“For the Future Transportation Networks”
— Our Mission is to Relay Transportation Networks that Support the Economy and Amenities of Life to the Future

To contribute to the sound development of the public economy and the improvement of national life, the Japan Railway Construction, Transport and Technology Agency (JRTT) strives for the following objectives:

- To establish a transportation system founded on mass transit infrastructures for maintaining and enhancing regional developments and urban functions
- To promote various research in the field of transportation for establishing smooth transportation on the ground, on the ocean and in the air

JRTT realizes a safe and environmentally friendly transportation network using our “proven technologies and rich experience.”

Railway Construction
To enhance the railway network, we construct new shinkansen lines and urban railways in an economic and efficient way. We also conduct various research projects on the improvement of the railway network.

Joint Ownership Shipbuilding Scheme of Coastal Ships
We provide financial and technical support to coastal shipping companies through joint ownership shipbuilding schemes.

Settlement of JNR
We continue to work on the sale of the lands previously owned by the former Japanese National Railways (JNR) to be used for new urban developments.

Subsidies for Railways
We provide various subsidies for railway companies to promote the construction of railway facilities and technical developments.

Research and Development
We provide support for research and practical applications of advanced ship technologies. We also conduct fundamental studies in the field of transportation.
I  Development of Transportation Networks

1. Development of Railway Networks
   (1) Development of Shinkansen Networks
   (2) Development of New Urban Railway Networks
   (3) Improvement of Trunk Railways
   (4) Facility Improvements and Technical Support for Railway Companies
2. Development of Marine Transportation Networks
   (1) Joint Ownership Shipbuilding Scheme
   (2) Technical Support from Planning to the Commencement of Service

II  Technology Development

1. Development of Railway Technology
2. Development of Ship Technology
   (1) Subsidies for R&D
   (2) Subsidies for Practical Applications
   (3) Debt Guarantee
   (4) Dissemination of New Technologies for Coastal Ships
3. Fundamental Research in the Field of Transportation
   (1) Fundamental Research Promotion Program
   (2) Introduction of Fundamental Research in the Field of Transportation

III  Contribution to Society

1. Safety and Stability
   (1) Improvement of Safety
   (2) Improvement of Stability
2. Efforts for Environmental Preservation
   (1) We Contribute to the Development of a Global Environmentally Friendly Transportation System through Construction and Subsidies for Railways and Joint Ownership Shipbuilding
   (2) We Strive to Construct Environmentally Friendly Railways
   (3) We Promote Shipbuilding of e-Ships (Low CO2 Emission Ships and Non-Marine Pollution Ships)
   (4) We Provide Supports for Environmental R&D
   (5) We Contribute to Regional Communities
3. Promotion of Universal Design
   (1) Railway Facilities with Universal Designs
   (2) Joint Ownership Shipbuilding with Barrier Free Designs
4. Toward the Development of Regional Communities
   (1) Contribution to Wayside Communities through the Improvement of Railways
   (2) Urban Vitalization through the Development of the LRT System
   (3) We Secure Infrastructures by Providing Support to Remote Island Sea Routes
   (4) Contribution to Attractive Urban Developments Utilizing Former JNR-Owned Lands
5. Activities for International Cooperation
6. Operational Achievements of JRTT

IV  Outline of JRTT

History up until the Foundation of JRTT
Background of the Foundation of JRTT
Organization Chart
Guide Map and Contact Points

Japanese Fiscal Year: from April to March
Development of Transportation Networks

1. Development of Railway Networks

We promote the improvement of railway networks. Some of our activities include the construction of new shinkansen lines to develop the axis of national transportation, and the enhancement of convenience in urban areas.

- Construction of Shinkansen Lines and Urban Railways
- Subsidies for the Development of Railways

2. Development of Marine Transportation Networks

We provide the joint ownership shipbuilding scheme to promote introducing environmentally friendly and barrier free vessels into coastal transportation.

- Construction of environmentally friendly ships
- Construction of barrier-free passenger ships
1. Development of Railway Networks

We promote the improvement of railway networks. Some of our activities include the construction of new shinkansen lines to develop the axis of national transportation, and the enhancement of convenience in urban areas.

(1) Development of Shinkansen Networks

Based on the Nationwide Shinkansen Railway Development Law, we promote the construction of new shinkansen lines. The construction projects are funded by the national and local governments as well as by revenue generated from the sale of existing shinkansen lines. We have already completed three sections on three lines including the Hokuriku Shinkansen (Takasaki - Nagano). After completion, facilities are leased to and operated by Japan Railway companies (JR). Additional constructions are underway in five sections on four lines: Hokkaido, Tohoku, Hokuriku and Kyushu lines.

Hokuriku Shinkansen, Bridge across Kurobe River

Nagano - Kanazawa [228km]
Construction is in progress for scheduled completion in late FY 2014.

Takasaki - Nagano [117km]
In October 1997, the Takasaki - Nagano section was commenced and contributed to mass transportation for the Nagano Olympic Games. Since then, it has continuously been achieving good transportation results.

Fukui Station Section
Construction is in progress for scheduled completion in late FY 2008.

