

1 Establishment of an environmental management system

◆ Establishment of an environmental management system

NTT Group is currently working to establish environmental management systems.

There are generally two options; the establishment of an environmental management system in compliance with ISO 14001, and the acquisition of official certification of, or registration to, ISO 14001.

Unlike acquisition of ISO 14001 certification, voluntarily establishing an environmental management system does not require registration. Since official certification for 14001 requires auditing and registration, which involve considerable time and cost, we should be thoroughly prepared, before deciding to go far the process.

The NTT Group intends to establish voluntary environmental management systems compatible with ISO 14001. We believe that each Group companies should establish and implement an environmental management system suitable for their operational conditions, even if they do not acquire official certification. Each company is also expected to maintain proper awareness of environmental issues.

Cases of ISO 14001 certification

The following gives a brief introduction to several cases involving acquisition of environmental or ISO 14001 certification by NTT Group organizations. The registered entities are merely examples of existing certification and do not include accounts of entities currently working toward certification, or those scheduled for certification in fiscal 1999.

Table 3.1-1: Examples of ISO 14001 certification cases within the NTT Group (as of December 1999)

Registered entity	Registration date	Registered department	Remarks
NTT Material Procurement Dept.	November 20, 1997	Material Procurement Dept. (former)	* First registered NTT department
NTT DoCoMo	November 27, 1998	Materials Dept.	* First registered mobile communications operator
NTT <holding company> Access Service System Laboratory	December 21, 1998	Tsukuba and Tokai location	* Development of facilities and products with minimum environmental impact * Elimination of small incinerators
Komatsu Sales Office, NTT West	December 24, 1998	NTT Komatsu branch (former)	* First registered NTT branch
NTT Learning Systems	January 26, 1999	Document System Dept., Multimedia Division	* First instance of registration within the publishing industry in Japan
NTT DoCoMo Tokai	June 16, 1999	DoCoMo Tokai, DoCoMo Engineering Tokai, DoCoMo Service Tokai, DoCoMo Mobile Tokai	* Simultaneous registration for four group companies
NTT DoCoMo Hokkaido	June 30, 1999	Headquarters (excluding branch offices)	* First communications carrier registered in the Hokkaido region
NTT DoCoMo Kansai	July 28, 1999	Materials Dept.	* First mobile communications carrier registered in the Kansai region
NTT Data	July 28, 1999	Toyosu Bldg. and Shinagawa Bldg.	* Promoting recycling external environment-related businesses and internal grass-roots environmental protection activities
NTT Logisco	August 30, 1999	Toranomon Mitsui Bldg. (Headquarters) and Sakai Center (Kansai Office)	* Provision of physical distribution services * Simultaneous registration with ISO 9002 (first of its kind in Japan)
NTT DoCoMo	October 7, 1999	Yamanashi Branch	* First registered DoCoMo branch
NTT Electronics	October 20, 1999	Ibaraki Office	* Manufacture of wavelength multiplexing optical communication devices
NTT East	October 28, 1999	Materials Procurement Center	* Registered for materials procurement operations for telecommunications facilities
NTT West	October 28, 1999	Materials Procurement Center	* Registered for materials procurement operations for telecommunications facilities
NTT Communications	October 28, 1999	Network Business Division, Materials Dept. of East Japan Facility Network Center	* Registered for materials procurement operations for telecommunications facilities
Hokuriku General Technology Center, NTT West	October 28, 1999	All departments of the Center	* Registered for overall construction of telecommunications facilities
Nagoya Branch, NTT West	November 12, 1999	Toyohashi Sales Branch area	* Telecommunications industry operations
NTT <holding company> Science & Core Technology Laboratory Group	December 22, 1999	Atsugi R & D Center	* Basic R&D involving telecommunications

* "former" indicates an earlier entity prior to the NTT reorganization or an earlier departmental designation before reorganization within a Group company.

2 Guidelines for procurement, design, and R&D

◆ Green Procurement guidelines

Actions for Green Procurement

Since the NTT Group has no manufacturing divisions, the environmental impacts associated with the products we procure could affect the environment-friendliness of our operations. Since fiscal 1997, we have worked on Green Procurement, which prioritizes the purchase of products with less

environmental impact.

In July 1997, we established the NTT Group Green Procurement Guidelines, as indicated in *Fig. 3.2-1* (revised August 1999), requesting the cooperation of our suppliers.

