



Basic Policies Shared by NTT Group Companies



- Environmental Management 16
- Guidelines for Procurement, Design and R&D 19

1. Environmental Management

<http://www.ntt.co.jp/kankyo/e/2000report/2/211.html>

Establishment of Environmental Management Systems

The NTT Group is actively promoting the establishment of ISO 14001-compliant environmental management systems based on the NTT Group Global Environment Charter.

Each Group company and department must establish and implement its own voluntary environmental management systems to promote efforts to reduce environmental impact in keeping with operational conditions, even if they do not obtain official ISO 14001 certification.

To effectively and efficiently promote these voluntary initiatives, the NTT Group provides environmental consultation to support the establishment and implementation of environmental management systems.

Examples of ISO 14001 Certification

The former NTT Material Procurement Department was first to obtain ISO 14001 certification in November 1997, with 26 organizations certified as of March 2000. (Fig. 2.1-1)

Entities which have acquired certification include three for NTT (the holding company), two for NTT East, four for NTT West, and eight for NTT DoCoMo.

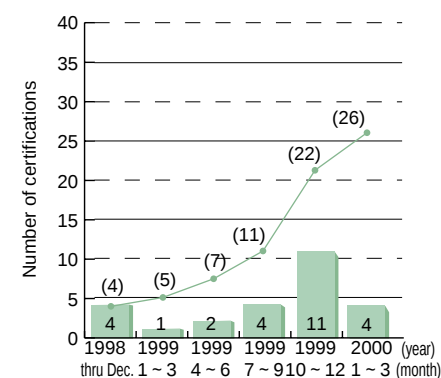


Fig. 2.1-1 ISO14001 certifications within the NTT Group (as of March, 2000)
Figures in brackets are cumulative totals.

Table 2.1-1 ISO 14001-certified organizations within the NTT Group

	Registered entity	Registered department	Registration number	Registration date
1	Nippon Telegraph and Telephone Corporation	Material Procurement Department (former)	JSAE026	1997.11.20
2	NTT DoCoMo	Procurement and Supply	JSAE078	1998.11.27
3	NTT (the holding company)	Access Service System Laboratories	JSAE080	1998.12.21
4	NTT West	Komatsu Branch	EC98J1113	1998.12.24
5	NTT Learning Systems	Multimedia Division	EC98J1136	1999.1.26
6	NTT DoCoMo Tokai	—	JMAQA-E053	1999.6.16
7	NTT DoCoMo Hokkaido	—	EC99J1022	1999.6.30
8	NTT DoCoMo Kansai	Procurement and Supply	EC99J1042	1999.7.28
9	NTT DATA Corporation	Headquarters and Branches (Tokai, West Japan, Chugoku, Kyushu)	EC99J1048	1999.7.28
10	NTT Logisco	Headquarters and Kansai Office	NQE-9809007A	1999.8.30
11	HALO DEN-IN	—	JSAE150	1999.9.29
12	NTT DoCoMo	Yamanashi Branch	JUSE-EG-029	1999.10.7
13	NTT Electronics	Ibaraki Office	EMS99002	1999.10.20
14	NTT East	Materials Procurement Center	JSAE157	1999.10.28
15	NTT West	Procurement And Supply Center	JSAE163	1999.10.28
16	NTT West	Hokuriku Engineering And Technology Support Center	JSAE160	1999.10.28
17	NTT Communications	Procurement Department East Japan Network Facilities Center Network Business Division	JSAE164	1999.10.28
18	NTT West	Nagoya Branch	JQA-EM0587	1999.11.12
19	NTT (the holding company)	Science & Core Technology Laboratory Group, Atsugi R&D Center	JSAE178	1999.12.22
20	NTT DoCoMo Kyushu	Product and Supply Department	EC99J1134	1999.12.27
21	NTT Advanced Technology Corporation	Materials Development & Analysis Division	EC99J1152	1999.12.28
22	DoCoMo Engineering Kyushu	—	EC99J1160	1999.12.28
23	DoCoMo Service	Toda Products Center	JMAQA-E087	2000.1.27
24	NTT-ME Hokuriku	—	EC99J1180	2000.2.10
25	NTT HOKKAIDO ESPACE	—	JQA-EM0712	2000.2.10
26	NTT East	Kanagawa Branch	EC99J1239	2000.3.29

Environmental Audits and Self-Monitoring

To fulfill the expectations of society and our responsibilities as a corporate entity, the NTT Group has identified the establishment and maintenance of environmental management systems as one of the basic policies of the NTT Group Global Environment Charter. Internal environmental audits are essential to ensure that these environmental management systems are properly implemented. As shown in Fig. 2.1-2, the NTT Group implements environmental audits on three levels.

