Creating Sound Material Cycles

How is the JR East Group Working to Create Sound Material Cycles?

JR East is taking steps as early in the material cycle as possible, to help build a society with sound material cycles – by *reducing* the amount of resources that we consume, continuing to *reuse* them as long as possible and prevent them from becoming waste, and then *recycling* the resources.

Creating Sound Material Cycles

Waste recycling

The railway business generates various types of waste – from refuse discarded in stations and trains to industrial waste generated in general rolling stock centers, and many other kinds.

In fiscal 2004, JR East generated 550,000 tons of waste, 86% of which was reused or recycled. Construction projects are the largest single source of waste at JR East, but it is difficult to make valid annual comparisons as the content of such work changes from year to year. Nevertheless, we have set target recycling rates for each waste category, and are implementing various measures to achieve these targets.

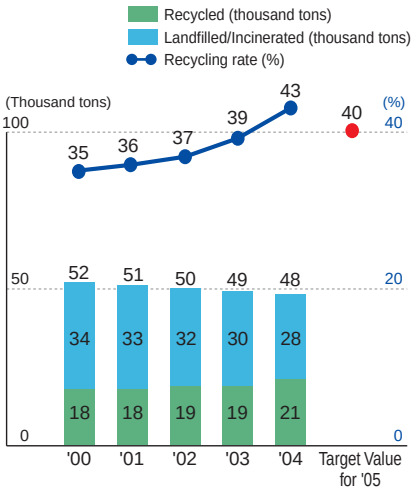
Recycling waste from stations and trains

Approximately 16 million passengers use JR East daily. In fiscal 2004, the waste generated from stations and trains amounted to 48,000 tons, equivalent to the average amount of household waste generated by 120,000 people per year in Japan. Since the waste includes newspapers, magazines, cans and other recyclable materials, it must be properly sorted and recycled. In its stations, JR East installs separate refuse bins for different types of waste, and has established recycling centers for waste separation after it has been collected. JR East had set a target of 40% as the recycling rate for the end of fiscal 2005, but achieved the target early, at the end of fiscal 2004, at 43%.

Operation of recycling centers

JR East has set up recycling centers in the Tokyo area, the operational area that generates the greatest amount of waste from stations. East Japan Eco Access Co., Ltd. operates these recycling centers in three locations (Ueno station, Omiya, and Shinkiba). In fiscal 2004, the recycling centers at Ueno station and Omiya collected 4,784 tons of cans, glass bottles and PET (polyethylene terephthalate) bottles from the Tokyo metropolitan area and Saitama Prefecture; the collected waste was then sorted, compressed, and sent to recycling contractors. In fiscal 2004, 6,532 tons of newspapers and magazines collected at the recycling center in Shinkiba were sent to paper factories and recycled into copy paper, etc.

Waste from stations and trains



Transparent refuse bins are used in stations for better safety and for ease of recycling.

The recycling centers in Ueno and Omiya separate and compress cans, glass bottles, and PET bottles.

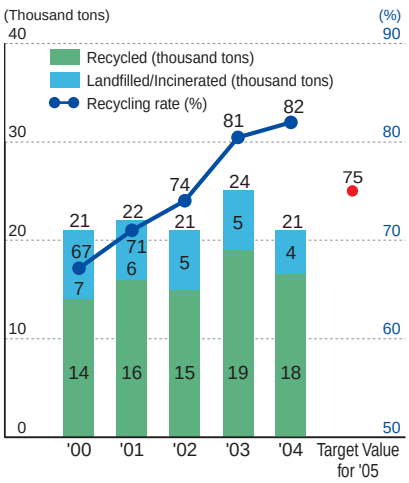
Recycling of train tickets and commuter passes

Regular train tickets that have a magnetic backing can now be recycled thanks to a new technology that can separate iron powder from paper. In fiscal 2004, 100% of the 700 tons of used train tickets collected by JR East were recycled at paper factories to produce toilet paper, corrugated fiberboard, and business cards. All magnetic-backed commuter passes collected after use were reused in the form of solid fuel. We are currently promoting the use of the *Suica* IC card, which reduces overall waste by eliminating paper tickets and commuter passes; over 13 million people were using these cards as of July 2005.

Recycling at general rolling stock centers, etc.

JR East manufactures commuter and suburban trains at the Niitsu Rolling Stock Manufacturing Factory, and repairs and maintains railcars at seven general rolling stock centers. To reduce the amount of waste generated and to promote recycling, we consider the railcars' entire life cycle from the designs, by for example using materials made of easily recyclable substances. At the general rolling stock centers, besides sorting the waste into 20 to 30 categories and sending it to specialized traders, we also conduct our own recycling – for example, we melt scrap metal to be reformed into brake parts and process used train wheels into connecting bases for brake disks.