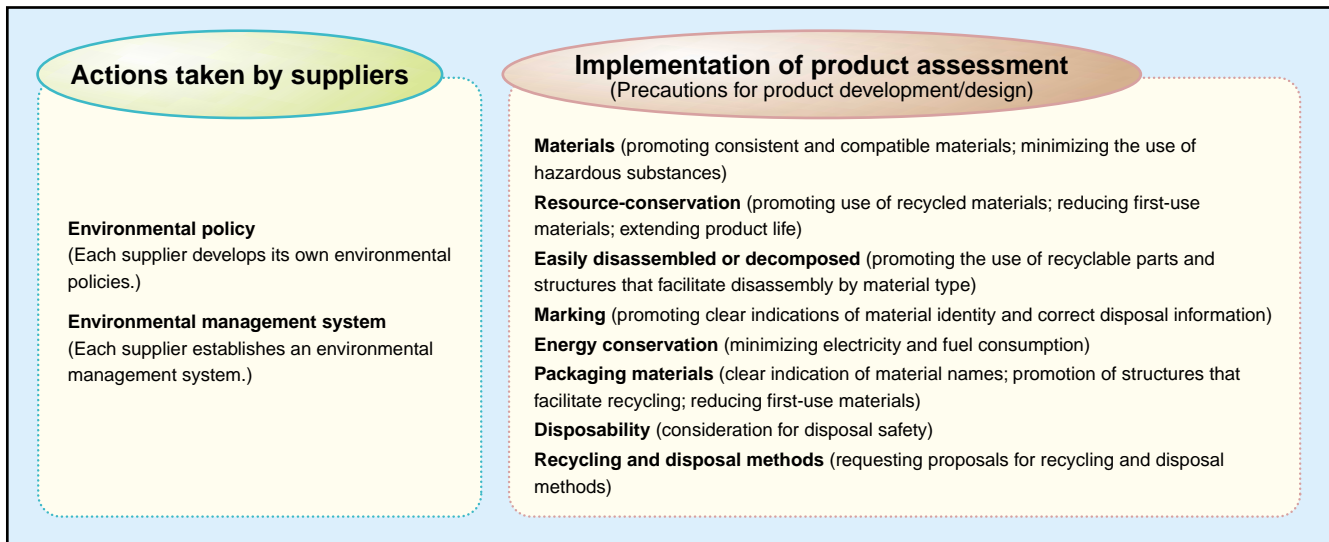


Fig. 3.2-1: NTT Group Green Procurement Guidelines

In January 1998, the NTT <holding company>, NTT East Corporation, and NTT West Corporation also established the following <Supplementary> Green Procurement Guidelines, as indicated in *Fig. 3.2-2* (revised August 1999), and we have continued to call for the cooperation of our suppliers. Green Procurement at the NTT Group is implemented based on

the schedule shown in *Fig. 3.2-3*.

Also, each NTT Group company is working on Green Procurement of individual products.