Takeo Onsen - Isahaya [45km]
Construction is in progress for scheduled completion after about 10 years from March 2003.

Shin-Aomori - Shin-Hakodate [149km]
The construction began in FY 2005, and is in progress for scheduled completion in late FY 2015.

Hachinohe - Shin-Aomori [82km]
Construction is in progress for scheduled completion in late FY 2010.

Morioka - Hachinohe [97km]
The Tohoku Shinkansen was extended to Hachinohe in December 2002. Since then, the number of passengers drastically increased with good transportation results being achieved.

Shin-Yatsushiro - Kagoshima Chuo [127km]
This route was commenced in March 2004. Compared to the previous conventional line, the number of passengers drastically increased with good transportation results being achieved.

Hakata - Shin-Yatsushiro [130km]
Construction is in progress for scheduled completion in late FY 2010.

Kyushu Shinkansen, Chikushi Tunnel
We promote the development of urban railway networks in and around metropolitan areas^Note^, which include subways, new-town railways and airport access railways.

^Note^ Metropolitan areas: Tokyo, Osaka, Nagoya, their surrounding areas and cities with a population of more than 500,000

○ Tsukuba Express
JRTT played a main role in the construction of new line of the Tsukuba Express, which connects Akihabara and Tsukuba Science City with a maximum operating speed of 130 km/h. This line contributes to the development of a convenient transportation system in the area to the north-east of the Tokyo metropolitan area as well as to the mitigation of congestion on the JR Joban line.

○ Subways
We promote construction of new subway lines and upgrading of existing lines for a barrier free environment.
Subway lines currently under construction include the Tozai Line in Sendai City, Yokohama subway line No. 4, Nagoya subway line No. 6, Keihan Nakanoshima new line, and the Hanshin Nishi-Osaka Line.

○ New-Town Railways
We promote construction of railways in new town areas, which serve for commuters traveling to the office or school.
The Keihanna Line provides better access to the center of Osaka from Kansai Science City and neighboring new towns.

○ Airport Access Railways
We promote the construction of airport access railways connecting metropolitan areas and airports.
Due to a mutual trackage agreement with JR, the Sendai Airport Line connects Sendai Station and Sendai Airport in the fastest time of 17 minutes. The Narita New Rapid Railway will make it possible to travel from the center of Tokyo to Narita Airport in 36 minutes.

○ Drastic Improvement of Private Railways in metropolitan areas
In order to enhance the transportation capacity in metropolitan areas, we promote the construction of urgently-needed four-track lines for private railways. Constructions are now underway on the Seibu Ikebukuro Line and Odakyu Odawara Line.

○ Integrated Development of Railway Stations
In collaboration with urban development projects such as the construction of station squares and free access passages, we promote the integrated development of station facilities such as the widening of access passages and addition of platforms. Constructions are now underway at Nippori Station of the Keisei Line and Kamata Station of the Keikyu Line.
Promotion of New Developments by Effectively Using Existing Facilities
(Convenience Enhancement Project for Urban Railways)

Based on “the Urban Railways Improvement Law” enacted in FY 2005, we conduct new projects for improving users’ convenience, which include the construction of connection lines with an effective use of existing railway facilities for the elimination of train changes and a shorter traveling time; and the improvements of station facilities for easier access.

Area under the shorter traveling time project

1) Shorter Traveling Time

To improve accessibility from the central Kanagawa area and western part of Yokohama city to the Tokyo metropolitan area, we lead the construction projects for direct connection lines. Construction is now underway between Nishiya Station of the Sotetsu Line and an adjacent point of Yokohama Hazawa Station on the JR Tokaido freight line, and between the adjacent point of Yokohama Hazawa Station and Tokyu Hiyoshi Station.

2) Easier Access to the Station Facilities

Development of Sannomiya Station of the Hanshin Electric Railway

At Sannomiya Station (on the trunk line of the Hanshin Electric Railway), improvements of station facilities are performed including the addition of an East ticket gate, widening of platforms, rearrangement of line in the station yard, and an upgrading of the facilities for barrier free access. Striving for the enhanced connectivity of transportation systems, this project is underway in line with the urban project around the station.
(3) Improvement of Trunk Railways

◉ Speeding up Trunk Railways
To increase the train speed on existing trunk railways, we promote facility improvements including the improvement of track alignment and the double-tracking on single track sections.

◉ Enhancement of Freight Railway Capacity
Focusing on the sections having strong transportation demands such as the Tokaido and Sanyo lines, we promote the improvements of railway facilities to enhance transportation capacity, such as enabling the long formation of container trains.

(4) Facility Improvements and Technical Support for Railway Companies

In order to ensure railway safety and improve transportation services, we promote the upgrading of railway facilities. We also strongly promote the “Home Doctor” service, which provides local railway companies with consultation for the daily maintenance of railway facilities, advice for renovation planning, and briefing on various subsidy programs such as the modernization subsidy.