Waste from rolling stock centers

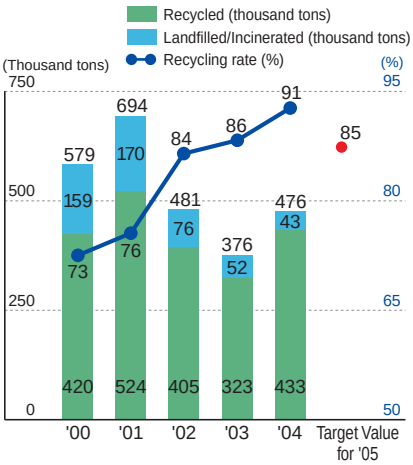


Niitsu Rolling Stock Manufacturing Factory – the first plant of any railway company in Japan to obtain ISO14001 certification in 1999.

Reducing construction waste

In fiscal 2004, JR East generated 476,000 tons of construction waste through projects at stations and other structures, including 140,000 tons from subcontracted work[*1] undertaken by JR East. Although Japan's Waste Disposal and Public Cleansing Law requires subcontractors to dispose of the waste they generate, when JR East is the principal party we also make an effort to reduce the amount of waste generated – such as by issuing standard civil engineering specifications that stipulate the proper disposal of construction byproducts, and specify designs and construction methods to minimize waste.

Waste from construction projects



Note: The results for fiscal 2003 were incorrectly stated in last year's report. The current report contains the correct figures.

Efforts at offices

At JR East, we are taking various steps to make "paperless" offices, and are working to recycle any waste that is generated. Thanks to meticulous efforts to separate waste into categories, in fiscal 2004 we recycled 1,760 tons out of 2,842 tons of waste.

Efforts by shops and restaurants

Within stations and station buildings, JR East Group companies offer retail and restaurant services in which we are encouraging both reduction of food waste and increased recycling.

For example, compost made from organic waste is sold at the Granduo station building (Tachikawa), while in fiscal 2004 lunch-box vendor Nippon Restaurant Enterprise Co., Ltd. recycled food waste into 1,053 tons of compost, which was used by JR East's own organic recycling farm and contracted farmers (see page 11).

This system has completed a cycle where vegetables grown with no pesticides and no chemical fertilizers are used as the food ingredients in restaurants.

Organic fertilizer being sold at Granduo is made of organic waste from restaurants.

Efficient use of water resources

JR East used 11.17 million tons of water in fiscal 2004. To reduce this amount, we are making an effort to use "recycled wastewater,"[*2] by recycling rainwater and water from washroom sinks for use in flush toilets. In fiscal 2004, 18,000 of the 43,000 tons of water used in the JR East Head Office building were recycled.

***1 Subcontracted work**
Construction work on non-JR East facilities that local governments have subcontracted to JR East in order to ensure safe train operations

***2 Recycled wastewater**
Rainwater or used water that is not suitable for drinking but still useful for specific applications.

Green procurement

In compliance with its Green Procurement Guidelines of 1999, JR East endeavors – encouraging suppliers to do likewise – to select materials with low environmental impact, and to reuse materials in order to reduce waste.

Since fiscal 2000, we have been using polyester fiber recycled from PET bottles and other sources to fabricate uniforms; in fiscal 2004 this material was used in newly-redesigned uniforms for technical personnel. In fiscal 2004, 56% of office supply items were covered under green procurement policies, and recycled paper accounted for 98% of copy paper used throughout the company.

Starting in fiscal 2004, JR East started to collect information about the environmental and corporate social responsibility efforts of the companies that supply its materials, and is now using this information as a factor in selecting suppliers.

Looking at the material cycle: waste from stations

Our management of refuse from stations does not constitute mere recycling – the resulting materials are reused within JR East, in an attempt to augment our participation in the cycle.

Paper from used tickets is manufactured into toilet paper for use in the toilets of larger JR East stations in the Tokyo metropolitan area; the paper is also manufactured into business cards for our employees. Used newspapers collected at stations are recycled into copy paper, which is then used at JR East offices. In addition, used magazines are recycled into coated paper, which we then use to produce *Tranvert*, a magazine for Shinkansen passengers.

Used tickets are recycled as the paper stock for JR East employees' business cards.

This recycled copy paper is made from used newspapers collected at stations.

Used tickets collected at train stations are recycled into toilet paper for use at larger stations in the Tokyo metropolitan area.

JR East's *Tranvert* magazine for Shinkansen passengers is made from recycled paper.

Suica: A reusable commuter pass

A feature of the *Suica* commuter pass is that it can be reused many times, as the information printed on it is updated when the validity period is extended. Thus, more widespread use of the *Suica* commuter pass saves resources. Note that to prevent customers from throwing the card away after use, they are required to pay a deposit with their original purchase of the card.

As evidence of this, the approximately 26.6 million (disposable) commuter passes (made of paper stock with magnetic backing) used in fiscal 2000 when *Suica* was introduced declined in number to about 15.0 million in fiscal 2004. This suggests that the reusable *Suica* cards are having an impact in reducing paper consumption.