissues that call for the safe and proper use of escalators.
In FY2016, campaigns took place during the summer holiday season, continuing an ongoing effort to concentrate people's attention upon the proper use of escalators and upon caring for those customers who, due to injury or various other reasons, are able to stand only on the right side of the escalator steps, which are normally used by people who are walking while on the escalator. We invited retail facilities as well as railway companies to join in the campaigns, and were also able to newly receive support from the Consumer Affairs Agency.

"Escalator Safety" campaign poster

▶Measures against Female Molestation

In addition to adding women-only cars during certain hours, and with the aim of enabling female passengers to travel stress-free, we have been installing SOS buttons on major Tokyo metropolitan area lines that women can use to alert train crews if they are improperly touched or otherwise molested. Furthermore, in cooperation with police and other railway operators we are actively conducting a campaign to eliminate on-train molestation and have significantly increased security surveillance on trains and in stations. As a further step in the discouragement of female molestation, we have installed on-board security cameras in the leading cars on all Saikyo Line trains.

▶Crime Prevention Measures

Surveillance cameras are installed in Series E259 and E657 limited express trains on the conventional lines and in the two-level green cars on the Tokaido, Tohoku, Takasaki and Joban lines, and in new railcars of the E3 series in the 2000s and E5, E6 and E7 series Shinkansen railcars in addition to the Saikyo Line.


E657 series limited express trains

▶Assistance Campaign and Support

We have a campaign in which we personally greet all customers in need, including those customers with disabilities, elderly customers and others who require particular attention, to make sure that they can use our stations and other facilities safely and with a sense of security. In order to foster the momentum for supporting one another and to create a society where all people can live safely and comfortably with peace of mind, we are promoting the "Assistance Compaign and Support" by asking not only our own employees but also employees of other JR East Group companies and, even customers using our services to greet others who may be in need of help.

"Assistance Campaign and Support" poster

Ⅱ-1-8 Realize railway services customers can use comfortably

▶Transport Services Improvements

In March 2016, the opening of the Hokkaido Shinkansen between Shin-Aomori and Shin-Hakodate Hokuto reduced travel time between Tokyo and Shin-Hakodate Hokuto to as little as 4 hours 2 minutes, greatly enhancing efficiency and increasing the time available at the destination. On the conventional line network, while enhancing convenience by increasing the number of Limited Express Azusa departing from Tokyo station and unifying Takasaki Line Limited Express to 651 series trains, congestion was reduced for Tokaido Line, Utsunomiya Line and Takasaki Line by increasing the number of railcars.
For "Tokyo Mega Loop*," we also increased the frequency of operations during the evening commuting hours for the Musashino and Keiyo Lines and increased the number of directly-operated trains on the Negishi and Yokohama Lines to reduce congestion and enhance convenience.
As a result of the above efforts as well as the introduction of wide-bodied cars, in the fiscal year ended March 2016 the average level of in-train congestion during morning commuting hours was 169%, 69 percentage points below the rate in the fiscal year ended March 1988.

*Tokyo Mega Loop the loop formed by the Musashino, Keiyo, Nambu and Yokohama lines in the Tokyo metropolitan area that has many connections with other JR lines and lines of other railway companies.

▶Efforts to Speed up the Shinkansen

JR East has been putting efforts to increase the speed of Shinkansen and have been operating at a speed of 320km/h since March 2013. This already being a world-class speed, we are continuing with a broad range of research and development in order to realize "Shinkansen operation at a speed of 360 km/h" which we have upheld in "JR East Group Management Vision V."
We will strive to advance with research and development for improving stability while in operation and reducing environmental impacts along the railway line wayside to realize reduction of travel time to destination and such.


E5 series Shinkansen trains


Field test of noise reduction device

▶Improvement of onboard service

As part of improvement of onboard service, we are providing up-to-date information via WiMAX. Furthermore, in addition to liquid crystal display (LCD) on trains in the Tokyo metropolitan area showing guides and advertisements, LED displays in full color installed in limited express trains and new Shinkansen railcars are showing newscasts as well as destinations and other transport information. Customers can also avail themselves of Internet connections on some of the limited express trains through WiMAX and Wi-Fi.

▶Creation of new stations to develop railway network

We are also cooperating with local governments in the creation of new stations in line with their city planning, based on requests from local governments, etc. In FY2016, we opened new stations, Odasakae and Ishimakiayumino on Nambu Line and Senseki Line, respectively.


Odasakae Station on Nambu Line

▶Improvements in Station Toilets

In order to dispel the image of station toilets as dark, dirty, and malodorous and to enable customers to be able to use them comfortably, since its establishment JR East has been steadily upgrading its toilet facilities.
Measures taken include a change to western-style toilets, improved ventilation and the use of larger floor tiles. The upgrading also includes water-saving type toilets and automatic faucets in the washbasins to reduce water consumption.
During the fiscal year ended March 2016, we renovated the toilets in 27 more stations, as a way to increase customer comfort and satisfaction.


Toilet installed inside the ticket gate of Shinkansen at Takasaki Station

▶Station Navigation

In order to facilitate more convenient and comfortable use of complicated stations such as terminal stations, "Station Navi," a smartphone app which provides the current location of the customer and guide to destinations and such is being developed. We made the app for Tokyo and Shinjuku Stations available for the public from January to March 2016 to evaluate the service contents and the system. We will be working to further improve the system for actual implementation.

Route guide

Ⅱ-1-9 Provide impressive customer service

▶Efforts to improve customer service

We prepared a "Green Handbook," establishing the basics of customer service in 1987 and started distributing it to all employees. We have been utilizing it while making repeated renewals to suit the changes of the times to improve our customer service since then. In March 2016, we replaced the former six important customer service terms with "hospitality terms" to further draw out the needs of each customer.

▶Acquisition of Service Assistance certification

We have encouraged our employees to qualify themselves for Service Assistance certification to acquire hospitality mindset and assistance skills, and approximately 11,000 employees were certified by the end of March 2016. The qualified employees wear a "Service Assistant" name tag so that customers will be able to recognize them easily.

Ⅱ-1-10 Suica Business

▶About Suica

Suica is an IC ticket provided by JR East. Its service started at 424 stations in the Tokyo metropolitan area in November 2001, and the number of Suica cards issued reached approximately 60.77 million at the end of July 2016. The locations where Suica can be used continues to expand as more shops in JR East's business area begin to accept payment with Suica; interchangeable use with the other 10 IC cards throughout the country was made available in 2013.
Furthermore, e-money service enabling use of Suica for shopping payment started in March 2004. Speedy settlement, no hassle over small change and additional convenience have been supported by many customers, and the maximum number of uses on a single day of Suica and other e-money cards operated by transport companies reached approximately 5.75 million (recorded on August 5, 2016). We aim to increase the number to 8 million by FY2021 by further expanding the number of affiliated stores and promoting its use.

【Number of Suica cards issued】	Approx. 60.77 million
〈of which with e-money function〉	Approx. 58.59 million
【Number of Mobile Suica users】	Approx. 3.78 million
【Membership of Suica Point Club】	Approx. 2.27 million
【Number of uses in May 2016】	Approx. 147.79 million
【Number of uses per day (record-high)】	
(recorded on August 5, 2016)	Approx. 5.75 million
【Number of shops accepting Suica】	Approx. 357,270
【Number of locations accepting Suica (number of terminals)】	Approx. 657,310

(As of the end of July 2016 unless otherwise specified)

▶As an IC Ticket

Ten IC cards, including Suica, used in public transport throughout the country were made interchangeable in March 2013. In addition, partial service of Suica was newly made available at 36 stations on 13 lines of our company in 2014 and interchangeable use of Suica with "icsca," IC cards issued by Sendai City Transportation Bureau, in the Sendai region started in March 2016. The number of stations where Suica can be used, including stations of railway companies accepting interchangeable use, is 4,789 across the nation as of the end of March 2016.

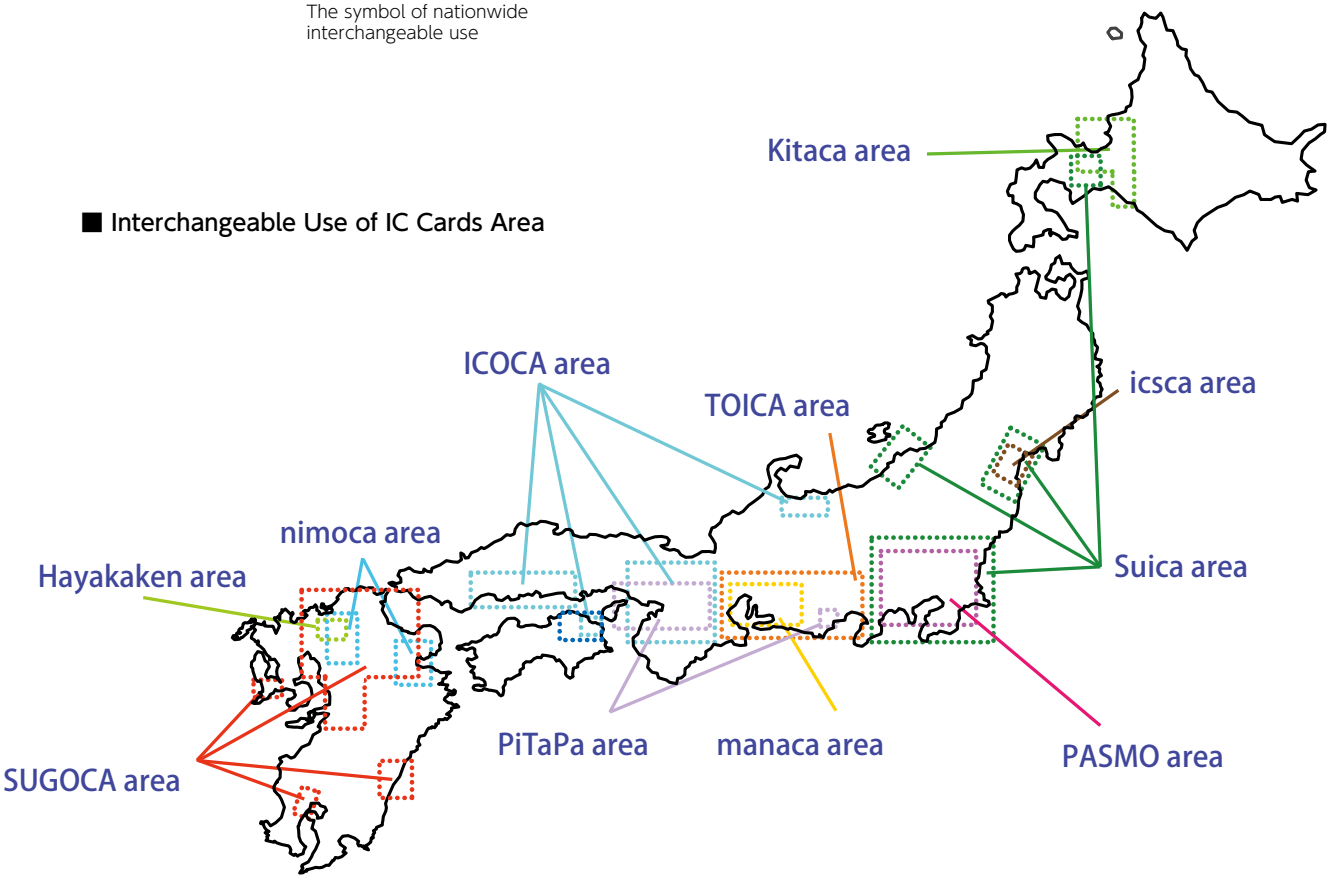
【Number of stations accepting Suica for railway use】

Suica area	924
PASMO area	1,285
Kitaca area	55
TOICA area	149
manaca area	399
ICOCA area	496
PiTaPa area	1,047
SUGOCA area	298
nimoca area	72
Hayakaken area	35
icsca area	29

(As of the end of March 2016)

The symbol of nationwide interchangeable use

■ Interchangeable Use of IC Cards Area



Kitaca PASMO Suica manaca TOICA PiTaPa ICOCA HAYAKAKEN nimoca SUGOCA icsca

Interchangeable use in the Sendai area

*icsca can be used only in Sendai Suica area.

▶As Electronic Money

The number of places where Suica can be used as electronic money has been increased, to include shops not just inside but also outside stations. Examples of where Suica can be used include major convenience stores and supermarkets as well as restaurant chains and drugstore chains. In addition to these, we have expanded its use to places other than regular shops and to services, such as taxis, tourist spots, ANA's inflight shopping on domestic lines, Nintendo's game machines and events, as well as online shopping sites like "Amazon" and "Rakuten Ichiba."
As of the end of July 2016, the number of shops which accept payment with Suica has expanded to approximately 357,270 and the maximum number of uses in a single day reached approximately 5.75 million on August 5, 2016.

▶Responding to Diverse Needs

The number of users of "Mobile Suica," which celebrated its 10th anniversary in January 2016, reached approximately 3.78 million at the end of July 2016. As a result of our efforts to increase the membership shops and companies with which points can be exchanged, the membership of "Suica Point Club" reached around 2.27 million as of the end of July 2016. "View Suica," combining the functions of Suica and View cards, was issued and View Gold Lounge was opened for View Gold Plus Card members using Shinkansen Green Cars (1st class cars) to enrich functions and services so as to meet a wide range of customer needs. We have also been working to enhance convenience in the railway business and the life-style business and to further develop customer services by utilizing information obtained from Suica and View cards.


Mobile Suica

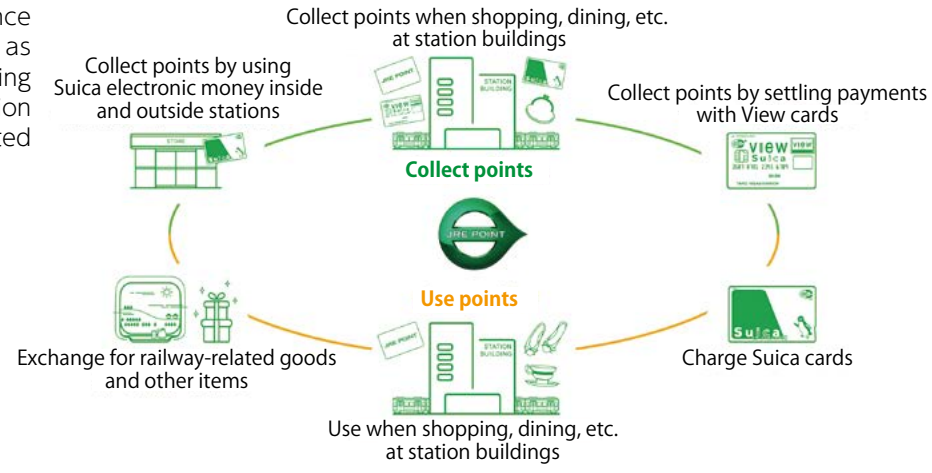

Suica Point

View Suica Card

▶JRE POINT

In order to increase the use of the JR East Group services and expand its profits through sharing customers while enhancing customers' convenience and appeal of all lines, we launched in February 2016 the "JRE POINT" program. (4 companies and 36 buildings as of the end of August 2016)
We first standardize point services used at station buildings of our group in sequence to make "saving points easier" as well as to make "using points easier" by accepting points for payment for purchases at station buildings, for exchange with railway-related goods, etc.

■ Future image



Ⅱ-1-11 Efforts on Services for Overseas Visitors

In order to take in demand of rapidly increasing overseas visitors, we are taking active measures such as proposing attractive products and carrying out promotional activities in full cooperation with communities. Furthermore, with an eye on the Tokyo 2020 Olympic and Paralympic Games*, we are working to reinforce capability to accept overseas visitors so that they will be able to use the railway network safely and comfortably.

▶Products that Appeal to Overseas Visitors

As products that can accommodate to different travel plans, we offer the "JR EAST PASS," which allows unlimited travel within the JR East service area, the "JR Kanto Area Pass," which allows unlimited travel within the Kanto area, and "N'EX TOKYO Round Trip Ticket" as a product providing access from Narita International Airport to Tokyo. Starting from April 2016, we divided "JR EAST PASS" into two products ("Tohoku area" and "Nagano/Niigata area") to improve convenience while launching new products such as "JR East-South Hokkaido Rail Pass" for traveling on Hokkaido Shinkansen and "Tokyo-Osaka Hokuriku Arch Pass" for traveling on Hokuriku Shinkansen to provide overseas visitors with more convenient and reasonable products and encourage them to take enjoyable trips using railways.

▶Environment where foreign visitors can purchase products free of worry

"JR EAST Travel Service Center" for foreign visitors is located at Narita International Airport Terminal 1, Narita International Airport Terminal 2-3, Haneda Airport International Terminal Station on the Tokyo Monorail line, Tokyo Station and Shinjuku Station that many overseas visitors use. In April 2016, a foreign visitors' travel counter was set up in Travel Service Center (View Plaza) at Sendai Station.
At those centers, foreign language speaking staff engage in sales of products for foreign visitors such as the "JR EAST PASS." At Tokyo and Shinjuku centers, tourist information centers are also placed to help overseas visitors consider their trips using JR East. In addition, we have enhanced convenience for overseas visitors by setting up a duty-free counter, etc. in the stations.


JR EAST Travel Service Center at Tokyo Station


Inbound Travel Counter at View Plaza Sendai Station

▶Seat reservation system allowing reservations from overseas

We offer "JR-EAST Train Reservation," which is a seat reservation service allowing reservations from overseas for Shinkansen and major limited express trains of JR East. Starting from February 2016, real time reservations became possible online, and reservation service in Chinese (traditional Chinese and simplified Chinese) and Korean in addition to English was made available, further enhancing convenience for overseas customers.

Online seat reservation site "JR-EAST Train Reservation"

▶Free Public Wireless LAN Service for Overseas Visitors

As of March 31, 2016, we have installed and provide free public wireless LAN services at 82 stations (mainly on the Yamanote Line) and at the "JR EAST Travel Service Centers" which are used by many overseas visitors. (This service is provided in four languages: English, Chinese, Korean and Japanese.)

JR-EAST FREE Wi-Fi

*JR East is a Tokyo 2020 Official Partner in the category of Passenger Rail Transportation Services.

Special Topic Ⅱ Promoting Strategy to Attract Foreign Visitors

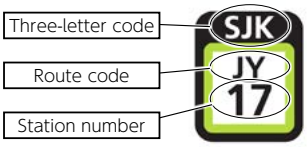
Station numbering system

To offer easier and safer use of railways not only for foreign visitors but also for all customers, a "station numbering system" will be sequentially introduced in the Tokyo metropolitan area, with station names indicated in four languages (Japanese, English, Chinese, and Korean), starting at Meguro Station from August 2016.

Station numbering

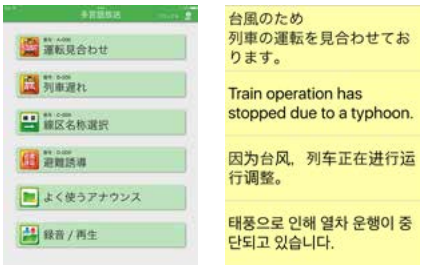
1 Shows the combination of the route code (two letters) and station number (two-digit number) using the route color.
2 In addition to the route code and station number, "three-letter codes" that represent the station names using three alphabetical characters are shown for hub stations.

Image of JR East station numbering



Reinforcing provision of multi-lingual information through tablets

To enhance the provision of information at stations and on trains in emergencies, an information service utilizing tablets, "Multi-lingual information provision app for emergencies", is being tested at stations where a service manager is staffed or at some stations where train crews are based. Information provision during emergencies in four languages (Japanese, English, Chinese, and Korean) is available in both text and voice.



Multi-lingual information provision app for emergencies

Acquisition of halal certification, and overseas promotion of travel to Japan (sales of Ekiben boxed lunches sold at stations in Paris, etc.)

Halal-certified products sold by the JR East Group include, halal-certified pastry (Baumkuchen) and halal-certified boxed lunches available at some of the retail stores within station buildings in the Tokyo metropolitan area. In addition, two restaurants in Hotel Metropolitan Sendai have acquired localized halal certification and offer halal dishes that Muslim guests can order without worry.


Hotel Metropolitan Sendai's halal dishes

As an overseas promotion of travel to Japan, we opened an "EKIBEN (boxed lunches sold at stations)" shop at Lyon Station in Paris, France for a limited time (March to May 2016) and communicated the charms of railway travelling through sales of Ekiben at the shop.

Ekiben shop at Lyon Station, Paris


Paris lunch box

Also, in November 2016, the "Japan Rail Café" will open in Singapore, providing a "venue" to offer travel information on Japan and personal exchange among local people highly interested in Japan. Moreover, we are disseminating the charms of railway travel at events, travel fairs, and others held overseas.


Japan Rail Café (Image)

Ⅱ-2 Relationship with Society

Ⅱ-2-1 Life-style Business of JR East

The JR East Group operates a broad range of lifestyle businesses and provides services to support everyday lives of our customers in their various lifestyles and life stages. These services include retail stores within station buildings, hotels, office buildings and fitness clubs that benefit from their locations near stations, advertising in stations and on trains, childcare support in areas adjoining railway lines, and housing.

Ⅱ-2-2 Strengthening Collaboration with Communities and Local Revitalization

The very existence of the JR East Group depends on the health of the east Japan area and of Japan as a whole. As a company responsible for a form of social infrastructure (i.e., railways), and as a member of the community, we work together with communities in order to take actions aimed at achieving their desired future. In addition, we actively implement community vitalization and tourism promotion measures that leverage the unique capabilities of our group, as well as pushing forward with the creation of appealing urban areas centering on train stations.

As a member of the local community, JR East has been working to build an energetic community with a strong interest in the community's future by promoting three town development perspectives of "development of large-scale terminal stations," "establishment of a lineside brand that will be chosen by customers" and "revitalization of core regional cities."

At Tokyo Station, we have developed Tokyo Station and areas surrounding the station by preserving/restoring Tokyo Station's Marunouchi station building, opening GranRoof, constructing a square in front of the Yaesu Exit, etc. under the concept of "Tokyo Station City" which envisions developing Tokyo Station into a complete city. Currently, the construction of a square in front of the Marunouchi Exit and areas surrounding the north passage are underway to create a station that will serve as a center that represents new cultures, while also serving as a spectacular gateway to Metropolitan Tokyo. At Shinjuku Station, we completed JR SHINJUKU MIRAINA TOWER in the Shin-Minami area in March 2016. We intend to contribute to creating further bustles in the Shinjuku area by transforming it into a place where various people gather and interact. At Sendai Station, we opened the east wing of S-PAL Sendai and widened the east-west free passage, thus creating space connecting towns on the east and west sides in continuity to allow people to gather and communicate, that can serve as a face of Sendai.

As to "establishment of a lineside brand that will be chosen by customers," we are establishing a lineside area where customers want to live by promoting development that looks at a railway line and the area alongside it as a unit rather than just as "points" (stations), such as the Keiyo Bayside Line Project (Keiyo Line) and a place of learning "Kurasu Class" (Nambu Line), in addition to promoting the Chuo Line Mall Project.

We are also cooperating with local governments in improving existing station buildings with free passages and other facilities in line with their city planning, based on requests from local governments, etc. We improved stations in line with construction of free passages at Isawa-Onsen Station on the Chūō Main Line, Adachi Station on the Tohoku Main Line and Yuzawa Station on the Ōu Main Line. With a tourist information desk, etc. (local government facility) built at Isawa-Onsen Station, Yuzawa Station and others, we have introduced local government facilities into a total of 101 stations (as of March 31, 2016) since our establishment in 1987.


Square in front of the Yaesu Exit, Tokyo Station


SHINJUKU MIRAINA TOWER


Yuzawa Station on the Ōu Main Line

▶Contribution of Railway Overpasses in Unifying Towns and Eliminating Traffic Congestion

JR East continues to cooperate with local governments in projects for railway overpasses near Inagi-Naganuma Station on the Nambu Line and Niigata Station on the Shin-etsu Main Line. These projects aim to unify towns that are split by railway tracks, eliminate traffic congestion, and improve the safety of both road and rail transportation.
In the project to construct a series of railway overpasses near Inagi-Naganuma Station on the Nambu Line, all 15 level crossings in the section subject to the project were removed by placing the railway on a viaduct in December 2013; and in the project to construct a railway overpass near Niigata Station on the Shin-etsu Main Line, we finished switching to temporary lines in November 2014 and are currently constructing the main structure.

Railway overpass construction project near Inagi-Naganuma Station on the Nambu Line

Railway overpass construction project near Niigata Station on the Shin-etsu Main Line

▶Improving and Developing Transfer Node Functions at Stations

Large numbers of people pass through stations where different transport services meet. To reduce urban area congestion and to make travel more convenient, we have been increasing the number of through services and improving our connections with other means of transport, in cooperation with national and local governments. We have also improved transfer nodes to other transport, such as to bus terminals (Busta Shinjuku) and taxi loading areas by constructing artificial ground above the railway tracks at Shinjuku Station, in collaboration with the Ministry of Land, Infrastructure, Transport and Tourism.

Area surrounding South Exit of Shinjuku Station

▶Supporting the program to promote migration to regional cities

We are supporting programs of local communities that encourage people to move to regional cities from the Tokyo metropolitan area targeting members of the "Otona no Kyujitsu Club," a club for seniors operated by JR East with around 2 million members, with an aim to contribute to the revitalization of those local communities and of encouraging such migration. We are currently cooperating in promoting migration and exchange with Nagano Prefecture, Aomori Prefecture, Toyama Prefecture and Ishikawa Prefecture.
We conduct tours that offer people interested in moving away from the Tokyo area an opportunity to take part in seminars and to visit actual locations in order to dispel their misgivings about migration. By combining local community activities (seminars on living conditions, agricultural experience) with information about Shinkansen trains, we can support local government migration policies through our sales channels and media activities (Otona no Kyujitsu Club membership magazine, website and others).
Furthermore, since people moving to regional cities or making short stays there sometimes need support, especially in the aspect of transport, we offer support using our Group resources, such as long-term car rental discount plans for members of the Otona no Kyujitsu Club.