We are a Family Doctor for Railway

When you consider repair or renovation work for railway facilities, we provide advice on strategy and menu options for execution plans. We also provide consultation services for various subsidy programs. In addition, we give advice for upgrading the services by means of increasing service frequency, reducing traveling time, improving the convenience of connections, etc. Consultation and advice results may lead to more detailed and technical services.

For consultation, contact Transport of Division, Corporate Planning Dept. at 045-222-9016
2. Development of Marine Transportation Networks

We build ships under the joint ownership shipbuilding scheme to promote the construction of environmentally friendly and barrier free vessels for coastal transportation.

(1) Joint Ownership Shipbuilding Scheme

Under the joint ownership shipbuilding scheme, JRTT and a marine transportation company (partner) share the cost of shipbuilding and jointly place orders to a shipbuilding company for the construction of ships. On completion of the shipbuilding, JRTT and its partner co-own the ship in proportion to the contribution of the building cost, and the partner uses and manages the operation of the ship.

This scheme does not ask the marine transportation company to provide any security for the cost being shared by JRTT, and thus enables a company with low fundraising capacity to easily construct a ship.

Support by engineers having specialized knowledge and plenty of know-how acquired through the experiences of shipbuilding over 3,700 vessels.

1. Advice for the ship design review
2. Construction supervision during shipbuilding
3. Support for vessel maintenance during the joint ownership period
At each stage of the planning, design and building of a ship, JRTT provides technical support of engineers having specialized knowledge and an abundance of know-how and data acquired through the experiences of having owned jointly over 3,700 vessels. After completing the ship, JRTT also provides technical support for safe and efficient operation of the ship.

While coastal shipping accounts for about 40% of total domestic freight, as for raw materials for essential industries such as iron, steel, oil and cement, the percentage ratio reaches about 80%. JRTT supports our national life and economy as the largest ship owner in Japan with 389 freight ships and 109 passenger ships as of the end of FY 2006.
1. Development of Railway Technology

We promote technology developments for linear-motor trains, gauge change train (free-gauge trains), the enhancement of safety and so on.

Technology Development for Linear-Motor Trains

Yamanashi Maglev Test Line

Superconducting magnetically levitated railway system (Maglev, linear-motor train) is expected to be a new transit system for the 21st century attracting worldwide attention. Currently, Central Japan Railway Company (JR-Central) and Railway Technical Research Institute (RTRI) jointly perform various experiments to assess long-term durability, economic feasibility, etc., striving to realize a dream to connect Tokyo and Osaka in one hour at the speed of 500 km/h.

Collaborating with JR-Central and RTRI, JRTT challenges the technology developments to resolve a number of issues.
Research Gauge Change Train

Gauge Change Train can freely between Shinkansen (standard gauge) and conventional lines (narrow gauge) by automatically adjusting the wheel gauge to the track gauge. Gauge Change Train thus allow through operation between different gauge lines eliminating the inconvenience of changing trains and reducing traveling time.

Technology Development for Safety Enhancement and Environmental Load Reduction

In striving to improve the safety of railway cars in the case of lateral collisions, we actively conduct research to clarify key parameters that determine the structural strength of cars by means of sorting and analyzing past collision data as well as by performing model experimentation.

Development of the GRAPE System

GRAPE (Geographic Information System (GIS) for Railway Project Evaluation) is a support tool for transportation planning. The GRAPE system provides powerful functions for analysis and displays by integrating a GIS system that contains population and land use data with railway network information such as traffic volume and number of railway station users. Some of the applications of the GRAPE system include new railway development planning and the evaluation of various convenience improvement measures such as the facilitation of smooth train connections and the revision of train diagrams, concerning which the evaluation results are presented in a visual format.
2. Development of Ship Technology

We provide various kinds of support, e.g., subsidy grants and debt guarantees to promote R&D, practical applications and the dissemination of ship technologies.

Subsidies for R&D

Subsidies for Practical Applications

Dissemination of New Technologies for Coastal Ships

Debt Guarantee for R&D and Practical Applications

(1) Subsidies for R&D

Subsidies are granted to R&D on advanced ship technologies conducted in the private sector.

R&D on Natural Gas Hydrate Carriers (From FY 2005 onward)

In order to use effectively natural gas with low environmental burden for which we are less dependent on the Middle East, we subsidize R&D on freight ships for transporting natural gas hydrate (NGH) Note), which are cost-effective even on small and medium-sized gas fields.

Note: NGH is a solid substance consisting of natural gas molecules surrounded by water molecules.

R&D on Non-Ballast Ships (From FY 2003 to FY 2005)

When ballast water (seawater taken up by an empty tanker and used as weight to stabilize it) is released, organisms such as plankton may proliferate in oceans other than their original habitats. To prevent the resulting problems, we subsidized an R&D project for an innovative ship (Non-Ballast Ship) that is able to sail safely without ballast water.

In addition to the above projects, we have provided support for R&D on Techno Super Liner (TSL), Very Large Floating Structure (Mega-float), etc. We also provide subsidies for the interest payments on borrowed funds for experimentation and research of advanced ship technologies.
(2) Subsidies for Practical Applications

For the promotion of the practical applications of new technologies, we provide subsidies (e.g., design costs of products) for.