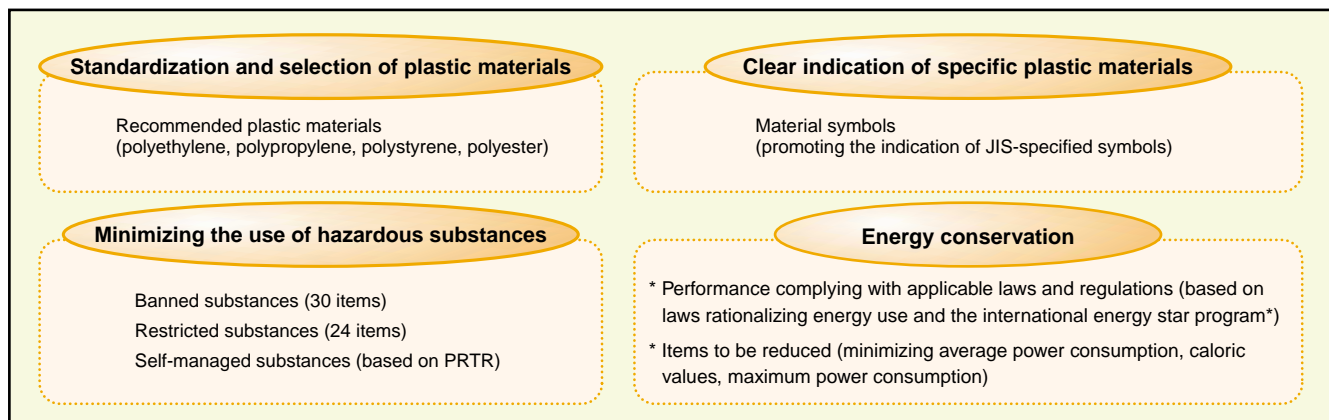


Fig. 3.2-2: <Supplementary> Green Procurement Guidelines

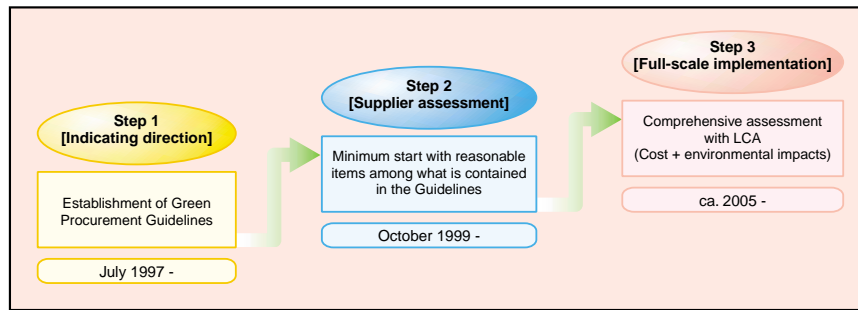


Fig. 3.2-3: Development schedule for Green Procurement

*** Energy Star Program**

This is a voluntary registration system approved by the governments of U.S. and Japan for energy-saving office equipment. The Energy Star logo may be granted to products through registration, which indicate the fulfillment of specified requirements.

Green Design Guidelines can be obtained in PDF file from the following URL.

(URL: <http://ontime.ntt.co.jp/kanren/index.html>)

◆ Building Green Design guidelines

The NTT Group owns some 30,000 buildings nationwide, which contain a total floor area of nearly 16 million square meters. These facilities consume significant amounts of resources and energy and they have considerable environmental implications.

In November 1997, NTT established the Green Building Design Guidelines to promote building design that takes environmental aspects into consideration.

Since July 1996, NTT has promoted long-term building improvement planning based on the Building Grand Design*. Since the anticipated demolition, relocation, and construction work will increase environmental impacts. It is particularly crucial to support Green Design, which minimizes environmental impact through strategic environmental planning of these buildings.

The Green Building Design Guidelines calls on designers to consider the environmental impact of their designs and demands their cooperation for environmental protection. Specifically, it establishes seven strategic issues for NTT building design. (Fig.3.2-4)