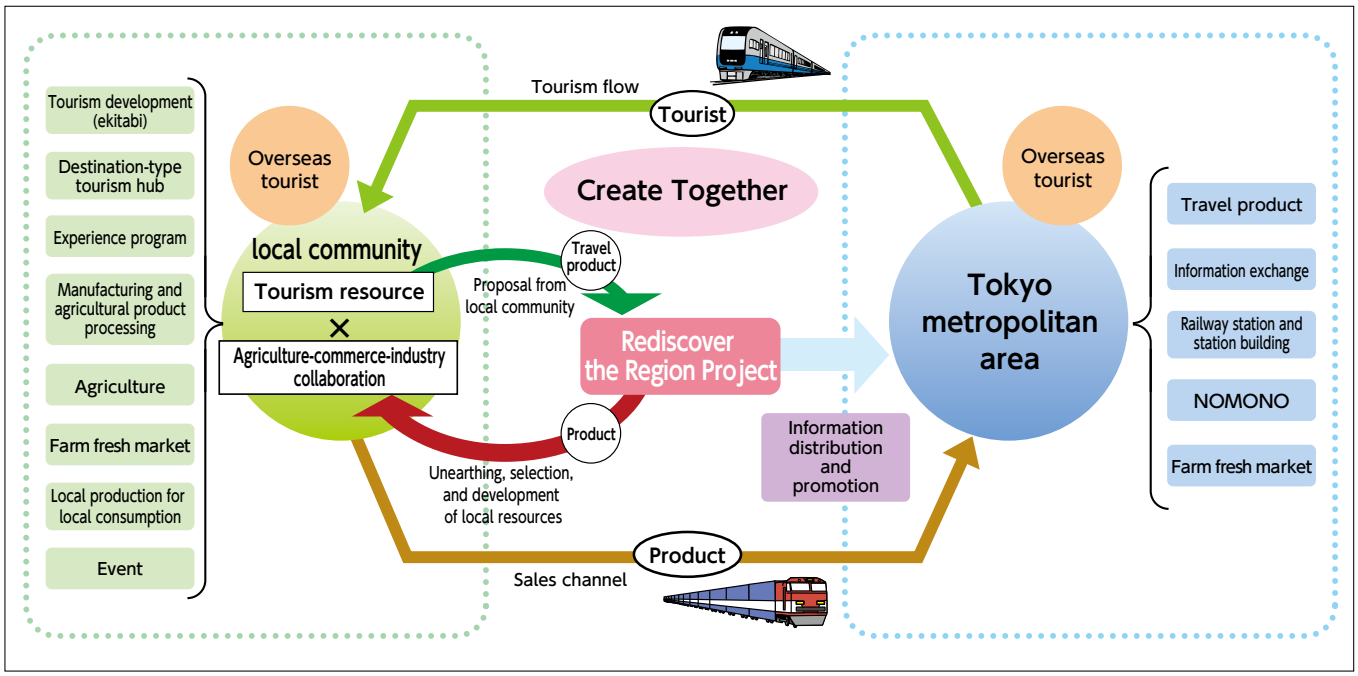
Migration trial tour

II-2-3 Rediscover the Region Project

▶Development of the Rediscover the Region Project

Under the "Create Together" strategy, which specifies enhanced cooperation between JR East and local communities, we are promoting the Rediscover the Region Project. The aim of the project is to create new potential markets that bring increased circulation of people and goods between the Tokyo metropolitan area and other regions and also attract overseas visitors to Japan. The JR East Group has railway networks, stations that serve as centers of local communities, business know-how, sales channels and advertising power that all radiate out from the Tokyo metropolitan area and more. The strategy utilizes JR's such unique abilities to discover traditional cultures, local produce and other tangible and intangible tourist resources as well as to promote the interactive exchange of information and to expand sales channels between the Tokyo metropolitan area and local communities.

■ Conceptual diagram of "Rediscover the Region Project"



In the Tokyo metropolitan area, in collaboration with destination campaigns and other marketing tools, we are hosting "Rediscover the Region Project: Farm Fresh Markets" at Ueno Station and opened a permanent shop, "NOMONO," where producers convey their products and local appeal to customers, and an online shop, "The NOMONO premium." Emphasizing products that are typical of the season, region and traditions, NOMONO opened at Ueno Station in January 2012 and at Akihabara Station in March 2014 as local produce shops. Then to further expand its brand, it opened "NOMONO Kitchen Ikebukuro East Exit Shop" in November 2015 and "NOMONO Izakaya 'Kayoiji Ueno shop'" in January 2016. Various efforts to expand demand for local products have been put forth across the business areas of JR East, and altogether 3,735 farm fresh markets were held amongst the group as well as many other events to revitalize communities in the fiscal year ended March 2016.

We intend to promote distribution of local products in the Tokyo metropolitan area by utilizing existing infrastructures such as our group's Tokyo metropolitan area logistics hub and trunks of highway buses, with an eye to developing the "Rediscover the Region Project." (Established "Regional Revitalization Logistics Limited Liability Partnership (LLP)" in April 2016)

Rediscover the Region Project "Farm fresh market"

NOMONO, the local produce shop at Ikebukuro East Exit

▶Nomono 1-2-3 Project

In order to further strengthen collaboration with regional communities, we feature products that combine high-quality ingredients such as local produce with superior processing techniques. Through this initiative, the JR East Group encourages manufacturing that integrates regional primary, secondary, and tertiary industries. The Nomono 1-2-3 Project is a manufacturing project that supports the eastern Japan area via product development and sales in collaboration with regional farming, forestry, and fishing industries. Behind the project is our wish to promote manufacturing aimed at sextic industrialization, by us linking primary, secondary, and tertiary industries.

Shinshu Jibie Venison Burger using venison from Shinshu

Sendai Kinako (ground soybean) Series using soybeans from Miyagi

Dried Sweet Potato Farmer's White Pudding using dried sweet potatoes from Ibaraki

Furthermore, in order to find solutions to issues in the primary industry and to enhance appeal of food through agricultural produce, we entered agribusiness in collaboration with local farmers. We are using high-quality tomatoes produced at a sunlight-based plant factory of "JR Tomato Land Iwaki Farm" in Iwaki City in Fukushima Prefecture for processing at the adjacent sextic industrialization facility and for food served at our group companies. "JR Niigata Farm" in Niigata City is an agricultural corporation established by taking advantage of the status of Niigata as a National Strategic Special Zone. It plays a role in developing Niigata's sake culture through production of rice suitable as an ingredient of sake. We will work to increase the nonresident population and revitalize regional communities by stably producing safe and secure agricultural produce and enhancing the appeal of the communities.

JR Tomato Land Iwaki Farm

JR Niigata Farm (image)

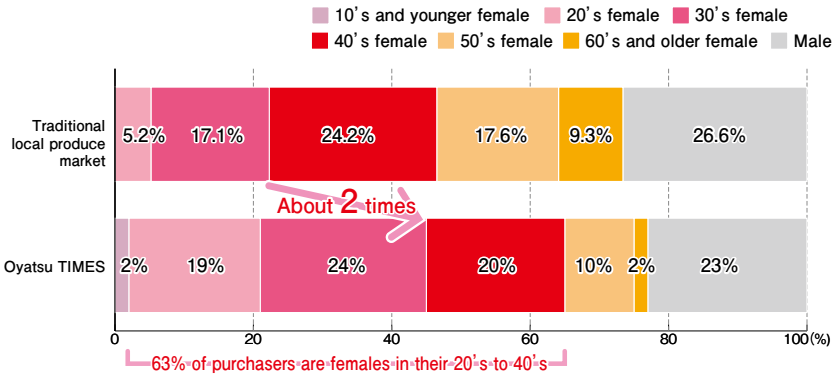
Special Topic III For Regional Revitalization～"Oyatsu TIMES"～

About Oyatsu TIMES

"Oyatsu TIMES" is a series of snacks developed with an aim to revitalize regions by expanding the market for local produce in collaboration with local producers encountered through NOMONO, local produce shops that sell tasty produce from all over eastern Japan. The series has seen steady sales growth by selling roughly 55,000 items (roughly 3 times initial shipment forecast) in the first two weeks after launch in March 2016, and expanding stores handling the products from the Tokyo metropolitan area to all areas in eastern Japan. Furthermore, it has garnered the favor of a new group of local produce fans as 63% of purchasers were females in their 20's to 40's who were previously not very familiar with local produce.

"Oyatsu TIMES" series

■ Customer segments of Oyatsu TIMES



Traditional local produce: POS data by NOMONO Ueno, Jan. 20, 2012～Nov. 6, 2013
Oyatsu TIMES: POS data by NewDays, March 29, 2016～April 12, 2016

Contribution to regional revitalization

In the "Oyatsu TIMES" project, the "NOMONO Direction Unit", which comprised food professionals from all groups, was involved in planning products that would suit the Tokyo metropolitan area market while discussing with producers. Also, three group companies established "Regional Revitalization Logistics LLP" to lower the hurdles of starting business operations in the Tokyo metropolitan area for local producers by organizing a logistics system at each step of the process, such as through reducing logistics costs to one-third by utilizing unused space on highway buses. Among collaborating local producers, some established a new business channel for retail products as well as for business products through the "Oyatsu TIMES" project, showing the formation of a business model for regional revitalization by taking advantage of the local produce market in the Tokyo metropolitan area. This also led local produce to be acknowledged locally, as seen in the case of produce from Chiba selling about 15 times more in Chiba than in any other area.

Voice of a producer

Noboru Okazaki, Representative Director, Okasyo Co., Ltd. (Fukushima City, Fukushima)

We started producing semi-dried peaches and apples after the Great East Japan Earthquake. We are very glad that "Oyatsu TIMES" items with these products are well-accepted by customers. The sales and factory utilization have significantly increased and we would like to contribute to local agricultural promotion through these products using fruits locally produced in Fukushima.

Fukushima Semi-dried peach

Fukushima Semi-dried apple

VOICE

Expansion of local produce market contributes to increase in tourists

Natsumi Abiko
Life-style business development headquarters, Business strategy division, General affairs and planning group

When involved with the local produce market "NOMONO," we encounter a lot of appealing local produce. Our wish to familiarize customers with this appeal led to the creation of the local produce snack brand "Oyatsu TIMES". However, there is a large sensibility gap between the local markets with their products of strong local flavor and the Tokyo metropolitan area market, and we were afraid that the efforts of the producers and logistics companies would simply not be enough to bridge the gap.
So we came up with an idea to overcome this challenge: Make the products a private brand, expanding the market while lessening producers' burden by putting JR East Group in charge of developing products and securing marketing channels. First, we formed the "NOMONO Direction Unit," a professional product development group, to bridge the gap between the production areas and the Tokyo metropolitan area.
These efforts worked well and "Oyatsu TIMES" has hit a sales record larger than expected within six months from its release, and this has brought success to both regional producers and the JR East Group. The producers could discover people's tastes in the Tokyo metropolitan area, and were happy because it not only increased their sales but also led to regional revitalization. The JR East Group could also open up a new market of local produce targeting people in their twenties and thirties. I was very glad when I found out that "Oyatsu TIMES" became a hot topic on the internet.
Another big challenge was how to deliver the products. Long-distance delivery from production location to each store is necessary to sell local produce in the Tokyo metropolitan area. The problem was solved by utilizing open space in the trunks of highway buses operated by the JR East Group. In addition, producers only needed to bring products to the bus stop, and JR East took charge of sorting and delivery afterward. The system cuts the time and effort of producers for delivery to each store and enables them to expand their marketing channels to as many stores as their production capacity allows, which I believe was a big advantage for them.

Behind the reason why regional producers want to expand their marketing channels in the Tokyo metropolitan area lay their hope to increase tourists to the region and their anticipation that if they could cooperate with the JR East Group, which handles the local produce although its main business is railway transport, customers would come. In fact, data shows that about seven percent of customers who used "NOMONO" actually visited the region. We expect that the more a local produce market expands, the more customers will visit the region.
We think "Oyatsu TIMES" was a big step for local produce to penetrate the Tokyo metropolitan area. In the future, we would like to contribute to regional revitalization in various ways, such as by developing collaborative relationships with producers in other regions from the perspective of earthquake disaster reconstruction as well, and developing new signature products in various regions while organizing events that make customers eating the products feel like visiting the place of production.

Ⅱ-2-4 Childcare Support Services HAPPY CHILD PROJECT

JR East Group is promoting the "HAPPY CHILD PROJECT" to create communities where children can be raised free of worry. Opening childcare support facilities such as nursery schools near stations to aid active livelihoods for working ages as well as opening community cafés for parents and children to support formation of local communities and holding various events that both parents and children can enjoy are among such initiatives.

▶Childcare Support Facilities — Support for Working Parents

JR East has opened childcare support facilities such as "nursery schools near stations" located in easily accessible areas usually within a five-minute walk from stations in order to support the combination of childcare and commuting to work. A total of 93 childcare support facilities were opened from 1996 through April 2016, and JR East is continuing to increase the number of these facilities. These nursery schools near stations provide added convenience as they allow parents to drop off and pick up their children on the way to and from work. As evidenced by children who are accompanied to nurseries by their fathers, our childcare support encourages paternal participation in childcare as well.

Nursery school under elevated railway tracks (Ichikawa Doronko Nursery)

Children playing in nursery school (Global Kids COTONIOR Kichijoji)

▶Events for Supporting Childcare

■ Children's Train Craftwork Exhibition

This exhibition, displaying craftworks produced by children attending our nursery schools adjacent to stations, is held regularly in the Railway Museum (Saitama City, Saitama Prefecture). With "trains" as its theme, original, creative and fantastic works created by children are enjoyed by many visitors. It also provides a space for displaying the activities of nursery schools and observing child development.

Sixth Children's Train Craftwork Exhibition

■ Paper-craft Class

Hoping that "children will become more familiar with railways and make many memories with their parents," we are holding "Shinkansen Paper-craft Class," a workshop for parents and children in various locations.

Image of completed paper-craft work

Ⅱ-2-5 Development of COTONIOR

We have opened complexes for childcare support and eldercare themed with multi-generation interaction.
COTONIOR is a coined word from "kodomo (children) + to (and) + senior (senior)" and three COTONIOR facilities have been opened in Kichijoji, Akabane and Nishi-Funabashi.
With a well-thought-out facility layout, seasonal events and such, COTONIOR has created a heartwarming place that brings together a wide range of generations.


COTONIOR Kichijoji


COTONIOR Nishi-Funabashi

Ⅱ-2-6 Cultural Activities

▶East Japan Railway Culture Foundation

In order to continuously utilize its management resources for social contributions, in 1992 JR East established the East Japan Railway Culture Foundation, which became a public interest incorporated foundation in April 2010. This organization has successfully promoted local culture, studied and researched railways, and taken part in international cultural exchanges through our railway business. The Foundation's major activities include operating the Railway Museum, Tokyo Station Gallery, the Old Shimbashi Station building and Old Manseibashi Station, sponsoring local cultural activities and accepting trainees from railway operators in Asian countries.
The Foundation provides information on its website (http://www.ejrcf.or.jp/english/index.html).

■ The Railway Museum

On October 14, 2007, Railway Day, the Railway Museum based on three major concepts was opened in Saitama City. It was designed to be a museum that systematically conducts surveys and research using railway-related heritage and reference materials, a history museum that depicts the history of railways focusing on exhibits of locomotives and cars, and an educational museum where visitors can learn about railway principles, systems and technologies through hands-on experience. Since its opening, The Railway Museum has proved to be a great success, attracting about 850,000 visitors in the fiscal year ended March 2016. Going forward, with planned renewal work of building interior and construction of a new building, section by section opening will take place followed by a grand opening scheduled in summer 2018.

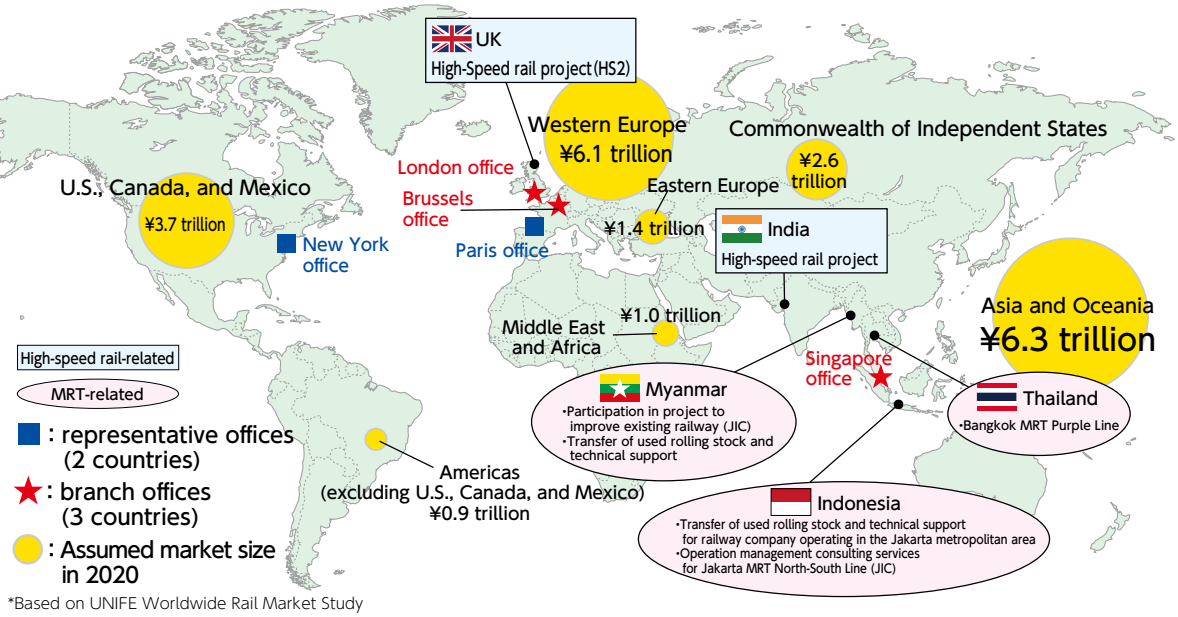
The Railway Museum

Ⅱ-2-7 Developing Our Business around the World

▶Global Development

In the context of increased awareness of global environmental issues and the economic growth of emerging nations, there is growing interest around the world in railways as an environmentally friendly form of public transportation. At present, railway projects are being considered in many parts of the world, and the global railway market is expected to grow in future by an average of 2.5% per year, expanding in size to around 22 trillion yen in 2020. Given these circumstances, JR East will pursue the global development of our business by collaborating with both domestic and foreign companies while leveraging our expertise in the fields of operations and maintenance (planning, management, support, and implementation relating to train operation, facility maintenance, etc.). In particular, we have identified Asia, which is experiencing dramatic growth, as a priority region and are engaged in railway projects in various countries there. With the aim of collecting information and so forth for these projects, we have established overseas offices in five locations: New York, Paris, Brussels, London, and Singapore.
We are pursuing our global business development by working together as one group. In November 2011, partnering with a domestic railway company which possesses an extensive track record and expertise relating to high-speed railways, urban railways, and freight railways, we launched Japan International Consultants for Transportation Co., Ltd. (JIC) to handle our railway consulting business around the world. JIC is currently actively developing international railway consulting projects. In addition, Japan Transport Engineering Company (J-TREC) was added to the group in April 2012. We are working to expand our share of the international market by aiming to participate in various railway projects around the world while collaborating with both domestic and foreign companies.

■ Locations of International Railway Projects and Overseas Offices



*Based on UNIFE Worldwide Rail Market Study

▶International Cooperation

Based on requests and commissions from the Ministry of Land, Infrastructure, Transport and Tourism, the Japan International Cooperation Agency (JICA), and others, JR East is developing international cooperation initiatives, such as dispatching railway experts to Asian countries, introducing the technology and expertise we have built up over time, and receiving trainees from developing nations to provide them with specialized training. Moreover, JR East actively offers railway-related professionals from overseas the opportunity to observe our operations; in FY2016, we hosted some 1,400 observers from around 50 countries worldwide. These observers included government and railway representatives from various nations as well as researchers from foreign universities and organizations. Their visits play a valuable role in promoting mutual understanding.

Exchange program with Deutsche Bahn (Tokyo General Rolling Stock Center)

Tour for ambassadors to Japan and foreign media (Shinkansen General Rolling Stock Center)

▶Global Contribution through International Institutions

In addition to actively collecting and providing information through international conferences and publications by the International Union of Railways (UIC), the International Association of Public Transport (UITP), Community of European Railway and Infrastructure Companies (CER), the Association of American Railroads (AAR), the American Public Transportation Association (APTA), and other international railway organizations to which JR East belongs, we have been working toward the global development of railways and the resolution of railway-related issues through serving as chair of the UIC Asia-Pacific regional assembly since January 2013 and President and Director of the UITP Policy Board since June 2015, and other activities.
In order to showcase features of Japanese railway systems to overseas railway-related parties, we have been actively participating in overseas trade shows, seminars and so on as well as extending invitations for international conferences. In July 2015, we held the "UIC World Congress on High Speed Rail," the world's largest international conference and exhibition focusing on high-speed railways, in Tokyo in collaboration with UIC.

June 2015: Vice-Chairman Ogata appointed as President of UITP (Italy)

The 9th UIC World Congress on High Speed Rail (Tokyo, July 2015)

▶Providing Technical Support to Overseas Railway Operators

In Jakarta, the capital of the Republic of Indonesia, there is extreme traffic congestion, and public transportation infrastructure is being developed to address this issue. Since the carrying capacity of existing railways also needs to be enhanced and there is an urgent need for new rolling stock to be introduced, we are transferring rolling stock that has been withdrawn from service in the Tokyo metropolitan area to the railway company that operates the Jakarta metropolitan area's MRT (PT KAI Commuter Jabodetabek), as well as providing technical support for rolling stock maintenance and training crew. In the three years since 2013, we have transferred a total of 476 trains to PT KAI Commuter Jabodetabek—most recently, 205-series trains previously used on the Saikyo Line. As a result, around one-half of the rolling stock owned by the company is now 205-series trains transferred by JR East.
Similarly to Indonesia, since 2007 we have also been transferring rolling stock to Myanmar Railways, which operates passenger trains and transports freight throughout the Republic of the Union of Myanmar. In 2015, we transferred 19 diesel railcars (Kiha 40 series/Kiha 48 series) that had been used in the Tohoku and Niigata areas. At the same time, we dispatched employees to Myanmar to provide maintenance-related technical support that would ensure stable operation of the transferred rolling stock.


Transferred 205-series train


205-series train in service in Jakarta following transfer to PT KAI Commuter Jabodetabek


Technical support from crew


Diesel train transferred to Myanmar

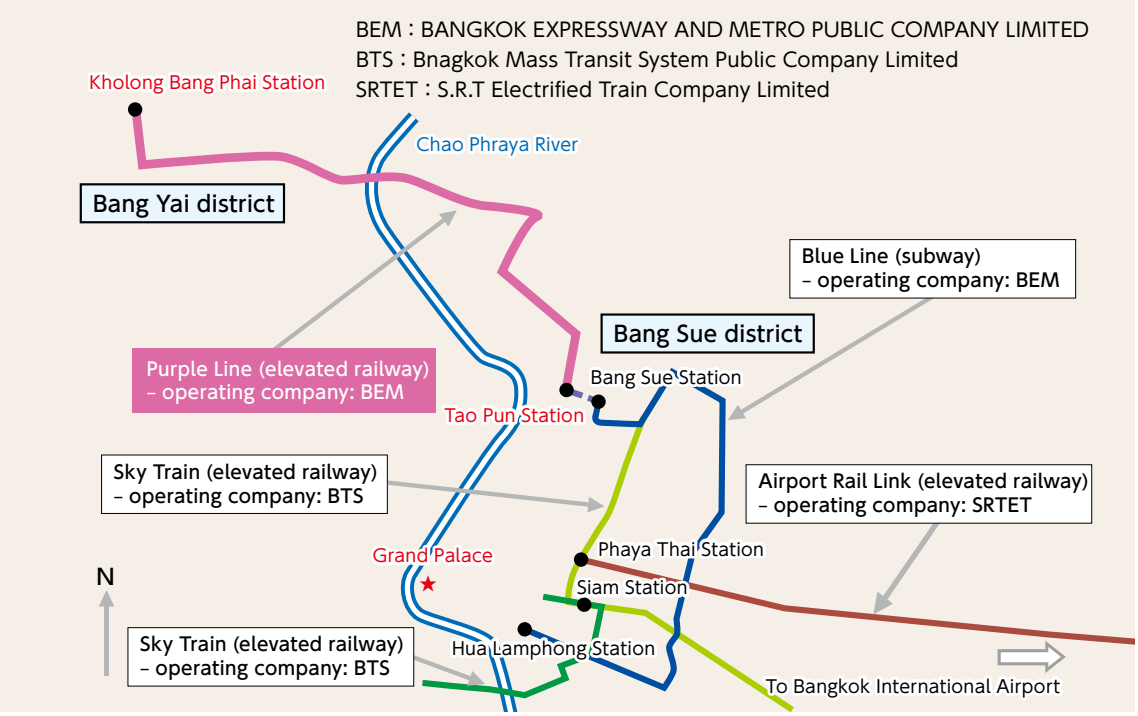
▶Participation in Thailand's Purple Line Project

We are also involved, along with Marubeni and Toshiba, in a project to provide comprehensive maintenance for rolling stock and ground installations for the MRT Purple Line being constructed in Bangkok, Thailand.
The Purple Line is a railway line in Thailand's capital of Bangkok intended to link the Bang Sue district in the northern part of the city to the Bang Yai district in the northwestern suburbs, which began operation in August 2016. In December 2013, through a joint investment with Marubeni and Toshiba, we established the maintenance company Japan Transportation Technology (Thailand) Co., Ltd. (JTT) in Bangkok. It will provide maintenance services for a ten-year period, including the rolling stock, signals, tracks, power systems, platform doors, automated fare collection system, and rail yard facilities. In addition, Japan Transport Engineering Company (J-TREC) has manufactured stainless-steel rolling stock for use on the Purple Line, delivering a total of 21 train-sets (63 cars).



The first day of operation

■ Bangkok Urban Transportation: Route Map



▶Participation in International High-Speed Rail Projects

With the aim of participating in high-speed rail projects in various countries, we are working through public-private partnerships to promote the safety, reliability, and comfort of Japan's Shinkansen and winning contracts. The U.K. is currently developing the High Speed Two (HS2) high-speed rail project. Announced by the U.K. Department for Transport in January 2009, HS2 is a new high-speed railway project with a total length of 530 km, with construction of a the Phase One (the section linking London and Birmingham) and the Phase Two (Y-shaped section linking Birmingham to Manchester in one direction and Leeds in the other direction) planned. We provided consulting on administrative and technical issues and the creation of an operating plan to HS2 (High Speed Two Ltd.), which is the main development company.

▶Participation in Indian High-Speed Rail Project

On December 12, 2015, the governments of Japan and India, based on the summit meeting between Prime Minister Abe and Prime Minister Modi and joint declaration published the same day, signed a Memorandum of Understanding between the Government of Japan and the Government of the Republic of India for cooperation relating to the development of a high-speed railway system, which agreed that Japan's Shinkansen technology would be adopted for a high-speed rail project between Mumbai and Ahmedabad. At present, the governments of Japan and India are discussing matters relating to an Indian high-speed railway, such as the specific development plan. Through a public-private partnership arrangement, JR East is providing technical support for these discussions, based on our extensive experience as a Shinkansen operator.
In addition, in March 2016, one of the companies in our group, Japan International Consultants for Transportation (JIC), was commissioned by JICA to provide consulting services relating to the formulation of high-speed rail technical standards through the Indian High-Speed Railway-Related System Development Support Project, which is currently ongoing. We have also enhanced our internal organization through measures such as appointing executives with responsibility for the Indian high-speed rail project.

VOICE

Realizing the high expectations of people in other countries for Japanese rolling stock.

Akihito Takeshiro

International Business Promotion Department,
International Business Division
Japan Transport Engineering Company

In the domestic projects that I have been involved in to date, our work as a maker of rolling stock finished when the trains we manufactured were delivered to the railway company. However, in the case of the Purple Line Project, since it is a newly opened railway in another country, it required serious alignments between rolling stock and related facilities, such as ground installations (stations, tracks, etc.) and rail yards. It was my first experience of this kind of work. In the past, I had only needed to think about rolling stock when doing my work, but on this project, I was reminded that rolling stock operates as part of various systems, including ground installations.

The work I am in charge of is mainly on-site coordination and drafting of plans. I observe the unloading of rolling stock from the ship at the dock in order to verify its condition, conduct tests on site after it is transported from the dock to the rail yard, and handle coordination and negotiation with the companies responsible for constructing ground installations and rail yards. In addition, while our company is a rolling stock manufacturer, we also handled work such as shunting of rolling stock inside rail yards and maintenance, so I formulated plans for rolling stock shunting and test runs on the main line, based on the maintenance plans.

