

Environmental Management Activities

Overview of Environmental Impact

Summary : The Yokogawa Group inputs parts and materials, auxiliary materials, energy, and water into business activities and emits exhaust gases, drainage, and waste matter. The Group assesses their "eco-balances" quantitatively and implements environmental impact reduction activities for building a sustainable society. Our environmental burden indicator combining the environmental impacts at 19 sites in fiscal year 2002 was 38,708 EP.

1. Gaining an Overview of Environmental Impact

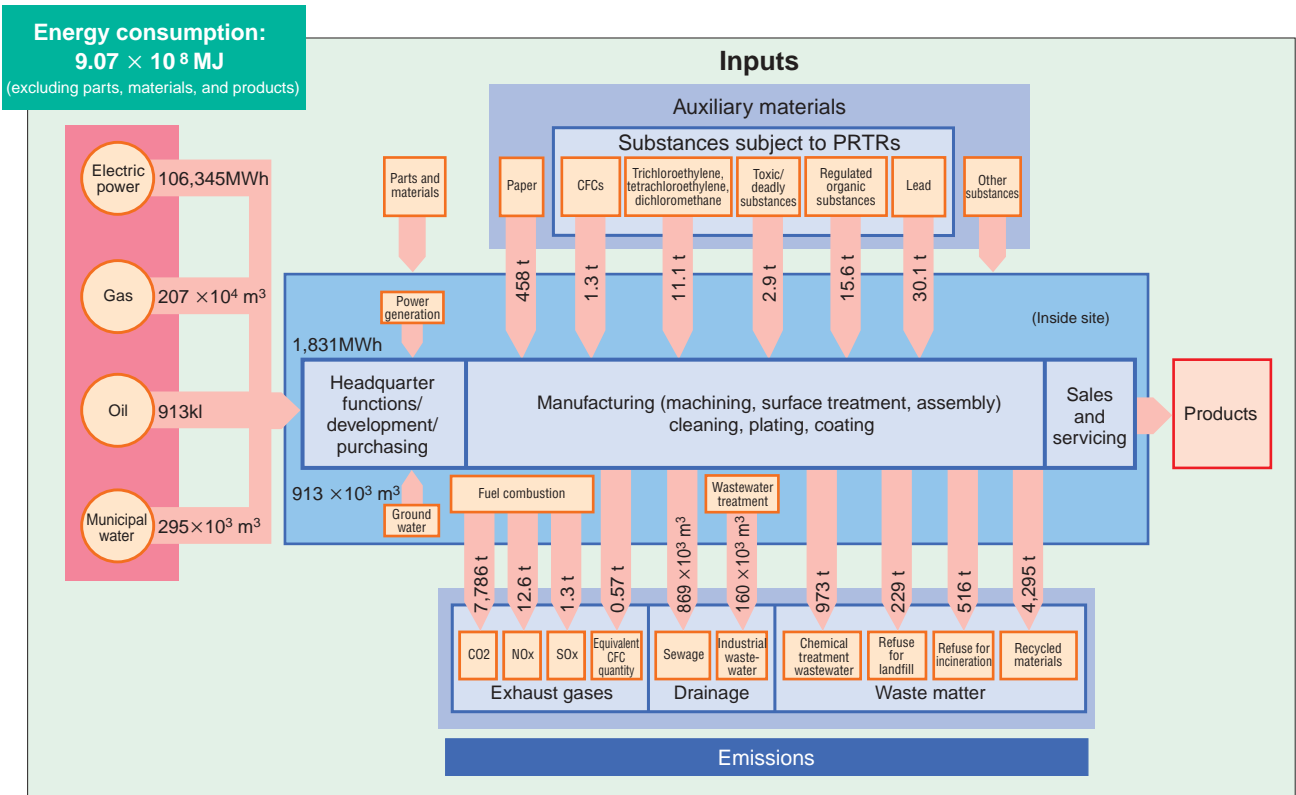
The Yokogawa Group designs, manufactures, and sells measuring equipment and control systems for various processes, electric meters, measuring instruments, analytical equipment, power supply units, and other products. For these purposes, we input parts and materials, auxiliary materials, energy, and water into business activities and emit exhaust gases, drainage, and waste matter. We intend to assess and control the eco-balances*¹ of inputs and outputs through these activities and to use these eco-balances for more effective utilization of resources, better energy efficiency, prevention of global warming, and improved recycling ratio for building a sustainable society.

