

## The Ricoh Group is working to reduce CO<sub>2</sub> 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 CO<sub>2</sub> emissions from logistics.

For this purpose, it is essential to optimize efficiency of logistics by minimizing wasteful operations and wastage related to transportation generated in supply chains. In our approach to this challenge, visual presentation of logistical flows are provided, data linking logistical costs and CO<sub>2</sub> emissions obtained, bottlenecks identified, and improvement measures undertaken.

To strengthen the effects of these improvement efforts, we work to ensure that activities and related information are shared across the company. Specifically, giving priority to such issues as direct delivery to customers, modal shifts, and cargo-carrying efficiency, we are making concerted efforts at all the divisions

involved, from product planning to customer contacts, aiming to further reduce environmental impact.

### ■ Target for Fiscal 2010

◎ Reduce CO<sub>2</sub> emissions from logistics by 1% or more over the previous year (per ton kilometer).

### ■ Review of Fiscal 2009

We established a system to obtain data on CO<sub>2</sub> 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, logistical information between bases is linked with information on CO<sub>2</sub> emissions and we can now deal with cost reductions and CO<sub>2</sub> emissions reductions within the same framework,

which helped accelerate improvement. In fiscal 2009, to improve information accuracy, we developed a segmented data collection system, and collected more accurate data on truck transport. As a result of improvements based on measures—including the new system—CO<sub>2</sub> emissions in fiscal 2009 decreased by 2.6% by the ton kilometer compared to the previous fiscal year.

### ■ Future Activities

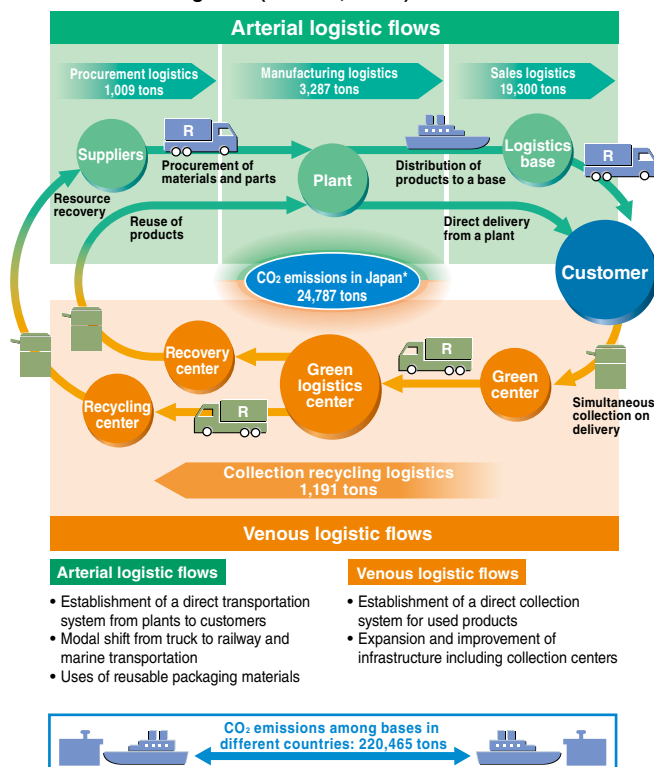
We will not only promote direct delivery to each customer and modal shifts but also use collected data for improvements that are expected to lead to higher logistics efficiency, in order to realize the best conditions for the entire Group on a global scale. To collect data on CO<sub>2</sub> emissions at global bases, 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

#### <Rico Group (Global)>

The Ricoh Group is promoting SCM (Supply Chain Management) in logistics for procurement, manufacturing, and sales, aiming to reduce CO<sub>2</sub> emissions and costs. The Ricoh Group's manufacturing bases are now in the Americas, Europe, China, and other Asia Pacific 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 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.

CO<sub>2</sub> emissions in logistics (FY 2009, Ricoh)



\* CO<sub>2</sub> emissions in Japan (fiscal 2009 results) have been calculated in compliance with the Energy Saving Law.