(3) Debt Guarantee

We guarantee debts from borrowed funds for R&D or the practical application of advanced ship technologies.

(4) Dissemination of New Technologies for Coastal Ships

For the promotion of shipbuilding to replace existing coastal ships and satisfy public need for efficient freight distribution and environmental burden reduction, we are making efforts to disseminate the use of environmentally friendly and economical electric propulsion ships (Super Eco-Ship: SES).

We promote the construction of SES by reducing the financial burden of ship owners and providing technical support for the development of hull forms.

The First SES “Miyajima-Maru”

Rotating pod propellers mounted under the bow and stern power and maneuver the ship.
3. Fundamental Research in the Field of Transportation

Under the “Program for Promoting Fundamental Transport Technology Research,” in order to promote research on the safety of transportation and environmental preservation as well as to establish innovative technologies that contribute to advanced transportation services, we invite the public to submit novel and creative research proposals, and commission institutes that propose superior themes to conduct assigned research (research period: 3 years in principle).

![Image of Instrument for Particle Number Concentration Measurement]

Research on Transportation Safety and Environmental Preservation
Novel and Creative Research
Establishment of Innovative Technologies that Contribute to Advanced Transportation Services

(1) Fundamental Research Promotion Program

We receive a subsidy from the Ministry of Land, Infrastructure and Transport (MLIT) for operating expenses to implement a fundamental research promotion program. We have set up the “Fundamental Research Promotion Committee,” consisting of external intellectuals, which determines the research topics and reviews the general operation of the program. We have also set up the “Fundamental Research Examination Committee” to select research subjects, to evaluate the research results (interim and final evaluations), and to select step-up research projects that will be continued beyond the scheduled research period.

(2) Introduction of Fundamental Research in the Field of Transportation

The following research projects are undertaken in various fields under commissioned research programs or the like.

1) Technology for Transportation in Harmony with the Global Environment


The goal of this research is to develop a small-sized, light-weight, high-output ship propulsion motor using high-temperature superconductor wire material Note). This motor, which provides a high energy conversion ratio, is expected to be widely used and reduce environmental burden.

Note) High-temperature superconductor wire material: Material used for high-temperature superconductivity (phenomenon occurring in certain substances, whose electrical resistance drops to zero at a temperature of -200C or above). Such wire has a power transfer capability at least 130 times greater than that of conventional electric wires.

![Conceptual Image of a Superconductor Synchronous Motor]
2) Technology for Mitigating Damage from Natural Disasters

- Research on a New Numerical Simulation of Tsunami Disaster and Its Application to Disaster Mitigation (FY 2006 - FY 2008)

In this research, we clarify the generation process of a tsunami disaster through large-scale hydraulic model experiments, create dynamic hazard maps using simulation techniques to reproduce disaster phenomena, and investigate methods for utilizing the research results in local disaster preparation planning. This will enable us to visually present a tsunami disaster to the general public and help to implement local disaster preparations.

3) Technology for Accident Prevention


In this research, we develop a seat sensor Note) installed in the driver’s seat, aiming at an application for preventing drive dozing. This technology is expected to reduce traffic accidents caused by drive dozing, which poses a problem for drivers who drive for long periods of time.

Note) Seat sensor: It detects signs of falling asleep, which are unpredictable by the conventional measurement of body movements or brain waves, by performing chaos analysis of fluctuations in biological signals such as the pulse rate and breathing rate.

4) Technology for Advanced Transportation through Utilizing IT, Seeking New Frontiers, Etc.


In this research, we study the skills of site workers and are developing an advanced stowage management system that automatically determines the optimum stowage of pallets and containers. This will lead to the establishment of an efficient freight transportation system.
1. Safety and Stability

We will promote the development of safe and stable transport facilities.

(1) Improvement of safety

Spread and improvement of Automatic Train Protection (ATP)

In order to prevent a train collision caused by overlooking the signal etc., we promote the enhancement of railroad safety, for example, by installing and improving the equipment for automatic train speed reduction and breaking.

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Seismic Reinforcement of Railway Station

In preparation for an anticipated big earthquake, we are speeding up the implementation of seismic reinforcement at major railway stations that have key functions such as bases for transporting emergency staff.
(2) Improvement of stability

Snow melting system that achieves stable transportation in the winter season
For the trains running through heavy snowfall areas, we develop and install various types of snow melting machines including: “sprinkler snowmelting system” that melts snow by sprinkling water, “warm-water plate snowmelting system” that melts snow by circulating warm water, and “warm-water jet machine” that quickly melts snow on the railroad switch. These machines greatly contribute to stable transportation in the winter season.

Signaling system that ensures the improvement of riding comfort and reduction of time
The newly developed Automatic Train Control (ATC) system has been put into practical use. Coupled with the super long rail, the new ATC system not only improves the riding comfort and amenity, but also achieves early arrival and shorter headway of the train.
2. Efforts for Environment Preservation

We Promote the Development of a Global Environmentally Friendly Transportation Network

JRTT has Established the “Basic Environmental Policy,” and Promote Efforts to Reduce Environmental Burden.

