

What are we doing to encourage recycle-based society?

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

Waste Recycling

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

General Waste Recycling

From trains and stations

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

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



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

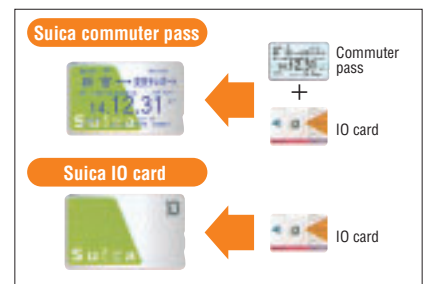
Recycling used train tickets and commuter passes

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

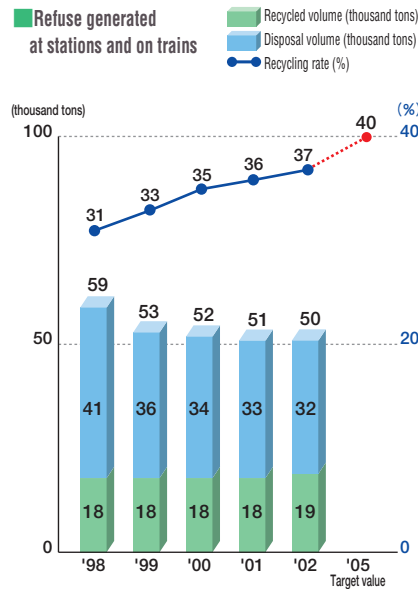
In FY 2002, 99.9% of discarded tickets (approximately 760 tons) was recycled into business cards, cardboard, toilet paper for stations and offices, and more. Meanwhile, roughly 52% (approximately 19 tons) of collected used commuter passes was turned into reducing agent for

blast furnaces at steel plants.

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



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



Recycled copy paper made from newspapers collected at stations

Reclaiming resources at recycling centers

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

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

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

Passenger cooperation in recycling

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

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

At the recycling center end we must take care to allocate recycling center staff appropriately based on past data, as

Recycling industrial waste

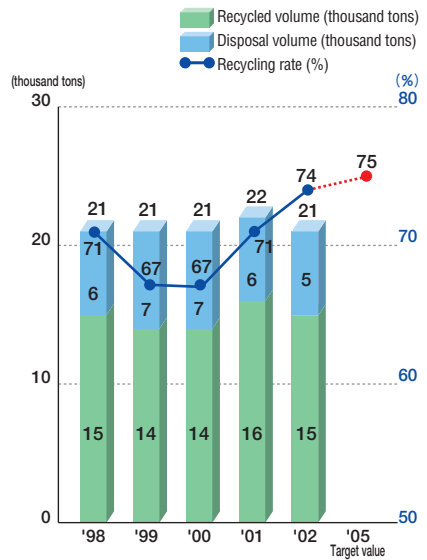
At rolling stock maintenance facilities

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

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

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

Waste disposal and recycling at rolling stock workshops



Effective mulching

Every year, up to 4,000 m³ of debris clogs the intakes at Shinano River hydroelectric power plants; 60% of this is composed of plant-matter, such as driftwood which we used to dry and incinerate. In FY 2002, however, we eliminated our incinerator and began recycling this debris into mulch*. Making mulch eliminates the CO₂ emissions normally generated by incineration, and in using the mulch we no longer need to use herbicides as it prevents weeds from growing.



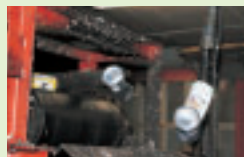
Mulch made from floating debris is used at company facilities

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



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

we know for example the number of cans and bottles discarded increases 1.6 times in summer.



Magnets are used to separate aluminum and steel cans

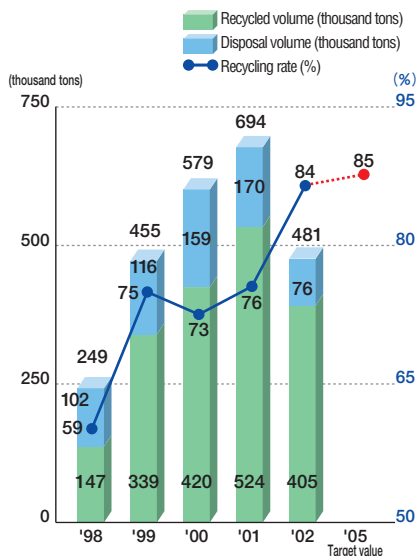
* **Mulch**
Sheeting, wood chips, or other plant matter used to prevent weed growth and maintain soil moisture.

Construction of facilities

In FY 2002, 481,000 tons of construction waste were generated in building new facilities and renovating and repairing existing stations and other structures, of which 156,000 tons were generated by the contract work¹.

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

Reducing waste disposal in construction projects



Inside stations, station buildings and hotels

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

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

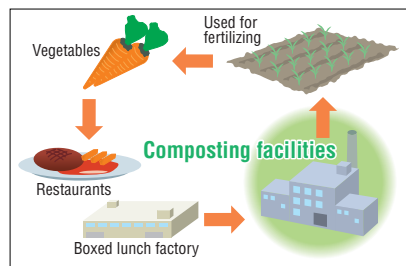
Recycling discarded food and boxed lunch containers

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

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

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

Garbage recycling flow



Reducing office refuse and effectively using water resources

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

JR East uses 13.4 million tons of water per year in offices, stations. In order to utilize water resources effectively, we aggressively promote water reuse² at our corporate headquarters, branch offices, and station buildings. For example, water collected from washbasins and station rooftops is purified and reused to flush toilets. In the head office building, 18,000 of the 42,000 tons of water used in FY 2002 were recycled water.

Medical waste

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

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

Green procurement

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



Uniforms with synthetic fiber made from recycled PET bottles



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

¹ Contract work

Work contracted to JR East by municipalities in order to ensure safe train operations.

² Reuse of wastewater

Recycled water is reused for certain purposes, such as flushing toilets.