I am currently employed at a rail yard, where my work involves collaborating with many different companies, such as the operator Bangkok Expressway and Metro Public Company Limited (BEM) and the maintenance company Japan Transportation Technology (Thailand) Co., Ltd. (JTT). Since this is the front line of train operations, unlike in the past, when my job was done entirely on the premises of the rolling stock manufacturer, I now need to think about safety and precision from a train operation standpoint while doing my work. If some kind of problem occurs, I immediately coordinate with JTT as well as the operator BEM to share information in a timely manner.

When test runs began in earnest in Thailand, a grand ceremony attended by the Prime Minister and various government officials was held. Everyone who observed the rolling stock or went on board commented on its spacious, bright, clean interior and said that they hoped it would be ready for operation soon. I was reminded that people in other countries hold Japanese rolling stock in high regard.

The project finally entered into service after overcoming various challenges. I have been working on it for three years, and the time seems to have flown by. Now that the line has begun operation, various further actions will be required, such as maintenance, and we will do our best to fully leverage the cumulative experience of the JR East Group to ensure that the people of Bangkok continue to view Japanese trains as special. Moreover, in the future, we plan to draw on the experience we have gained while working on this project to participate in new projects being planned around the world.

Akihito Takeshiro (second from left)

VOICE

Using Japan's railway technology to resolve social issues in other countries.

Takeshi Omori

Project Director
Japan Transportation Technology (Thailand) Co., Ltd.

In Thailand, where economic growth is proceeding at a rapid pace, traffic congestion in the capital of Bangkok is a serious problem, and development of an environmentally friendly, reliable MRT system is a pressing issue. The MRT Purple Line, which leverages our group's comprehensive technical capabilities in the areas of rolling stock manufacturing and maintenance, was opened in August 2016. We are confident that the Purple Line can make a definite contribution to resolving Thailand's traffic problem. It is not just a railway line that has opened; condominiums, large-scale shopping centers, and so on are being developed along the line in Bangkok at the same time, while the establishment of park-and-ride facilities at multiple stations has increased transportation efficiency. As a result, the Purple Line may be expected to not just ease traffic congestion but also contribute to the region's economic growth.

Japan Transportation Technology (Thailand) Co., Ltd. (JTT), where I work, is a joint venture established in Bangkok by JR East along with Marubeni and Toshiba that provides comprehensive maintenance services for rolling stock and ground installations on the Purple Line. It is the first case of a Japanese consortium including a railway operator participating in a railway project overseas. As of August 2016, 16 employees (including me) had been assigned to JTT from JR East. During the nearly three years since the company was founded, we have prepared for the opening of the line in various ways, such as reviewing maintenance details, creating operating manuals, and recruiting, educating, and training local personnel.

What I have really noticed through my day-to-day work is that when there is an assumption of tacit understanding on our part, it leads to misunderstandings and accidents. It is therefore necessary to create a huge number of documents that specify all kinds of information. I am now also conscious of the need to explain things clearly on a regular basis. In addition, unlike Japan, where there is a strong tendency for workers to stay with one company for a long time and advance their career within it, workers in Thailand tend to pursue career advancement by moving to different companies. We have therefore adopted a systematic approach using manuals as the basis for employee training while still retaining the benefits of Japan's employee training system, which emphasizes on-the-job training. Since the Purple Line project has a complex structure, such as separate contracts for rolling stock operation and maintenance work, a lot of effort was required to coordinate the many people involved.

The personnel dispatched from JR East to JTT are mostly mid-level employees, and while it is a struggle to adapt to an unfamiliar system and deal with non-Japanese manufacturers, there is also a sense of fulfillment and personal growth when you realize "I can do something today that I couldn't do yesterday" or "I understand something now that I didn't understand before." What's more, I feel that the experience I have acquired through this project will improve my ability back in Japan.

Going forward, we will continue to take advantage of this outstanding opportunity to give the people of Thailand a favorable impression of Japan and make it our mission to leverage the technology developed by the JR East Group and Japan's railways, along with Japan's excellent on-site capabilities.

Ⅱ-3 Relationship with Employees

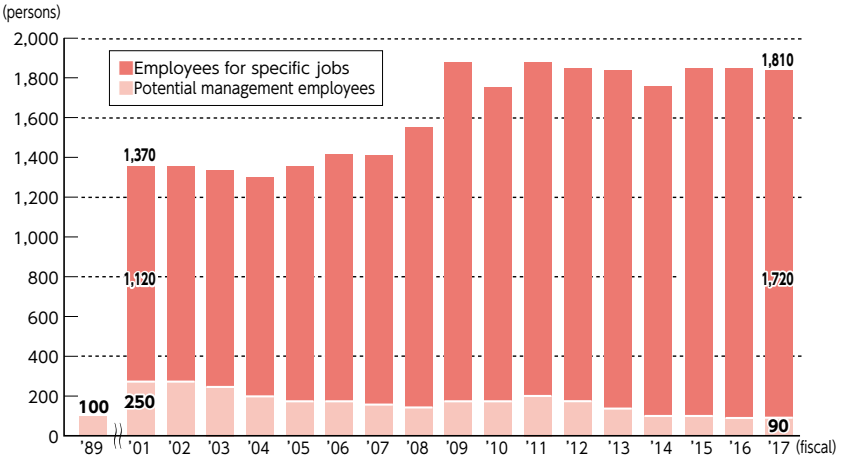
Ⅱ-3-1 Demonstrating the power of human resources

In order to ensure safe and reliable rail transport and provide services that will satisfy customers, it is vitally important for us to create an environment where JR East's personnel can fully exercise their abilities.
We also have to face the fact that society is in a continual state of change, and this includes both the awareness of working people and their working environments. As a result of this, we believe that JR East must constantly respond to the motivation of all our employees as they work to meet their responsibilities, and thereby bring about improved safety and increased customer satisfaction.
JR East continues to work to provide an environment in which all employees can enjoy their jobs while constantly striving to attain even higher goals. To that end, we are determined to face the challenge of creating a company where people grow through their work from the perspectives of how to respond to the motivation of each employee to meet challenges, how to ensure a suitable work-life balance, and how to make full use of the diversity of our human resources. Specifically, the company advocated reforms to its culture, including opening up our organization to young employees and giving increased opportunities for motivated people to apply for inclusion in training and other new projects, exchanging people with other companies, and passing on technical knowledge and skills to the next generation.

▶Recruitment Track Record

The main support of JR East is found in the capabilities of each and every employee. Our basic philosophy is to employ people based primarily on their personalities and abilities and then to steadily nurture them until they reach the full flowering of their abilities. Because of the large number of employees reaching retirement age, we have recruited about 1,800 new employees in the fiscal year ending March 2017 to fulfill the need to transfer knowledge and technologies to the next generation and to continue operating the business.

■ Number of new employees by fiscal year



▶Skills Development・Training

The development of human resources and the steady and continuous introduction of new technologies and skills are vital to the sustainable growth of the JR East Group. Based on a perspective of nurturing quality through work, we are striving to enhance the organizational power of the Group and to develop human resources capable of shouldering the burdens of the future.
With this in mind we constantly conduct training programs at our General Education Center and in branch offices and hold many kinds of seminars at our Head Office. And as part of our support for all employees to set their own challenges for self-education and to thereby heighten their abilities, we offer both internal and external correspondence courses. The internal courses are aimed at the acquisition of knowledge and skills directly connected to our employees' duties, while the external courses are connected to indispensable business skills and knowledge, including management know-how, qualifications acquisition, languages, and office automation.

▶My Project

In order to encourage our employees to face the challenges of taking the next steps in their careers, in January 2011 we upgraded our small groups and proposal activities and initiated the My Project program. This program is comprised of three aspects: self-starting, freedom of method and importance of process, with the fruit being the employee's personal growth. The project is based on the belief that working for personal improvement is an opportunity for the fostering of human resources, and, thereby, aims to nurture employees capable of thinking and acting independently.

▶JR East Technical Academy

In order to motivate our young employees and encourage them to develop into professionals capable of playing leading roles in all fields of railway technology, we established the JR East Technical Academy in March 2009. The 7th year class which started in March 2015 includes 61 employees from 12 technological fields; 8 of them are from Group companies and partner companies, and 5 are participating only in some programs as listeners. They will be working together as a group for one year to improve their technical capability and strength. The program has been designed to enable participants to thoroughly learn the theory and structure of their individual professional fields as well as to provide them with a comprehensive overview of railway technologies and systems in general. Through research at universities and from practical training sessions at manufacturers, furthermore, we hope to enable all participants to acquire a broad range of knowledge.

▶Skills Training Centers: Develop engineers for future railway transportation

Integral to our efforts to ensure that experienced employees pass on their technologies and skills to the next generation of technical staff who will carry the responsibilities for railways in the future is our establishment of skills training centers designed to support the continuity of railway-specific technologies and skills in individual workplaces. We have established 104 centers by also making use of existing training facilities. In our skills training center for rolling stock maintenance, for example, railway car component mockups (power collection equipment, door opening-closing devices, and braking equipment) have been set up, while in our facilities maintenance section, railway facilities (tracks, turnouts, platforms, overhead line equipment, signals, etc.) have been installed, so training sessions can take place in virtually real environments.




Training at skills training centers

II-3-2 Promotion of Diversity Management

Based on the recognition the strength of JR East lies with the diversified viewpoints and differences in values that reflect gender and other attributes, experience and skills possessed by employees and others working at the JR East Group, we promote "diversity management" with an aim to create a company group where such diversified personnel can exert their capabilities to the fullest.

▶Efforts on globalization of corporate culture

In addition to the overseas study program for obtaining MBA, etc. which we have been offering for some time, "overseas experience program" (for around 100 people), in which employees are dispatched to various cities in the world (including non-English speaking countries) for three months to experience local culture through mainly learning the language while in homestay, is conducted. There is also "overseas railway consulting OJT training program" (for around 30 people), in which employees participate in an overseas railway consulting project centering on Japan International Consultants for Transportation Co., Ltd. for about three months. Other programs include overseas training (for about 500 people) taking place mostly in Southeast Asia, and altogether more than 600 employees are provided with opportunities to experience overseas every year. Many front-line employees participate in these overseas studies and trainings with the motivation.

OJT trainees (Myanmar)

On top of the above, we are working to improve language skills of our employees to meet the needs of foreign visitors, who have been increasing in number, and are encouraging them to take the TOEIC® test at the expense of the company (once a year). Not only this, we have established "Challenge! Foreign Language Program," a correspondent training system, to learn Thai, Indonesian and Vietnamese.
Furthermore, we are focusing on recruiting foreign nationals as both potential management employees and employees for specific jobs.

▶Promoting Involvement of Female Employees

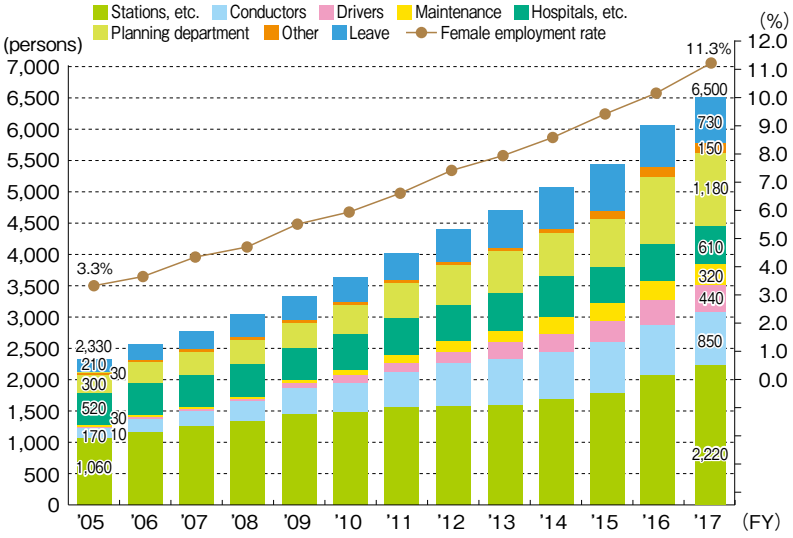
As many employees are working under an irregular work schedule, we have positioned involvement of female employees as a key test for diversity and have been strongly pursuing such with focused efforts. As a result of various measures centering on expanding the positions available to women, including appointment as crew, in order to realize gender equality since our establishment, all positions now have working female employees. In accordance with prolonging the careers of female employees, we will swiftly implement necessary measures with an eye to cultivate personnel capable of playing an active role in management going forward. Specifically, we have set the following targets for each stage of "employment," "development" and "appointment."

JR East was certified as an "Eruboshi" company (the highest rank, Grade 3) from the Ministry of Health, Labour and Welfare based on the Act of Promotion of Women's Participation and Advancement in the Workplace.

■ Targets for promoting involvement of female employees

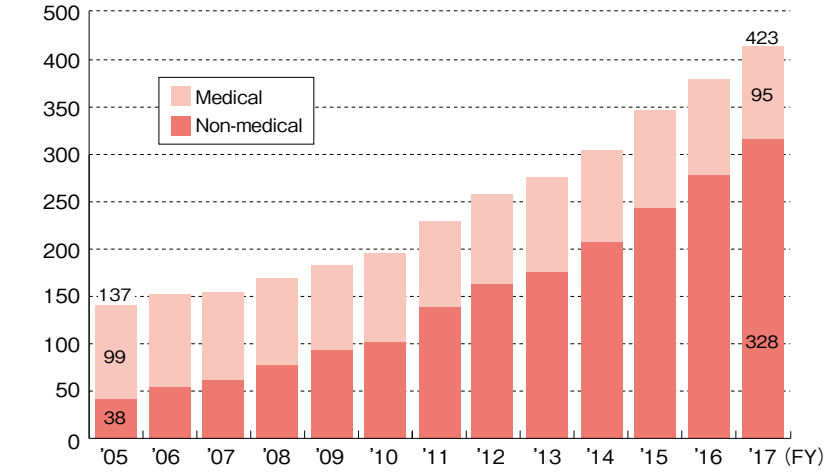
・Aim for a female new graduate employment rate of over 30% by the end of FY2019.
Of the recruited, aim for 40% in the rate of female employees who wish to become crew in the future.
・Develop an environment where diversified working styles are accepted and all employees can continue working with enthusiasm.
・Aim for a female manager rate of 5% by the end of FY2019.
As of April 1, 2016, the number of female employees at our company is 6,501 (11.3% of all employees) and the number of female managers is 152 (3.7% of all managers). The number of female employees occupying important positions such as deputy general managers at the head office and branch offices, supervisors of facilities in the field (station managers, etc.), and directors of group companies is on the rise. As of June 23, 2016, we have appointed one female outside director and two corporate officers.

■ Expansion of Employment Opportunities for Female Employees



■ Changes in Number of Female Managers Over Time

*Including clerical work-related deputy managers, field work-related assistant managers, medical work-related head nurses, etc.



▶General Business Operator Action Plan

JR East has formulated the "4th phase general business operator action plan" based on the "general business operator action plans" in line with the Act of Promotion of Women's Participation and Advancement in the Workplace and on the Law for Measures to Support the Development of the Next Generation.
Duration: April 1, 2016– March 31, 2019
In November 2008 and in August 2012 we were certified by the Minister of Health, Labour and Welfare as a company supporting the upbringing of the next-generation of children.

Next-generation certified logo ("Kurumin")

▶Employing Persons with Disabilities

As of June 2016, 2.46% of our workforce consisted of employees with disabilities. These members of our staff work alongside other employees in a broad range of positions. We further increased our ability to employ people with disabilities in April 2008, when we established JR East Green Partners Co., Ltd. which was charged with the task of promoting their employment and helping us meet our social responsibility to improve the work environment for such employees. The company was certified as a special subsidiary in May 2009.

JR East Green Partners Co., Ltd.

JR East Green Partners, a special JR East subsidiary, was started in April 2009 and charged with the task of overall management of uniforms used in JR East. Since then, the subsidiary has begun additional business such as printing and tree planting maintenance and management, in our continued efforts to expand work opportunities for people with disabilities.
In addition to organizing the employment of people with disabilities, JR East Green Partners now cooperates with support organizations and special support schools and provides work training opportunities for disabled persons wishing to secure corporate positions. By carrying out a broad range of activities, the company supports the entire Group in the fulfillment of its social responsibilities.

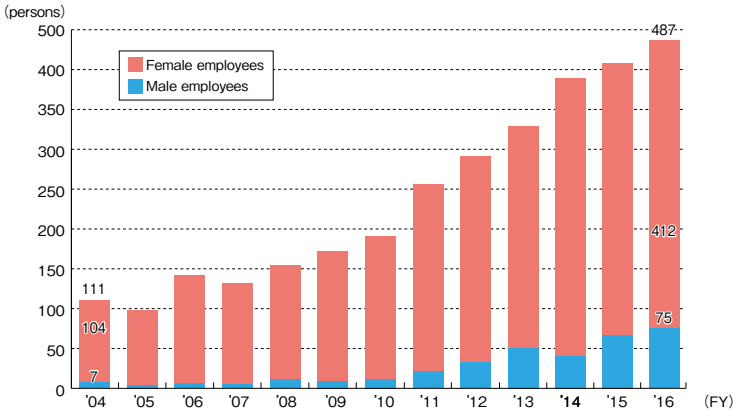

Uniform sorting


Plant maintenance in collaboration with local communities

▶Support the balance between work and childcare/nursing responsibilities

Based on the concept of increasing the options for achieving the balance between work and childcare/nursing, regardless of occupation, JR East introduced "Shorter Working Hours" in FY2011. In this program, all employees are eligible for shorter working days (six daytime hours) until their child reaches three years of age.
In addition, we also introduced "Fewer Working Days." In this program, employees with children who have not reached the third grade of elementary school are entitled to four days a month as days off. Furthermore, both "Shorter Working Hours" and "Fewer Working Days" were made applicable to "nursing" (care of other family members), and are now called "Working with Childcare/Nursing A" and "Working with Childcare/Nursing B." We also revised programs, such as extending the availability of childcare leave to the time when the child reaches three years of age and expanding the scope of coverage of "parental leave" (entitled to take up to five days off a month for taking care of a child) and "sick/injured child care leave" (entitled to take up to five days off a year for looking after a child in the event of the child's sickness or injury; ten days permitted for those with two or more children), which also applies until the child reaches the third grade of elementary school. In this manner, there is a growing range of options for ways of working during childcare/nursing periods.

■ Changes in Employees Taking Childcare Leave



*Data includes only the number of regular employees and does not include that of green staff or non-regular employees.

■ Changes in Employees Opting to Work Shorter Hours or Fewer Days

A = Working shorter hours
B = Working fewer days

Gender	2010			2011			2012			2013			2014			2015			2016		
	A	B	Total	A	B	Total	A	B	Total	A	B	Total	A	B	Total	A	B	Total	A	B	Total
Male	2	2	4	2	4	6	2	2	4	2	0	2	5	6	11	2	10	12	1	9	10
Female	27	29	56	60	44	104	80	74	154	105	98	203	103	154	257	125	176	301	136	200	336
Total	29	31	60	62	48	110	82	76	158	107	98	205	108	160	268	127	186	313	137	209	346

Concrete action example

●Established workplace nursery schools (two in Tokyo and one in Sendai) and a hospital nursery school (JR Tokyo General Hospital)

●Implementing a seminar to support the achievement of the balance between work and home life (childcare/nursing)

A seminar for supporting the achievement of balanced work and home life (childcare)

Seminar to promote understanding of in-house systems and to support return to work

▶Welfare and Other Programs

We are also dedicating efforts to the establishment of welfare and other various programs, including annual paid leave, in order to support employees so that they may work with enthusiasm, feel challenged and have job satisfaction, and thereby demonstrating their fullest potential.

Average number of days of annual paid leave taken	Average rate of annual paid leave taken
17.9 days	Approx. 91.8% of allowed annual paid leave was actually taken

(for the fiscal year ended March 2016)

▶Elder Employee System

During the fiscal year ended March 2009, JR East introduced the Elder Employee System that encourages employees who have reached retirement age to continue working for Group companies that can benefit from their individual capabilities and skills. This is done by approximately 80% of the eligible employees.
This plan enables retired employees to stabilize their lives until they reach their fully pensionable ages, as well as encourages them to continue to contribute to our Group-wide accumulation of know-how.

Ⅱ-3-3 To Improve Working Environment

▶Mental Health Care

In order to maintain and improve the mental health of our employees, we believe it is vitally important for all our employees to recognize stress in their everyday lives and deal with it promptly as well as for the managers to take appropriate actions. Therefore, we are taking various support measures, such as the distribution to all employees of a pamphlet about self-care to increase their awareness of this problem. We have also set up a counseling service in conjunction with a JR East medical facility and, through this, respond individually to our employees' needs. In order to promote front-line care in the workplace, beginning in the fiscal year ended March 2008, we also organized training programs for onsite supervisors. In addition, following the partial amendment of the Industrial Safety and Health Act, we will offer a stress check to all employees starting from FY2017 to grasp the amount of mental stress employees are under.

▶Promotion of Health Measures

In order to maintain/promote health of employees, we provide influenza vaccination (FY2016: vaccination rate of 78%) for all employees, complete medical checkup for those 35 years old or over, gynecological exams (for breast cancer and uterine cancer) for women under 35 years old aiming for early detection of diseases unique to women, special health checkup/special health guidance as lifestyle diseases prevention by health nurses of directly operated medical institutions, etc. and such.

▶Human Rights Enlightenment

In order to educate our employees in the necessity for enhanced human rights, we have established a human rights enlightenment promotion committee in the Head Office.
Specifically, the activities of this committee include human rights seminars for officers and employees of JR East Group and for those in charge of human rights enlightenment in organizations and Group companies. To propagate human rights awareness, it also conducts lectures on human rights enlightenment in training sessions attended by new recruits, new train crews, work-implementation managers, and new managers.


Human Rights Seminar

Furthermore, human rights education both for our employees and for their families has been promoted through articles spotlighting human rights problems that could occur in our environment that appear in our newsletter.
We have also joined the Industrial Federation for Human Rights, Tokyo, and are conducting human rights enlightenment activities externally along with information exchanges and mutual enlightenment discussions with member companies of the Federation.

Special Topic Ⅳ Employee Development Initiatives

During this time of sweeping changes, the JR East Group is striving to develop employees and create a corporate culture that maximizes human potential, based on the belief that the growth of individual employees is essential to the growth of the Group. We have established many opportunities for motivated employees to apply themselves and tackle new challenges, such as in-house and external training and seminars, cross-industrial exchange training, e-learning, the Technical Academy, and an open application system for new positions, so that they may experience personal growth and fulfillment through their work.
In addition, with a view to expanding employees' fields of activity and cultivating open-minded individuals through active exchange inside and outside the company, we are working to develop personnel with a global perspective through various initiatives—for example, we dispatch around 600 employees per year overseas through our long-term and short-term exchange programs (domestic and international), training abroad opportunities, and Ever Onward global HR development program. Through these diverse programs, we are striving to establish a company ethos that encourages each individual employee to value challenges with a can-do attitude, create a corporate culture that is open to the world, and cultivate a wide variety of broad-minded human personnel.


The Technical Academy


Overseas experience program


Training for new recruits


Practical Management Training course to develop future managers

VOICE

Learning not just a language but also the importance of taking prompt action.

Katsuhiro Ishikawa
Oyama Rolling Stock Center
East Japan Railway Company

In 2014, I applied for an internal overseas training opportunity and spent three months in Brighton, a seaside city in England, studying English. In addition to acquiring language skills, another purpose of the training was to set personal goals and apply what I learned from my experiences abroad to my daily work. I wanted to use the opportunity to improve my inter-personal communication skills. What really struck me during the experience of studying abroad was that it's extremely important to do things when you have the chance to do them, rather than waiting. In my regular work, I've had the experience many times of putting something off until later because I still had time, then later realizing that I no longer had time for it. While overseas, it was particularly difficult to anticipate how things would turn out, and I found that if I didn't act on an idea as soon as I thought about it, I would ultimately end up not being able to do it. Now, I realize that the more I put things off, the more difficult it will make things for me, and so I have learned to be more proactive in my work.

I also think that the training has made me more confident, in a number of senses. When I was able to feel comfortable conversing with foreign tourists visiting Nikko, I realized that I had not just improved my English ability but became more confident in terms of communication as well. The same applied in my daily work of rolling stock maintenance. For example, when there is a problem with a train running on the main line, you have to think about the best measures to take at the rolling stock center and what order they should be done in, and then take immediate action; otherwise, the situation will steadily get worse. I've now come to realize that it's important to take action no matter what; rather than worrying over what to do, it's better to do something, and if that doesn't work, try something else.

I am a member of a project on providing hospitality for foreign visitors to Japan that is being developed by the Omiya branch, and I have been able to apply what I learned during my time training abroad to this work as well.

The project has implemented activities aimed at providing railway services that are easy for anyone to use by considering the perspective of customers from other countries. For instance, at stations, transferring trains or finding nearby tourist attractions can sometimes be confusing, even for Japanese customers. I've become keenly aware of how difficult it must be for foreign customers to understand. Drawing on my own experience when training abroad, I have tried to look at things from the viewpoint of a visitor to Japan and worked to improve station facilities, better promote tourist attractions, and increase employees' readiness. Going forward, I want to pursue these efforts even further.

If you're considering taking part in overseas training in future, I recommend that you consider language learning simply as the starting point and decide beforehand on other areas that you wish to improve as well. In my own case, three months seemed like it would be a long time, but it ended up going by very fast, so I hope you will take full advantage of the time you have to learn and experience everything you want. If you approach overseas training with a desire to change as a person and a willingness to tackle new challenges, I'm sure that the experience will be a valuable asset in your life.

Environment

CONTENTS

Ⅲ-1 Basic Concept for Ecology Promotional Activities

▶Basic philosophy and basic policies for promoting ecological activities (established May 1992, partially revised in September 2012)

The JR East Group formalized its basic philosophy and policies in 1992 and established activity guidelines in 1996. Our specific environmental protection measures are based on these.

【Basic philosophy】

- The entire JR East Group, as a member of society, will diligently strive to balance global environmental protection with our business activities.

【Basic policies】

- To contribute to creating a global environment for the future through our business activities for our customers and local communities.
- To develop and provide the technology needed to protect the global environment.
- To maintain our concern for the global environment and raise the global environmental awareness of our employees.

▶Activity guidelines for the promotion of ecological activities (established March 1996 and partially revised in February 1998 and September 2012)

1. While working to reduce total energy consumption by enhancing energy efficiency and introducing cleaner forms of energy, we endeavor to reduce CO_2 emissions, a cause of global warming.
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 generation of such substances and adopt environmentally responsible substitutes as much as possible.
3. We ensure the appropriate processing of various types of waste generated at our offices, establishments, stations, trains, and other locations. We strive to recycle waste and to reduce its generation, and to use more recycled and resource-saving products to minimize the burden we place on the environment.
4. We respect the natural environment, which nurtures diversified life, and endeavor to reduce noise and vibrations caused by train operations, thus achieving harmony with the environment along railway lines.
5. We are looking carefully at the impact of railways on the environment once again, in order to enhance the environmental superiority of railways and to spread that awareness throughout the world.

JR East Group CSR Character"ecotal"

In 2013 we created a CSR activities PR character based on a firefly. As a result of internal request for a name, it was decided to be named "ecotal."

