

Using the Comet Circle Concept to Help the Ricoh Group Build a Society that Recirculates Resources.

The sustainable society of the future needs to produce maximum output with minimum resources and energy. It needs to restrict the environmental impact of all economic and social activities so that the natural environment can recover on its own. The Comet Circle represents a resource-recirculating society and points out activities and partnerships that the Ricoh Group must deal with.

The Ricoh Group not only promotes its sustainable management, but also enthusiastically encourages suppliers, customers, and recycling companies to set up their own sustainable management. Moreover, the Group strives to make the resource recirculation of the Comet Circle smaller at all stages (entities represented by spheres) by improving economic efficiency and reducing environmental impact. This would reduce the total amount of environmental impact produced by economic and social activities.

The Comet Circle is a graphic representation of environmental conservation. In today's world, both the product and the manufacturing process of that product determine corporate value and what people purchase. Our philosophy goes beyond environmental conservation concepts and ensures the credibility of our products, none of which are produced under poor conditions or with child labor or by any other reprehensible means. Such profiteering is both unfair and incompatible with the philosophy of Ricoh Group.

There are Comet Circle members other than the Ricoh Group, suppliers, customers, and recycling companies. When individuals who direct their efforts toward building a society that recirculates resources more efficiently shop for things that have less environmental impact, separate their garbage for recycling, or take environment conservation and social responsibilities into consideration when making investments, they become a part of the Comet Circle, too. Everybody should be aware of the resources that went into the clothes that they buy and how those things were delivered. They should also think about how those clothes

will be recycled after they are collected as trash. We recommend applying any situation to the Comet Circle.

Our mother earth is the most important and irreplaceable component of the Comet Circle. We, within the Comet Circle, cannot prosper alone if we cause continuous damage to the earth.

The diagram illustrates the circular economy flow, starting from the **User** (orange circle) and moving through various stages of product and material recovery. The flow is as follows:

- User** (orange circle) connects to **Sales company** (green circle) and **Collection center** (green circle).
- Sales company** connects to **Product manufacturer** (green circle).
- Product manufacturer** connects to **Parts manufacturer** (green circle).
- Parts manufacturer** connects to **Materials manufacturer** (blue circle).
- Materials manufacturer** connects to **Materials supplier** (blue circle).
- Materials supplier** connects back to **User** (orange circle).
- User** connects to **Maintenance company** (green circle).
- Maintenance company** connects to **Product recovery center** (green circle).
- Product recovery center** connects to **Parts recovery center** (green circle).
- Parts recovery center** connects to **Materials recovery company** (teal circle).
- Materials recovery company** connects to **Oil recovery company, smelting company** (teal circle).
- Oil recovery company, smelting company** connects to **Thermal energy collection company** (blue circle).
- Thermal energy collection company** connects to **Final disposal company** (grey circle).
- Final disposal company** connects back to **User** (orange circle).
- Collection center** connects to **Recycling center** (green circle).
- Recycling center** connects to **Shredder company** (teal circle).
- Shredder company** connects to **Oil recovery company, smelting company** (teal circle).
- Shredder company** connects to **Final disposal company** (grey circle).
- Final disposal company** connects back to **User** (orange circle).

Key processes and labels include:

- Reuse of parts** (between Product manufacturer and Parts manufacturer)
- Reuse of products** (between Sales company and Product recovery center)
- Long use** (between User and Maintenance company)
- Sorting and disassembly** (between Collection center and Recycling center)
- Crushing of products** (between Recycling center and Shredder company)
- Closed loop materials recycling** (between Parts recovery center and Materials recovery company)
- Open loop materials recycling** (between Materials recovery company and Oil recovery company, smelting company)
- Generation of raw materials** (between Oil recovery company, smelting company and Materials supplier)
- Chemical recycling** (between Oil recovery company, smelting company and Materials supplier)
- Metals recycling** (between Oil recovery company, smelting company and Materials supplier)
- Disassembly oil** (between Oil recovery company, smelting company and Thermal energy collection company)
- Energy recovery (Energy, CO₂)** (between Thermal energy collection company and Final disposal company)
- Shredder dust** (between Shredder company and Final disposal company)
- Landfill** (between Final disposal company and User)

© 1994 Ricoh

A society that recirculates resources must minimize the total environmental impact it causes by reducing it at all stages, including the transportation stage (the entity represented by a sphere in the Comet Circle diagram). For this reason, the Ricoh Group, suppliers, customers, and recycling companies must first determine the degree of environmental impact at all stages, including the transportation stage, by using an environmental management information system¹ and then reducing it by using the latest environmental conservation technologies² and promoting recycling and collection systems all over the world³.

3. See page 50.

Repeated recycling to the furthest extent possible (i.e., multi-tiered recycling) reduces the consumption of new resources and the generation of waste. The Ricoh Group is developing activities to achieve this goal, such as recycling its products as well as waste from other companies or industries, e.g., making toner cartridges from used polyethylene terephthalate (PET) bottles.

A society that recirculates resources must also establish a recycling system in which products and money flow in opposite directions in both post-product-use stages and original production and marketing stages. The Ricoh Group, making use of an upgraded design, is promoting a more economically rational recycling system in partnership with recycling companies. In Japan, the Green Procurement Law came into effect in April 2001, and Canada established an Environmental Choice Program (ECP) Mark system*. Therefore, it is important to establish a social system that helps people to be aware of environment-friendly business activities and buy products with less environmental impact.

The Ricoh Group helps reduce the environmental impact caused by society as a whole by sharing the information and know-how it obtains through its activities in the community. We consider that partnerships are to share the information and we regard any stakeholders, who receive the information as our partners.