Level 1 comprises initial audits, including performance audits to ensure compliance with laws and regulations. The NTT Group endeavors to comply with all laws and regulations, local ordinances and agreed reference values relating to environmental protection. Regular reports of performance audit results are made to local authorities.

Level 2 comprises environmental management system audits based on ISO 14001 guidelines.

Level 3 comprises more sophisticated environmental audits reflecting LCA¹ and environmental accounting practices.

¹ LCA

Life Cycle Assessment. A method for comprehensive assessment of the cumulative environmental impact of a product at every stage, from procurement of materials and production through usage and disposal. A method called LCC (life cycle cost) can be implemented for cost analysis.

Self-monitoring

Since 1995, all NTT Group business offices have conducted self-monitoring at least once a year in order to ensure that all applicable laws and regulations, ordinances, agreed reference values, internal rules and standards are observed. On-site inspections, document inspections and interviews are carried out according to environmental check sheets, and results are reported to the departments in charge of environmental activities. An example of an environmental check sheet is shown in Fig. 2.1-3.

Environmental audits

Departments in charge of environmental activities audit each business office every

three to four years to ensure that all items on the check sheets are properly observed in keeping with the results of self-monitoring.

Compliance with laws and regulations

Atmospheric management

In compliance with the Air Pollution Control Law, boilers with heating surface area of over 10 square meters have been installed at NTT Group companies. A total of 138 business offices have been equipped with such boilers. No business office is in violation of any applicable laws or regulations.

Wastewater management

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

Waste management

Industrial waste generated by the NTT Group consists primarily of dismantled communications facilities waste such as telephone poles and switchboards, and concrete and asphalt used for construction and civil engineering projects. In 1997, a manifest system² for proper management of industrial waste products was introduced. For special industrial waste, such as asbestos used in buildings and bridges and infectious waste generated from medical facilities, specific individuals are designated to ensure proper management of waste disposal in keeping with the manifest system.

² Manifest system

A system that enables tracking and management of the flow of industrial wastes consigned to third parties for treatment and disposal. As of December 1, 1998, the manifest system has been applied to all industrial wastes.

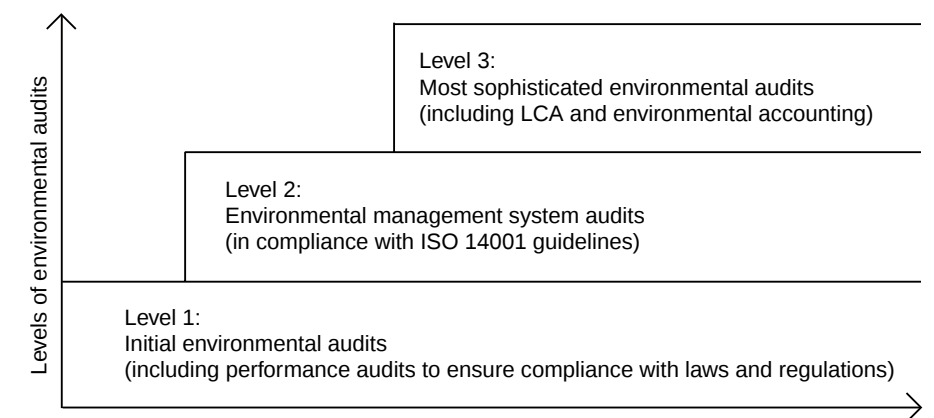


Fig. 2.1-2 Levels of environmental audits

Categories	Items
Environmental management	Organization for promoting environmental protection
Paper resource management	Office paper management measures
Measures for prevention of global warming	Measures for compliance with revised energy conservation laws, implementation of daily energy conservation activities, power-receiving systems, telecommunication power sources, air conditioning facilities, lighting facilities, gas, oil, boilers, small boilers, oil tanks, low pollution vehicles
Waste management	Office waste, obsolete communication facilities, medical wastes, PCBs (stored and currently used), others (bridge asbestos, construction asbestos, etc.)
Protection of ozone layer	Turbo freezers, halon fire extinguishers
General issues	Water, septic tanks, office supply procurement