The mission of the Japan Railway Construction, Transport and Technology Agency (JRTT) is to develop smoothly functioning ground transportation and marine transportation systems contributing to the wholesome development of the national economy and the improvement of our life. JRTT makes active efforts to preserve the global environment and contributes to the public through the construction of future transportation networks that are in harmony with the rich and beautiful natural environment.

1. We make efforts to reduce environmental burden through our entire activities, which include railway construction, support services such as providing subsidies for railway and marine transportation companies to promote the development of transportation facilities, and fundamental research on transportation technologies.

2. We comply with environmental laws and regulations as well as standards set by us.

3. We proactively participate in regional activities for environmental preservation, thereby contributing to regional communities.

Global Environmentally Friendly Railway and Ships

When transportation modes are compared in terms of unit CO₂ emissions of passenger transportation (amount of CO₂ emitted when carrying one person for 1 km), railway transportation produces only about one-ninth of the CO₂ emitted from private cars. As for unit CO₂ emissions of freight transportation (amount of CO₂ emission produced when carrying one ton of cargo for 1 km), railway transportation produces only about one-eighth and coastal ships produce about one-quarter of the CO₂ emitted from commercial trucks.

<table>
<thead>
<tr>
<th>Unit CO₂ Emission of Passenger Transportation (FY 2005)</th>
<th>Unit CO₂ Emission of Freight Transportation (FY 2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private car</td>
<td>Private truck</td>
</tr>
<tr>
<td>Commercial car</td>
<td>Commercial truck</td>
</tr>
<tr>
<td>Bus</td>
<td>Ship</td>
</tr>
<tr>
<td>Airplane</td>
<td>Railway</td>
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Source: “Transportation and Environment, 2006 Version,” Foundation for Promoting Personal Mobility and Ecological Transportation
(1) We Contribute to the Development of a Global Environmentally Friendly Transportation System through Construction and Subsidies for Railways and Joint Ownership Shipbuilding

◎ Environmental Preservation by the Construction of Shinkansen
As of FY 2006, construction of four shinkansen lines commenced on the route such as Hokkaido Shinkansen (Shin-Aomori – Shin-Hakodate). When all the four lines begin commercial operation, the reduction of CO₂ emission is estimated to be 353,000 t-CO₂/year, which results from the shift of passengers from airplanes, buses and cars. For your reference, this CO₂ emission reduction is equivalent to the effect of forestation of ceder trees in an area of about 274 km².

◎ Environmental Preservation by Constructing Urban Railways and Trunk Railways
In FY 2006, subsidies were provided to 14 lines including the Tozai Line in Sendai city. When 14 lines begin commercial operation, the reduction of CO₂ emission is estimated to be 438,600 t-CO₂/year resulting from the shift of passengers and freight from other modes of transportation. For your reference, this CO₂ emission reduction is equivalent to the effect of forestation of ceder trees in an area of about 341 km².

◎ Environmental Preservation by the Joint Ownership Shipbuilding Program
We have supported shipbuilding projects that contribute to environmental preservation activities, and 8 ships entered service in FY 2006. The resulting reduction of CO₂ emission is estimated to be 57,000 t-CO₂/year, which is equivalent to the effect of forestation of ceder trees in an area of about 45 km².
(2) We Strive to Construct Environmentally Friendly Railways

🎯 Measures against Global Warming (Promotion of Energy-Saving Design)
While light bulbs have been used for the light source of railway signals, we have introduced new signals using light emitting diodes (LED) for Sendai Airport Line and Narita New Rapid Railway. The power consumption of LED type signals is about one-quarter of the conventional specification. In addition, there is no need to replace light bulbs. This will speed up energy saving and reduce CO₂ emissions.

🎯 Harmful Substance Control (Control of Harmful Substances Contained in Excavated Dirt from Tunnels)
Excavated dirt from Hakkoda Tunnel of Tohoku Shinkansen contains a large amount of mineralized altered rock, which reacts with ground water and atmospheric oxygen to produce acid water. Since it may exert harmful effects on the environment around the dirt disposal site, we make efforts to reduce the environmental burden by segregating excavated dirt, isolating the dirt from the water or air and covering the ground with vegetation.

🎯 Consideration to the Ecosystem (Large Amount Dirt Transfer System Using Very Long Curved Belt Conveyer)
During the construction of Hakkoda Tunnel of the Tohoku Shinkansen, a nest of hawk eagle, listed as a class 1B endangered species, was found in the forest adjacent to the planned entrance to an inclined passageway. In order to transfer the excavated dirt, we consequently developed a very long curved belt conveyor, which features low noise and low vibration capabilities and is adjustable to sharp curves. This system not only cares for the ecosystem of hawk eagles, but significantly reduces CO₂ emissions compared to the dirt being hauling with dump trucks and contributes to environmental burden reduction.
(3) We Promote Shipbuilding of e-Ships (Low CO₂ Emission Ships and Marine Pollution Prevention Ships)

We provide funding on favorable terms for building ships that contribute to the preservation of marine environments (e-Ship), including low CO₂ emission ships and non-marine pollution ships. Through such funding we contribute to the promotion of e-Ships. On the low CO₂ emission ships, the fuel consumption of the main engine is reduced and propulsion efficiency is improved, which achieves a CO₂ emission level at least 10% lower than that of conventional ships. Marine pollution prevention ships have a double hull structure that prevents oil spills in the case of collision.

