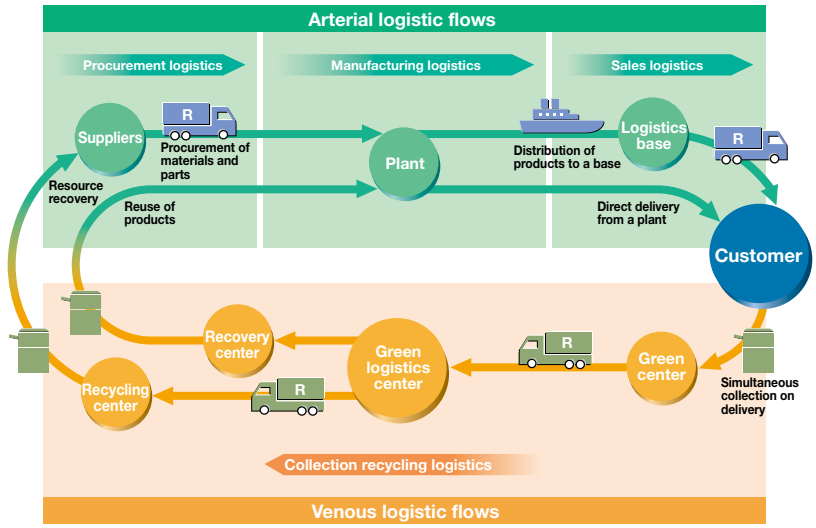
The Ricoh Group is working to reduce CO_2 emissions from transportation by creating a resource-recirculating logistics system and promoting modal shifts.

To achieve a sustainable resource-recirculating society, one important issue is the establishment of a logistics system for transporting products. The Ricoh Group is striving to create a resource-recirculating logistics system that integrates the arteries and veins of the logistics flow, including a system for direct transportation to and collection from customers. Another issue that Ricoh tackles is a reduction in environmental impact of transportation networks by promoting modal shifts and introducing low-emission vehicles. Examples that are successful in Japan will be introduced around the world, aiming at establishing global supply chain management (SCM).

Resource-recirculating Logistics System that Integrates the Arteries and Veins of the Logistic Flows (Japan)



Arterial logistic flows

- Establishment of a direct transportation system from plants to customers
- Modal shift from truck to railway and marine transportation
- Uses of reusable packaging materials

Venous logistic flows

- Establishment of a direct collection system for used products
- Expansion and improvement of infrastructure including collection centers

Global Logistics Innovations to Improve Distribution Efficiency and Reduce Environmental Impact

In June 2005, Ricoh set up an organization to promote logistics innovations on a global basis, aiming to improve distribution efficiency and reduce environmental impact. It has already started working on identifying the environmental impact of arterial logistic flows, including procurement logistics, internal plant logistics, and domestic inventory bases, and arterial logistic flows from Japan to overseas as well as venous logistic flows within Japan and Europe. Based on the results, we are endeavoring to improve distribution efficiency, reduce CO_2 and waste by using less packaging materials, and strengthen our cost competitiveness.

Promoting Modal Shift

<Ricoh Logistics System Co., Ltd. (Japan)>

Ricoh Logistics System Co., Ltd. is actively promoting a modal shift to transportation methods that have less environmental impact. In fiscal 2005, the transportation of medium-sized copiers from Ricoh Gotemba Plant to Osaka, and parts from Nagoya to Tohoku Ricoh were shifted to railroads. The modal shifts so far have resulted in 26 routes: 3 maritime routes and 23 rail routes. These shifts contributed to a reduction of 4,678 tons of CO_2 emissions per year from transportation compared to when truck transportation was used.

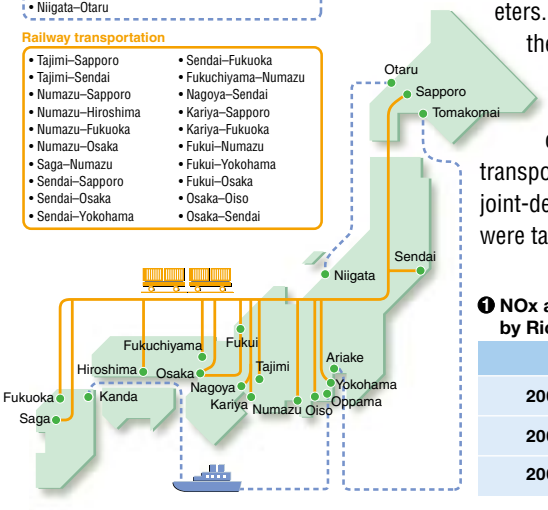
Major Cases of Modal Shift in Japan

Marine transportation

- Ariake–Tomakomai
- Niigata–Otaru
- Oppama–Kanda

Railway transportation

- Tajimi–Sapporo
- Tajimi–Sendai
- Numazu–Sapporo
- Numazu–Hiroshima
- Numazu–Fukuoka
- Numazu–Osaka
- Saga–Numazu
- Sendai–Sapporo
- Sendai–Osaka
- Sendai–Yokohama
- Sendai–Fukuoka
- Fukuchiyama–Numazu
- Nagoya–Sendai
- Kariya–Sapporo
- Kariya–Fukuoka
- Fukui–Numazu
- Fukui–Yokohama
- Fukui–Osaka
- Osaka–Oiso
- Osaka–Sendai



