

The Ricoh Group is working to reduce CO₂ emissions and costs from transportation by global optimization of SCM.

■ Concept

To achieve a sustainable society, one of the most important issues is to reduce CO₂ emissions from logistics. To address this issue, it is essential to reduce costs in parallel with curbing CO₂ emissions. To achieve this purpose, opportunities for improvement in the logistic process are identified and logistic costs, and CO₂ emissions are visualized simultaneously to encourage improvements. In addition, the effects are leveraged by rapidly spreading the improvements horizontally within the Group. Environmental impact will be further reduced through efforts for optimizing the Global SCM (Supply Chain Management) giving priority to

such efforts as improvement of cargo-carrying efficiency, modal shifts, and direct delivery to customers.

■ Target for Fiscal 2010

- ◎ Reduce CO₂ emissions from logistics by 1% or more over the previous year (by the basic quantity unit).

■ Review of Fiscal 2008

We established a system to obtain data on CO₂ emissions during transportation in Japan from transport information, and put this system into operation in fiscal 2006. In fiscal 2008, the area for visualization using the system was expanded to cover transportation among bases such as ports and

airports in different countries. As a result, logistics information between bases is linked with information on CO₂ emissions and we can now consider cost reductions and CO₂ emissions reductions at the same time, which will work to further accelerate improvement.

■ Future Activities

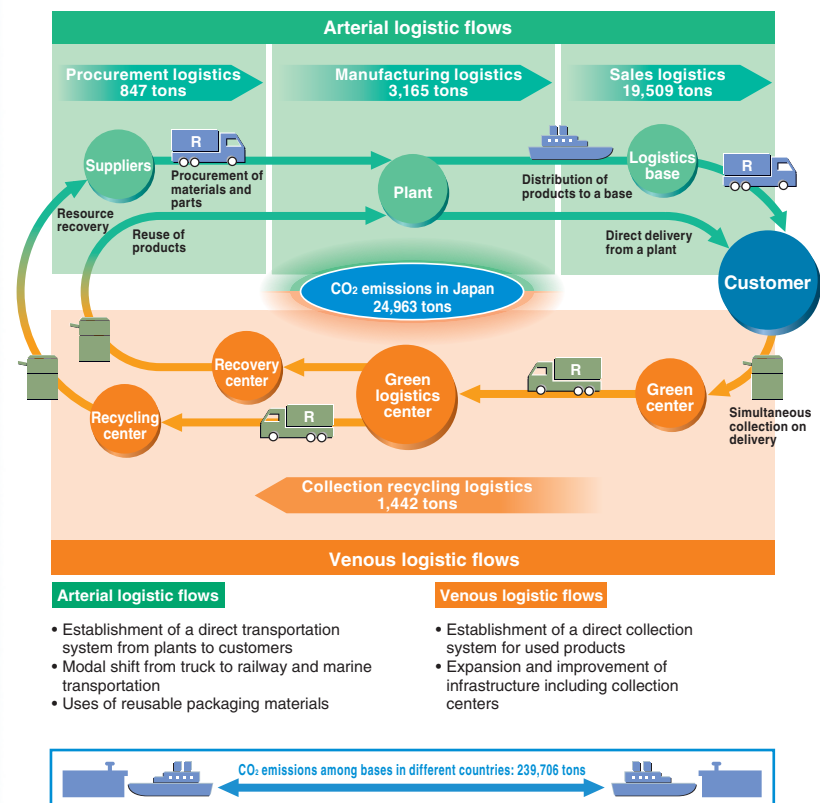
We will promote not only direct delivery to each customer and modal shifts but also improvement which is expected to lead to higher logistics efficiency, to realize the best condition for the entire Group on a global scale. As for information on CO₂ emissions, efforts will be promoted to collect information in Ricoh's business area outside Japan.

Efforts for reducing environmental impact via the supply chain as a whole

<Ricoh Group (Global)>

The Ricoh Group is promoting SCM (Supply Chain Management) in logistics for procurement, manufacturing, and sales, aiming to reduce costs and CO₂ emissions. The Ricoh Group's manufacturing bases are now in the Americas, Europe, China, and other Asian countries, which has caused year-to-year increases in transportation among global production sites. For example, the transportation volume of products and parts from China to Japan requires 400 to 600 40-foot containers every month. About the same number of containers are transported to the Americas and Europe. Efficiency improvement in logistics is an important issue in promoting business on a global scale. The Ricoh Group surveys all processes and promotes efforts on a global scale, including the improvement of cargo-carrying efficiency through reviewing packaging materials and mixed packing, modal shifts among warehouses, direct deliveries to customers, and by optimizing transportation routes through the introduction of the milk run system. The Group thus aims to reduce wastage related to space, transportation, trans-shipment, and packaging materials.