(4) We Provide Supports for Environmental R&D

In order to promote R&D activities and fundamental studies that contribute to environmental preservation, we provide support by granting subsidies to, e.g., R&D on advanced ship technologies, and fundamental studies on “Technology for Transportation in Harmony with the Global Environment.”

(5) We Contribute to Regional Communities

Understanding the importance of building partnerships with regional communities, we make various efforts to contribute to the improvement of regional environments. On May 30th every year, headquarters members participate in the “Zero Trash Clean Campaign in Kanagawa” performing cleaning activities around the headquarters office.
3. Promotion of Universal Design
We Promote the Development of People Friendly Transportation Facilities

(1) Railway Facilities with Universal Designs

Train Connections on the Same Platform (Shin-Yatsushiro Station, Kyushu Shinkansen)
For the time being, Shin-Yatsushiro is the starting station of the shinkansen and conventional express train “Relay Tsubame” pulls into the elevated shinkansen line and arrives at the same platform opposite to the shinkansen train “Tsubame.” This system provides a convenient way for changing trains, whereby passengers do not need to go up and down the stairs. It is also a people-friendly system for passengers using wheelchairs. To change trains, it took 10 to 15 minutes in the previous system, whereas it now takes only 3 minutes for moving to the opposite side on the same platform.

Implementation of User-Friendly Stations

Striving for User-Friendly, Accessible and Easy-to-Follow Stations for Everyone

Safe and Accessible Space and Facilities
The safety conscious “platform door” is an accident prevention facility protecting passengers from accidentally coming into contact with a train or falling onto the track.

Safe and Accessible Space and Facilities
The easy-to-find and easy-to-use “See-through Elevator” provides an inside space that allows a wheelchair to turn around. “Dual Height Handrails” are installed along stairways, allowing each passenger to choose the suitable one for his/her height.

Easy-to-Follow Space and Facilities
Even in the underground space, bright lighting facilities similar to natural sunlight are installed to create a comfortable “Concourse,” which provides a good view and conveniently leads passengers to the platform.

Comfortable Space and Facilities
Simple and multi-functional toilets are installed for men and women. Baby chairs are attached and wheelchairs are accessible. In addition to washbasins, a dressing corner is also provided.

Prizes for the Promotion of Barrier Free Environments

FY 2004
• Prize for contributing to barrier free promotion (Honored by Chief Cabinet Secretary):
  Development of barrier free environments at Shin-Yatsushiro Station, Kyushu Shinkansen

FY 2005
• Grand prize for excellent barrier free facilities: The stations of the Minatomirai Line
• Grand prize for excellent barrier free promotion: Tsukuba Express
(2) Joint Ownership Shipbuilding with Barrier Free Designs

Between FY 2001 and FY 2005, JRTT built 41 passenger ships equipped with barrier free facilities in compliance with the philosophy of the Barrier Free Transportation Law (Law No. 68 of 2000), which was enacted to facilitate elderly or physically handicapped people to travel using public transportation.

Passenger Ship “Shimanagi” Equipped with Barrier Free Facilities

“Shimanagi” is currently in service in Onagawa-cho, Oshika-gun, Miyagi Prefecture. This passenger ship is equipped with barrier free facilities having a capacity of 100 passengers and 4.7 tons of freight.

Each part of the ship is designed to provide passengers with a comfortable time and better services during voyages.

Passenger Ship “Shimanagi” Equipped with Barrier Free Facilities

Handrails and onboard-facility direction boards explained in Braille

Barrier free cabin with sufficient aisle width

Multifunctional toilet being equipped with a barrier-free wash basin, handrail, flip-up baby seat, etc.

Grand Prize for Excellent Barrier Free Promotion 2005

“Ferries Kyoto 2 and Fukuoka 2”

(Completed in FY 2002)

These barrier free ships were built prior to the enforcement of the Barrier Free Transportation Law, and have become showcases for the following barrier free ships.
4. Toward the Development of Regional Communities

We Contribute to the Development of Regional Communities through the Improvement of Transportation Networks

(1) Contribution to Wayside Communities through the Improvement of Railways

**Expanded the Accessible Area with the Commencement of Shinkansen**

**Hokuriku Shinkansen**
Example Effects of the Takasaki - Nagano Section

- Significant Time Reduction Has Expanded the Accessible Area

Traveling Time from Tokyo to Nagano

<table>
<thead>
<tr>
<th>Before commencement</th>
<th>After commencement</th>
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<tbody>
<tr>
<td>2 hours 56 minutes</td>
<td>1 hour 23 minutes</td>
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</table>

Reduction by 1 hour 33 minutes

**Tohoku Shinkansen**
Example Effects of the Morioka - Hachinohe Section

- Tourism Expenditure by Railway Users Increased by 2.4 Times

* 2.4 Times
* 11.1 billion yen/year
* 26.6 billion yen/year

**Kyushu Shinkansen**
Example Effects of the Shin-Yatsushiro - Kagoshima Chuo Section

- Big Ripple Effects on Regional Economies
  Kagoshima Prefecture: 16.6 billion yen

Resulting from an increase of visitors into the prefecture, positive economic ripple effects by far surpass the outflow of expenditure from the prefecture.