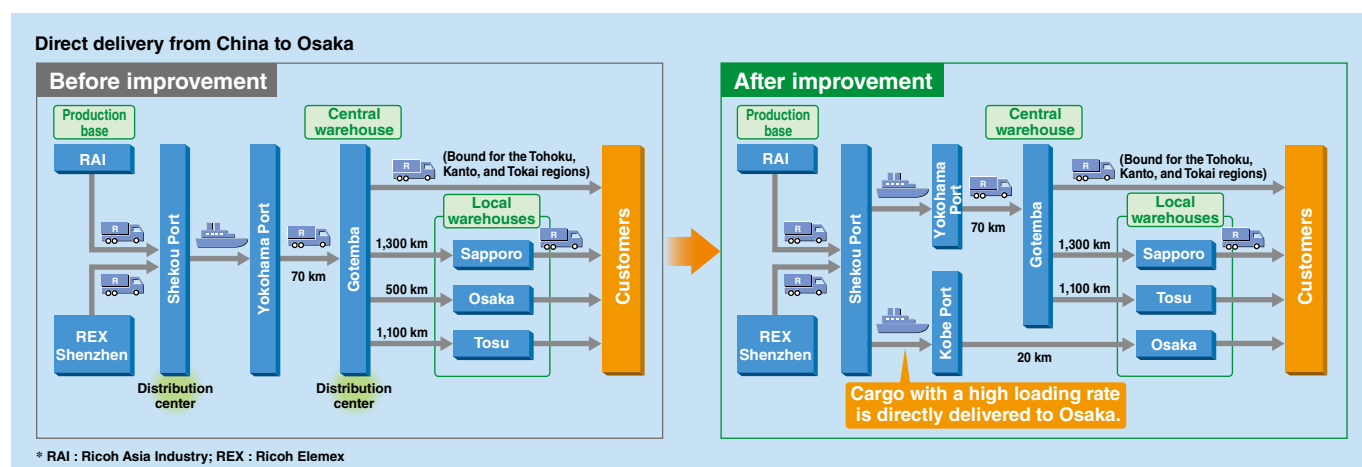
## Improvement of logistics processes through direct delivery from China to Osaka

### <Ricoh Group (Global)>

Traditionally, all Ricoh products manufactured in Shenzhen, China, for the Japanese market were first sent to our central hub warehouse in Hong Kong, then shipped to Yokohama, one of Japan's major port cities, where they were unloaded. They were then transported to Ricoh's central warehouse in Gotemba, and delivered by truck to their final destinations—local warehouses across Japan. This conventional system, with hub ports on both the export and import sides, sought the optimal use of cargo capacity. Under this system, all the distribution routes in Japan were designed to go through the hub facilities, meaning even products to be sold in western Japan, the quantity of which is sufficient for separate shipping, were transported all the way from Yokohama, entailing long-haul trucking. To address this downside, in fiscal 2009 a new system was

launched that bypasses the hub ports and the central warehouse in its logistics routes. Products bound for western Japan are now shipped from Hong Kong directly to a warehouse in Osaka via the port of Kobe, except when the transport batch size is not enough to fill a 40-foot container (in which case the cargo is consolidated with other products bound for other areas in Japan and transported via the conventional route). As of fiscal 2009, direct shipping was adopted for 64.6% of the products finally received at the warehouse in Osaka. Over the year, this has cut costs by about 13.3 million yen and reduced CO<sub>2</sub> emissions by some 62.9 tons.

\* Similarly, the Ricoh Group has successfully improved the transportation routes for products shipped from Japan since fiscal 2008. For details, please visit:  
[http://www.ricoh.com/environment/office/logistics/01\\_01.html](http://www.ricoh.com/environment/office/logistics/01_01.html)



## Introducing "milk run" method for parts collection to optimize logistics

### <Ricoh Express (S.Z.) Warehouse Ltd., Ricoh Logistics System Co., Ltd. (China, Japan)>

Ricoh Express (S.Z.) Warehouse Ltd., based in China, delivers parts, mainly from suppliers in Southern China to Ricoh Service Parts Centers in Hong Kong, Shanghai, Japan, North America, and Europe. Previously, Ricoh Express collected parts from different suppliers separately, causing low loading efficiency and needlessly long total travel distances for the vehicles. To address this issue, Ricoh Express introduced the "milk run" method, by which one truck

travels around to multiple suppliers to pick up cargo. To operate the milk run system effectively, the company developed a system to optimize vehicle routing, by checking shipment volumes with suppliers prior to collection, by telephone or dedicated network. This new initiative more than doubled loading efficiency, from 30% to 65%, and shortened total travel distances for transportation. In addition, for large cargo with a sufficiently high loading rate, the company began to operate direct transportation from suppliers to the port—without reloading at Ricoh Express warehouses. These efforts led to an annual reduction of 310 tons, or 35%, in CO<sub>2</sub> emissions.