Fig. 2.1-3 Example of an environmental check sheet



1. Environmental Management

Environmental Risk Management

NTT Group environmental protection efforts are primarily focused on reduction of existing environmental impact and elimination of factors which cause ongoing negative impact. In the process, however, of pursuing our business activities, we sometimes have no choice but to utilize facilities and materials which could have harmful effects on the environment. Under these circumstances, we must make special efforts to minimize risks. Environmental risk management is one of the areas the NTT Group has targeted for special emphasis. Thanks to these efforts, no penalties or fines regarding the environment were imposed on the Group or any of its member companies in 1999.

Prevention of soil contamination

The NTT Group has underground tanks which store fuel for auxiliary generation at some 1,500 switchboard facilities and other strategic installations across the country. These facilities are so-called lifelines, indispensable for securing communication in emergencies. Leaked fuels from these underground tanks could, however, contaminate soil and water, seriously affecting the quality of life of local residents.

The NTT Group has made a thorough study of the potential environmental impact of these storage facilities. As the first preventive measure against leakage of fuel and other hazardous substances, we have introduced and reinforced an automatic oil leakage detection system for underground tanks. This system allows for monitoring of fuel levels and flow rates in existing underground tanks, and constant remote surveillance and reporting of leakage in surrounding areas to detect and prevent leakage in advance.

We are also implementing installation of new underground tanks with a double wall structure. From January 1999 to March 2000, new tanks were installed at a total of 110 NTT East locations and 140 NTT West locations.

PCB storage and harmless processing technologies

Until 1972, PCB (polychlorinated biphenyl) was widely used at NTT for transformers, condensers, and stabilizers for fluorescent lamps. Following the legislative ban on PCB production and restriction of its usage, NTT ceased new application of PCBs. Even before the ban, the company had initiated a storage program for used PCBs.

In April 1998, NTT established new internal guidelines for PCB storage, stipulating the proper facilities and methods for safe storage of this potentially hazardous substance.

Due to possible deterioration of facilities in the 28 years since storage began and the considerable time required for complete decomposition of PCB waste, we have recently implemented additional risk management measures for PCB storage. Small objects containing PCB are stored in containers, while large objects, such as transformers, are stored in facilities protected by stainless steel trays.

The NTT Group as a whole is aware of the group's responsibility as a PCB-holder to further implement risk management measures.

Introduction of Environmental Accounting

The NTT Group began the introduction of environmental accounting from fiscal 1999

as part of our efforts to quantitatively grasp the scope and nature of our own environmental initiatives (internal management) and to positively disclose measures adopted to reduce environmental impact and other environmental efforts initiated as a leading information sharing business (external disclosure). Environmental accounting provides an effective means for quantitative analysis of information sharing services and business management from the viewpoint of energy, resources and global eco-systems, essential elements of global environmental protection. It also permits these results to be reflected in management decision-making. (Fig. 2.1-4) The NTT Group is currently making the following efforts in environmental accounting: (1) calculating environmental costs and their effects as risk management of environmental costs to NTT Group companies and (2) conducting ongoing studies of the social value of information sharing services and their effect on the future welfare of the environment.

NTT Facilities initiated trial calculations of environmental preservation costs at their headquarters in 1998. NTT (the holding company), NTT East, NTT West, and NTT DoCoMo Hokkaido are making calculations based on environmental accounting for 1999. The NTT Group plans to disclose environmental accounting results for major companies for the fiscal year 2000. We also intend to promote an ongoing environmental agenda by drawing up specific environmental accounting guidelines within the NTT Group.