Improvement in Vehicle Mileage and Introduction of Low-Emission Vehicles

<Ricoh Logistics System Co., Ltd. (Japan)>

Ricoh Logistics System Co., Ltd. is striving to improve vehicle mileage by utilizing digital tachometers and giving energy conservation and safety education to drivers. As of the end of March 2006, approximately 42% of all company vehicles, or 113 vehicles, were equipped with digital tachometers. As a result of drivers recognizing their own eco-drive levels, mileage improved by 25%. Other initiatives, such as introduction of 30 CNG cars and 12 hybrid cars, improving transportation efficiency by implementing joint-delivery and roundtrip distribution, were taken to reduce fuel consumption.

❶ NOx and SOx Emissions in Transportation by Ricoh Logistics System

	NOx (t)	SOx (t)
2003	2.6	0.4
2004	2.8	0.4
2005	2.8	0.4

Promoting a modal shift in all sales and procurement logistics routes to reduce the environmental impact of distribution

Promoting the "Modal Shift Challenge 5,000" to attain a target of 5,000 containers

Ricoh's RS Products Division, which manufactures such reprographic supplies as toners, is carrying on the "Modal Shift Challenge 5,000" campaign as part of its sustainable environmental management. It aims to increase the number of rail freight containers used in transportation to 5,000 a year by the end of fiscal 2006. All sales logistics routes (delivering products to customers) and procurement logistics routes (procuring raw materials) are examined, and routes that can be switched from truck to rail transportation without additional costs are identified to promote a modal shift. The important issues in achieving a modal shift are forecasting load amount, identifying load efficiency, and simulating freight discounts generated by switching transportation methods. Although the modal shift initially seemed to cause additional costs in some routes, the shift was achieved by conducting a detailed simulation.

There was significant cooperation from suppliers in the area of procurement logistics. We not only implemented a modal shift but also simultaneously carried out innovations in the entire supply chain, including reducing lead time, and this helped accelerate our campaign. As of the end of March 2005, we established a rail transportation system utilizing 3,540 containers a year. Although we have not identified the amount of CO_2 emissions generated by the whole procurement logistics, those of sales logistics were reduced by 722 tons from the fiscal 2003 level. The percentage of rail transportation in the whole sales logistics of the RS Products Division was nearly 19%.

Thanks to its daily efforts, Ricoh was among the first to gain the Eco-Rail Mark.

The Eco-Rail Mark certification system was launched in April 2005 by the Ministry of Land, Infrastructure and Transport to certify companies that actively make efforts to protect the environment through rail transportation and products transported in such efforts. When we examined the RS Products Division's transportation modes for land transportation of 500 kilometers or more in distance, one of the conditions for certification, we found that 72% of all products, including toner, OPC, diazo paper, and PPC paper, were carried by rail freight container. When it comes to toner alone, the percentage reached 50.7%. Because these figures are much higher than the requirements, Ricoh was awarded an Eco-Rail Mark certification in July 2005, ahead of other companies.

Members promoting a modal shift
(From left) **Shigeo Sakai**, **Mitsuhiro Shiga**, **Tetsuya Uchino**
Business Planning Office, RS Products Division

Requirements for Eco-Rail Mark Certification

- For a company to be certified, the transportation distance from its plant must be 500 kilometers or more, at least 15% of which must be on railways.
- For a product to be certified, the transportation distance from the plant must be 500 kilometers or more, at least 30% of which must be on railways

Purchasing "Ricoh Use Only" containers supported by subsidies of the Green Logistics Partnership Model Program

In March 2006, Ricoh purchased seven new rail containers that displayed its corporate logo and the Eco-Rail Mark to be used exclusively by Ricoh. Our modal shift case was selected as one of the model projects for the Green Logistics Partnership Program by the Ministry of Land, Infrastructure and Transport, and we were given subsidies. Using the subsidies, we purchased our own containers. These containers, which are based in Numazu, travel a wide area that runs from Hokkaido to Kyushu. Improved distribution routes using these rail containers are expected to reduce CO_2 emissions to about one-seventh the amount generated by conventional transportation. Also, we look forward to other associated benefits, such as cost reduction and publicity.

Ricoh's new containers displaying its logo