CO₂ emissions in logistics (FY 2008, Ricoh)



* CO₂ emissions in Japan (fiscal 2008 results) have been calculated in compliance with the Energy Saving Law.

Offering information to shippers to help reduce our environmental impact in logistics

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

To reduce the burden caused by distribution, it is important for Ricoh, as a shipper, and logistics companies to make related efforts in close cooperation. As a result of the 2006 amendment of the Energy Saving Law, logistics companies are now obliged to notify shippers, or those placing orders, of the weight and transportation distance of each load. Ricoh Logistics System Co., Ltd. (RLC), a logistics affiliate of the Ricoh Group, considered that it is necessary to notify the shippers of not only weight and distance but also vehicle types, amounts of fuel used, and loading rates which can significantly affect the environmental impact, so that companies can effectively reduce their environmental impact. Accordingly, RLC established a system to visualize detailed transport information as well as accompanying CO₂ emissions and started offering information to shippers in 2007. Offered information is actively used by shipping companies for improvement of delivery methods, types of packing, timing of transportation, etc., thereby helping to reduce environmental impact in logistics.

CO₂, NO_x, and SO_x emissions in transportation by Ricoh Logistics System

FY	CO ₂ (tons)	NO _x (tons)	SO _x (tons)
2006	2,626.1	5.0	0.8
2007	2,678.2	5.1	0.8
2008	2,339.5	4.4	0.7

Improvement of logistics processes through improved cargo-carrying efficiency of trucks

<Tohoku Ricoh Co., Ltd./Hasama Ricoh, Inc. (Japan)>

As exhaust controls in Tokyo were tightened in 2003, more and more logistics companies shifted from traditional trucks to new types of trucks with larger bodies. As a result, some space had to remain vacant in truck bodies when the traditional way of loading in four layers was adopted. It thus became necessary to solve problems associated with increasing the number of layers, including the strengthening of packaging materials and securing the safety of workers when boxes were stacked high. We realized five-layer loading by enhancing the strength of the corrugated cardboard used for packing, improving the motion ranges of manual forklifts, and by other measures, which resulted in improving cargo-carrying efficiency to over 80%. Owing to this measure, truck transportation costs largely decreased, although loading/unloading and storage expenses slightly increased. Consequently, costs were reduced by about ¥8 million per year and CO₂ emissions by about 39 tons a year.



Improvement of transportation routes of products shipped to other countries using local ports

<Ricoh Group (Japan)>

Products exported from Tohoku Ricoh Co., Ltd. and Hasama Ricoh, Inc. (both in Miyagi Prefecture), which are production sites for copiers and units/parts, were previously transported by truck to Yokoyama and shipped at ports in the Keihin area. The export routes were improved in fiscal 2008. Based on modal shift, cargo with a low loading rate that does not fill a 40-foot container is first carried by train to Yokohama, where it is placed aboard a ship together with other cargo. Containers with high loading rates are loaded into containers



Complete view of Takasago Container Terminal of Sendai Port (Photo provided by Shiogama Port and Airport Office, Tohoku Regional Bureau, Japanese Ministry of Land, Infrastructure, Transport and Tourism)

at plants, which are put aboard ships at Sendai Port and exported to Western nations. Products exported to Asian nations, which are exported in relatively small quantities and delivered to many different destinations, are carried together with other cargo of the Ricoh Group companies and suppliers, so that efficiency can be improved. These improvement measures brought about a reduction in costs of about ¥10 million a year, or a CO₂ equivalent of some 156 tons per year.

Expansion of direct delivery from plants to customers

<Ricoh Group (Japan)>

In order to establish an efficient logistics system, it is also important to reduce waste in lead times and transportation routes themselves. The Ricoh Group previously manufactured products according to production schedules, stored products temporarily at inventory warehouses, and shipped them in response to orders placed by customers. This system has now been completely reviewed and new routes created. Products are now produced in response to customers' request, and directly delivered from plants to shops and customers all over Japan. This no-inventory/direct-delivery system has already been applied for some types of products produced at Ricoh Gotemba Plant and at Tohoku Ricoh Co., Ltd. By fiscal 2010, it will be introduced for large products as well, with great improvements in logistics efficiency expected. Owing to the new system, warehouse storage is no longer necessary, while the lead times for the delivery of products from plants to customers were shortened to four or five days. Logistics costs per product are likely to be reduced by more than ¥3,000 and CO₂ emissions by 2.6 tons or more annually.