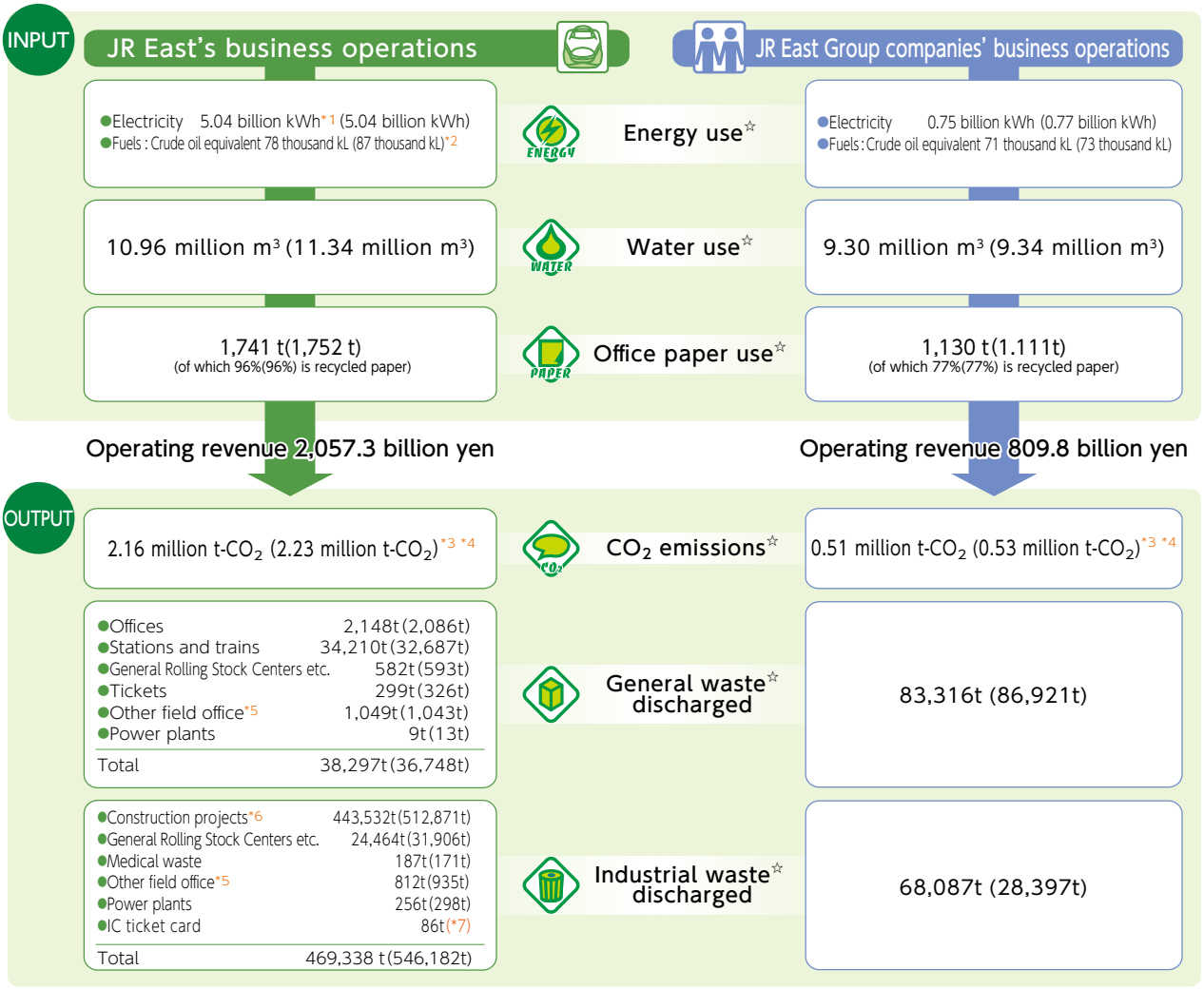
Ⅲ-2 Environmental goal management and progress to date

Ⅲ-2-1 JR East Group's environmental impact

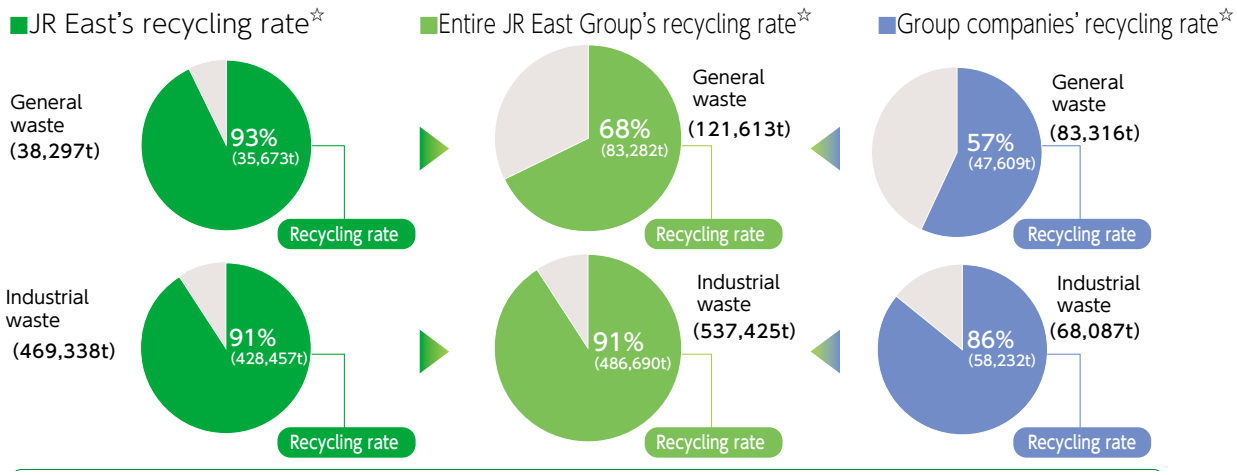
Note: External assurance on environmental performance and environmental accounting data:
KPMG AZSA Sustainability Co., Ltd. has been engaged to provide external assurance on a set of selected environmental performance and environmental accounting indicators so that the reliability of the data is ensured. The particular indicators that are assured are marked with ☆ for clarity.

■ FY2016 Results

(quantities in parentheses are for FY2015)



*1 Electricity: Both electricity generated in JR East's power plants and used internally and electricity purchased from electric companies are included. Please refer to the "JR East Energy flow map" on page 94 for details about electricity generation and use.
*2 Fuels: Natural gas and other fuels used for generating electricity in JR East's thermal power plants are not included.
*3 CO_2 emissions by Scope: Scope 1 emissions of the entire Group is 1.19 million tons CO_2 and Scope 2 emissions 1.78 million tons CO_2. (please see P95)
*4 CO_2 emissions attributable to electricity purchased from external suppliers are calculated based on the adjusted emissions coefficient.
*5 Other field office: Technical centers, equipment maintenance centers, and other locations such as train crew depots.
*6 Construction projects: Waste generated by our construction projects, but for which contractors legally become the waste-discharging entities, is included in industrial waste.
*7 discharge amount of industrial waste such as "IC ticket card" are counted from FY2016.



Waste disposal
・Waste includes salable waste.
・Recycling includes thermal recycling* where general and industrial wastes are incinerated with heat recovery.
*Thermal recycling is a recycling method in which the heat arising from the incineration of waste is used to create steam and hot water, which in turn are used to generate electricity and to produce heat.

Ⅲ-2-2 Environmental goal

▶FY2031 goals

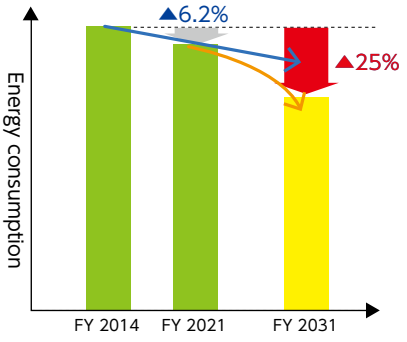
Since 1996, JR East has been conducting environmental conservation activities with a focus on specific goals. Because the latest Conference of the Parties to the United Nations Framework Convention on Climate Change (COP) adopted the Paris Agreement which will be a new international framework for global warming countermeasure after 2020, we set environmental goals which plan to be achieved in FY2031.

Category of environmental conservation activities	Performance indicators	Targets to be met by FY2031
Measures to prevent global warming	Energy consumption from railway business activities	25% reduction (compared to FY2014)
	CO_2 emission volume from railway operations	40% reduction (compared to FY2014)

▶Concept for goals determination

■ 25% reduction of energy consumption for railway operations (compared to FY2014)

To achieve FY2021 goals which aim to reduce energy consumption for railway operations by 6.2% when compared to those of FY2014, we have promoted activities such as the introduction of energy saving trains and LED lighting. Towards realizing FY2031 goals, we pursue achieving a reduction of 25% energy consumption for railway operations (compared to FY2014) by accelerating reduction pace up to FY2021 through activities such as installation of power storage facilities, self-consumption of renewable energy, increasing the introduction of E235 series trains. In addition, energy saving automated driving and also further system innovation such as adoption of high performance battery is to be achieved.



■ 40% reduction of CO_2 emission volume from railway operations (compared to FY2014)

Until now we did not set CO_2 emissions goals because CO_2 emissions goals fluctuate greatly by the increase and decrease of CO_2 emission factors of power companies which purchased carbon emission allowances. In July, 2015 as efforts for low carbonization activities by power companies, targets were announced that emission factors of FY2031 will be 0.37kg-CO_2/kWh. Consequently, we set goals which convert a 25% reduction of energy consumption into CO_2 emission volume including power generated by JR East.

▶State of progress toward FY2021 goals

Energy consumption of the railway business has been steadily reduced by conducting activities such as the introduction of energy saving trains and others. Until now the base year was FY2011, but in accordance with the nation's FY2031 goals, the baseline year was changed to be FY2014.

Category of environmental conservation activities	Performance indicators	Targets to be met by FY2021	Results for FY2016
Measures to prevent global warming	Energy consumption from railway business activities	6.2% reduction (compared to FY2014) 51.7⇒48.5 (billion MJ)	1.7% reduction (compared to FY2014) 50.8 (billion MJ)☆

Incidentally, FY2021 goals which we set regarding CO_2 emission factor for power generated by JR East have already been achieved. This time, we set the total reduction target for CO_2 emission volume and so we did not set a new target for CO_2 emission factor for power generated by JR East.
With respect to the other targets, to date we had set the targets which were to be achieved in FY2017, but some of them were achieved by FY2015. Accordingly we revised them upward and we modified the baseline year for all targets to be FY2014 and targets' achievement year to be FY2021.

Category of environmental conservation activities	Performance indicators	Targets to be met by FY2021	Results for FY2016
Measures to prevent global warming	Electricity used for railway operations per unit of transport volume	Shinkansen: 5.1% Reduction (compared to FY2014) 2.49⇒ 2.36 (kWh/car-km) Conventional Lines: 8.3% Reduction (compared to FY2014) 1.59⇒ 1.46 (kWh/car-km)	Shinkansen: 1.4% Reduction (compared to FY2014) 2.45 (kWh/car-km)☆ Conventional Lines: 5.8% Reduction (compared to FY2014) 1.50 (kWh/car-km)☆
	Energy consumption per unit of floor area at branch offices, etc.	10.0% Reduction (compared to FY2014) 0.0407⇒0.0366 (kL-crude oil equivalent/m²)	6.6% Reduction (compared to FY2014) 0.0380 (kL-crude oil equivalent/m²)☆
	Implementation of more ecoste Model Stations	Total of 12 Stations	Total of 5 Stations
	Change to LED for Platform and concourse Illumination (FY2015 – FY2021)	Introduction of LED 36 thousand units in the 244 thousand units (reduction of 83 million MJ)	Total of 9 thousand units (reduction of 18.5 million MJ)
	Optimization of Large-scale Air-conditioning Systems (FY2015 – FY2021)	10 Locations (reduction of 82 million MJ)	Total of 1 Location (reduction of 1.46 million MJ)
	Reduction Rate of Energy Consumption Intensity of Each JR East Group Company	Every year 1% reduction in Each group company	2.0% reduction by all group companies (compared to FY2015)
Measures for resource circulation	Recycling rate for waste generated at stations and on trains	94%	95%☆
	Recycling rate for waste generated at General Rolling Stock Centers, etc.	96%	93%☆
	Recycling rate for waste generated in construction projects	96%	91%☆
	Implementation Rate of Recycling by Group companies	100%	100%
Environmental management	Setting of numeric targets by Each JR East Group Company	Targets to be revised continually	Established

Targets for Group companies

The previous targets of "less than 75 dB: noise control for the Tohoku and Joetsu Shinkansen (regarding the noise control target area)" were achieved in FY2016.

Ⅲ-2-3 Environmental accounting and management indicators

In FY2016, our environmental conservation costs amounted to approximately 11 billion yen in investments and 15.2 billion yen in expenses. By introducing these new cars, we estimate we will reduce CO_2 emissions by about 17 thousand tons per year.
JR East has its own Environmental Management Indicator to assess the relation between our business activities and environmental impacts. These are calculated by dividing CO_2 emissions, which are a major factor in our environmental impacts, by operating profits, which represent our economic value added. A smaller value of the indicator means that we are making a smaller impact on the environment to create the same economic value added. For FY2016 the value of the indicator was 5.27t- CO_2 /million yen, compared to 9.45t- CO_2 /million yen for FY1991.

■ Environmental accounting for fiscal year ended March 2016☆

( ):FY2015

Category	Environmental conservation costs (billion yen)		Environmental conservation benefits in relation to environmental targets		Economic benefit of environmental conservation activities (billion yen)
	Investments	Expenses			
Environmental conservation (pollution prevention) activities along railway lines	5.17(6.03)	8.40(6.66)	–		–
Global environmental conservation activities	5.87(90.17)	–	Energy consumption from railway business activities Electricity used for railway operations per unit of transport volume Energy consumption per unit of floor area at branch offices, etc.	50.8 billion MJ Shinkansen 2.45kWh/car-km Conventional Lines 1.50kWh/car-km 0.0380kL-crude oil equivalent/m²	13.58(20.77)
Resource circulation activities	–	5.01(4.78)	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 in construction projects	95% 93% 91%	0.92(1.54)
Environmental management	–	0.38(0.42)	–		–
Environmental research & development	–	1.40(1.91)	–		–
Social activities	–	0.03(0.04)	–		–
Total	11.04(96.20)	15.23(13.81)			14.51(22.31)

Notes
Capital investment for the period:
442.2 billion yen
Total R&D costs for the period:
16.9 billion yen
(Consolidated)

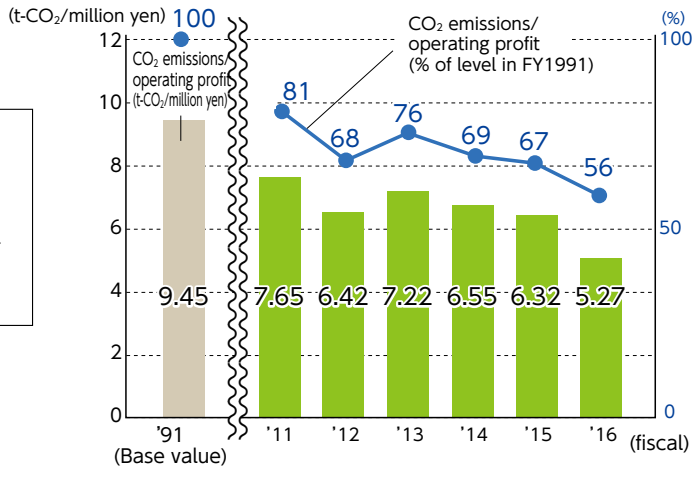
The above table's relations with the table for Targets and Results are as follows:
"Environmental conservation activities along railway lines" ="Environmental activities along railway lines" and "Chemical substance management"
"Global environmental conservation activities" ="Measures to prevent global warming" and" Chemical substance management"
"Resource circulation activities" = "Measures for resource circulation"
"Environmental management" = "Environmental management" and "Environmental communication"
"Environmental research & development" ="Research & development"
"Social activities" =" Environmental communication

(Notes on calculation of environmental conservation costs and benefits)
Environmental conservation costs
○Data are for East Japan Railway Company only (i.e., non-consolidated data).
○Environmental conservation costs are mainly based on data available in the current management system.
○To date, we have declared the total amount of investments in energy-saving rolling stock, but starting from FY2016, we will not declare amounts corresponding to upgrades of aging rolling stock
○Expenses do not include depreciation charges.
○In the costs for resource recycling activities, expenses for treating waste generated at stations and by trains are calculated by multiplying the allocations by the expenses for cleaning stations and train cars, based on a model for cleaning stations and trains.
○In the costs for resource recycling activities, the expenses for treating waste generated through construction projects are calculated by multiplying waste volume for FY2016 by standard unit costs for the type of waste in that region.
Environmental conservation benefit
○Environmental conservation benefits are calculated based on figures set as our environmental targets.
Economic benefit of environmental conservation activities
○Economic 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.
○Income from the sales of waste generated at General Rolling Stock Centers and through construction projects is included in economic benefit of resource circulation activities.

■ JR East's Environmental Management Indicator☆

Environmental Management Indicator

$$= \frac{\text{Environmental Impacts}}{\text{Economic Value Added (EVA)}} = \frac{\text{CO}_2\text{ emissions (t-CO}_2\text{)}}{\text{Operating profit (million yen)}}$$

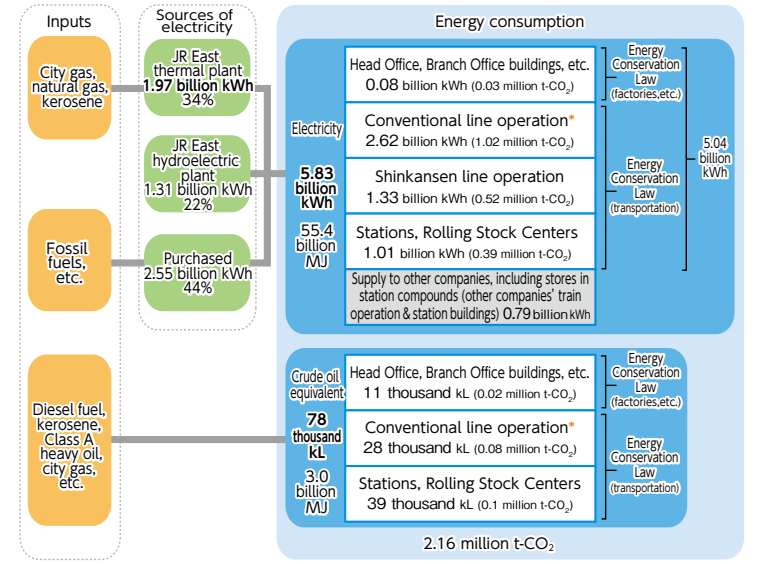


Ⅲ-2-4 Measures to Prevent Global Warming

▶Energy conservation and CO_2 reduction☆

The electricity consumed by JR East for train operations as well as for lighting and air conditioning at stations and in offices is supplied by JR East's own power plants and by electric power companies. Besides electricity, we also use diesel fuel and kerosene for diesel train operation and for air conditioning at stations and in offices. We will strive to save energy for train operation, which accounts for about 80% of our total energy consumption, and furthermore will conduct a variety of energy saving activities even in offices and others.

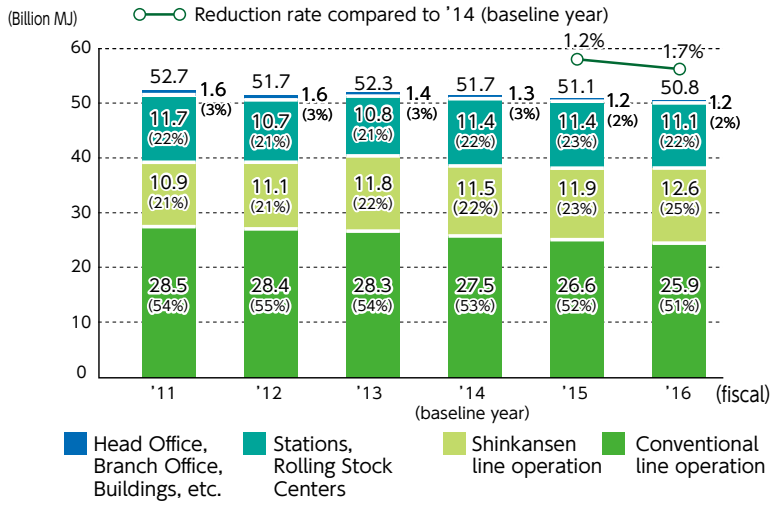
■ JR East Energy flow map



(CO_2 emissions are the amount calculated with 'adjusted' emission coefficients that reflect the credits purchased by electric power companies.)

* Including BRT (Bus Rapid Transit)

■ Composition of energy consumption by JR East



●Boundary

Though, in principle, the boundary for energy consumption is only JR East, it nonetheless includes energy consumption for the applicable operations of the companies with whom we entrust station operations. On the other hand, the energy consumption of shops on station premise which are operated by group companies is not included in the boundary. Thus, we match the boundary for the energy consumption for the entire JR East business with that of transportation, plants and others defined by the Act on the Rational Use of Energy (Energy Conservation Law)

●Calculation method

Energy consumption was calculated by the method defined by the Energy Conservation Law.

●Hydraulic power generated by JR East

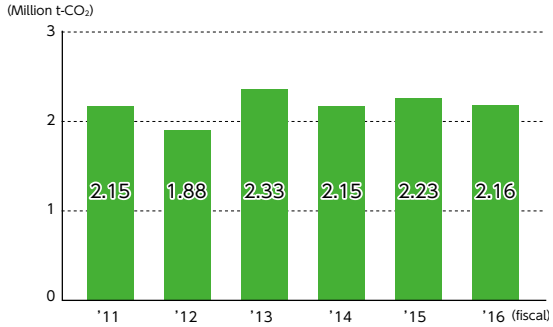
The foregoing energy consumption is calculated by the idea of the Energy Conservation Law, but hydraulic power generated by JR East is calculated by multiplying by 9.76MJ/kWh. As for hydraulic power generated by JR East, reports required by the Energy Conservation Law are reported by the OMJ.

▶Trends in CO_2 Emissions of JR East☆

Our CO_2 emissions in the fiscal year ending March 2016 totaled 2.16 million tons, a decrease of 0.07 million tons over the previous fiscal year. This is due to an improvement in the CO_2 emission coefficient of electric power companies and a reduction in the amounts of kerosene, etc., that were used. As we did in last fiscal year, we are also reporting CO_2 emissions in Scopes 1 and 2 in accordance with the definition of the GHG Protocol*.
From now on we start activities to reduce all CO_2 emissions resulting from our business activities by calculating CO_2 emissions* in Scope 3 and identifying supply chain emissions.

*GHG protocol The standard for calculation and reporting of greenhouse gas emission which was formulated by the organization which was established mainly by the WRI (World Resources Institute) and WBCSD (World Business Council for Sustainable Development)
*Supply chain CO_2 emission Sum of Scope 1, 2 and 3 which is the CO_2 emissions resulting from the whole organization activities of business operations such as raw material procurement, production, capital investment goods, business trip and commuting.

■ Trends in JR East's total CO_2 emissions



●Boundary
The boundary of CO_2 emissions is the same as that for the energy consumption described in p94.

●Calculation Method
CO_2 emissions have been calculated based on the method specified in the Act on Promotion of Global Warming Countermeasures. However, the CO_2 emissions attributable to the purchased electricity are calculated, including those from the electricity used for rail transport, by using adjusted emission coefficients for each electric power company. The CO_2 emissions in the fiscal year ending March 2016 calculated by using actual emission coefficient is 2.16 million tons CO_2, down 0.08 million tons CO_2 compared to the previous fiscal year.

Item	Scope 1	Scope 2
FY2016 Emission Volume	1.06 million tons CO_2	1.45 million tons CO_2

Scope 1… CO_2 emissions directly attributable to fuel consumed in the operation of diesel railcars and the operation of JR East's thermal electric power plant.
Scope 2… CO_2 emissions indirectly emitted from the use of electricity purchased from electric power companies.
Scope 3… CO_2 discharged by the other companies which are related to our business activities

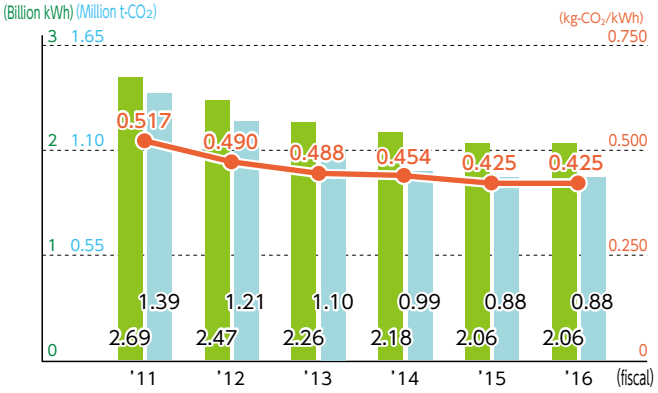
*The sum of the Scope 1 and Scope 2 emissions and the total CO_2 emissions do not match, since the former includes emissions associated with the production of electricity supplied to other companies.

▶Thermal Power Plant of JR East☆

JR East operates a thermal power plant in Kawasaki City, Kanagawa Prefecture, with a total capacity of 741 MW. The plant uses combined-cycle power generation units* with improved efficiency and switched fuel from oil to natural gas when the plant was renovated to reduce CO_2 emissions. In addition to the start of operation of No. 4 plant in April 2014, investigation and designing for renovation of No. 1 plant are underway for commencement of operations in 2021.

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

■ Power generation and CO_2 emissions at thermal power plant of JR East



Power generation (Billion kWh)
CO_2 emissions (Million t-CO_2)
CO_2 emissions per unit of electricity generated (kg-CO_2/kWh)

●Calculation method
CO_2 emissions from the thermal power plant of JR East are calculated based on the method stipulated in Act on Promotion of Global Warming Countermeasures

●CO_2 emission factor of all power generated by JR East (thermal power and hydraulic power)
Emission factor adjusted in FY2016 was 0.277 (kg-CO_2/kWh)

▶Reducing energy consumed for train operations☆

We are putting into service 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.
In the fiscal year ending March 2016, JR East had 11,755 energy-efficient railcars in operation. This accounts for 94.5% of our railcar fleet.

E235 series:
New rolling stock models equipped with state-of-the-art train information management system were introduced on the Yamanote Line

E7 series:
The Hokuriku Shinkansen that incorporates the highest level of cutting-edge technology

E233 series:
VVVF inverter cars for commuter and suburban transportation

▶Diesel-powered, electric-motor-driven hybrid railcars and the accumulator railcar train

The Kiha E200 type cars, which entered service on the Koumi Line in July 2007, are the world's first diesel-powered, electric-motor-driven hybrid railcars. Compared with the previous trains, fuel consumption rate has been reduced by about 10% and the noise level of the trains idling at stations and accelerating on departure has been lowered by 20–30 dB. Also, starting from October to December 2010, we began operating the HB-E300 Series, a new type of resort train equipped with a hybrid system similar to the Kiha E200 type, in the Nagano, Aomori and Akita areas, and in May 2015, we began operating HB-E210 Series on the Senseki-Tohoku Connecting Line. Additionally, as a new measure toward reduction of the environmental burden in non-electric zones, we are proceeding with the development of an accumulator system, which debuted in March 2014 with the EV-E301 ACCUM railcar train, put into service on the Karasuyama Line. The introduction of the EV-E301 has enabled an elimination of emissions, as well as a reduction in CO_2 and noise emissions associated with diesel engines. On top of that, in the spring of 2017 we plan to introduce the accumulator railcar train of the "EV-E801 series" which is aimed for usage on the alternating current(AC) section between Akita station and Oga station.