The diagram below shows the annual eco-balance of applicable data (at 19 sites) in fiscal 2002. For parts, materials, other substances (such as packing materials and screws), and products, we will study methods of handling them.

2. How to Assess Environmental Protection Activities

The Yokogawa Group comprehensively analyzes the environmental burdens of all its activities and uses the environmental burden indicator (which we call eco point (EP)) when calculating the environmental impacts in order to assess environmental protection activities (see page 6 for the eco point). Our environmental burden indicator based on energy consumption and inputs/emissions (excluding parts, materials, other substances, and products) in fiscal 2002 was 38,708 EP, an increase of 1,979 EP over the previous fiscal year. The number of sites and factories covered by the assessment is 19 for this fiscal year compared to 18 for the previous fiscal year.

*1 Eco-balance: Annual balance between inputs (consumption) and emissions of energies and resources excluding parts, materials, and products.



Eco-Balance for Fiscal Year 2002 Covering 19 Sites

Management System

Summary : All of the Yokogawa Group companies are tackling environmental issues. As of the end of March 2003, 13 sites in Japan and six sites in other countries have obtained ISO14001 certification, accounting for 61% of all employees of the Group. Four sites of Headquarters, the Kofu plant, the YMF*1 Komine factory, and the YMF Ome factory were subjected to a comprehensive surveillance review and were evaluated as "enhanced," and so maintained their registration. Two sites of the Kofu plant and the YMF Komine factory where the factory had been reorganized were given environmental operation audits (second-party audits) including site reviews.

*1 YMF: Yokogawa Electronics Manufacturing Corporation

1. Environmental Management System Configuration

To put environmental management into practice towards building a sustainable society, a proper environmental management system is required. And as stated in the "Basic Environmental Management Rules" (see page 5 for details), an environmental management system is a prerequisite. Each of the Group firms aims to establish its own environmental management system by fiscal 2005. While all of the Yokogawa Group companies are tackling environmental issues, 13 sites in Japan and 6 sites in other countries have obtained ISO14001 certification*2, accounting for 61% of all employees of the Group, as of the end of March 2003.

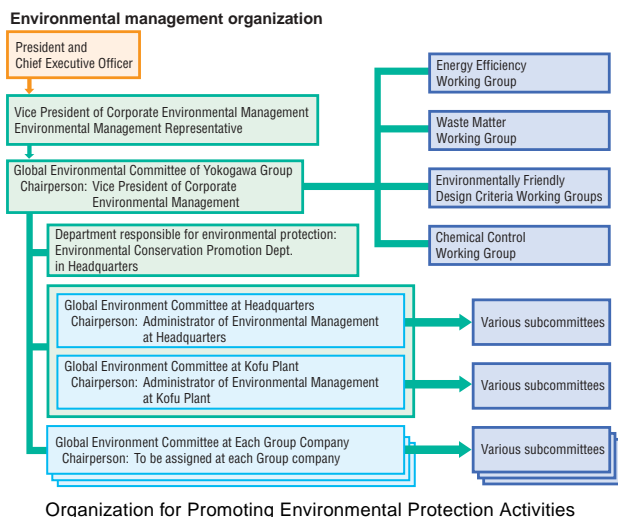
*2 For details on these sites, please visit:

[http:// www.yokogawa.com/environment/](http://www.yokogawa.com/environment/)

2. Organization

The vice president of environmental management, who acts on behalf of the president and CEO, has full responsibility for matters concerning the Group's overall environmental protection activities. These matters are decided at the Yokogawa Group Global Environment Committee. At each site, a Global Environment Committee is formed, and autonomous environmental protection activities are carried out in line with the Group policy but taking local factors into consideration.

Starting from fiscal year 2003, the Yokogawa Group will review its organization for environmental protection activities, change the organization so as to link with the line operations of business headquarters, and roll out these Group activities globally.



3. Environmental Audits

The Yokogawa Group uses environmental audits to verify that environmental management systems have been reliably implemented and continuously improved. The Group implements environmental audits, including periodic audits (third-party audits), internal audits (first-party audits) and environmental business operations audits (second-party audits).

(1) Periodic Audits

Four sites including the YMF Ome factory in addition to three sites (Headquarters, the Kofu plant, and the YMF Komine factory), which obtained a comprehensive certification last year, were subjected to a surveillance review*3 by a certification agency. As a result, they were evaluated as "enhanced" primarily due to the "improvements in environmental impact assessment systems."

*3 Surveillance review: A review to be conducted in the first and second years after a certification is granted. The renewal review is conducted every three years.

