

# Establishing the Mid- and Long-Term Environmental Impact Reduction Goals based on the Year 2050 Long-Term Environmental Vision

**Advanced nations need to reduce their environmental impact to one-eighth the fiscal 2000 levels by 2050.**

**Based on this perception, the Ricoh Group has established the 2050 Environmental Impact Reduction Goals for the three key areas of energy conservation, resource conservation, and pollution prevention: A world first for business.**

## Importance of environmental conservation actions that are based on a long-term vision

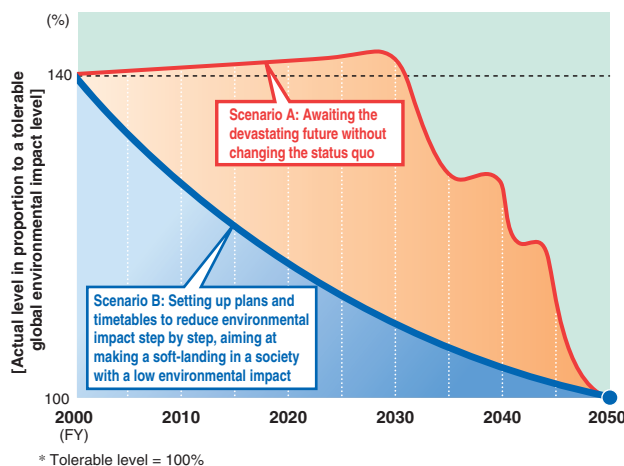
To conserve the global environment and achieve a sustainable society, it is necessary to limit environmental impact to a level within the Earth's self-recovery capabilities. To meet this requirement, we must first envision an ideal society and global environment; then we must create a long-term vision to realize our ideals and aggressively promote environmental conservation activities. Global environmental conservation is a challenge for which there is no second chance, and we will never be able to realize our vision if we act on short-term goals. With this perception in mind, we gathered and analyzed a variety of information from the IPCC reports and many other information sources to allow us to envision human society in 2050. What will our society be like in 2050? The world's population will have reached nine billion. Fossil and mineral resources may have run out. Restrictions may be imposed on the use of land. At the same time, energy sources may have shifted from oil to alternative energies in the hope of preventing global warming. These might lead to substantial changes in social and business models. Without the efforts by all companies to change the status quo in their activities with the 2050 prospects in view, we cannot avoid the worst scenario possible for the global environment. In light of these facts, we formulated the Year 2050 Long-Term Environmental Vision in 2005. In doing so, we recognized that advanced nations need to reduce their environmental impact to one-eighth of the fiscal 2000 levels by 2050 and concluded that it was necessary to set up specific action plans under this vision.

## Setting targets using the back-casting method in the three areas

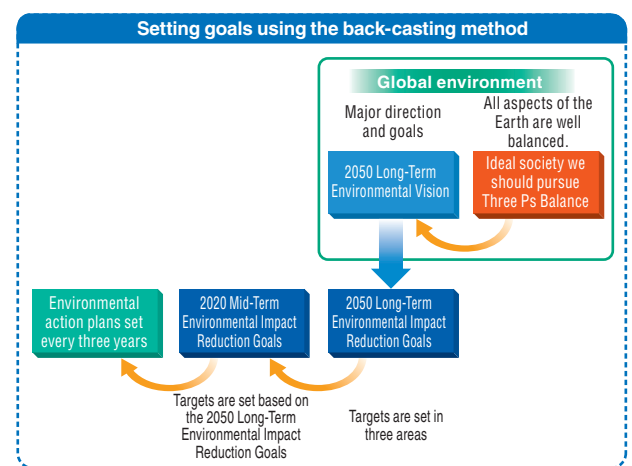
The Ricoh Group uses the back-casting method to set targets. In this approach, we first set final goals and then determine target values as milestones on the journey to these goals. We have set the Year 2050 Long-Term Environmental Vision based on the Three Ps Balance as our final goals, and in March 2009 we issued the Mid- and Long-Term Environmental Impact Reduction Goals to describe specific steps to realize this vision to further strengthen and accelerate our activities with clearly articulated targets. In the Goals, we set numeric targets for environmental impact reduction in three key areas— energy conservation and global warming prevention, resource conservation and recycling, and pollution prevention—using 2020 and 2050 as the standard years. As the major targets, we chose “CO<sub>2</sub> emission reduction throughout the product lifecycle,” “reduction of new input of resources with prospects of resource depletion,” and “management and reduction of chemical substances to minimize environmental risks.” We use the numerical targets in the environmental action plans we issue every three years in order to develop highly effective actions to achieve the goals.

\* As the year 2050 is now generally recognized as the target year in the business world, the Ricoh Group changed the name of the vision from the “Extra-Long-Term Environmental Vision” to “Year 2050 Long-Term Environmental Vision.”