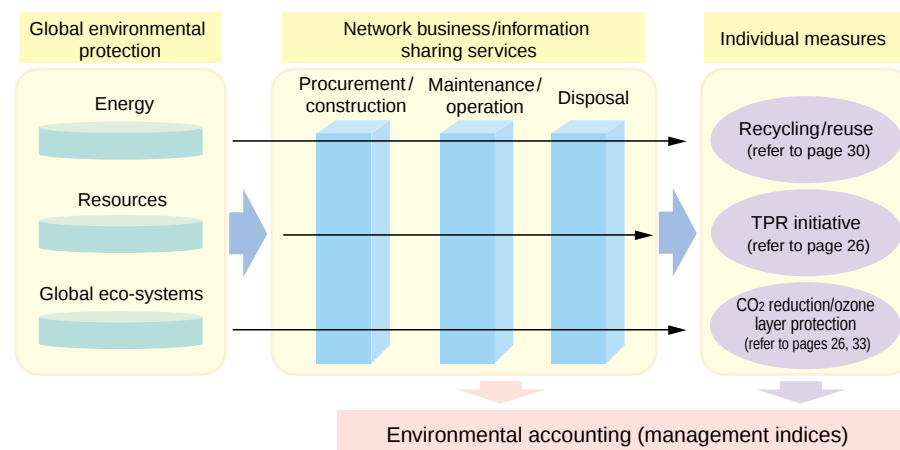


Fig. 2.1-4 Overview of environmental accounting

2. Guidelines for Procurement, Design and R&D

<http://www.ntt.co.jp/kankyo/e/2000report/2/221.html>

The Guidelines

The NTT Group has established the following guidelines to promote the development of environmentally aware business activities. (Fig. 2.1-1)

- ① Green Procurement Guidelines (established in 1997)
- ② Green R&D Guidelines (established in 2000)
- ③ Green Building Design Guidelines (established in 1997)

These three sets of guidelines reflect three unique characteristics of the NTT Group.

Characteristic #1

Because the NTT Group has no manufacturing divisions, it is necessary to purchase products from suppliers. Environmental impact associated with procured products can have a direct influence on the environmental viability of our business activities. We have therefore targeted procurement of environmentally friendly products (Green Procurement) and outlined the concept in our Green Procurement Guidelines, which are being actively implemented by our procurement divisions.

Characteristic #2

The NTT Group maintains its own R&D divisions, engaged in research and development of services, systems and products related to the businesses of the Group. When newly developed products are consigned to manufacturers for production, we require designs which maximize environmental considerations. Our Green R&D Guidelines were established to clarify such requirements and promote environmentally friendly research and development.

Characteristic #3

The NTT Group is engaged in businesses on a nationwide scale, and owns a huge number of buildings. By incorporating environmentally friendly building design from the initial stage, it is possible to achieve a considerable reduction in environmental impact at later operational stages. From this viewpoint, we have established our Green Building

Design Guidelines for application to NTT Group buildings.

How the Guidelines are implemented

We have established steps to ensure systematic development and implementation of these environmental guidelines.

Green Procurement Guidelines are to be implemented in three steps: Step 1: Indication of direction; Step 2: Supplier

assessment; Step 3: Full-scale implementation. (Fig. 2.2-2)

Green R&D Guidelines are implemented by: Step 1: Trial implementation; Step 2: Actual implementation; Step 3: Full-scale implementation. (Fig. 2.2-3)

Green Building Design Guidelines are implemented in three steps: Step 1: Announcement of basic policies; Step 2: Group development; Step 3: Actual implementation. (Fig. 2.2-4)