(2) Internal Audits

The Group implements system audits, legal compliance audits, and performance audits once a year. While audits in fiscal year 2002 found minor non-conformities such as "progress control of the administrative office cannot be confirmed in the target program" (an example of Headquarters), we took corrective actions immediately and improved the situation.

(3) Business Operations Audits

Departments responsible for environmental protection conduct audits on a total of 287 check items. In fiscal 2002, we conducted business operations audits at four sites mentioned in the above section (1). In particular, we conducted on-site reviews in addition to document reviews at the Kofu plant and the YMF Komine factory which underwent major factory reorganizations.

Environmental Business Operations Audit	Internal Audits	
	Environmental management system audit	Checks the statuses of organization, target-result management, training, operations control, and corrective actions, to assess whether the system is implemented effectively.
	Legal compliance audit	Checks the statuses of operation and monitoring of substances against legally regulated values (qualifications, reports, and measured data), to assess whether legal regulations or other requirements are followed.
	Performance audit	Checks the statuses of the results against targets, data of legally regulated values, etc. to assess whether voluntarily rules are being followed.
Environmental strategy audit	Checks the contribution to a sustainable society, reduction of pollutants, supply of environmentally friendly products, supply of solutions, contributions to local communities, transparency of information to the public, etc. to assess whether the environmental strategy is effectively enforced.	

Assessment Items of Environmental Audits

Comparison of Results versus Targets

Summary : In fiscal year 2002, we shifted the emphasis of our environmental protection efforts toward autonomous ones more closely in line with business operations. The results of these efforts have appeared gradually. As a next step, we will create mechanisms to accelerate this process. With respect to targets, we successfully achieved, among other things, energy efficiency which is one of the pillars of recycling-based management, reduction of waste, establishment of lead-free soldering technologies, and energy efficient design guidelines. However, we were not able to create "an installation standard for toxic waste liquid emission facilities" and "80% ratio of 'green' goods purchased*1."

*1 Ratio of "green" goods purchased: Applicable to stationery and paper products.

The Yokogawa Group applies the "Basic Environmental Management Rules" (see page 5) to the entire Group, and has implemented environmental protection activities by taking account of the lines of business and local situation of each Group firms in addition to community activities as corporate citizens. In particular, four integrated sites (Headquarters, the Kofu plant, the YMF Komine factory, and the YMF Ome factory) have played leading roles in such activities. In fiscal 2002, each division strived to identify problems on its own initiative and to solve them in combination with its original missions. These efforts have gradually gathered momentum. From fiscal 2003, the Group will work to establish these trends and even small organizations will produce concrete results, thereby delivering major results at the group level.

For "legal compliance," we set a target to create voluntary control standards for wastewater and exhaust gas facilities. However, installation standards for toxic liquid waste emission facilities remained at the drafting stage and their completion

will be carried into fiscal 2003. With respect to soil and ground water pollution at a site of the demolished YMF Moroyama factory, we would like to express our sincere apologies to local residents and the local government. We already completed the purification of polluted soil and are continuing the work of purifying ground water.

Concerning the "promotion of recycling-based management," we successfully reduced carbon dioxide emissions produced by energy consumption by 17.0% against the target of 10.9% (from the level in fiscal 1990) and also reduced the amount of waste by 57.9% against the target of 44.1% (from the level in fiscal 1995), thereby attaining both targets. We found that the efficient use of energy was a result of efforts on manufacturing lines such as "reduction of wastes at a site level." One reason why the amount of waste surpassed the reduction target is that Headquarters reduced the amount of incinerated waste to zero.