<table>
<thead>
<tr>
<th>Economic ripple effects into the prefecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.6 billion yen</td>
</tr>
</tbody>
</table>

* Annual tourism expenditure is estimated from the number of daily passengers on “Hatsukari” and “Hayate” (Morioka - Hachinohe section) and average expense per person per trip.
Development of Wayside Communities along the Tsukuba Express

Along the Tsukuba Express Line, various urban developments are in progress as parts of the “Integrated Land Readjustment Project,” in which railway construction and wayside development are concurrently performed.

Outline of the Integrated Land Readjustment Project

1st stage: Railway company purchases in advance the land within the project area.
2nd stage: The lands purchased in advance are exchanged with the consolidated area within the railway facility area.
3rd stage: Railway, public facilities and residences are constructed to complete the integrated urban development project.

(2) Urban Vitalization through the Development of the LRT System

We contribute to the urban activation coping with the aging population and low birth rate by promoting the LRT (Light Rail Transit) system, which is friendly to both people and environment. The LRT system utilizing low-floor tram cars, etc. provides a more barrier free environment compared to conventional tram cars, as well as shorter traveling times, higher punctuality and operation frequency, sufficient transportation capacity, reduced vibration and noise, and harmony with the city environment.
(3) We Secure Infrastructures by Providing Support to Remote Island Sea Routes

To maintain sea routes for remote islands, JRTT provides passenger ship companies with financial aid and technical support required to build ships.

In the five years from FY 2001 to FY 2005, JRTT was engaged in 29 shipbuilding projects in cooperation with 28 companies.

We contribute to the sound development of the public economy and the improvement of national life by building ships to provide transportation for residents living on remote islands.

Passenger Ship “Yusho” Currently in Service for Remote Island Sea Routes

Yusho connects between Yobuko and Madarashima, Saga Prefecture, working as a bridge for daily life and contributes to the improvement of services for passengers.

Passenger Ship “Yusho” for Remote Island Sea Route

- Transport for the life of 550 island residents, used by 50 thousand passengers a year
- Compared to the previous ship, speed was increased by 30% and increased convenience is offered

What is a Remote Island Sea Route?

- Sea route connecting a remote island to the mainland
- Sea route connecting remote islands
- Other than the above, a sea route between two geographic points where no land transportation is available or land transportation is extremely inconvenient

From Article 2, Law for Development of Sea Route for Remote Island (Law No. 226 of 1952)
(4) Contribution to Attractive Urban Developments Utilizing Former JNR-Owned Lands

○ Examples of Districts Where Land Is Already Utilized

**Shiodome District**

Headquarter offices of leading Japanese companies including mass media companies such as advertising companies, TV stations and news agencies gathered on the land previously owned by the former JNR Settlement Corporation, which has changed into an international originating source of information and culture.

○ Examples of Districts Where Land Is Scheduled to Be Utilized

**Musashino Switching Yard District**

On the JRTT-owned land along the JR Musashino Line across the border between the cities of Misato and Yoshikawa, an urban project has commenced aiming to develop an environmentally friendly city.

**Umeda District**

Because of its location and size, the JRTT-owned land adjacent to JR Osaka Station is one of the “prime city center real estates” in Japan. New urban development is expected to create a leading revitalization center not only for Osaka but for the whole Kansai area.
5. Activities for International Cooperation

Japanese Railway Construction Technologies Are Used in Many Countries in the World.

Using comprehensive technologies and experience acquired through the construction of Seikan Tunnel, the Shinkansen lines (Joetsu, Hokuriku, Tohoku and Kyushu), and urban railways, JRTT actively provide technical cooperation by sending abroad its expert technical staff (short or long term assignment) based on requests from MLIT, as well as accepting trainees from overseas. As of the end of March 2008, we have provided technical cooperation to 64 nations and regions sending cumulatively 1,810 technical experts. Our overseas technical cooperation ranges across a wide spectrum including feasibility studies on new railway construction or improvement work, construction planning, designing, and construction work.

Countries and Regions where Technical Cooperation Has Been Provided

Europe and CIS Countries
1. United Kingdom  9. Germany
2. Italy  10. Turkmenistan
3. Ukraine  11. France
5. Austria  13. Poland
7. Kazakhstan  15. Russia
8. Spain  16. Finland

Africa
2. Egypt  10. Sudan
3. Ghana  11. Tanzania
4. Republic of the Congo  12. Tunisia
5. Zambia  13. South Africa
7. Tanzania  15. Morocco
8. Tunisia  16. South Africa
10. Mozambique  18. Morocco

Asia and Middle East
1. India  12. China
2. Iraq  13. Turkey
3. Iran  14. Pakistan
4. Indonesia  15. Bangladesh
5. Korea  16. Philippines
6. Cambodia  17. Brunei
7. Saudi Arabia  18. Viet Nam
8. Singapore  19. Malaysia
11. Taiwan  22. Laos

North America
1. U.S.A.