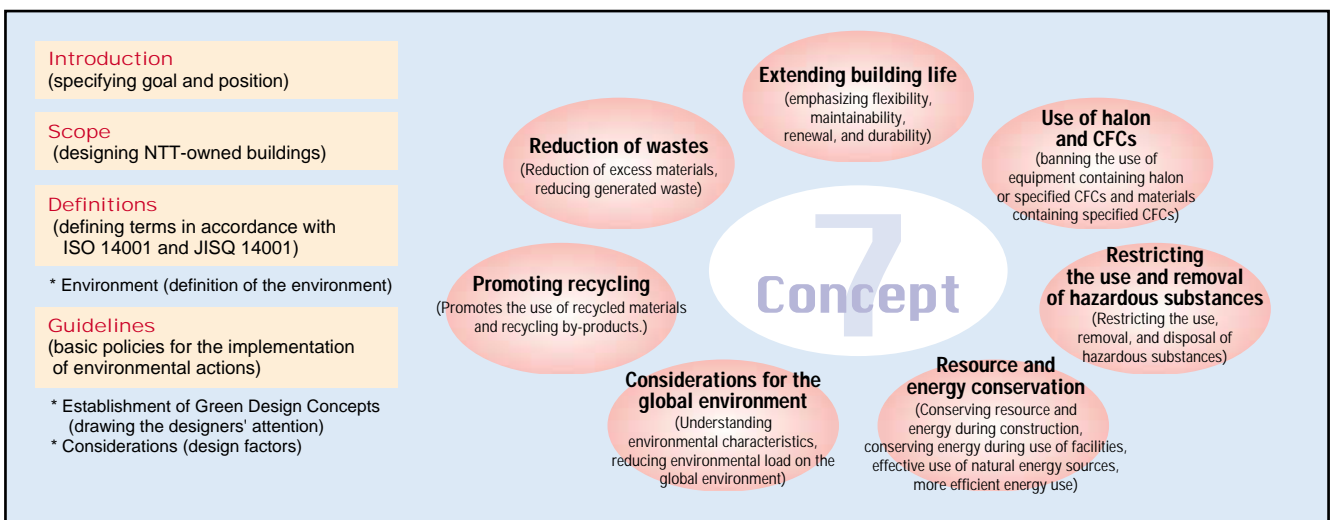


Fig.3.2-4: Green Building Design Guidelines

*** Building Grand Design**

Intended to allow accurate assessment of environmental changes around a building and land, ultimately reducing total

costs for both building and land. Buildings are segmented by use, the particulars of which are then reflected in building improvement planning and design.

Buildings designers are to consider the environmental impact of the above seven issues throughout the entire life-cycle of the building, including construction, use, and disposal.

To implement Green Designs for buildings effectively, we must specify evaluation methods for the environmental effects of buildings, and evaluation targets based on use, size, location, and other building characteristics.

We are currently working on a Green Design Building Evaluation Method that will allow the objective evaluation of buildings constructed according to the Green Design system.

In the Green Design Building Evaluation Method, the design of a proposed building is evaluated against the seven issues specified in the Building Green Design Guidelines to produce "environmental points", or EPs. These are scored according to a technique which assigns certain weights to various factors to produce a comprehensive evaluation index for a building's environmental performance. Environmental points (EPs) are

granted in accordance with separate evaluation standards* (criteria), enabling objective evaluations. The quantitative indexes can also account for qualitative characteristics such as visual impacts.

In future, we plan to standardize the environmental performance of NTT Group buildings based on experience with the Green Design Building Evaluation Method, refining the Green Building Design Guidelines and ultimately establishing numerical targets for environmental performance, which can then be used as requirements for building design in order to reduce the environmental negative impact involved in building construction.

*** Evaluation standards**

These are summarized in an evaluation sheet that defines evaluation standards for various environmental considerations. There are three separate standards for new offices, renovations of offices, and renovations of communications equipment rooms.

◆ Green R&D guidelines

The cycle of mass production, mass consumption, and mass disposal, and the use of hazardous substances have had profound effects on the global environment, as well as local communities. Given these circumstances, businesses must evaluate environmental impact and try to reduce unnecessary environmental effects throughout the entire life cycle of products and services. The Environment Basic Law enacted in November 1993 established the environmental responsibilities of national and local governments, business enterprises, and individual citizens, requiring each party to fulfill their responsibilities.

In research and development on new services, systems, and products, NTT will be faithful to its Green R&D Guidelines, which summarize various environmental considerations from the first stages of research and development.

The Green R&D Guidelines require the incorporation of strategic environmental considerations into our R&D activities. For example, during R&D, products are to be designed to enhance their recyclability and decomposability. The Guidelines require minimizing the energy consumption of NTT systems and equipments. It further demands energy efficiency of equipments for the R&D activities.

Overall, the Green R&D Guidelines is aiming to raise our environmental awareness through compliance with the Guidelines.

◆ Green Procurement Network

When purchasing daily office supplies (copy paper and stationery, etc.), NTT Group has long given considerations to environmental aspects well as price and quality. Since 1996, the NTT <holding company>, NTT East Corporation, NTT West Corporation, NTT Communications, NTT Data, and NTT Mobile Communications Network (DoCoMo) have participated in the Green Procurement Network (GPN), adopting Network product guidelines to back the procurement of environment-friendly office supplies. Established February 1996, the Green Procurement Network is a voluntary network of companies,

government bodies, and consumers. Some 2,000 companies and organizations nationwide are currently members on an equal status.

(URL: <http://www.wnn.or.jp/wnn-eco/gpn/>)

3 Environmental audits and self-monitoring

◆ *Observance of laws, regulations, and internal standards*

Based on the NTT Group Global Environment Charter, the NTT Group has complied with all laws and regulations on environmental protection, including local ordinances and reference values specified by various agreements. The Group also regularly reports to local governments as to its regulatory implementation.