Two scenarios for reducing global environmental impact



Setting environmental targets



**Measures to reduce environmental impact in terms of absolute value and to restore the Earth's self-recovery capabilities**

With the Mid- and Long-Term Environmental Impact Reduction Goals, the Ricoh Group has become the first company to set specific goals to be achieved within three years. We did so because we acknowledge that global warming is not the only impact we are expected to face in the world in 2050. Also, if we set reduction of CO<sub>2</sub> emissions as the only goal for our activities, other types of impact, those caused by careless treatment of chemical substances or wasteful use of natural resources, for example, may occur in the process. If that were to happen, environmental impact reduction goals might be achieved in a defined area, but the environmental impact might increase more than the amount reduced in other areas or processes. Also, goals set based on units and factors alone, which are efficiency-based relative indices, might not be effective for environmental conservation in practical

terms. Therefore, it is very important to acknowledge the total amount of environmental impact for the entire lifecycle of products and set goals using "absolute values."

In addition, while reducing our impact on the environment, it is essential to maintain or restore the Earth's self-recovery capabilities. Based on this idea, we laid down the "Rico Group Biodiversity Guidelines" in March 2009 to articulate the measures we take in our business activities to protect biodiversity. With the new guidelines, we will expand our conservation activities for maintenance and recovery of nature's self-recovery capabilities to a wider range of environmental impact reduction measures, which correctly reflect the impact we have on biodiversity throughout all supply chains.

**Major Ideas in the Ricoh Group Mid- and Long-Term Environmental Impact Reduction Goals**

Mid- and Long-Term Goals	Concept	Major activities
<p><b>Energy Conservation and Prevention of Global Warming</b></p> <p>Reduce the total lifecycle CO<sub>2</sub> emissions by the Ricoh Group (including emissions of the "five gasses" converted into CO<sub>2</sub>) by <b>30%*</b> by 2020 and by <b>87.5%</b> by 2050 from the fiscal 2000 level.  <small>* Equal to 34% reduction from the fiscal 1990 level (for domestic CO<sub>2</sub>).</small></p>	<ul style="list-style-type: none"> <li>Set targets for the entire lifecycle with the aim of achieving the reduction levels set for society as a whole based on the warnings of IPCC.</li> <li>Reduce the CO<sub>2</sub> directly emitted from business activities by setting targets for each stage, including production and distribution.</li> <li>Reduce electricity consumption of the products in an active manner by setting high targets.</li> <li>Collaborate with suppliers at the procurement stage.</li> </ul>	<ul style="list-style-type: none"> <li>Develop technologies that improve the environmental functions of products and facilitate the use of such products.</li> <li>Make suggestions to customers to help them fully enjoy the environmental functions of our products.</li> <li>Realize "low carbon manufacturing" through innovation of production processes.</li> <li>Actively use solar power and other renewable energies for electric generation.</li> <li>Reduce CO<sub>2</sub> emissions at the procurement stage by making products smaller and their lives longer and by recycling more products.</li> <li>Support suppliers in their environmental impact reduction measures.</li> <li>Obtain more accurate information on CO<sub>2</sub> emissions during the distribution stage, increase distribution efficiency, and promote a modal shift.</li> </ul>
<p><b>Resource Conservation and Recycling</b></p> <p>(1) Reduce the new input of resources by <b>25%</b> by 2020 and by <b>87.5%</b> by 2050 from the fiscal 2007 level.                  (2) Reduce the use of or prepare alternative materials for the major materials of products that are at high risk of depletion (e.g., crude oil, copper and chromium) by 2050.</p>	<ul style="list-style-type: none"> <li>Discourage new input of resources and promote efficient use of the limited resources in business activities.</li> <li>Recognize that resource conservation measures directly reduce production costs and help avoid risks accompanied by possible increases in resource prices and ensure stable supplies of products in the future. Position the measures as a central part of management.</li> </ul>	<ul style="list-style-type: none"> <li>Develop technologies to make products/parts smaller and lighter.</li> <li>Develop technologies to improve reliability of products/parts, such as technologies to make product life longer.</li> <li>Increase recovery rates of used products.</li> <li>Increase recycling rates of products/parts/materials by developing technologies for recycling and efficient use of recycled items.</li> <li>Reduce the use of materials at a high risk of depletion or replace them with other materials, such as plant-based plastics and toner inks.</li> </ul>
<p><b>Pollution Prevention</b></p> <p>Reduce the impact of chemical substances on the environment by <b>30%</b> by 2020 and <b>87.5%</b> by 2050 from the fiscal 2000 level.</p>	<ul style="list-style-type: none"> <li>Implement risk management that covers not only impact on the environment but also impact on human health.</li> <li>Carry out risk management taking information on consumption, emissions, hazards, and exposure of chemical substances into consideration.</li> <li>Give priority to the high-risk chemical substances in reduction and replacement in order to prevent possible pollution.</li> </ul>	<ul style="list-style-type: none"> <li>Increase the level of chemical substance management system to improve risk management.</li> <li>Promote reduction and replacement of high-risk chemical substances.</li> </ul>

\* Targets are set based on the business areas and market share for fiscal 2000 (see the news release at <http://www.ricoh.com/info/090501.html>).