HB-E210 series: Diesel-powered, electric-motor-driven hybrid railcars

▶Proactively adopting LED lighting for all new cars

On our conventional lines, LED lighting has been introduced on E233-series cars on the Saikyo Line (310 cars in 31 trainsets), the EV–E301-series prototype train on the Karasuyama Line (2 cars in 1 trainset), E233-series cars on the Yokohama Line (224 cars in 28 trainsets), HB–E210-series cars for the Senseki Tohoku Connecting Line (16 cars in 8 trainsets) and the E235-series prototype for new commuter trains (11 cars in 1 trainset). E233-series cars with LED lighting are now replacing older cars on the Nambu Line, and LED lighting is also used on new E129-series cars in the Niigata area.
The first Shinkansen cars with LED lighting are the E7 series trains (192 cars in 16 trainsets). Future production of more E5 series trains will also include LED lighting.
In summary, at the end of FY2016, over 10% of cars owned by JR East, including newly manufactured cars and renovated cars, have LED lighting. We are determined to continue making efforts for further energy saving in railway operations.

LED railcar lighting

LED lighting in use sticker

▶Utilization of renewable energies

We also promote use of renewable energies, including solar and wind power. Solar panels have been installed on our own buildings at Takasaki Station, the General Education Center, the R&D Center, and elsewhere. In February 2011, we installed 453 kW of solar panels above the entire platform for tracks 9 and 10 at Tokyo Station, which serve Tokaido Line trains. In February 2014, we began using a 1,050 kW mega-solar power generation facility for the first time at JR East, inside the Keiyo Rolling Stock Center; in addition to reducing costs at the Rolling Stock Center, the generated electricity is being used to operate railways via our own distribution lines.
As a result of such initiatives, solar panels generated about 1.9 million kWh of electricity (for JR East's own use) in FY2016.
Meanwhile, we are also steadily moving forward with the introduction of mega-solar generation facilities using the feed-in tariff (FIT) scheme. Use of a solar power generation facility began between Tomobe and Uchihara on the Joban Line in February 2015 and in Izumi, Akita City, in March 2016.

▶Creation of Renewable Energy Hub in Northern Tohoku

With the aim of developing northern Tohoku into a renewable energy hub, we are actively promoting the introduction of renewable energies including solar, wind, geothermal, and biomass energy. With regard to wind power, we are moving forward with the installation of generation facilities on a JR East site between Michikawa and Shimohama on the Uetsu Main Line, which is scheduled to start operation in the fall of 2016. Going forward, we will continue our efforts to introduce technology that makes efficient use of renewable energies.

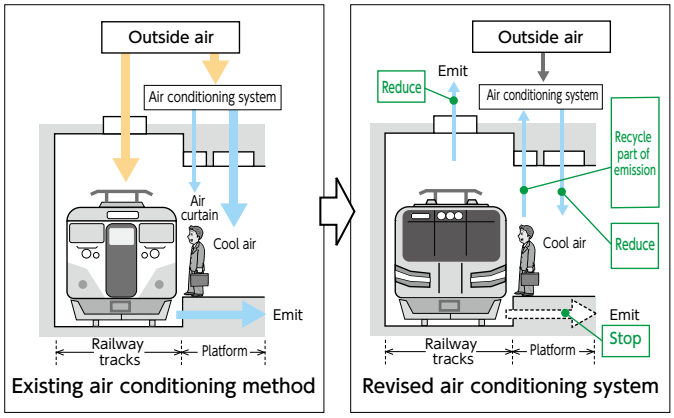
▶Development of the "Eco-station" model station


Solar power generation facility installed in Fukushima station

We have developed model stations for the "eco-station" which introduce various environmental conservation activities into stations such as energy saving and renewable energy. In March, 2012, Yotsuya station started full-scale operation as a first model, and as a second model, Hiraizumi station started its operation in June, 2012. These stations utilize power generated by solar panels realizing local production for local consumption, and started operation as a "zero emission station" which aims for no CO_2 emission on fine weather days. In September, 2013, as a third model station of "eco-station", Kaihinmakuhari Station introduced a small-sized wind power generation facility.
In March, 2015, the fourth ecoste, Yumoto station of the Joban line, started its ecoste operation by positively utilizing local resources such as hot spring heat, wood produced in Fukushima Prefecture and solar power. In the waiting room, a floor heating and radiant type heating device which utilizes hot spring heat were installed, and also on the platform, a foot warming facility which utilizes hot spring water which was already used for heating.
Next, the Fukushima station of Tohoku line promotes "Renewable energy promotion vision of Fukushima Prefecture" developed by Fukushima Prefecture in cooperation with the local community.
In April, 2015, "eco-station" activities were started by introducing ecological measures such as light weight solar panels installed on the roof of the Shinkansen platform, organic thin layer solar cells for transfer over pass and heat pumps using geothermal energy.

▶Saving energy at stations

As we have done for office buildings, we have promoted energy conserving initiatives at stations, such as revision of air conditioning systems in line with the upgrading of facilities and replacing platform lighting into LED lighting.
Since Great East Japan Earthquake, we are replacing mainly station platform lighting into LED lighting. In FY2016, we replaced a total of about 4 thousand platform lights with LED lighting and by this replacement, we were able to reduce annual power consumption by about 0.9 million kWh.
The air conditioning system for the Sobu Line underground platform at Tokyo Station had been bringing in outside air, cooling it, and then sending that cooled air up to the concourse and emitting the air to the outside. With the upgrading of the air conditioning system since 2015, we now recycle and reuse the cooled air to reduce the air conditioning load, which reduces CO_2 emissions by 60% combined with the effects of renewing air conditioning facilities.



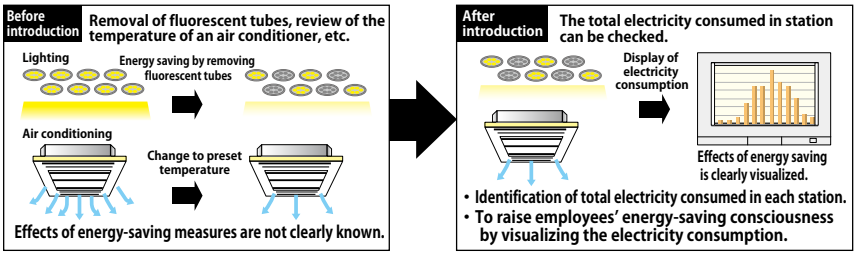
Cool outside air to cool concourse, etc. and emit it.

Cool outside air and recycle part of the cool air to reduce the air conditioning load.

▶Visualizing power consumption in stations

JR East is introducing monitors that display the energy consumed in stations to encourage employees to be more conscious of energy saving. The visualization system measures the total electricity consumed in the station at the power-receiving location and displays it on a monitor every hour. It was introduced in about 200 stations in the fiscal year ending March 2016, and is utilized for continuous energy saving initiatives.

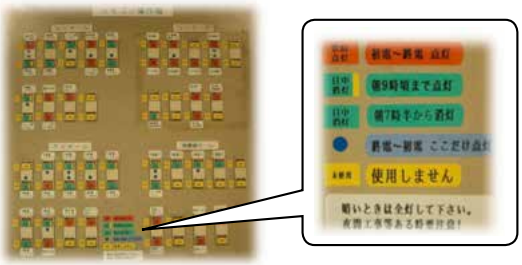
■ Mechanism of visualization



Specific Examples of Energy-Saving Initiatives Based on Visualization

Here are some examples of station-specific initiatives based on JR East's eco-activities, My Project, and so forth that have lead to energy savings:

・Indicating switch usage times on the operating panel for platform lights that were turned on and off at different times during operating periods depending on the employee. The results of this initiative are quantitatively demonstrated through visualization.



Indication on lighting switch control panel

Electricity consumption amount comparison

・Indicating the contracted electricity amount on the display monitor and issuing an alert that the contracted electricity rate will increase when the consumed electricity exceeds this amount over a given period of time.
・Preventing staff from forgetting to turn lights off by using a simple timer.
・Maintaining the waiting room at an appropriate temperature through frequent temperature checks.

▶Environmentally friendly and energy efficient office buildings

We have pursued energy saving initiatives by hardware measures such as introducing LED lighting and high efficiency devices into office buildings and also by software measures such as implementation of "cool-biz" initiatives, thermal control of air conditioners and scrupulous shutting off lights by employees.

The environmentally friendly and energy-efficient JR Minami Shinjuku Building, JR Kanda Manseibashi Building, and JP Tower opened in FY2013 and the JR Shinjuku Miraina Tower in FY2016. The JR Kanda Manseibashi Building, JP Tower, and JR Shinjuku Miraina Tower have acquired a class S rating, the highest rating under the CASBEE environmental labeling system, an initiative of the Ministry of Land, Infrastructure, Transport and Tourism. Moreover, the JR Kanda Manseibashi Building earned both LEED-CS Gold (Core & shell) of LEED (Leadership in Energy and Environmental Design) and LEED-CI Gold certification (commercial interior), widely recognized green building performance standards in the U.S., in FY 2014.

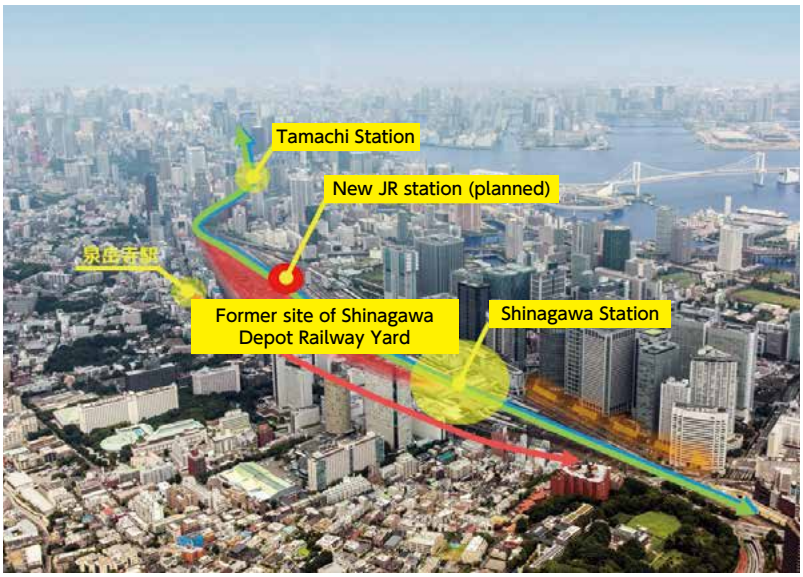
JR Kanda Manseibashi Building, LEED-certified, ranked "S," in the CASBEE

GranTokyo South Tower, recognized as a top-level establishment

In addition, thanks to their superior performance as office buildings reducing CO_2 emissions, Gran Tokyo South Tower, GranTokyo North Tower, JR Shinagawa East Building, and Sapia Tower earned recognition as Offices Taking Excellent Specific Global Warming Countermeasures (top-level office building or quasi top-level office building) under the Tokyo Metropolitan Ordinance on Environmental Preservation. During the first planning period under the ordinance (FY2011 to FY2015), we were able to reduce CO_2 in the amount largely exceeding the obligatory amount. We will use the exceeded amount of reduction for emission trading within the Group and others as stipulated in the ordinance.

As part of our efforts to take a leading role in addressing climate change at the global level, the project to develop the former site of Shinagawa Depot Railway Yard, with the support of the Tokyo Metropolitan Government, joined the Climate Positive Development Program*1 run by C40*2, which recognizes low-carbon urban development projects, in FY2016. Going forward, we will continue to contribute to the creation of a sustainable society.

*1 C40 (C40 Cities Climate Leadership Group) Established in 2005 as a network of cities around the world that work together to reduce greenhouse gas emissions. As of August, 2016, there are 85 participating cities, including Tokyo, which joined in 2006.
*2 Climate Positive Development Program A program that creates models for highly sustainable urban development. Its purpose is to be a leader for global society as a whole by widely promoting examples of pioneering development models around the world.



▶Greening rooftops

We have been promoting the planting of greenery on JR East station and office building rooftops with the aim of reducing the heat island effect and decreasing the need for air conditioning. By taking advantage of its location on a station rooftop, "soradofarm", membership rental farms placed next to the garden, provides services such as agricultural, environmental education and creates local community through vegetable cultivation experiments and earns a positive favorable reputation from many customers. At present, these services are implemented at Shinjuku, Ebisu, Ogikubo, Hachioji, Takasaki and others. As of the end of March, 2016, we had completed 89 greening projects (including some cases of moss planting) encompassing a combined rooftop area of 33,221m^2.

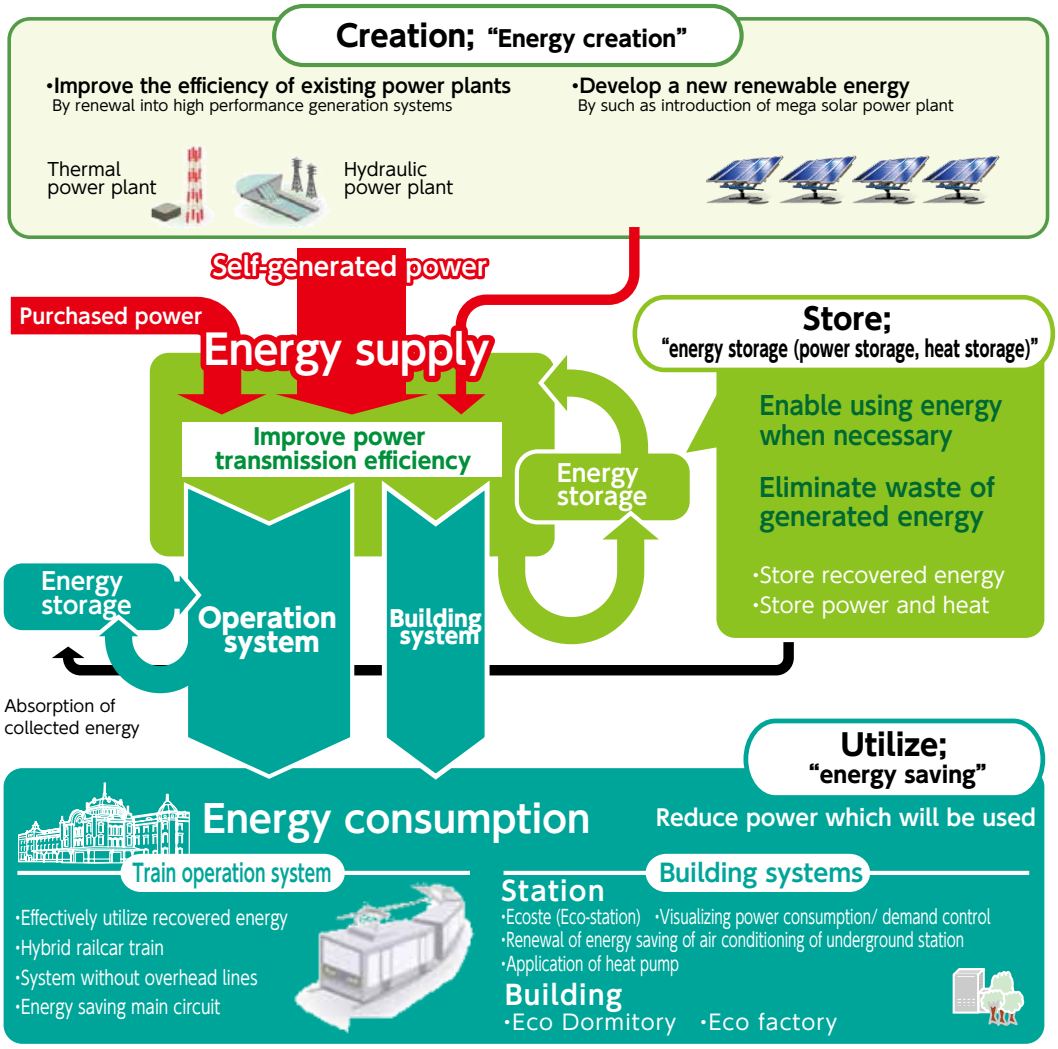
Rooftop greenery at the Chiba branch building

Atre Ebisu

Takasaki Monterey

▶Research and development for reduction of environmental loads

We pursue establishing "energy management" by adoption of the power grid owned by JR East and renewable energy. With respect to "application of energy saving technologies for railways", we have promoted research and development setting three targets of creation; "energy creation", utilization; "utilization of energy saving" and the accumulation; "energy storage".



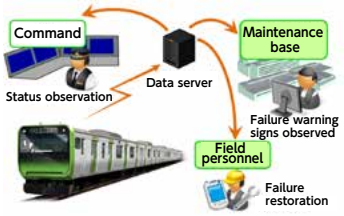
Special Topic V

Opening Up a New Era through Technological Innovation

State-of-the-Art Technology Installed on E235-Series Yamanote Line Trains

The E235 series is equipped with INTEROS (Integrated Train Communication Networks for Evolvable Railway Operation System), a next-generation train information management system which communicates data throughout the train at 100 Mbps and sends information to above-ground systems in real time via WiMAX. These functions make it possible to monitor the status of on-board devices, which helps to ensure stable operation. Other distinctive features of the E235 series include the use of digital signage for advertisements adjacent to the ceiling, the deployment of a power semiconductor device using SiC in the main controller, and an increase of around 3% in energy efficiency compared to the previous train model.

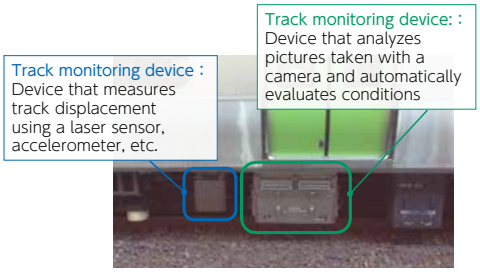
E235 series digital signage



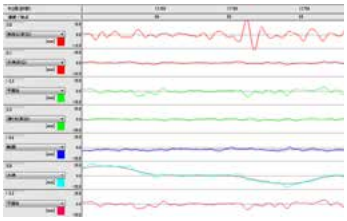
Status monitoring diagram

Main controller (VVVF inverter system)

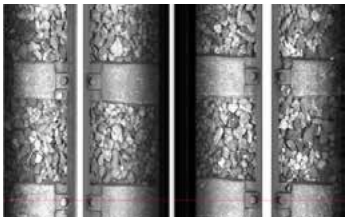
In pursuit of further IT-based technological innovation, track facility and power equipment monitoring devices are mounted on Yamanote Line E235-series rolling stock. Previously, track warping and the condition of parts securing rails and trolley wires supplying power to trains were verified by means of visual inspection or measurement by East-i electricity and track inspection trains. Mounting this equipment on trains in service makes it possible to capture changes in track and trolley wire conditions on a highly frequent basis. Through the practical application of these new technologies, JR East aims to further improve safety and stability.



Equipment mounted on Yamanote Line E235-series train



Track displacement (warping) conditions captured with a track monitoring device (viewable in real time by the track maintenance technical center in charge)



Actual image taken by track monitoring device (viewable by the track maintenance technical center in charge)

Power equipment monitoring device

Monitoring of power equipment on Yamanote Line E235-series train

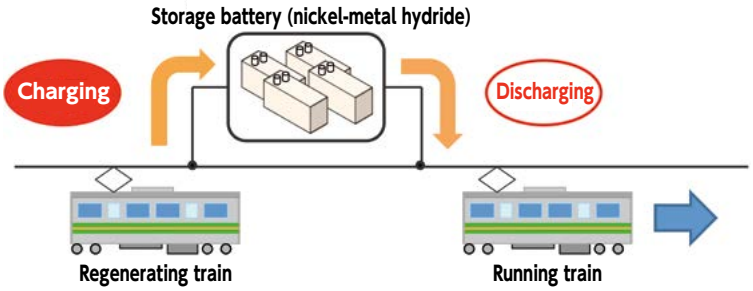
Actual image taken by power equipment monitoring device (viewable by the track maintenance technical center in charge)

Power Storage System

In February 2016, we began using a power storage system employing a nickel-metal hydride battery at the Kuki substation on the Tohoku Main Line (Utsunomiya Line). As part of the promotion of our energy and environment strategy, this system is designed to make effective use of regenerative power generated when a train stops by storing it in the battery to be used when needed. The power storage system at the Kuki substation is the third of its kind, following the Haijima substation on the Ome Line (lithium-ion battery) and Okegawa substation on the Takasaki Line (lithium-ion battery). The results of trials at the Kori substation on the Ome Line confirmed that operation was stable with nickel-metal hydride batteries, which led to this type of battery being introduced in actual operations for the first time at JR East at the Kuki substation.

Kuki substation power storage system

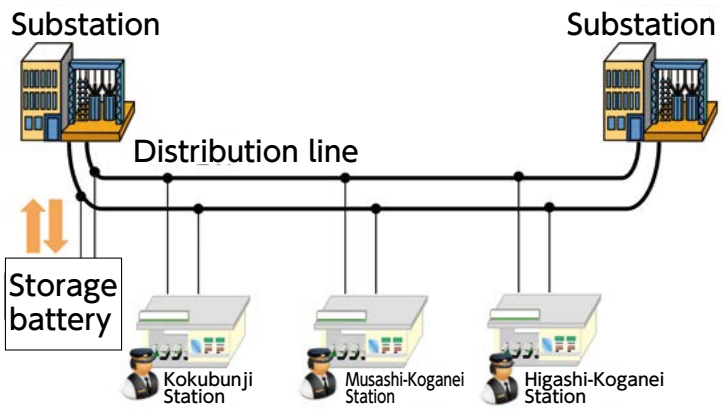
■ Image of Efficient Use of Regenerative Power



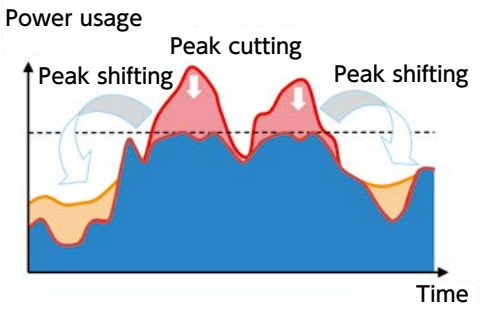
Introduction of Energy Management System at Stations

JR East is aiming to achieve better energy management at stations through the introduction of demand control, which automates air-conditioning and lighting and optimizes power use. In FY2016, it was first introduced at Ebisu Station, Kokubunji Station, and Nishi-Funabashi Station, and the results showed that it had the effect of reducing power usage at peak times by approximately 12% for equipment controlled by the system, such as lighting and air-conditioning. Controlling power use at peak times helps not just to save energy but also to streamline the equipment needed at stations and other facilities. At the end of FY2017, we plan to begin trialing a "cooperative demand control" system that will regulate all power use for three stations on the Chuo Line (Higashi-Koganei Station, Musashi-Koganei Station, and Kokubunji Station). By integrating management of power consumption across multiple stations, it is expected that demand control will become even more effective. Furthermore, in addition to "peak cutting" based on demand control, we plan to implement "peak shifting," which discharges power accumulated during the night at peak times, by incorporating storage batteries into the system.

■ Cooperative Demand Control Configuration Diagram



■ Effect of Cooperative Demand Control



Ⅲ-2-5 Measures to create a sound material cycle

▶Waste reduction and recycling

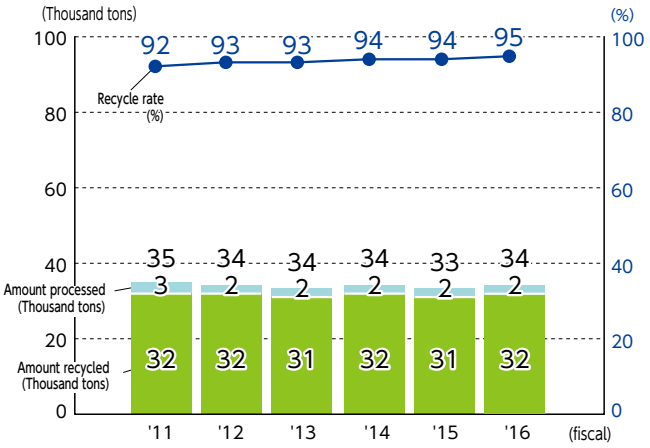
JR East generates many kinds of waste through its railway operations, including daily general trash removed from trains and stations and industrial waste from our General Rolling Stock Centers. Restaurants and retail stores in our life-style businesses also produce garbage and general waste. In order to reduce all these various forms of waste, JR East actively supports the approach known as "reduce, reuse, and recycle." For recycling in particular, goals are set for each type of waste.

▶Recycling waste collected from stations and trains☆

Since trash from stations and trains contains recyclable materials, we placed separation bins in stations to have customers cooperate in separating trash. In October 2010, to further improve recycling rates by implementing thorough separation of trash, we built the JR East Tokyo Materials Recycling Center (operated by East Japan Eco Access Co., Ltd.) and started its operation.

JR East Tokyo Materials Recycling Center

■ Waste from stations and trains



■ Recycling trash within the company

JR East promotes in-company recycling of trash generated at stations. Magazines, newspapers and similar paper items collected from our segregated trash boxes at stations and trains are being recycled into coated paper and stationery and used in our offices.

Newspapers and other papers collected in stations and elsewhere are recycled into office paper used by our company.

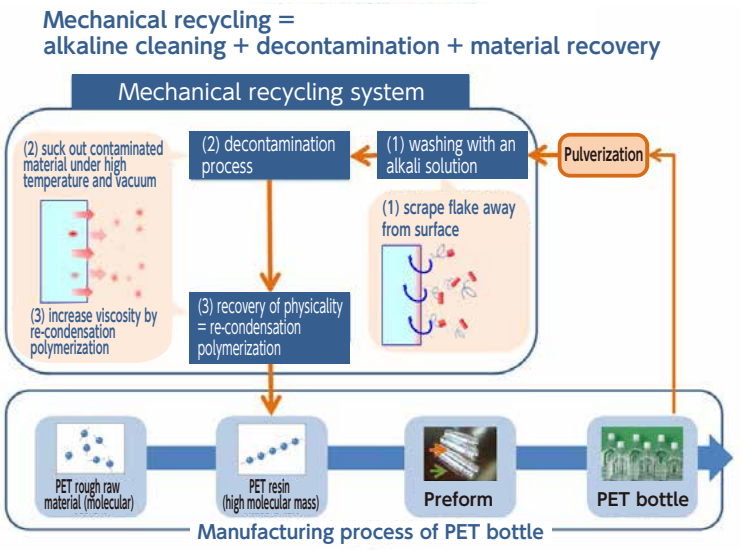
■ Recycling waste PET bottles into civil engineering materials

JR East has constructed a recycling system that produces resin weed-barrier sheets (product name: Nakusa R-PET) by recycling the PET (polyethylene terephthalate) bottles discarded in stations and trains. The main ingredient for resin weed-barrier sheets used to be polyethylene, but JR East has developed and commercialized a weed-barrier sheet composed mainly of waste PET bottles after tests were successful and in 2009 put it into practical use.

■"Bottle to Bottle" Recycling Initiative

At some stations in the Omiya and Urawa areas, for the first time, we have starting supplying PET bottles collected from garbage cans attached to "acure" vending machines for mechanical recycling* within the station since August 2015.
In addition, with the aim of helping customers in sorting garbage and making the overall recycling process more efficient and sophisticated, we have started introducing improvements to "acure" garbage cans, such as making the storage section transparent.

* Mechanical recycling The method which selects, pulverizes and washes collected used PET bottles and removes stains and foreign matter from the surface, followed by processing under high temperature.