We also made substantial improvements in the "reduction

Environmental Policy of Yokogawa Group

	Commitment	Category
Environmental management system implementation, maintenance, and improvement	Establish an environmental management system to promote and improve environmental protection activities. For this, accurately grasp the impact of business activities on the environment, draw up environmental targets which are technically and economically feasible, and address them while conducting environmental audits to maintain and improve the system.	<ul style="list-style-type: none"> • Environmental business operations audits
Implementation of environmental education	Provide all employees with environmental education to make them understand the Environmental Policy, improve their environmental awareness, and make them act with care for environmental protection in all aspects of corporate and civil activities under their own initiative.	<ul style="list-style-type: none"> • Implementation of basic environmental education • Implementation of specific environmental education
Legal compliance	Comply with all legislation, directives, regulations, agreements, and industrial guidelines pertaining to the environment and address protection of the global environment.	<ul style="list-style-type: none"> • Enactment of Group's standard for compliance control
Promotion of recycling-based management	Address effective use of resources and energy throughout the corporate activities, reduce the amount of waste, and boost reuse and recycling, with the aim of achieving zero emissions.	<ul style="list-style-type: none"> • Energy efficiency • Resource efficiency • Zero emissions
Reduction of environmental contaminants	Reduce the use of substances which adversely affect the environment such as toxic, global warming, and ozone-depleting substances by adopting substitute techniques to avoid environmental risks.	<ul style="list-style-type: none"> • Phase-out of HCFC • Phase-out of dichloromethane • Study of alternative technologies for toxic chemicals • Establishment of lead-free soldering process
Environmentally friendly product development	Develop and manufacture products whose impact on the environment throughout their lifecycle from material purchase, manufacture, and distribution, to use and disposal has been well considered, to supply products that generate minimal environmental burden.	<ul style="list-style-type: none"> • Improvement of design criteria • New product development • Expansion of environmentally friendly packing products • Enhancement of "green" purchasing and procurement
Environmental solution supply	Based on measurement, control, and information technologies, contribute to global environmental protection by supplying value-added products and services.	<ul style="list-style-type: none"> • Establishment and popularization of environmental solutions
Contributions to society	Encourage employees' participation in global environmental protection activities and their voluntary activities, and strive to coexist harmoniously in partnership with local communities.	<ul style="list-style-type: none"> • Promotion of activities to contribute to local communities
Transparency of environmental information	Put the environmental policy and information of global environmental protection activities on public display to broaden communications with society.	<ul style="list-style-type: none"> • Enhancement of Environmental Report

of environmental contaminants." The YMF Komine factory achieved the target of phasing out of hydrochlorofluorocarbons (HCFCs, freon substitutes). As for dichloromethane, Headquarters, the Kofu plant, and the YMF Komine factory worked on phasing it out and were able to achieve the target using alternative substances. We were also able to establish basic lead-free soldering technology in March 2003, and plan to supply products utilizing this technology to our customers. In response to the enactments of Waste Electrical and Electronic Equipment (WEEE) and Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) directives in Europe, we will proactively eliminate toxic substances.

With respect to "environmentally friendly product development, we enacted the "Guidelines for Designing Energy-conservation Products" in line with the target. This guideline helped us further solidify environmentally friendly product design rules, although we have been establishing

guidelines and standards for supplying environmentally friendly products since 1997. We were also able to add two products to models with Type II Eco-labels*2, making 10 models in total.

A typical example of "environmental solution supply" is the "Econo-Pilot" energy saving system for water pumps. This system enables water pumps used for air conditioning and other facilities in building and factories to save energy by optimizing their operation and can cut power consumption by 60% to 90%. Thanks to these features, the system received the Agency of Natural Resources and Energy Director-General's Award. As for "Increase the ratio of 'green' goods purchased to 80% at the three model sites," our result stood at 71%, so we will continue to explore eco-products in order to raise this ratio.

*2 Type II: A company declares by itself that its products excel in environmental friendliness.