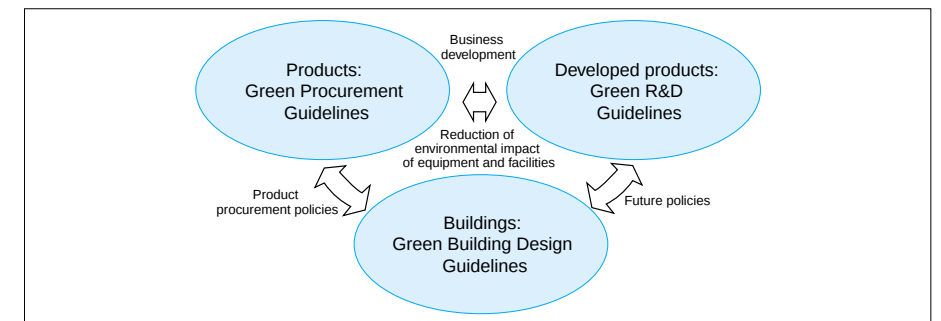


Fig. 2.2-1 NTT Group environmental guidelines

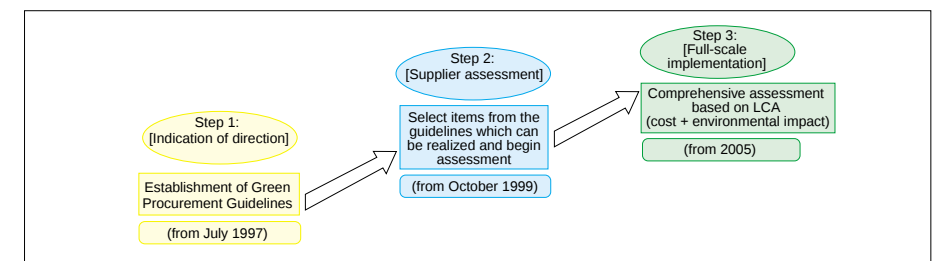


Fig. 2.2-2 Steps for implementation of Green Procurement Guidelines

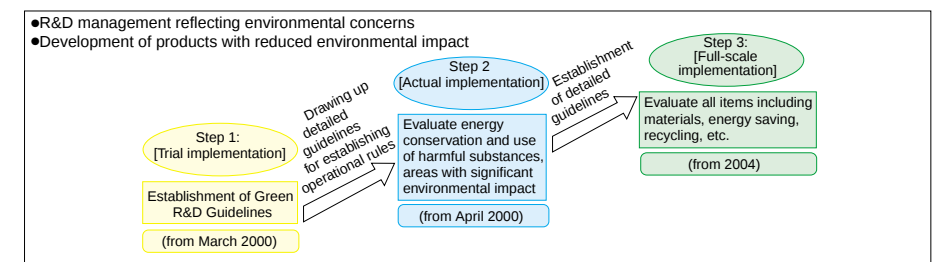


Fig. 2.2-3 Steps for implementation of Green R&D Guidelines

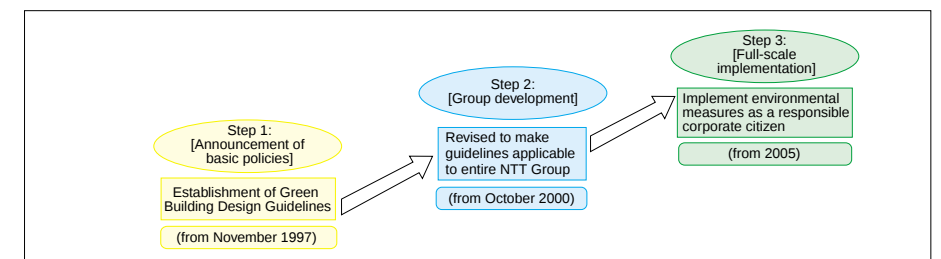


Fig. 2.2-4 Steps for implementation of Green Building Design Guidelines



2. Guidelines for Procurement, Design and R&D

Green Procurement Guidelines

Green Procurement Guidelines were established in 1997 and revised as shown in Fig. 2.2-5. Step 1 of the implementation process is already completed and procurement standards have been reinforced. The guidelines adopted as standards today were revised in August 1998 and are applicable to NTT (the holding company), NTT East, NTT West, NTT Communications, NTT DoCoMo, NTT DATA and NTT Facilities, companies engaged in activities which generate greater environmental loads compared to other companies in the Group. The full text of the guidelines can be viewed on our website and is available for downloading.

<http://ontime.ntt.co.jp/07/index07.html>
<http://ontime.ntt.co.jp/english/kanren/index.html>

We are currently working on Step 2 of the implementation process. Supplier assessment was initiated in October 1999, a minimum start based on reasonable items selected from the guideline categories. The NTT Group as a whole procures approximately 100,000 specific items, and we have asked approximately 250 suppliers who provide basic items to cooperate in the initial supplier assessment phase.

Supplier assessments are based on “corporate policy” and “product assessment”. (Fig. 2.2-6)

Corporate policy assessment is applicable to all suppliers. Regarding product assessment, different products require different approaches. We have therefore identified two important areas for assessment: clear indication of specific plastic materials contained in the product and energy conservation. We will also require reports on the amounts of harmful substances contained in products as data becomes available. Other items in the guidelines will be individually checked to determine if they are applicable, depending on the characteristics of each product.