* *Self-monitoring*

Since 1995, all business offices have conducted self-monitoring at least once per year to ensure proper compliance with laws and regulations (including ordinances, agreed-upon reference values, and internal regulations and standards), through using environmental check lists, on-site inspections, document inspections, and hearings. The results are reported to the NTT departments in charge of environmental protection.

* *Audit*

Based on the self-monitoring, the appropriate NTT departments in charge of environmental protection conduct audits every three to four years for all business offices to confirm proper observance of all the relevant issues.

* *Observance of laws and regulations*

Atmospheric monitoring

The number of offices equipped with boilers that have heating

surface areas of over 10 square meters under the Air Pollution Control Law is as follows: three in NTT, 93 in NTT East Corporation, 101 in NTT West Corporation, 5 in NTT Communications. No business office is in violation of any applicable law or regulation.

Wastewater management

Substances covered by the Water Pollution Control Law include copper, zinc, and mercury, which are used in NTT laboratories. No business office has ever discharged wastewater exceeding figures set by laws, regulations, and ordinances.

Waste management

Industrial waste generated by the NTT Group consists primarily of old communication facilities (such as telephone poles and switchboards) and concrete and asphalt used for construction and engineering projects. A manifest (management chart) system (*see p.20*) was introduced in 1997 to ensure proper management of these waste products. For special industrial waste, including asbestos and infectious waste, generated from medical facilities, we have designated personnel to ensure proper management of those wastes through the manifesto system.

4 Training and awareness

We provide environmental training and educational programs through internal publications and seminars to improve each employee's environmental understanding and awareness.

* *Environmental brochure*

At NTT, the provision of telecommunications services capable of contributing to protection of the global environment is known as Global Coexistence Telecommunications. We established the NTT Global Environment Charter in 1991 to proclaim the basic principles and policies for the entire NTT Group. In 1995, we issued an environmental brochure that summarizes NTT Group's activities for Global Coexistence Telecommunications. This was subsequently revised in 1997.

* *Environment-related internet site*

Telecommunications in Symbiosis with the Earth-NTT Group

In 1995, we produced an environmental brochure entitled Telecommunications in Symbiosis with the Earth-NTT, currently available on the NTT URL site. It focuses on the following five categories of the issues. Forests and NTT, The Sky and NTT, The Earth and NTT, Wildlife and NTT, and People and NTT.

Report on NTT Group Environmental Protection Activities

Detailed information is available by accessing the Internet home page of the NTT Group Promotion Activity for Environmental Protection.

Downloading as a PDF file is also possible.

(URL: <http://www.ntt.co.jp/kankyo/index.html>)

"Environmental goo"

Since 1999, NTT-X has provided "Environmental goo" as an environmental information site, covering environmental news and events. (*For more information, please refer to p.35.*)

(URL: <http://eco.wnn.or.jp/index.html>)

WNN (World Nature Network)

Since 1995, this site has provided up-to-date information on issues such as the global nature, environment, leisure, society, and traditions. The site provides four menus concerning the environment: Environmental goo, Clean energy, The Kids' Eco-Club, and the World Bird Count. From 1999, NTT-X began offering a total of 21 menus.

(URL: <http://www.wnn.or.jp/menu.html>)

*** *NTT Business and NTT Technology Journal***
(internal magazine)

Since 1992, NTT Business has distributed monthly news about the NTT Group's environmental activities. The publication is now divided into NTT East Business and NTT West Business. Both offer information, primarily on environmental activities, at the corresponding companies. NTT Technology Journal features outstanding environmental protection activities.

*** *Environmental CD-ROM***

In 1998, we issued a CD-ROM entitled "Global Co-Existence Telecommunications NTT" summarizing NTT's environmental protection systems, our activities for establishing environmental management systems, and other information on environmental issues. This was distributed to all employees as an internal training material.

*** *The Road to the Establishment of an Environmental Management System—Working Toward ISO Registration***

Since August 1997, the NTT Group has worked on selection of model business offices prior to the establishment of ISO 14001-type environmental management systems. The case studies for

the establishment of environmental management systems, and the NTT Group's environmental protection activities, were compiled in this booklet, which was distributed in June 1999 to all employees.

*** *Internal Seminars***

Particularly to the business offices preparing for environmental management systems, we invite experts to lecture on various issues involving ISO 14001 certification and registration.