Central and South America
1. Argentina  9. Brazil
2. Guatemala  10. Paraguay
5. Jamaica  13. Brasil
6. Chili  14. Paraguay
7. Panama  15. Brasil
8. Paraguay  16. Paraguay

Oceania
1. New Zealand

The Shinkansen Seminar (U.S.A.)
Urban Public Transport Training Course for JICA Trainees
Chinese Engineers Visiting a Construction Site (Tohoku Shinkansen)
Jakarta Metropolitan Railway (Indonesia)
6. Operational Achievements of JRTT

Commencement of Railways
In the last 40 years including the time of the former Japan Railway Construction Public Corporation, JRTT has constructed 3,000 km of 113 railway lines in total and put them into commercial operation. Some of these lines include Joetsu Shinkansen, Hokuriku Shinkansen (Takasaki - Nagano section), Tsugaru-Kaikyo Line, urban JR lines, private railways, and subway lines commissioned by local governments. In this period, JRTT has also received many Japanese and international prizes.

**Inaugurated Major Railway Lines**

**Shinkansen**
- Joetsu Shinkansen: Omiya - Niigata
- Hokuriku Shinkansen: Takasaki - Nagano
- Tohoku Shinkansen: Morioka - Hachinohe
- Kyushu Shinkansen: Shin-Yatsushiro - Kagoshima Chuo

**Tsugaru-Kaikyo Line (Seikan Tunnel) (Opened in 1988)**
- Sekisho Line: Chitose Airport - Oiwake, Shin-Yubari - Shimukappu
- Tsugaru-Kaikyo Line: Nakaoguni - Kikonai
- Keiyo Line: Tokyo - Soga
- Musashino Line: Shin-Tsurumi - Nishi-Funabashi
- Kosei Line: Yamashina - Omi Shiotsu
- JR Tozai Line: Kyobashi - Amagasaki

**Tsukuba Express**
- Hokuso Line: Keisei Takasago - Inba Nihon Idai
- Rinkai Line: Osaki - Shin-Kiba
- Minatomirai Line: Yokohama - Motomachi/Chukagai
- Tsukuba Express: Akihabara - Tsukuba
- Kyoto Tozai Subway Line: Misasagi - Sanjo Keihan
Results of Subsidies for Railways

In the last 15 years including the time of the former Railway Development Fund, we have provided railway companies throughout Japan with subsidies for the development of railways. Diverse projects include the construction of shinkansen lines, subway lines such as the Nanboku Line of Tokyo Metro, new-town railways such as the Senboku Rapid Railway, airport access railways such as the Central Japan International Airport Line; speeding up of JR lines; and improvements of the railway facilities of local railway companies. Recent results of subsidies are as follows:

### Subsidies in the Last 5 Years

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Construction of new shinkansen lines</td>
<td>763.8 billion yen</td>
</tr>
<tr>
<td>2. Development of major trunk lines</td>
<td>12.6 billion yen</td>
</tr>
<tr>
<td>3. Construction of urban railways</td>
<td>397.9 billion yen</td>
</tr>
<tr>
<td>4. Promotion of railway research and development</td>
<td>7.2 billion yen</td>
</tr>
<tr>
<td>5. Safety and disaster prevention projects, etc.</td>
<td>28.8 billion yen</td>
</tr>
</tbody>
</table>

### Recently Opened Railway Lines

- Kyushu Shinkansen, Tohoku Shinkansen
- Speeding up of Nippo Hansen, Enhancement of the transportation capacity of Tokaido Shinkansen, Improvement of the Kita-Kyushu freight terminal
- Fukuoka City Nanakuma Line, Nagoya City Meijo Line, Central Japan International Airport Line

Results of Joint Ownership Shipbuilding Scheme

In the last 47 years until late FY 2005 including the time of the former Maritime Credit Corporation, we have owned jointly 2,745 freight ships and 966 passenger ships with coastal shipping companies under the joint ownership shipbuilding scheme. Our contribution to shipbuilding in the past five years accounts for 48% of freight ships and 55% of passenger ships for coastal transportation. In addition, we have been awarded with seven “Ship of the Year” prizes, which were given to technically and artistically superior ships.
Based on the "Reorganization and Rationalization Plan for Public Corporations" adopted by the Cabinet in December 2001, JRTT (Japan Railway Construction, Transport and Technology Agency) was founded on October 1, 2003, as an Independent Administrative Agency by integrating the Japan Railway Construction Public Corporation (JRCC) and the Corporation for Advanced Transport and Technology (CATT).

**JRCC**
- Railway Construction Services
- Services for the Settlement of the former JNR

**CATT**
- Joint Ownership Shipbuilding Services
- Subsidy Services for Railways
- Advanced Ship Technology Services
- Services for Fundamental Research in the Field of Transportation

Integration into Independent Administrative Agency

**JRTT**
Information

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Map

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