An overview of corporate policy and product assessments is shown in Fig. 2.2-7. For product assessment in particular, we have developed different time lines for assessment of new procurement contracts versus existing ones.

As of February 2000, we have conducted corporate policy assessments of 40 companies. Product assessment was conducted on approximately 10 new procurement products, while assessments of spec sheets¹ for approximately 20 existing products were conducted when their specifications were revised. We have also received approximately 20 cases for assessment to coincide with VA proposals².

We plan to move on to Step 3 (comprehensive assessment based on LCA) to coincide with the disclosure of data on environmental effects of materials and parts.

¹ Spec sheet: Specifies technical requirements and conditions necessary for purchasing telecommunication facilities and materials/components.

² VA proposals: Proposals for improvements from suppliers including price reductions, improved functions, etc., for materials/components and articles which we purchase on a continuous basis.

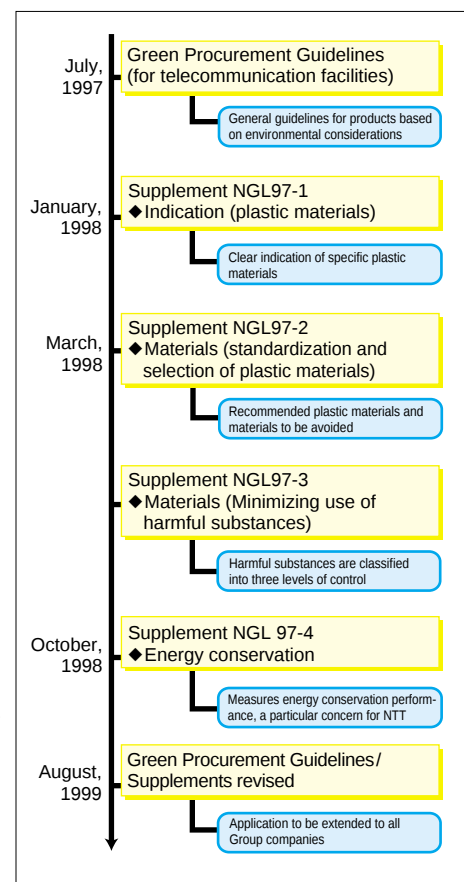


Fig. 2.2-5 History of revision of Green Procurement Guidelines

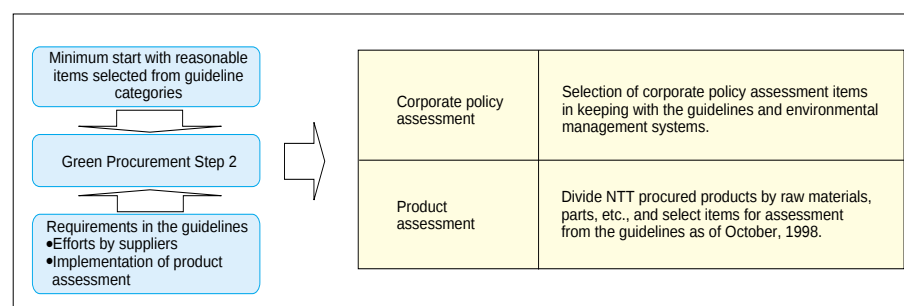


Fig. 2.2-6 Implementation of Green Procurement Step 2

Corporate policy assessment	Assessment of suppliers' efforts in environmental protection to be reflected in procurement		
	New procurements	Assessment of proposals at the time of new procurements to be reflected in the choice of suppliers	Revised specifications
Product assessment	Existing procurements	Assessment of individual products when specifications are revised.	VA proposals
			VA proposals from suppliers to be individually assessed and reflected in product assessment.

Fig. 2.2-7 Overview of Green Procurement Step 2

Green R&D Guidelines

In March 2000, the NTT Group adopted Green R&D Guidelines for research & development of new services, systems and products as a step toward reducing environmental loads as stipulated in the NTT Group Global Environment Charter.