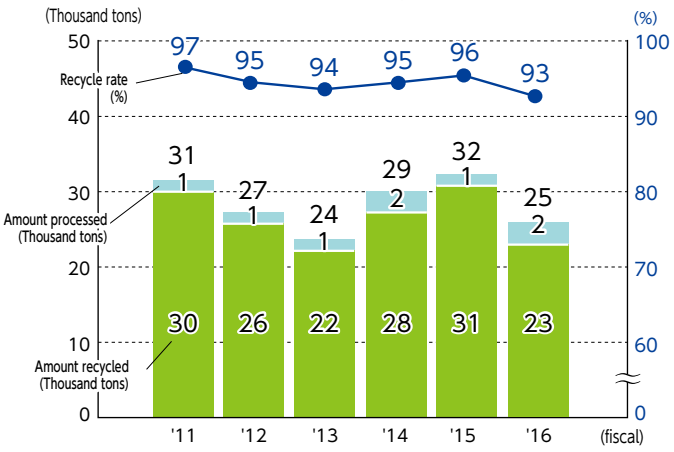
(Source: Kyoei Sangyo Co., Ltd.)

Garbage can with transparent storage section

▶Recycling at General Rolling Stock Centers☆

JR East Group is recycling waste generated during the manufacture and maintenance of rolling stock. At our regional General Rolling Stock Centers, waste is sorted into 20 to 30 categories to reduce waste generation and promote recycling. Starting in FY2006, we have been collecting data on the volume of retired railcars that are sold as scrap to be recycled so as to monitor the progress.

■ Waste from General Rolling Stock Centers

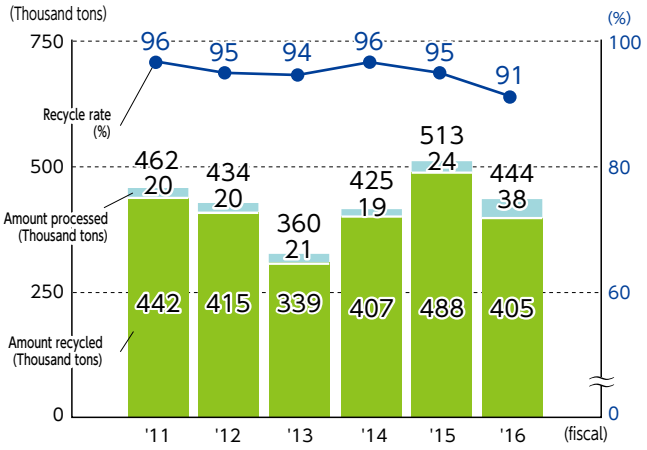


▶Reducing construction waste☆

JR East endeavors to reduce waste from construction by standardizing design and construction methods that help to properly dispose of construction byproducts and to minimize waste.
JR East generated approximately 444 thousand tons of waste through construction and maintenance projects at our stations and other structures, including approximately 50 thousand tons of waste through work entrusted to JR East.*

*Work entrusted to JR East Construction work contracted to JR East by local governments etc., to be done at non-JR East facilities, for such purposes as to ensure safe train operations.

■ Waste from construction projects



▶Reducing waste at offices☆

In departments at the Head Office and Branch Offices, we strive to reduce waste by promoting elimination of paper and by recycling, including the use of creative, employee designed trash cans. In FY2016, we recycled 1,841 tons out of a total of 2,148 tons of waste (86%).

Separate trash bins for different types of trash (inside Chiba Branch Office)

▶Efficient use of water resources☆

As a consumer of 10.96million m^3 of water annually, JR East actively promotes the use of recycled waste water*, using, for example, rainwater and water already used for washing hands to flush toilets. At the Head Office building, 26thousand m^3 out of 31thousand m^3 of water was reused in FY2016.

*Recycled waste water Defined as water of a quality level between clean water and sewage water. It is used for limited purposes as a recycled resource.

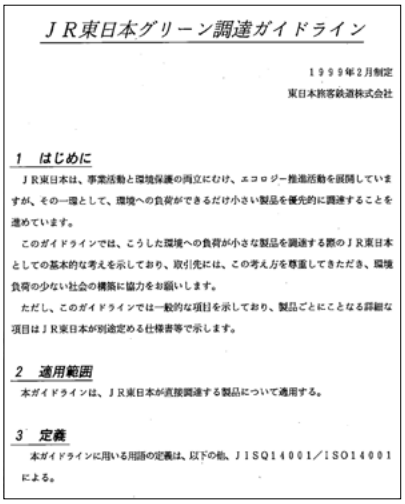
▶Reducing and recycling tickets☆

Collected used tickets are sent to a paper mill. After the iron powder has been separated from the backs of the tickets, the paper is recycled to make toilet paper and corrugated cardboard. In FY2016, all of the 299 tons of collected tickets were recycled. Collected magnetic season tickets were recycled into solid fuel.

Used tickets collected at stations are recycled into toilet paper.

▶Promoting green procurement

JR East is developing ecological promotion activities compatible with both business activities and environmental preservation, including procurement of products with lower environmental impact. As part of those efforts we formulated the "JR East Green Procurement Guidelines" in 1999. Outlined in these guidelines is our philosophy with regard to materials, conservation of resources, and packaging.
We also are promoting the procurement of environmentally friendly office supplies. Through such green procurement, JR East will further deepen our efforts to work toward a recycling-oriented society.


ＪＲ東日本グリーン調達ガイドライン

１９９９年２月制定
東日本旅客鉄道株式会社

1　はじめに

ＪＲ東日本は、事業活動と環境保護の両立にむけ、エコロジー推進活動を展開していますが、その一環として、環境への負荷ができるだけ小さい製品を優先的に調達することを進めています。

このガイドラインでは、こうした環境への負荷が小さな製品を調達する際のＪＲ東日本としての基本的な考えを示しており、取引先には、この考え方を尊重してきただき、環境負荷の少ない社会の構築に協力をお願いします。

ただし、このガイドラインでは一般的な項目を示しており、製品ごとにことなる詳細な項目はＪＲ東日本が別途定める仕様書等で示します。

2　適用範囲

本ガイドラインは、ＪＲ東日本が直接調達する製品について適用する。

3　定義

本ガイドラインに用いる用語の定義は、以下の他、ＪＩＳＱ１４００１／ＩＳＯ１４００１による。

JR East Green Procurement Guidelines

▶CSR Procurement

With regard to selecting suppliers for material procurement, we have published a Code of Conduct Regarding Material Procurement of JR East on our website, which states that we focus on the fulfillment of our corporate social responsibilities when procuring materials by considering factors such as legal compliance and environmental preservation. We also request that all our suppliers comply with the relevant laws and regulations and seek to reduce their environmental footprint.
In addition, we seek to understand the current status of all material-related suppliers by conducting a survey of their CSR initiatives once a year, as a rule, which indicates whether or not they are implementing initiatives relating to green procurement and environmental footprint reduction, initiatives that consider employees' human rights, other compliance initiatives that have an impact on society, and so forth. The results of these surveys are used as one of our decision-making criteria when selecting suppliers.

Reference: Code of Conduct Regarding Material Procurement of JR East (on our corporate website)
https://www.jreast.co.jp/e/data/procurement/code_of_conduct.html

Ⅲ-3 Other activities related to the environment

Ⅲ-3-1 Biodiversity

▶Hometown Forestation Program

In 2004, in order to protect biodiversity and contribute to a sustainable society, while cherishing our sense of gratitude for nature, we began the Hometown Forestation Programs to plant trees native to each region and revitalize the forests.
We undertook these programs with the cooperation of Fukushima Prefecture from 2004 to 2009 and with the cooperation of Niigata Prefecture, the town of Tsunanmachi and Tokamachi and Ojiya Cities in the prefecture from 2010 to 2014 (In 2015, the problem was held scheduled for Osaki City, Miyagi Prefecture, but cancelled due to heavy rain). In addition, in other areas served by JR East, we are planting native trees and we shall continue to do the same in the future.

Shinanogawa River Hometown Forestation Program in September 2014

▶Forest development along railway lines☆

Beginning in 1992, we have been organizing tree planting activities along JR East railway lines. By FY2016 a total of approximately 49 thousand people had participated in planting about 341 thousand trees. Today, planting has gone beyond the trackside and is done in cooperation with local communities.

▶Development of railway trees

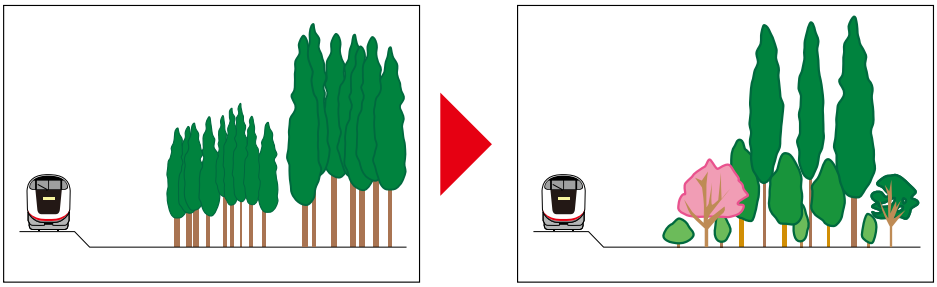
Along some JR East railway lines, we have planted railway trees to shield the tracks from blowing snow and wind. The first railway trees were created in 1893 for disaster prevention. As living disaster prevention facilities, railway forests are playing their role.
JR East now owns approximately 5.8 million railway trees on a total of about 3,900 hectares along our lines at approximately 1,080 locations. The trees absorb 15 thousand tons of CO_2, equivalent to 0.7% of the CO_2 that JR East emits (this is the actual amount in FY2016). In this way, they also contribute to preserving the environment. In 2008, after fundamentally reviewing the role of railway trees from the viewpoints of both disaster prevention and environmental preservation, we launched a new project to plant trees to replace those that will require replacement over the coming 20 years.

Sashimaki No.1 railway forest on the Tazawako Line (forest to protect against blizzards)

Tenoko No.6 railway forest on the Yonesaka Line (forest to protect against snow slides)

■ Railway trees — From single to multi-variety forests

Traditionally, railway trees were of a single variety, primarily cedar trees, because another function, in addition to protecting against natural disasters, was to generate profits through the production of timber. This has recently been less successful, however, as the demand for domestic timber has declined. In future tree replacement, we will plant several varieties suitable for the local climate and develop them to be more sustainable and ecologically resilient.



Conventional railway trees
(single variety such as cedar trees)

New railway trees
(mixture of different varieties of trees)

■ Planting new railway trees

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

Date	Location
September, 2008	Shin-etsu Main Line, Kakizaki No. 1 railway forest
July, 2009	Ōu Main Line, Okitama No. 2 railway forest
May, 2010	Ōu Main Line, Jinguji No. 2 railway forest
September, 2012	Tazawako Line, Ōkama No. 1 railway forest
September, 2013	Ōu Main Line, Sekine No. 1 railway forest
September, 2014	Uetsu Main Line, Hirakida No. 3 railway forest
September, 2015	Ōu Main Line, Kado No. 6 railway forest

Past Tree Planting Ceremonies

Tree planting ceremony for Kado No. 6 railway forest on Ōu Main Line (September 5, 2015)

Ⅲ-3-2 Basic thoughts on noise reduction

▶Improvement of the environment along railways

In the operation of trains, noise is created by the train cars moving through the air, by the wheels travelling on the rails, by the motors, and by other sources. In order to reduce noise, we are working in various ways to improve both the trains and our ground equipment.
JR East also endeavors to reduce noise during maintenance work on track and structures to further improve the lineside environment.

▶Measures for the Shinkansen

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


E5 Series trains have low-noise pantographs

*1 Rail grinding A measure to smooth out uneven places in rails caused by wheel movement. This reduces noise by controlling car vibration.
*2 Micro-pressure waves in tunnels An explosive sound caused by forced air compression.

▶Measures for conventional lines

We have implemented measures for conventional lines to minimize noise, such as installation of long rails*1, rail-grinding and wheel-truing*2. We also comply with the Japanese government's Policy on Noise Measures for Construction of New Conventional Railways or Large-Scale Remodeling when we engage in this kind of construction or modification of our conventional lines.

*1 Installing long rails Rail joints are welded such that the length of a single rail becomes more than 200 meters. With fewer rail joints, these rails reduce noise produced at joints when trains pass.
*2 Wheel truing A measure to grind the unevenness of wheels caused by wear, to restore their circular shape.

▶Measures for maintenance work

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

Ⅲ-3-3 Improvement of the Environment along Railway Lines

▶Restricting use of herbicides

Safe train operations require regular removal of weeds along railway lines. While we generally remove them manually, we also use a certain amount of herbicide. We keep the usage of herbicides to a minimum in both volume and range of use. When selecting herbicides for use, we select those from the safest of the three levels of toxicity to humans and animals, and from Category A, the safest of the five levels of toxicity to fish.

▶Harmony with the landscape

Given that construction of a large-scale railway facility or its remodeling greatly affects the local area and surrounding environment, JR East endeavors to harmonize its completed facilities with surrounding landscapes and natural environments. In the fiscal year ended in March 2012, Agatsumagawa Bridge No. 3 received the Tanaka Award (for excellent bridge work or bridge engineering) from the Japan Society of Civil Engineers, in recognition of a landscape in harmony with the surrounding environment and the national road parallel to the bridge. Our efforts are indeed well recognized outside of the company.
For the Senseki Line, which resumed full operation in May, 2015, we gave extra consideration to the design, such as incorporating very wide spans for bridge piers and curving the under-beams so as to match the special scenic beauty of Matsushima in the relocated and restored section.

Agatsuma Line Agatsumagawa Bridge No. 3

Senseki Line (between Nobiru and Rikuzen-Ono)

Ⅲ-3-4 Chemical substance management

▶Compliance with laws and regulations and reduction of chemical substances

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

▶Reducing and replacing ozone depleting substances☆

We endeavor to reduce the use of substances specified as controlled substances under the Ozone Layer Protection Law and adopt substitutes that have less impact on the environment. Moreover, The Act for Rationalized Use and Proper Management of Fluorocarbons (The Revised Fluorocarbons Recovery and Destruction Law) came into effect on April 1, 2015 requiring regular inspections, reporting of leakage amount, etc. We have been responding appropriately in accordance with the intent of the revised law. Under the Act for Rationalized Use and Proper Management of Fluorocarbon, we reported a leakage amount of around 6 thousand t-CO_2e for FY2016.

- Cooling units (large refrigerators)—Having steadily replaced air conditioning units using specified chlorofluorocarbons (CFCs) with systems that do not use them, we completed the removal of such units from buildings by the end of FY2008.
- Rolling stock—Except for some diesel railcars, all of our cars use CFC substitutes. As of the end of March, 2016 we were using 1.2 tons of CFCs and 86 tons of CFC substitutes. We routinely check for gas leaks, and collect the refrigerants when scrapping retired railcars in accordance with applicable laws and regulations.
- Fire-extinguishing agent—Although 70 tons of halon gas was still in use as a fire-extinguishing agent as of the end of March, 2016, we have it under proper control and are replacing it with non-halon agents (such as powder agents and CO_2) when building new facilities or renovating existing ones.

▶Chemical substance management☆

As JR East uses chemical substances primarily for painting and repairing our railcars, we take rigorous steps for their use and management in order to prevent spills. We are a company that handles a certain amount of specified chemical substances, and 15 JR East facilities submitted the data regarding the release and transfer of these substances to relevant authorities in FY2016, pursuant to the PRTR System.*

We have also been introducing stainless steel railcars that do not require painting. At the end of FY2016, as many as 86.1% of the 10,579 cars operated on our conventional lines were stainless steel railcars. Beside their use for railcars, we used 429 tons of organic solvents for painting railway facilities and stabilizing track beds in FY2016.

*PRTR system A system where companies notify their releases and transfers of chemical substances as required by the PRTR Law. It encourages the monitoring and control of toxic chemical substances emitted into the environment and measures to prevent negative impact on the environment.

■ Amount handled, released and transferred from 15 reporting-required facilities (kg)

Chemical substance	Handled	Released into air	Released into sewerage	Transferred to other facilities
1,2,4-Trimethylbenzene	83,072.7	1,205.3	0.0	2,079.4
Xylene	79,438.1	6,872.0	0.0	180.1
Chromium and Chromium(III) compound	2,967.8	0.0	0.0	59.0
Styrene	1,100.0	1,100.0	0.0	0.0
Toluene	15,387.0	6,490.0	0.0	86.2
Nickel	3,401.6	0.0	0.0	0.0
n-Hexane	2,574.0	310.0	0.0	0.0
Methylnaphthalene	68,906.3	342.4	0.0	0.0
Molybdenum and its compounds	1,428.6	10.0	0.0	0.0
Total	258,276.1	16,329.7	0.0	2,404.7

▶Management of PCBs (polychlorinated biphenyls)

Equipment containing PCBs is securely stored in exclusive storage locations and reports on it are filed as required by the Law Concerning Special Measures against PCB waste. We render this equipment harmless to the extent that can be done by PCB waste treatment facilities. In the fiscal year ended March 2016, we had equipment such as transformers and capacitors treated at PCB waste treatment facilities.

Ⅲ-3-5 Environmental Communication

▶Railway Museum Environment Seminar

Since 2011, we conducted the "Seminar on Environmentally Friendly Railways" for elementary school children at the Railway Museum. Along with learning about global environmental problems, they were shown the importance of recycling by separating trash at a station and on the train.

Seminar on Environmentally Friendly Railways at the Railway Museum

▶Development of Environmental Education by Delivering Lectures on Request

In the fiscal year ending March 2010, to contribute to the development of a sustainable society, JR East initiated environmental education programs for children. They will lead the next generation and they need to understand environmental issues and their relationship to society. The program aims to help children understand the environment and life through materials related to railways. In FY2016, the program was implemented at 61 schools, primarily elementary schools, in the JR East area. We intend to continue the program.

Delivering Lectures

※As of August 1, 2016. The area names have been created for JR East internal use.
Photos are the contact persons for each area.

▶Environmental Events in Cooperation with Other Companies

We cooperate with other firms to stage environmentally themed events, for the purpose of explaining JR East's environmental preservation activities, and communicating directly with customers. In February 2016, we held an event in collaboration with NTT Group which successfully appealed to a large number of customers through a variety of activities, including panel displays introducing both companies' environmental initiatives, participatory events that enabled people to learn about the environment while having fun, and model exhibits

▶Initiatives for: environmental activities of the Shinanogawa Power plant

In July, 2016, we opened the "Citizen house; Ojiya Shinanogawa Hydraulic Plant House" as a part of popularization activities for the Shinanogawa Hydraulic Power Plant to give the opportunity to learn about the mechanism of hydraulic power generation which is a source of clean energy.
On top of that, we continue the release of juvenile fish as a part of initiatives to harmonize the water usage and the river environment of the Shinanogawa river with the people of the local community.


Ojiya Shinanogawa Hydroelectric Plant House

▶Public Relations on Environmental and Societal Activities

To present JR East's activities for the environment and society in an accurate, easy-to-understand manner, we published our first Annual Environmental Report in 1996. Its title was changed to "Sustainability Report" in 2002, and to "CSR Report" in 2013. We also communicate about our environmental activities through newspapers, magazines, and other media, as well as JR East's websites, posters and pamphlets.

Advertisement – poster with overview of "Environmental initiatives"

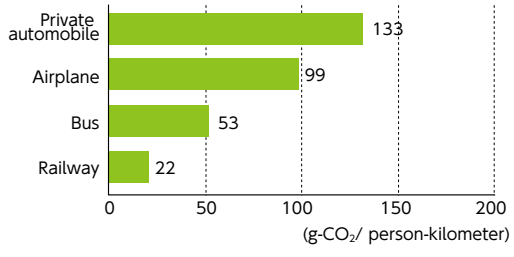
Pamphlet –" Ecoste model station"

Website – "Environmental activities"

Environment superiority of railway

Among the transportation sectors, the railway is a transportation method having environmental superiority because its CO_2 emission rate is low compared to its transportation volume. In FY2015, CO_2 emission volume per unit transportation volume, for private automobile was 133g-CO_2/ person-kilometer, and for railway it was 22g-CO_2/ person-kilometer.
From now on, JR East pursues improving the environmental superiority of railways for customers through various environmental events, and promotes railway usage. And we contribute to the establishment of a sustainable society.

■ CO_2 emission volume per unit transportation (passenger)

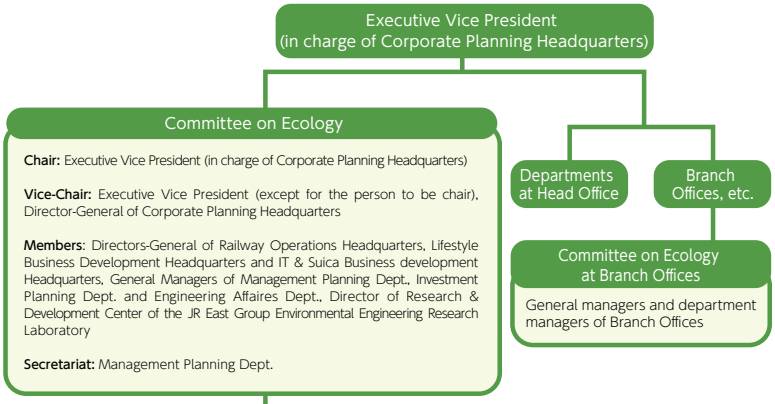


Source: Ministry of Land, Infrastructure, Transport and Tourism (MLIT) website (FY2015)

Ⅲ-3-6 Environmental Management Structure

Established in 1992 as a top management organization to promote environmental activities and chaired by the executive vice president of JR East, the Committee on Ecology Promotion surveys the environmental impact of business activities, sets environment-related targets, implements environmental conservation activities and monitors progress toward target achievement, which is also examined by top management.
In July 2010, the "Environmental Management Office" was established in our Management Planning Dept., and oversees environmental management for the entire JR East Group.

■ Organizational structure to promote environmental management (as of April 1, 2016)



Department name	Main activities
Environmental management	Promotion of environment conservation activities at each work place, promotion of environment management as a whole group, management of environmental targets and publication of environmental activities, etc.
Measures to prevent global warming	Reduction of CO_2 emissions through reduced electricity use and new energy technologies, reduction of CO_2 emission volume throughout the entire transport system, etc.
Measures for resource circulation	Recycling of wastes from stations and trains, reduction and recycling of industrial waste, eco-friendly procurement, etc.
Chemical substance management	Management of ozone depleting substances, chemical substances, PCB, etc.
Environmental activities along railway lines	Measures against noise, utilization of spring water in tunnels, conservation and utilization of railway trees, proper use of herbicide, etc.

▶Creating an environment-conscious culture

JR East believes that it is important to promote environmental activities with clear goals established for the entire JR East Group, and to have every employee actively involved. we are expanding the scale of our environmental activities by promoting "JR East Eco Activities" at each work place, developing leaders through environmental education, and sharing recognition of outstanding environmental efforts through the presentation of awards.

■ Concrete example of initiatives (Green curtain activity conducted by employees)


Shinkansen concourse of Kumagaya station


Maebashi station


shin-Maebashi transport area

▶In-house environmental education

For effective environmental management, it is essential that all employees have appropriate knowledge on environmental issues. We provide environmental education lectures to our employees in training in order to develop environmental activists in the local organization of JR East and group companies. Through these lectures, we aim to expand the scale of our environmental activities. In FY2007, to enhance environmental activities at each group company, we began an "Environmental management training" program for people in charge of environmental matters in those companies.

■ Environmental education & training system

Education of environmental-activity promoters at organizations of JR East and group companies

Environment management expert 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: 14

Environment countermeasures of Shinkansen practical training

- Persons trained: those responsible for environment at each Branch Office
- Objectives: learning of basic knowledge about relevant rules and regulations for noise and vibration
- Number of participants: 8

JR East Group Environmental Management Promotion Conference

- Persons participating: those in environmental departments at all group companies
- Objective: promotion of environmental management for the entire JR East Group

Implementation of training and lectures in Branch Offices

▶Internal environmental audits

At our General Rolling Stock Centers and others which obtained ISO 14001 certification, in-house auditors are trained through external training programs, and conduct routine audits at the centers in order to evaluate environmental activities.

■ ISO14001-certified facilities

Certified facilities	Year and month of certification
〈JR East〉	
Kawasaki Thermal Power Plant	Mar-01
Tokyo General Rolling Stock Center	Mar-01
Omiya General Rolling Stock Center	Feb-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

Certified facilities	Year and month of certification
〈Group companies〉	
East Japan Eco Access Co., Ltd.	Nov-99
Nippon Restaurant Enterprise Co., Ltd. (CK headquarters)	Sep-02
JR East Mechatronics Co., Ltd.	Mar-08
East Japan Marketing & Communications,Inc.	Aug-08
JR East Rail Car Technology & Maintenance Co., LTD.	Dec-10
Japan Transport Engineering Company	Oct-14

▶Compliance with environmental laws and regulations

There were no major violations of environment-related laws and regulations resulting in penalties in FY2016.

Ⅳ Others

Ⅳ-1 CSR Management

▶Basic Concept of CSR

The JR East Group is based on railway businesses that are involved in a broad range of customers' lives and that are vital to society and local communities. With such a public responsibility, we are committed to meeting our social responsibilities by carrying out our business activities in a way that will ensure railway safety and reliable transportation services.
In terms of our social mission, our Group Philosophy states: "We aim to grow continuously while meeting our social responsibilities as a Trusted Life-style Service Creating Group." We are determined to remain a corporate group capable of meeting social expectations and maintaining stakeholders' trust by pursuing our business activities in line with that philosophy.

▶Basic Corporate Governance Philosophy of JR East

JR East aims to meet the expectations of all our stakeholders, including shareholders, customers, and local communities, by making transparent, fair, firm, and timely decisions with regard to management issues such as ensuring safe, comfortable transportation and reforming service quality, in order to achieve sustained business growth centering on stations and railways and improvement of our medium- and long-term corporate value.
We are focused on making decisions from a long-term perspective, taking into account the nature of the railway business that is our core activity, and we consider it appropriate to strengthen our corporate governance in future, based on our existing auditing system.
In addition, JR East set "Guidelines of corporate governance" which shows concrete activities and the basic concept of corporate governance by resolution of the Board of Directors and publishes it on the JR East website.

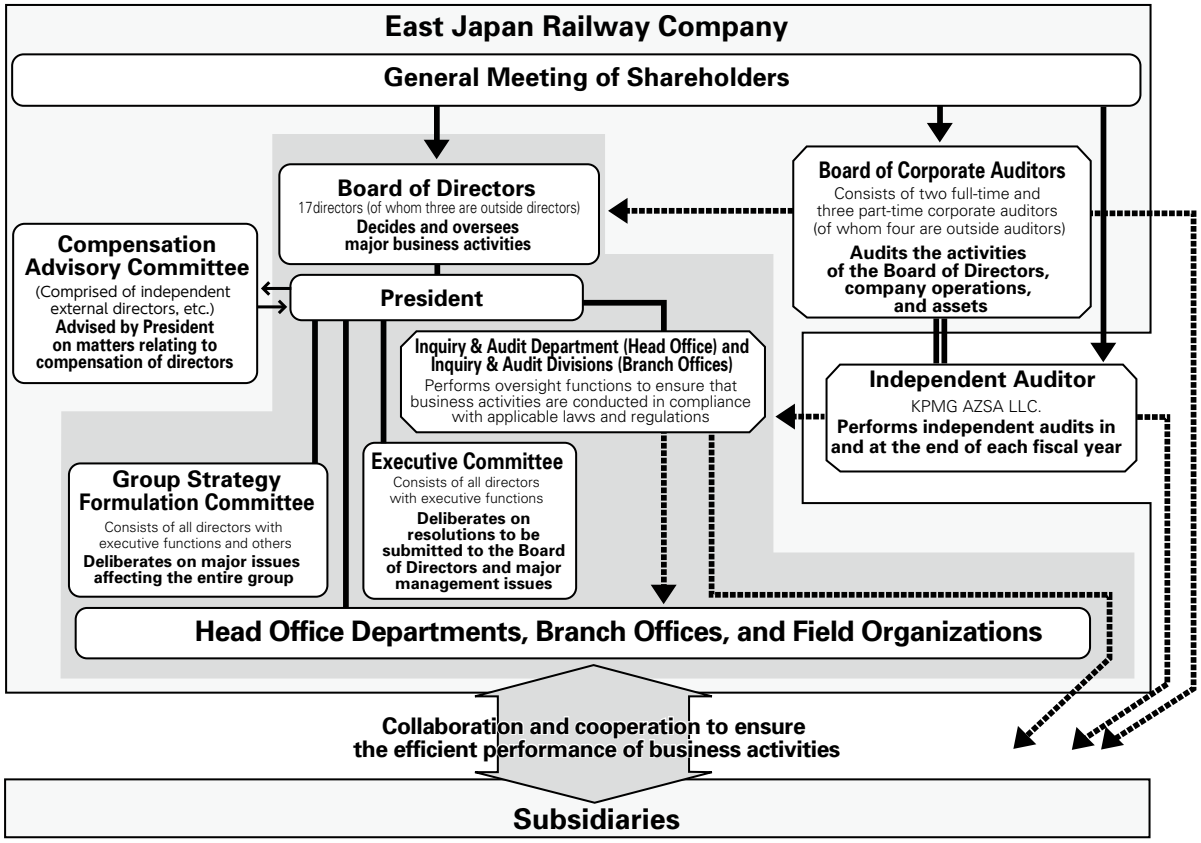
▶The Reasons Why JR East Adopted the Present Corporate Governance System

In the railway portion of our main business, since a variety of knowledge and experiments for security and decision making based on mid - and long - term perspectives are necessary we, JR East, therefore set up the board of auditors which is composed of auditors who are independent from the board of directors.

▶Basic Explanation of Our Organizations

Our 16-member Board of Directors, including three outside directors (as of June 30, 2015), normally meets monthly to decide key operational matters relating to statutory requirements and other matters, and to supervise overall operations. Under the Board of Directors is the Executive Committee, which includes all directors with executive functions and senior executive officers. Usually meeting every week, this committee deliberates on matters to be decided by the Board of Directors and other important management issues. In addition, meetings of the Group Strategy Formulation Committee, which consists of all directors with executive functions and others, are held as required to discuss major issues affecting the Group as a whole, including management strategy for each business field.

■ Corporate Governance System (as of June 23, 2016)



▶Internal Audits, Audits by Corporate Auditors and Status of Accounting Audits

JR East has established an internal auditing system involving approximately 100 full-time employees in the Inquiry & Audit Department at the Head Office and Inquiry & Audit Divisions in branch offices, and these units work to ensure that corporate operations are executed appropriately and efficiently. The Inquiry & Audit Department also undertakes the auditing of Group companies.

Our Board of Corporate Auditors usually meets every month and holds regular liaison conferences with auditors of group companies. The audit by corporate auditors is supported by approximately 10 specialized staff. They oversee executive actions carried out by directors, with a focus on full-time auditors, in accordance with the rules established by the Board of Corporate Auditors by attending the Board of Directors, the Executive Committee and the other important in-house meetings, and by investigating their normal operations and financial situations.

JR East financial statements are audited under contract by an independent auditor (accounting auditor), KPMG AZSA LLC., in and at the end of each fiscal year.

Incidentally, there were no major violations of laws or regulations relating to the products and services in FY2016.

Ⅳ-2 Compliance

▶Basic Concept of Compliance

JR East adopted our Policy on Legal and Regulatory Compliance and Corporate Ethics as the Group's corporate activity guidelines. Concomitantly, in various business fields such as the railway business, lifestyle service business and Suica business, we comply with all related laws and conduct business in accordance with corporate ethics.
In addition, we conduct education for our group companies' employees and also established Compliance Hotlines, both inside and outside the company, and are promoting efforts on compliance.

▶Policy on Legal and Regulatory Compliance and Corporate Ethics and the Compliance Action Plan

The Policy on Legal and Regulatory Compliance and Corporate Ethics stipulates our approach to regulatory compliance and corporate ethics based on the Group's philosophy and principles. In order to heighten the efficacy of these guidelines, we have notified the entire Group about them by distributing a Compliance Action Plan Handbook that indicates the nature of the actions that we expect everyone employed by the Group to take.
Furthermore, in conjunction with the development of overseas business, a basic policy for prevention of bribery relating to foreign public officials was formulated and announced in June 2014.

▶Promotion of Compliance

In order to deepen understanding of the importance of compliance and the intent of "compliance and corporate ethics" by each employee, we have been providing compliance education for all employees every year targeting all employees in the Group. Although the education started out with mostly the lecture style format using DVDs, it has recently shifted to study group style held at each department under the head of the department using materials prepared by the head office. Focusing on a case study using familiar examples, this style of education leads each employee to think and to participate in discussions.
Furthermore, we formulated the basic issues which should be periodically confirmed by each applicable chief of business management into the "Confirmation support sheet of basic issues", and have fully conducted business activities so as to comply with laws and regulations by implementing continuous inspection and confirmation utilizing this sheet.

■ Major seminars, etc. on compliance (FY2016)

Title	Number of sessions	Participants	Contents and objectives	Number of participants
All Employee Training on Compliance	1	JR East and Group company employees	Compliance awareness	All Employees
New Recruit Training	1	JR East new recruits	Compliance awareness	All new recruits
Basic Legal Training	1	Group company legal affairs and compliance personnel	Acquisition of basic knowledge relating to legal affairs and compliance	30
New Legal Affairs Personnel Training	1	New Head Office and Branch office legal affairs personnel	Acquisition of basic knowledge relating to legal affairs and compliance	16
Legal Skills Training	1	Head Office and Branch office legal affairs Personnel	Acquisition of basic knowledge relating to legal affairs and compliance, enhancement of legal reasoning and problem-solving skills	20
Regular Legal Seminar	3	JR East and Group company Executives, employees	Explanation of new and revised laws, and awareness-raising about compliance	600
Compliance Meetings	2	Head Office executives, general managers, etc.	Ensuring awareness of a compliance management system	190
Compliance Seminar for Group Companies	1	JR East and Group company Executives, employees	Ensuring awareness of a compliance management system	80

▶Compliance Hotline

"When an employee wonders how to conduct themselves regarding compliance and corporate ethics" and "when an employee recognizes activity which is against compliance or corporate ethics or which may be against compliance or corporate ethics", in order for the employee to report and consult, we established the "Compliance Hotlines", both inside and outside the company. We accept consults and reports from business partners and publish how to accept them on our website.
In FY 2016, we received 200 consultations and messages on a wide range of issues such as the handling of laws and regulation, troubles of human relations and harassment, and responded to them properly and respectively.

▶Shinanogawa Power Station Incident

In March, 2009 JR East received an administrative sanction because the company's water intake had exceeded the maximum allowed at our hydroelectric plant, Shinanogawa Power Station (the collective name for the Senju, Ojiya and Ojiya Daini power plants in Ojiya and Tokamachi Cities, Niigata Prefecture). The sanction was issued in accordance with the River Act and included the revocation of a permit to draw water from the Shinano River. Subsequent to receipt of this sanction, we have taken corrective actions in accordance with the directions in the sanction and have endeavored to implement measures to prevent recurrence and to cultivate close cooperation with the local communities.
In June 2010, having obtained a permit from the Director of the Hokuriku Regional Development Bureau of the Ministry of Land, Infrastructure, Transport and Tourism to again take water from the Shinano River through to June 2015, we resumed operation of the Shinanogawa Power Station.
Following resumption, we conducted a trial sluice for coordinating river environment and water use. With the results of the investigation and opinions collected from local residents, we filed a renewal application in May 2015 and received approval in June 2015.
We are sincerely committed to fostering harmony with the river environment and enhancing co-prosperity with communities. Furthermore we are promoting compliance management to prevent occurrence of similar incidents.

▶Risk Management

JR East established the Crisis Management Headquarters to centrally collect and manage information, and to promptly respond in the event of major crises affecting business operations of the JR East Group, etc. On top of this, we established the Crisis Management Office, a full-time bureau in the Administration Department at the Head Office that takes responsibility for secretarial work of the Headquarters. We are striving to be prepared for any potential risks JR East Group may face. We have established a system enabling us to promote compliance and to respond to various emergencies from overseas —terrorist threats, pandemics such as influenza, and other possibilities.

▶Ensuring Information Security

In recent years, on the internet, cyber attacks have increased in sophistication world wide, and even in the public organizations and private companies in Japan, a large scale of information leakage has continuously occurred. Also the threat of cyber terrorism which plunges information systems related with social foundation into dysfunction is increasing.
JR East, as a company group which supports the social infrastructure of the railway, has designed and introduced an information security management system based on JR East's basic policy for information security, and carries out necessary measures to ensure safe and secure information system operations. We have also established a contact system in the event a problem should occur and we conduct problem response drills. All employees are kept aware of the importance of information security and the strict handling of information through our Group rule book and internal magazine. All employees also receive information security education with the aim of raising awareness about how they should guarantee workplace information security.

▶Personal Data Protection

Pursuant to applicable laws and regulations including the Act on the Protection of Personal Information, the JR East Group published its Private Policy, formulated the Regulations for the Management of Personal Information and appointed Chief Privacy Officers who have the responsibility of strictly protecting personal data. Through leaflets for raising employee awareness, articles in our internal magazines and compliance education, we are also working to ensure that all employees remain fully aware of the necessity of the strict handling and management of personal data. Furthermore, in order to ensure proper control of personal data, the Group conducts periodical internal workplace audits.

Ⅳ-3 Independent Assurance Report (website version)

Independent Assurance Report

To the President and CEO of East Japan Railway Company

We were engaged by East Japan Railway Company (the "Company") to undertake a limited assurance engagement of the environmental performance indicators and environmental accounting indicators marked with ☆ for the period from April 1, 2015 to March 31, 2016 (the "Indicators") included in its CSR Report 2016 website version (the "Report") for the fiscal year ended March 31, 2016, the Company's self-declaration that the Report is prepared in accordance with the Global Reporting Initiative's G4 Sustainability Reporting Guidelines (the "G4 Guidelines") at a core level, and the completeness of material environmental information in the Report.

The Company's Responsibility

The Company is responsible for the preparation of the Indicators in accordance with its own reporting criteria (the "Company's reporting criteria"), as described in the Report, which are derived, among others, from the G4 Guidelines and Environmental Reporting Guidelines of Japan's Ministry of the Environment, for self-declaring that the Report is prepared in accordance with the criteria stipulated in the G4 Guidelines, and for including the material environmental information defined in the 'Environmental Reporting Assurance and Registration Criteria' of the Japanese Association of Assurance Organizations for Sustainability Information ("J-SUS") in the Report.

Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Indicators based on the procedures we have performed. We conducted our engagement in accordance with 'International Standard on Assurance Engagements (ISAE) 3000, Assurance Engagements other than Audits or Reviews of Historical Financial Information', 'ISAE 3410, Assurance Engagements on Greenhouse Gas Statements', issued by the International Auditing and Assurance Standards Board, and the 'Practical Guidelines for the Assurance of Sustainability Information' of J-SUS. The limited assurance engagement consisted of making inquiries, primarily of persons responsible for the preparation of information presented in the Report, and applying analytical and other procedures, and the procedures performed vary in nature from, and are less in extent than for, a reasonable assurance engagement. The level of assurance provided is thus not as high as that provided by a reasonable assurance engagement. Our assurance procedures included:

- Interviewing with the Company's responsible personnel to obtain an understanding of its policy for the preparation of the Report and reviewing the Company's reporting criteria.
- Inquiring about the design of the systems and methods used to collect and process the Indicators.
- Performing analytical reviews of the Indicators.
- Examining, on a test basis, evidence supporting the generation, aggregation and reporting of the Indicators in conformity with the Company's reporting criteria, and also recalculating the Indicators.
- Visiting to one of the Company's domestic business sites selected on the basis of a risk analysis.
- Evaluating the Company's self-declaration that the Report is prepared in accordance with the G4 Guidelines at a core level against the criteria stipulated in the G4 Guidelines.
- Assessing whether or not all the material environmental information defined by J-SUS is included in the Report.
- Evaluating the overall statement in which the Indicators are expressed.

Conclusion

Based on the procedures performed, as described above, nothing has come to our attention that causes us to believe that the Indicators in the Report are not prepared, in all material respects, in accordance with the Company's reporting criteria as described in the Report; the Company's self-declaration that the Report is prepared in accordance with the G4 Guidelines at a core level does not conform to the criteria stipulated in the G4 Guidelines; and all the material environmental information defined by J-SUS is not included in the Report. .

Our Independence and Quality Control

We have complied with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. In accordance with International Standard on Quality Control 1, we maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

KPMG AZSA Sustainability Co., Ltd.

KPMG AZSA Sustainability Co., Ltd.
Tokyo, Japan
October 21, 2016

Ⅳ-4 Summary from General Manager of the Management Planning Department

Kiwamu Sakai
Executive Officer and General Manager
Management Planning Department
Corporate Planning Headquarters

In response to the Paris Agreement at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 21) in December 2015, the Japanese government formulated its Plan for Global Warming Countermeasures to achieve certain set targets in May 2016. Based on the plan, for JR East's core railway business, we have set new targets to reduce energy consumption by 25% and CO_2 emissions by 40% by FY2031 from FY2014 levels. To achieve these targets, JR East will steadily proceed with a variety of measures such as the introduction of energy-saving vehicles and the use of LED for its lighting needs by FY2021 and also review system evolutions such as the realization of automatic energy-saving driving and the utilization of high-performance storage batteries.

In order to contribute to the realization of a future-oriented, sustainable society and fulfill our corporate social responsibility (CSR), including addressing environmental issues, the JR East Group will continue to pursue various activities. Our Group Management Vision V positions providing safe and high-quality services, while also contributing to the development of communities as an "Eternal Mission" of our company. We are proactively working to improve safety, which is our number-one priority and to contribute to society.

The CSR Report 2016 includes quantitative data on activities relating to safety, society and the environment that are undertaken by our group. All data is presented in an easy to understand manner through the use of photographs and diagrams. In particular, with this CSR Report 2016, we are in compliance with the fourth version of the GRI Sustainability Reporting Guidelines (G4), which are the global standard for CSR reporting. By positioning the basic concept and essential management issues indicated in the Group Management Vision V as key aspects of CSR (Materiality), we included a GRI Guidelines comparison table in the main text of the report, responding to General Standard Disclosures and Specific Standard Disclosures, which are the characteristics of the guidelines. This CSR Report 2016 also plays a role as our Safety Report.

In addition, "Special Topics" covers issues such as the improvement of safe and stable transport and the promotion of inbound strategies, while in "Voice" (interview) features, we hear directly from employees working on the opening of the MRT Purple Line in Bangkok, Thailand. It is our hope that these will provide all of our stakeholders, both in Japan and abroad, with a more in-depth understanding of the JR East Group's overall efforts.

This report is a website version with full details of our group's initiatives. Please also refer to the print version that provides a concise summary of all information.

Based on the JR East Group Management Vision V—Ever Onward, the JR East Group remains committed in its ongoing efforts to address all expectations of society and to obtain the trust of our stakeholders, while remaining fully conscious of drastically changing Japanese and global trends.

History of JR East Group's environmental and social activities

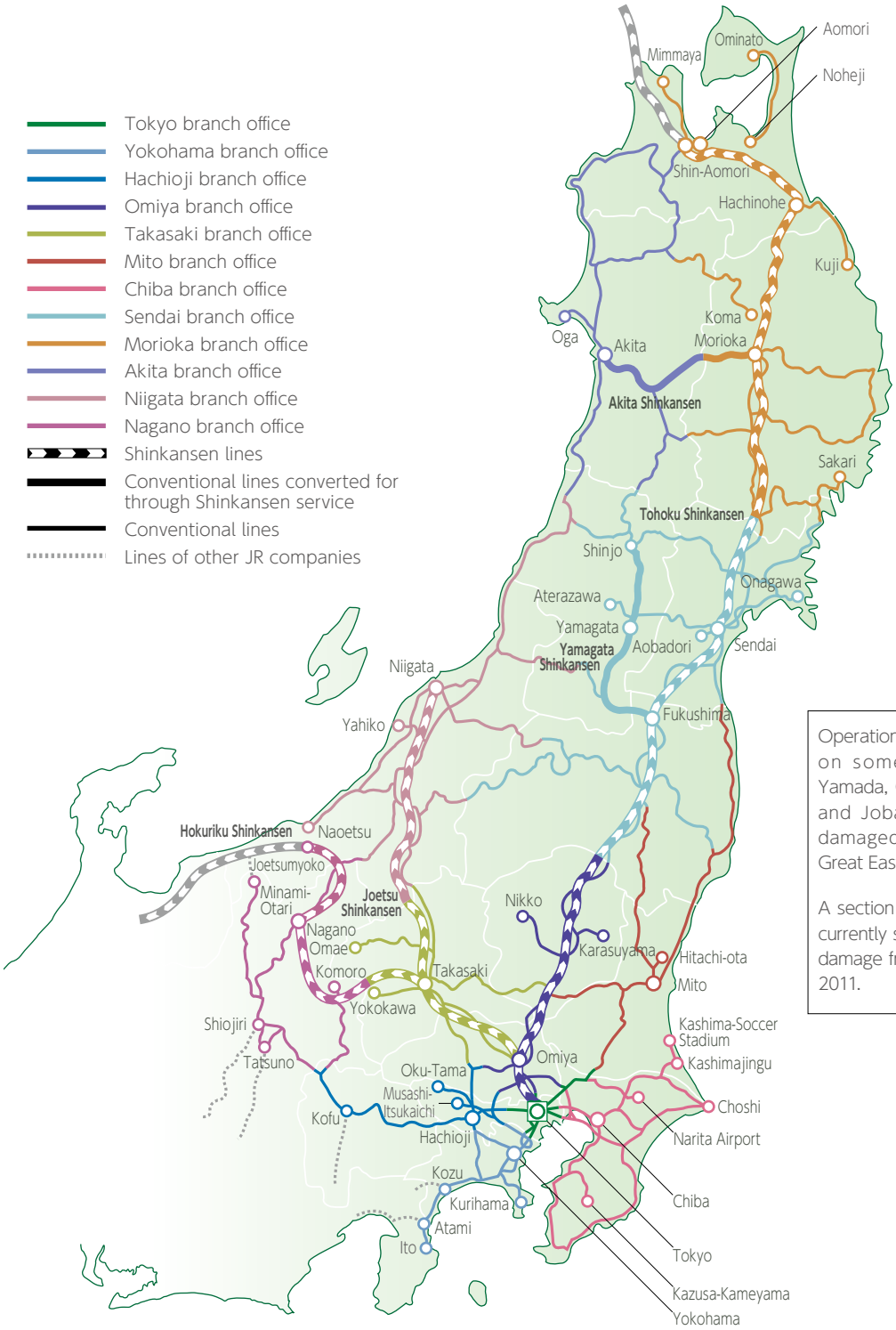
Year	Month	Environmental and social activities
1987	Apr.	Japanese National Railways divided, and East Japan Railway Company established. First Railway Safety Promotion Committee meeting held.
	Jun.	Green Campaign began. Green Counter (now renamed customer help desks) opened for receiving customer feedback.
1988	Sep.	Company-wide "Challenge Safety Campaign" launched.
	Dec.	ATS-P, an improved safety train-control system, installed on the Keiyo Line.
1989	Apr.	Safety Research Laboratory and General Training Center established.
1990	Sep.	"First Railway Safety Symposium" held.
	Oct.	"Future 21," a management plan for the twenty-first century, announced. "Ladies' Cars," cars exclusively reserved for female passengers, introduced on sleeping-car limited express trains.
1992	Mar.	East Japan Railway Culture Foundation established.
	Apr.	Committee on Ecology established.
	May	Trees planted to commemorate the 5th anniversary of JR East's founding (later, an annual event called "Railway Lines Forestation Program" began).
	Aug.	Waste collection sorted into three categories began on a trial basis at Sugamo Station on the Yamanote Line.
1993	Mar.	All-day smoking ban extended to major stations in the Tokyo suburban areas.
1994	Feb.	Ueno Station Recycling Center started operation (with automatic system for separating used cans from bottles).Waste collection sorted into three categories started at 36 stations on the Yamanote and other lines.
	Mar.	"Basic Safety Plan" announced.
1995	Feb.	Recycling of used train tickets began in the Tokyo metropolitan area.
	Mar.	First measure to reduce Shinkansen noise completed.
	Apr.	Ecology education for all new recruits initiated. "Train-ta-kun," a discount car rental service for train passengers, launched.
1996	Mar.	JR East website set up. Quantitative environmental targets set for CO_2 emissions and others. First annual Environmental Report published.
	Dec.	Autonomous Decentralized Transport Operation Control System (ATOS) became operational.
1997	Mar.	Recycling facility at Minami-Akita Operations Center started operation. Separate smoking zones established at all stations.Smoking banned on all local trains.
	Oct.	Recycling facilities at Nagano Shinkansen Rolling Stock Center and Tokyo Station started operation.
1998	Mar.	Second set of measures to reduce Shinkansen noise completed.
	Nov.	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.
1999	Feb.	Safety Plan 21 announced. Niitsu Rolling Stock Plant acquired ISO14001 certification.
	Mar.	Omiya Recycling Center started operation (with automatic system for separating used cans from bottles).
	Apr.	Service managers deployed at some stations.
	May	Started utilizing copier paper recycled from newspapers collected at stations.
	Sep.	Information service on train operations made available by cell-phone.
2000	Apr.	JR East General Education Center established. Uniforms made from recycled PET bottles introduced.
	Nov.	Environmental targets revised with the announcement of New Frontier 21,the Group's medium-term management plan.
2001	Mar.	Oi Workshop, Kawasaki Thermal Power Plant, and Niigata Mechanical Technology Center acquired ISO14001 certification.
	Jul.	"Women-Only" cars for female passengers introduced on the Saikyo Line on a trial basis.
	Dec.	JR East Research & Development Center established.
2002	Feb.	Test runs of the AC Train, a next-generation commuter train, began. Omiya Workshop acquired ISO14001 certification.
	Sep.	Sustainability Report including social and economic aspects published.
	Nov.	Sendai General Rolling Stock Workshop acquired ISO14001 certification.
2003	Mar.	Third set of measures to reduce Shinkansen noise completed. "Guide to Barrier-Free Station Facilities" pamphlet distributed.
	May	Test runs of the NE Train, world's first hybrid railcar, began.
	Sep.	First JR East Group Environmental Management Promotion Conference held.
	Dec.	Koriyama Workshop acquired ISO14001 certification.
2004	Mar.	"Safety Plan 2008" announced.
	Apr.	"F Program" launched, with the aim of creating a better working environment for female employees.
	May	Adatara Hometown Forestation Program held.
2005	Jan.	Environmental targets revised with the announcement of "New Frontier 2008",the Group's medium-term management plan.
	Feb.	Nagano General Rolling Stock Center acquired ISO14001 certification.
	Jul.	Akita General Rolling Stock Center acquired ISO14001 certification. Customer Service Department established.
	Dec.	Office-wide JR East Eco Activities started at JR Hachioji Branch Office.
2006	Feb.	Disaster Prevention Research Laboratory established.
2007	Mar.	Smoking banned in all cars of Shinkansen and limited express trains.
	Jul.	World's first diesel hybrid railcars in commercial service, the Kiha E200 type, commenced operation.
	Oct.	Railway Museum opened.
2008	Mar.	"JR East Vision 2020 - *i do mu* -" announced.
	Jun.	Environmental targets revised.
2009	Mar.	2013 Safety Vision Announced.
	Apr.	Environmental Engineering Research Laboratory Established. Total ban on smoking in specified locations in the Tokyo metropolitan area.
2010	Jun.	Water intake restarted in Shinanogawa Power Station based on the "Permission of the use of river water." Platform doors installed at Ebisu Station on the Yamanote Line.
	Jul.	Environmental Management Promotion HQS established in the Corporate Planning Headquarters.
2011	Mar.	Operation of Tohoku Shinkansen, Hayabusa, started.
2012	Mar.	"Ecoste" Yotsuya Station began to be used.
	May	Reconstruction Planning Dept. established in the Corporate Planning Headquarters.
	Jun.	"Ecoste" Hiraizumi Station began to be used.
	Oct.	JR East Group Management Vision V - Ever Onward announced.
2013	Sep.	"Ecoste"Kaihinmakuhari Station began to be used.
2014	Feb.	Announced "JR Group Safety Plan 2018."
	Mar.	The EV-E301 Series railcar featuring storage-battery-driven electric car systems (ACCUM) started operations.
2015	Mar.	"Ecoste" Yumoto Station began to be used.
	Apr.	"Ecoste" Fukushima Station began to be used.

Former names are used for some facilities

History of Awards

Year	Month	JR East Group: History of Awards
1995	Oct.	Poster category at the 5th Awards for Environmental Advertisements and the Director of Environmental Agency's Awards (Organized by Japan Eco-Life Center)
1997	Apr.	6th Global Environment Award (Organized by Nihon Kogyo Shimbun in special cooperation with WWF Japan)
	Jun.	1st Environmental Action Plan Award and the Director of Environmental Agency's Awards (Organized by the National Association of Environmental Conservation and sponsored by the Environmental Agency)
	Nov.	Poster category at the 7th Awards for Environmental Advertisements and the Director of Environmental Agency's Awards (Organized by Japan Eco-Life Center)
1998	Apr.	1st Green Reporting Award Third Prize (Co-organized by Toyo Keizai Inc. and Green Reporting Forum)
2001	May	4th Green Reporting Award Third Prize (Co-organized by Toyo Keizai Inc. and Green Reporting Forum)
2005	Jan.	Grand Prize for Environmental Report in Environmental Report Category at Environmental Communication Awards 2004 (Organized by the Global Environmental Forum and sponsored by the Ministry of Environment)
2006	Dec.	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 Environment)
2007	Apr.	16th Global Environment Award Education, Culture, Sports, Science and Technology Minister's Award (Organized by Fuji Sankei Group in special cooperation with WWF Japan)
	Dec.	Environment Minister's Award for Global Warming Prevention Activities in the category of technological development and commercialization (organized by the Ministry of Environment) Eco Products Category Minister of Environment Prize in the 4th Eco Products Award (organized by the Eco-Products Awards Promotion Council; sponsored by the Ministry of Finance, Ministry of Health, Labour and Welfare, Ministry of Agriculture, Forestry and Fisheries, Ministry of Economy, Trade and Industry, Ministry of Land, Infrastructure, Transport and Tourism, Ministry of Environment)
2010	Mar.	Environmental Management Award, Japan Creation Award 2009 (Japan Fashion Association)

Service Area



Operations are still suspended on some sections of the Yamada, Ofunato, Kesennuma, and Joban Lines that were damaged as a result of the Great East Japan Earthquake.

A section of the Tadami Line is currently suspended due to the damage from heavy rain in July 2011.