These guidelines are our response to the emergence of a “recycling-based society.” The guidelines are based on the principle of reducing environmental impact by saving resources, minimizing energy consumption and controlling harmful substances through efficient utilization of products throughout their entire life cycle and through promotion of recycling. The Basic Law for Promoting Establishment of a Recycle-based Society which came into effect in June 2000 requires businesses to reduce environmental loads by (1) reducing, recycling and properly treating wastes generated through business activities; (2) improving product durability; and (3) improving designs and indicating materials and components. Our Green R&D Guidelines meet all these requirements.

The Green R&D Guidelines are to be implemented in three steps as outlined on the previous page. Energy R&D guidelines, detailed guidelines for harmful substances, detailed guidelines for indication of material names and detailed guidelines for saving resources will be drawn up successively, with the process scheduled for completion by 2004.

Green R&D Guidelines

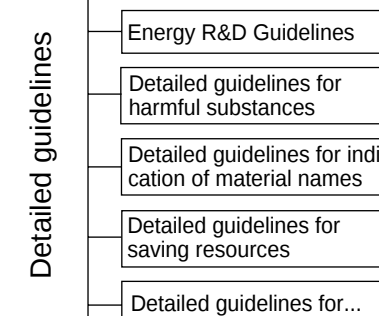


Fig. 2.2-8 Structure of Green R&D Guidelines

In developing our Green R&D Guidelines, we identified the following categories for consideration.

- Assessment categories for R&D results: Restriction of materials to be used; saving resources; ease of dismantling; indication of materials for separation; energy conservation; ease of waste disposal; restriction of manufacturing processes; and methods of recycling and disposal.
- Assessment categories for R&D activities and methods: Control of use of harmful substances; saving resources; energy conservation; recycling and disposal methods; and green purchasing.

In assessing R&D results, we do not directly regulate specifications for individual materials/components. Rather, by following these guidelines from the initial stages of R&D, we aim to develop products which reflect strategic environmental concerns, including reducing wastes and promoting recycling.

In assessing R&D activities and methods, we aim for reduction of environmental impact by limiting the amount of harmful substances and chemicals and reducing the amount of energy used in various facilities.

Energy R&D Guidelines

Energy R&D Guidelines, the first of a series of detailed guidelines, were established in March 2000.

The NTT Group has made significant progress with energy conservation efforts through on-site measures such as quality

control and improvement of our overall business activities including construction and maintenance of facilities. In order, however, to counter expected increases in energy consumption, it is essential to reduce the amount of energy consumed by newly developed communication facilities. Adoption of energy-saving measures from the initial stages of R&D is a vital portion of our environmental agenda.

Our Energy R&D Guidelines have been established in view of such needs, with the aim of promoting reduced energy consumption and lessening the environmental impact of R&D throughout the NTT Group.

The guidelines require individuals in charge of R&D to implement energy assessments at respective planning and decision-making stages. These energy assessments aim at promoting enhanced awareness, and consist of three stages: fact-finding; setting targets; and self-assessments. These stages are necessary to determine the validity and performance of energy assessment targets.

We have also explained concrete examples of energy assessment methods to make it easier for individuals in charge of R&D to follow the guidelines.

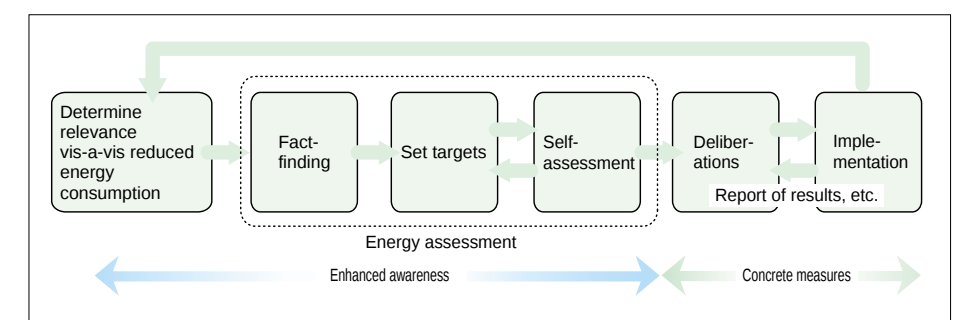


Fig. 2.2-9 Basic flow of R&D for reduced energy consumption



2. Guidelines for Procurement, Design and R&D

Green Building Design Guidelines

The NTT Group owns approximately 30,000 buildings throughout Japan. Significant amounts of energy are consumed and waste generated in the process of construction, demolition, refurbishment and repair.