As of July 2016

Passenger line network	Shinkansen lines: 1,194.2km Conventional lines: 6,263.1km
Number of stations	1,665
Total number of trains in operation per day	12,234 (Timetable revised in March 2016)
Total number of passengers per day	approx. 17.30 million

Businesses Outline of the JR East Group (as of March 31, 2016)

The JR East Group has four business segments: Transportation, Station Space Utilization, Shopping Centers & Office Buildings, and Others. The relationship of East Japan Railway Company and other related companies to each business segment are as shown below.

■ Transportation

This segment conducts passenger transportation operations centered on railway and railcar manufacturing operations. With a service area mainly covering Tokyo and the combined 16 prefectures of Kanto Tohoku regions, JR East's railway operations comprise 1,665 railway stations, 6,263.1 operating kilometers of conventional lines, and 1,194.2 kilometers of Shinkansen lines, spanning a total of 7,457.3 kilometers.

■ Station Space Utilization

This segment creates commercial spaces in railway stations by developing various types of business, including retail stores and restaurants.

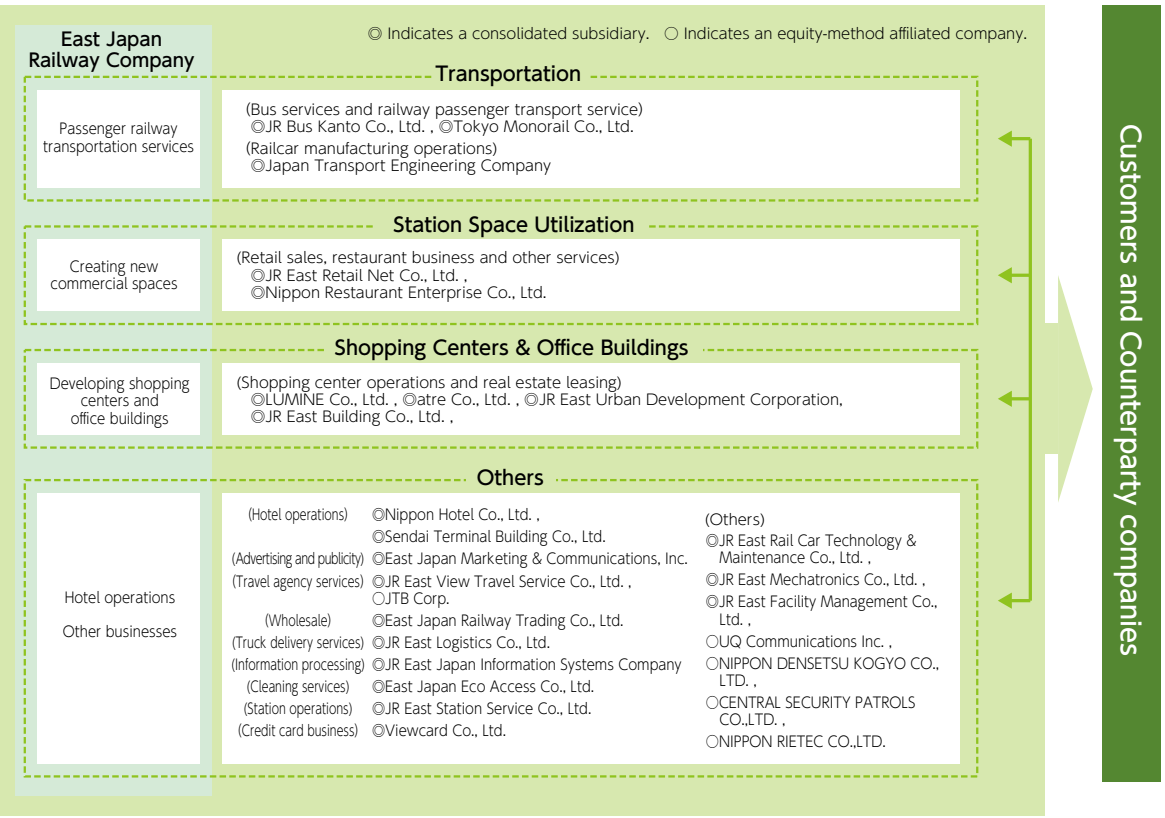
■ Shopping Centers & Office Buildings

This segment develops properties within or near railway stations, manages shopping centers and leases office buildings and other properties.

■ Others

In addition to the above, JR East conducts businesses related hotel operations, advertising and publicity, credit card operations, among others.

The following is a schematic of JR East's business network.



In relation to the supply chain, as the JR East Group operates various businesses with a focus mainly on the railway business, it can be divided into two parts, the railway business and non-railway businesses.
For the railway business, JR East generates electricity at its own power stations or directly purchases electricity from electrical companies. Electricity is provided to trains through substations and overhead contact lines. Additionally, we operate railways and offer transport services to our customers through the provision of continuous comprehensive services, while also maintaining station staff members, conductors and other various facilities.
With regard to non-railway businesses, while pursuing synergetic effects with the railway business itself, each business operates its own specific supply chain, as it provides various services to customers.

Transportation

Travel Agency Services

Bus Services

Monorail Services

Retailing

Restaurants

Shopping Centers

Offices

Hotels

Sports Business

Leisure Business

Advertising and Publicity

Publishing

Non-Life Insurance Services

Childcare Services

Nursing Care Services

Housing Development and Sales

Trading Services

Distribution Services

Information Services

Financial Services

Personnel-related Services

Car Rental

IT·Suica Services

Railcar Manufacturing

Businesses of the JR East Group (as of July 1, 2016)

■ Transportation services

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

■ Shopping center operations

Tetsudo Kaikan Co., Ltd. / atre Co., Ltd. / LUMINE Co., Ltd. / Yokohama Station Building Co., Ltd. / Shonan Station Building Co.,Ltd. / JR Chuo Line Mall Co., Ltd. / JR East Department Store Co., Ltd. / JR Tokyo West Development Co., Ltd. / Kinshicho Station Building Co., Ltd. / Chiba Station Building Co., Ltd. / JR East Aomori Business-Development Company Co., Ltd. / Tokky Co., Ltd. / Station Building MIDORI Co., Ltd.

■ Office operations

JR East Building Co., Ltd.

■ Hotel operations

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

■ Retail shop and restaurant businesses

JR East Retail Net Co., Ltd. / Nippon Restaurant Enterprise Co., Ltd. / JR East Food Business Co., Ltd. / JR East Station Retailing Co., Ltd. / JR East Water Business Co., Ltd. / Kinokuniya Co., Ltd. / JR East Tohoku Sogo Service Co., Ltd.

■ Trading and logistics businesses

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

■ Travel agent and car rental services

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

■ Sports and leisure businesses

JR East Sports Co., Ltd. / GALA YUZAWA Co., Ltd.

■ Real estate management

JR East Urban Development Corporation

■ Information, financial, and personnel services

JR East Japan Information Systems Company / JR East Net Station Co., Ltd. / JR East Management Service Co., Ltd. / JR East Personnel Service Co., Ltd. / JR East Green Partners Co.,Ltd.

■ Credit card business

Viewcard Co., Ltd.

■ Advertising and publishing

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

■ Cleaning and linen supply services

JR East TESSEI Co., Ltd. / JR East Transportation Services Co., Ltd. / East Japan Eco Access Co., Ltd. / JR East Station Service Co., Ltd. /JR Takasaki Railway Services Co., Ltd. / JR Mito Railway Services Co., Ltd. / JR Chiba Railway Services Co., Ltd. / JR Technoservice Sendai Co., Ltd. / Morioka Railway Servicing Co., Ltd. / JR Akita Railway Services Co., Ltd. / JR Niigata Railway Services Co., Ltd. / JR Nagano Railway Services Co., Ltd. / JR Higashinihon Linen Co., Ltd.

■ Construction consulting and maintenance services

JR East Consultants Company / JR East Design Corporation / JR East Facility Management Co., Ltd. / JR East Mechatronics Co., Ltd. / Union Construction Co., Ltd.

■ Rolling stock manufacturing and maintenance

Japan Transport Engineering Company /JR East Rail Car Technology & Maintenance Co., Ltd.

■ Overseas railway consulting

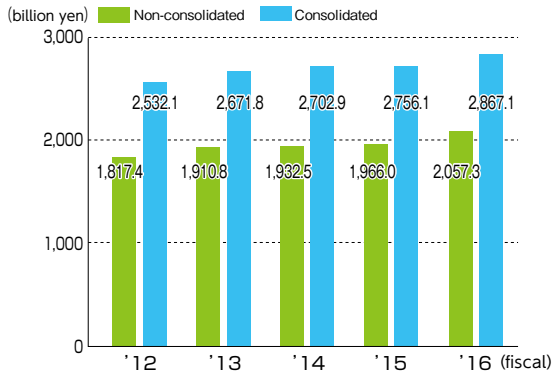
Japan International Consultants for Transportation Co., Ltd.

■ Generation and district heating and cooling

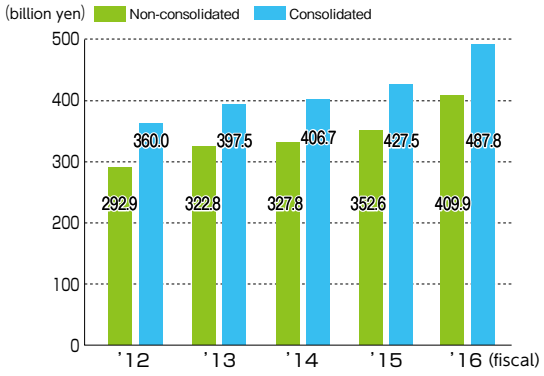
JR East Energy Development Co., Ltd / Shinjuku South Energy Service Co., Ltd.

Management Information

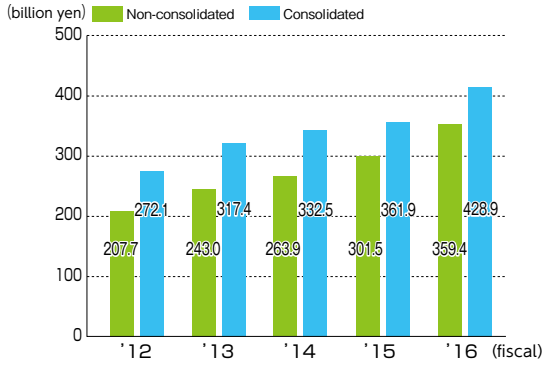
〈Operating Revenues〉



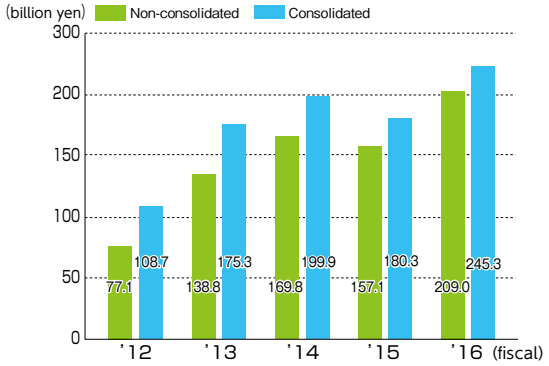
〈Operating Income〉



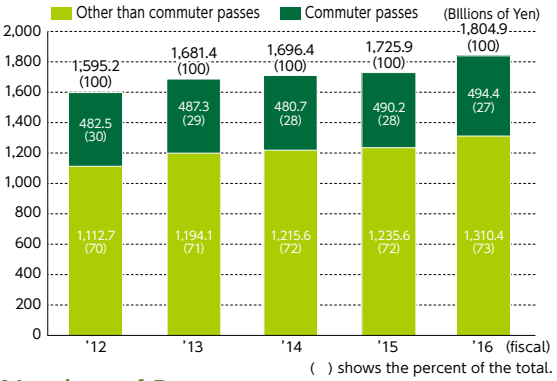
〈Ordinary Income〉



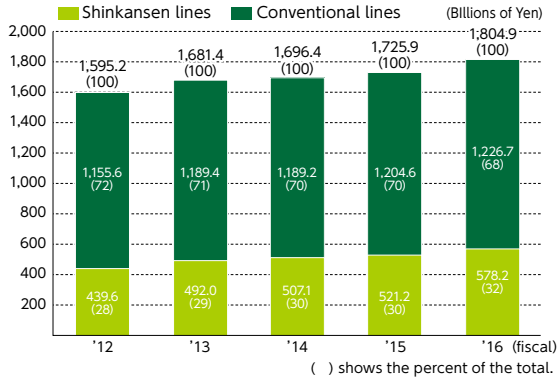
〈Net Income (Non-consolidated) and Profit attributable to owners of parent (Consolidated)〉



Revenues from Passenger Tickets

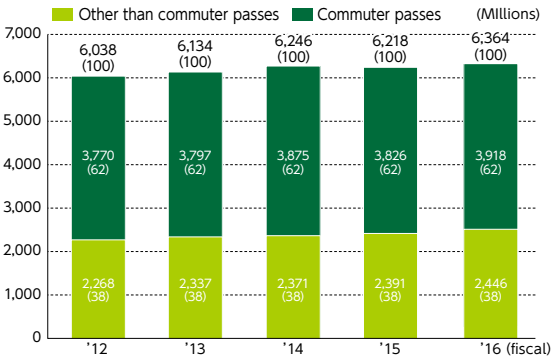


( ) shows the percent of the total.

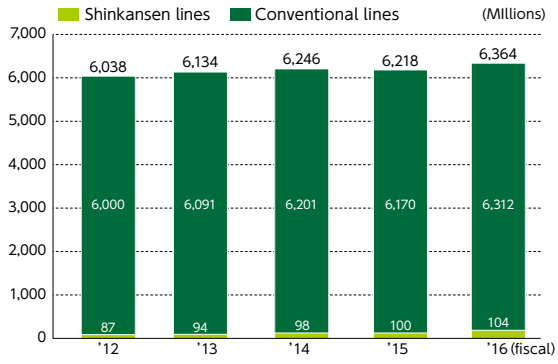


( ) shows the percent of the total.

Number of Passengers



( ) shows the percent of the total.



Note 1) Fractions of 100 million yen have been omitted.
Note 2) Fractions of 1 million passengers have been omitted.
Note 3) The sum of the numbers of passengers on the Shinkansen and conventional lines is greater than the passenger total because some individual passenger trips include both.

Consolidated Financial Statements for Fiscal 2016

(Year Ended March 31, 2016)

[Consolidated Balance Sheets]

(Millions of Yen)

	Fiscal 2016		Fiscal 2016
[ASSETS]		[LIABILITIES]	
Current Assets	**934,518**	**Current Liabilities**	**1,404,960**
Cash and time deposits	239,477	Notes and accounts payable-trade	48,803
Notes and accounts receivable-trade	439,443	Short-term loans and current portion of long-term loans	107,107
Fares receivable	38,489	Current portion of bonds	79,999
Short-term loans receivable	6,427	Current portion of long -term liabilities incurred for purchase of railway facilities	97,251
Securities	68,500	Payables	494,778
Real estate for sale	903	Accrued consumption taxes	23,955
Inventories	47,834	Accrued income taxes	83,238
Deferred income taxes	49,188	Fare deposits received with regard to railway connecting services	20,848
Other	45,826	Prepaid railway fares received	102,493
Allowance for doubtful accounts	△ 1,572	Allowance for bonuses to employees	73,092
Fixed Assets	**6,855,243**	Allowance for earthquake-damage losses	11,587
Property, plant and equipment, net of accumulated depreciation	**6,233,542**	Other	261,804
Buildings and fixtures (net)	3,128,743	**Long-Term Liabilities**	**3,922,264**
Machinery, rolling stock and vehicles (net)	726,591	Bonds	1,729,914
Land	2,002,529	Long-term loans	908,422
Construction in progress	306,398	Long-term liabilities incurred for purchase of railway facilities	341,074
Other (net)	69,279	Long-term deferred tax liabilities	3,361
Intangible assets	**127,859**	Allowance for earthquake-damage losses	14,672
Investments and other assets	**493,841**	Allowance for partial transfer costs of railway operation	19,087
Investments in securities	210,377	Net defined benefit liability	675,783
Long-term loans receivable	2,833	Other	229,948
Long-term deferred income taxes	217,256	**Total Liabilities**	**5,327,225**
Net defined benefit asset	112	NET ASSETS	
Other	63,976	**Shareholders' Equity**	**2,393,361**
Allowance for doubtful accounts	△ 713	Common stock	200,000
		Capital surplus	96,811
		Retained earnings	2,101,844
		Treasury stock, at cost	△ 5,295
		Accumulated Other Comprehensive Income	**48,767**
		Net unrealized holding gains (losses) on securities	43,771
		Net deferred gains (losses) on derivatives under hedge accounting	473
		Revaluation reserve for land	△ 473
		Remeasurements of defined benefit plans	4,996
		Non-Controlling Interests	**20,408**
		Total Net Assets	**2,462,537**
Total Assets	**7,789,762**	**Total Liabilities and Net Assets**	**7,789,762**

[Consolidated Statements of Income]

(Millions of Yen)

	Fiscal 2016
Operating Revenues	**2,867,199**
Operating Expenses	**2,379,378**
Transportation, other services and cost of sales	1,841,025
Selling, general and administrative expenses	538,352
Operating Income	**487,821**
Non-Operating Income	**21,616**
Interest income	214
Dividend income	3,703
Gains on sales of equipment	998
Insurance proceeds and dividends	10,067
Equity in net income of affiliated companies	2,565
Other	4,067
Non-Operating Expenses	**80,535**
Interest expense	76,332
Losses on sales of equipment	294
Other	3,908
Ordinary Income	**428,902**
Extraordinary Gains	**36,721**
Gains on sales of fixed assets	838
Construction grants received	24,487
Gain on sales of investments in securities	4,473
Other	6,921
Extraordinary Losses	**80,763**
Losses on sales of fixed assets	1,102
Losses from disposition of fixed assets	5,105
Losses on reduction entry for construction grants	18,346
Impairment losses on fixed assets	12,297
Intensive seismic reinforcement costs	10,288
Provision for allowance for earthquake-damage losses	25,085
Other	8,537
Income before Income Taxes	**384,860**
Income Taxes	**128,972**
Current	**9,326**
Deferred	**138,298**
Income before Minority Interests	**246,561**
Profit Attributable to Non-Controlling Interests	**1,251**
Profit Attributable to Owners of Parent	**245,309**

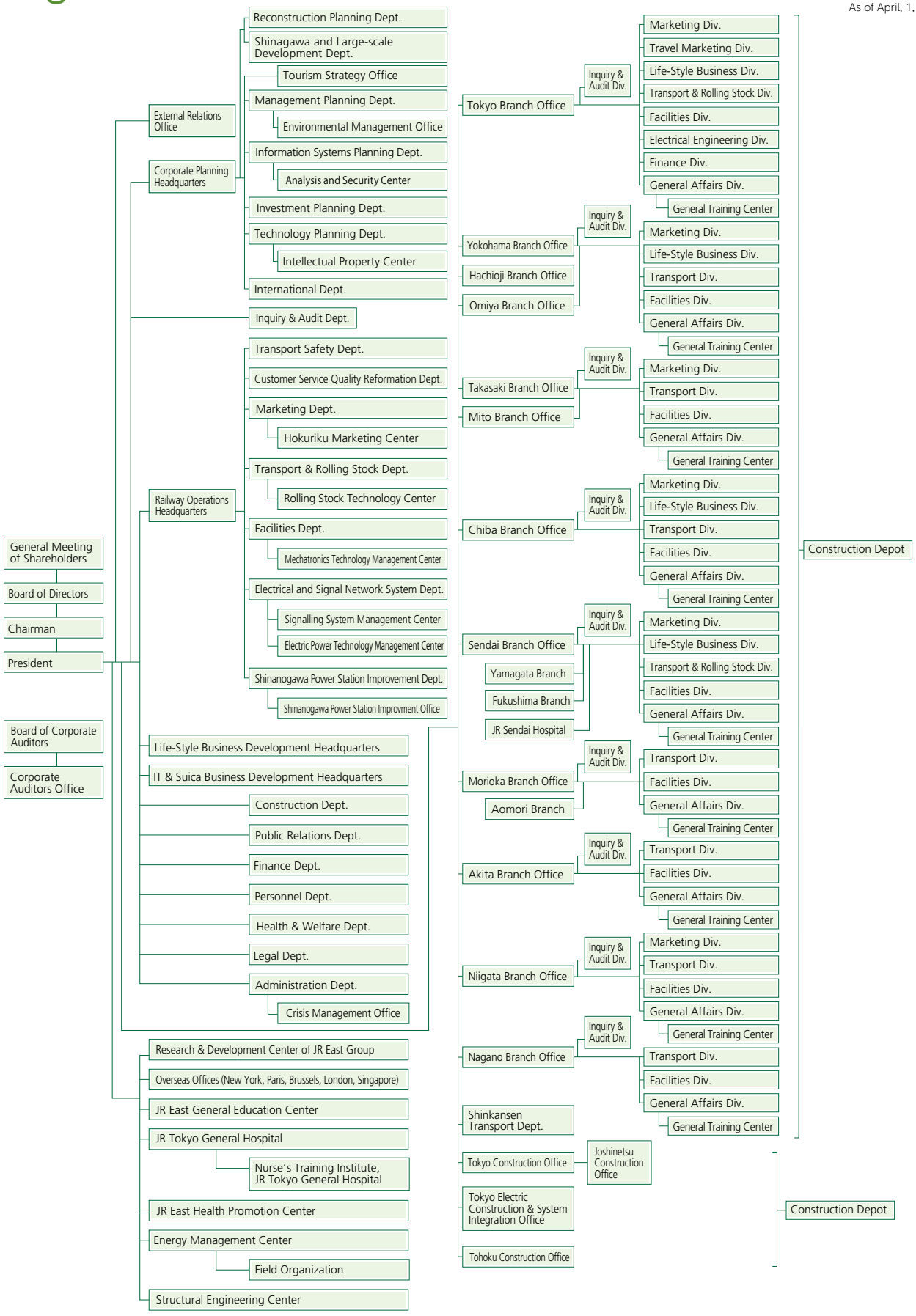
[Consolidated Statements of Cash Flows]

(Millions of Yen)

	Fiscal 2016
Cash Flows from Operating Activities	**673,109**
Income before income taxes	384,860
Depreciation	359,515
Impairment losses on fixed assets	12,297
Amortization of long-term prepaid expense	8,719
Net change in net defined benefit liability	△ 27,648
Interest and dividend income	△ 3,917
Interest expense	76,332
Construction grants received	△ 24,487
Losses from disposition of fixed assets	36,725
Losses from provision for cost reduction of fixed assets	18,346
Provision for allowance for earthquake-damage losses	25,085
Net change in major receivables	△ 27,637
Net change in major payables	13,688
Other	△ 19,618
Sub-total	832,259
Proceeds from interest and dividends	4,407
Payments of interest	△ 76,487
Insurance proceeds related to earthquake	14,688
Payments of earthquake-damage losses	△ 1,338
Payments of partial transfer costs of railway operation	△ 452
Payments of income taxes	△ 99,968
Cash Flows from Investing Activities	**△ 499,575**
Payments for purchases of fixed assets	△ 538,244
Proceeds from sales of fixed assets	11,531
Proceeds from construction grants	32,123
Payments for purchases of investments in securities	△ 713
Proceeds from sales of investment in securities	4,664
Other	△ 8,935
Cash Flows from Financing Activities	**△ 110,265**
Proceeds from long-term loans	140,600
Payments of long-term loans	△ 118,212
Proceeds from issuance of bonds	100,000
Payments for redemption of bonds	△ 55,000
Payments of liabilities incurred for purchase of railway facilities	△ 106,880
Payments for acquisition of treasury stock	△ 11,085
Cash dividends paid	△ 49,082
Other	△ 10,604
Net Change in Cash and Cash Equivalents	**63,268**
Cash and Cash Equivalents at Beginning of the Year	**245,170**
Decrease in Cash and Cash Equivalents Resulting from Exclusion of Subsidiaries from Consolidation	**△ 630**
Cash and Cash Equivalents at End of the Year	**307,809**

Organization

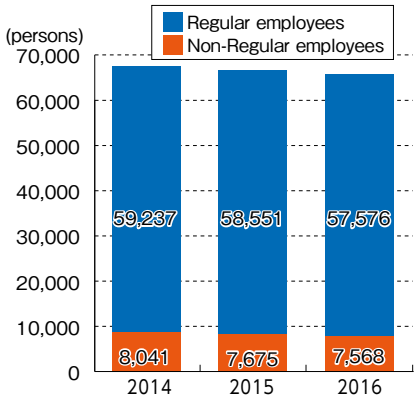
As of April, 1, 2016



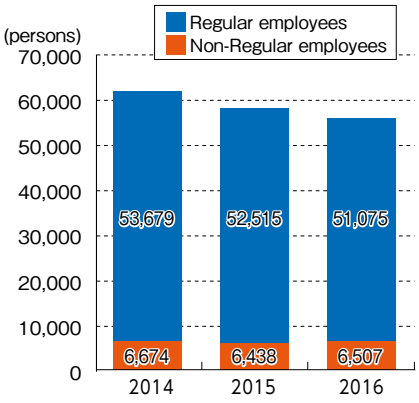
Personnel-related data

■ Total number of employees by employment type and gender (as of April 1)

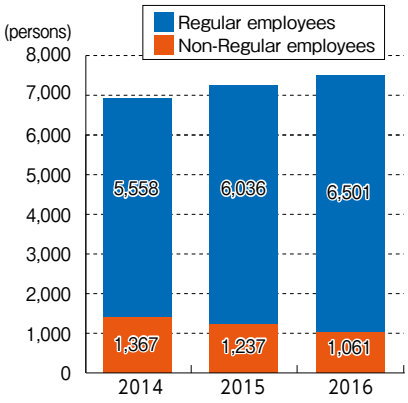
〈Total number of employees〉



〈Male〉



〈Female〉



■ Number of employees by area and gender (Regular employees, as of April 1)

(persons)

	Total			Male			Female		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
Tokyo metropolitan area	40,041	39,749	39,410	35,734	35,080	34,378	4,307	4,669	5,032
Tohoku area	12,991	12,659	12,121	12,124	11,723	11,116	867	936	1,005
Joshinetsu area	6,205	6,143	6,045	5,821	5,712	5,581	384	431	464
Total	59,237	58,551	57,576	53,679	52,515	51,075	5,558	6,036	6,501

■ Number of new employees and resignees (New employees are those employed within the fiscal year (Regular employees only))

(persons)

	New employees			Resignees		
	FY2014	FY2015	FY2016	FY2014	FY2015	FY2016
Male	1,362	1,354	1,325	1,976	2,511	2,759
Female	489	564	584	104	110	114

(persons)

	New employees			Resignees		
	FY2014	FY2015	FY2016	FY2014	FY2015	FY2016
Under 30 years of age	1,430	1,546	1,575	94	108	99
30 to 50 years of age	413	368	328	115	118	124
51 years of age and over	8	4	6	1,871	2,395	2,650

(persons)

	New employees			Resignees		
	FY2014	FY2015	FY2016	FY2014	FY2015	FY2016
Tokyo metropolitan area	1,400	1,426	1,413	1,370	1,656	1,702
Tohoku area	291	333	323	512	726	909
Joshinetsu area	160	159	173	198	239	262

■ Average annual training time per employee

(Time, person)

	FY2014	FY2015	FY2016
Total annual training hours	2,045,880	2,045,573	2,601,210
Number of employees (as of April 1, 2016)	59,371	59,237	58,551
Average annual training hours per employee	34	35	44

■ Ratio of employees eligible for collective bargaining agreements (Regular employees, as of April 1)

(person)

	2014	2015	2016
Number of union members	52,234	51,493	50,546
Number of employees	59,237	58,551	57,576
Ratio	88.2%	87.9%	87.8%

JR East Group
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