In November, 1997, NTT established Green Building Design Guidelines which outline our concepts for environmentally sound building design and summarize items to be considered in developing those concepts in more concrete terms. These guidelines reflect basic considerations for the design and planning stages of construction projects, with the objective of reducing the impact on the global environment throughout the entire life cycle of the building.

The Green Building Design Guidelines define the following seven strategic concepts for NTT building design. (Fig. 2.2-10)

- (1) Extending building life:
Emphasizing flexibility, maintainability, renewal and durability
- (2) Restricting use of halon and CFCs:
Banning the use of equipment containing halon or specified CFCs, removal of materials containing CFCs

- (3) Restricting use and removal of harmful substances:
Restricting the use, removal and disposal of harmful substances
- (4) Conservation of resources and energy
Conserving resources and energy during construction, conserving energy during use of facilities, effective use of natural energy sources, improving efficiency of energy utilization
- (5) Reduction of waste:
Reduction of excess materials, reduction of generated waste
- (6) Promoting reuse and recycling:
Promotes use of reused and recycled materials, reuse and recycling of by-products,
- (7) Consideration for local environment:
Understanding environmental characteristics, reducing loads on local environment

Green Purchasing

In line with our policy to prioritize environmentally friendly materials and components, the NTT Group makes an effort to take environmental impact into consideration when purchasing office supplies such as copy paper, stationery and office equipment.

Within the NTT Group, each Group company and office has established its own policies to actively promote green purchasing. NTT (the holding company), NTT East, NTT West, NTT Communications, NTT DoCoMo, and NTT DATA participate in the Green Purchase Network (GPN)¹, adopting GPN product guidelines to promote procurement of environmentally friendly office supplies.

Organizations within the NTT Group which are aiming for ISO 14001 certification are also actively involved in green purchasing as a part of their efforts to obtain certification.

¹Green Purchase Network (GPN)

A nationwide network of consumers, businesses, and government agencies who voluntarily promote priority purchasing of environmentally friendly products and services. Established in February, 1996.

 <http://www.wnn.or.jp/wnn-eco/gpne/index.html>

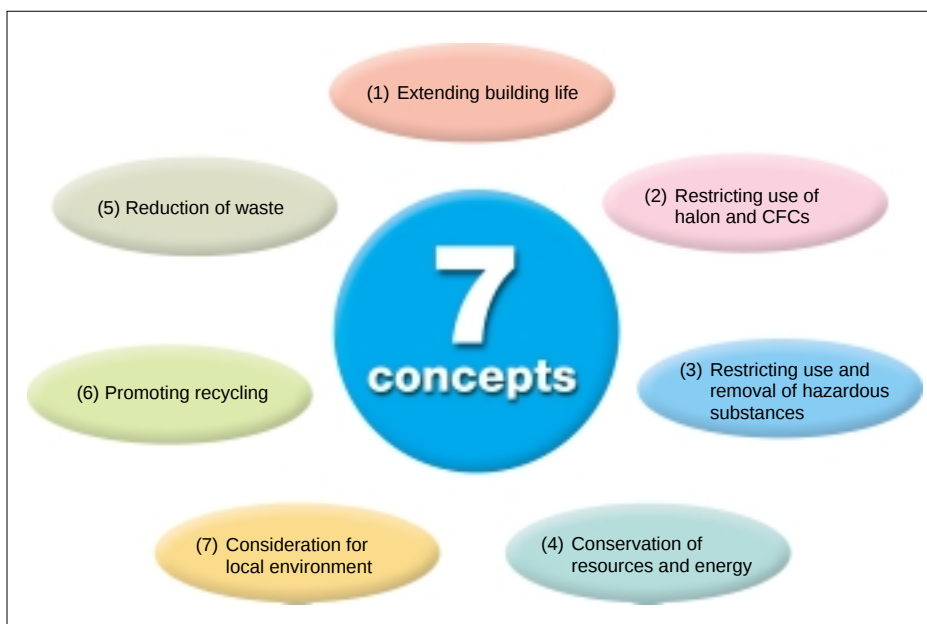


Fig. 2.2-10 Green Building Design Guidelines