2002			Self-evaluation	Targets for 2003	Ref. Pages
Targets	Results				
<ul style="list-style-type: none"> Conduct environmental business operations audits for the integrated four sites. 	<ul style="list-style-type: none"> Done 100%. 	Completed	<ul style="list-style-type: none"> Conduct environmental business operations audits for the integrated four sites. 	9	
<ul style="list-style-type: none"> Provide basic environmental education to 100% of employees. Provide specific environmental education to 100% of employees. 	<ul style="list-style-type: none"> Done for 100% of employees. Done for 100% of employees. 	Completed Completed	<ul style="list-style-type: none"> Provide basic environmental education to 100% of employees. Provide specific environmental education to 100% of employees. 	30	
<ul style="list-style-type: none"> Issue a standard for wastewater and exhaust gas control for the Yokogawa Group. 	<ul style="list-style-type: none"> Completed for exhaust gas. Next fiscal year for wastewater. 	Underway	<ul style="list-style-type: none"> Issue an installation standard for toxic waste liquid emission facilities. 	22	
<ul style="list-style-type: none"> Reduce carbon dioxide emissions produced by energy consumption, by 10.9% from the level in 1990.*3 Reduce the amount of waste by 44.1% from the level in 1995.*3 	<ul style="list-style-type: none"> Achieved the reduction of carbon dioxide emissions produced by energy consumption, by 17.0%. Reduced the amount of waste by 57.9% from the level in 1995. 	Completed Completed	<ul style="list-style-type: none"> Reduce carbon dioxide emissions produced by energy consumption, by 22.0% from the level in 1990. Reduce the amount of waste by 77.8% from the level in 1995. 	16, 17 18, 19	
<ul style="list-style-type: none"> Phase out HCFC at the YMF Komine factory. Phase out dichloromethane at Headquarters, the Kofu plant, and the YMF Komine factory. Establish lead-free soldering technologies. 	<ul style="list-style-type: none"> Phase-out at the YMF Komine factory. Phase-out at three factories. Establishment of applicable technologies. 	Completed Completed Completed	<ul style="list-style-type: none"> Study alternative technologies for hexavalent chromium and reduction technologies for cyanogen, toluene, and xylene. Introduce equipment supporting the lead-free soldering and roll-out of such products. 	21 21	
<ul style="list-style-type: none"> Develop a guideline for energy-efficient design. Identify developed products on which the Environmental Assessment Standard for Product Design and the lifecycle assessment should be enforced in order to improve the development and design of products. Increase the ratio of "green" goods purchased, to 80% at the three model sites. 	<ul style="list-style-type: none"> Establishment of guideline for energy-efficient design. Completed at 17 design departments. Increased the ratio of "green" goods purchased, to 71%. 	Completed Completed Underway	<ul style="list-style-type: none"> Collect information on the WEEE and RoHS directives, and investigate how to respond to these directives. Apply product assessment standards and LCA standards, and reduce carbon dioxide of developed products by 25%. Expand the environmentally friendly packing of products. Increase the ratio of "green" goods purchased, to 80% or more. 	24 27 23	
<ul style="list-style-type: none"> Establishment and popularization of environmental solutions. 	<ul style="list-style-type: none"> Econo-Pilot. Continuous VOC Monitor. Support for boiler operation efficiency and improvements. 	Completed	<ul style="list-style-type: none"> Establishment and popularization of environmental solutions. 	28, 29	
<ul style="list-style-type: none"> Participate in social and regional activities. 	<ul style="list-style-type: none"> Participation in the environmental picnic at Tenryu River. Donation of tank farming vegetables. 	Completed	<ul style="list-style-type: none"> Participate in social and regional activities. 	31	
<ul style="list-style-type: none"> Expand the data sources. 	<ul style="list-style-type: none"> Expanded the scope to 19 sites. The Group corporations in Suzhou and Sichuan, People's Republic of China each published an environmental report. 	Completed	<ul style="list-style-type: none"> Expand the data sources. 	32	

*3 Target values were modified due to the increase of data sources from 18 to 19 sites.

Risk Management

Summary : The Crisis and Risk Management Department of the Crisis Management Office controls risk management. During fiscal year 2002, we started to develop company rules and manuals for risk management so that we can respond promptly and minimize damage if a risk occurs. From the viewpoint of environmental management, we created a draft of the "Environmental Pollution Risk Management" manual. In fiscal 2002, no fines were levied for environment-related legal noncompliance.

1. Risk Management System

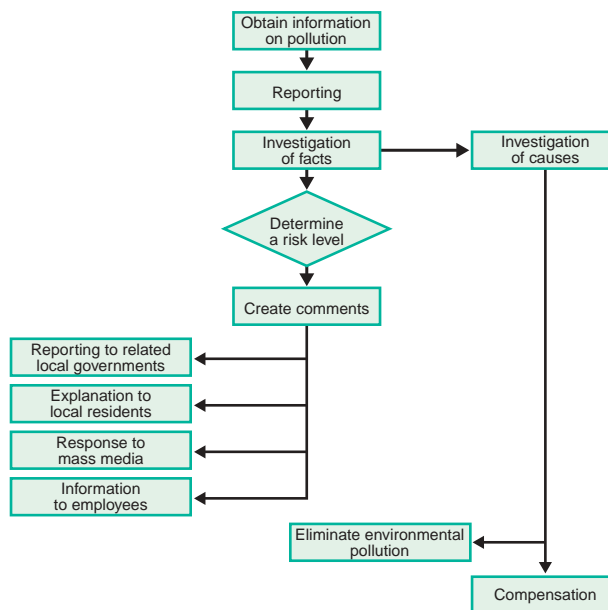
We believe that ongoing risk management is vital for preventing risks from seriously affecting the entire Yokogawa Group. In October 2001, we established the Crisis Management Office, headed by the president and CEO, to minimize damage through immediate and proper decision-making in case of risks. We also set up the Crisis and Risk Management Department, which assumes an administrative role of the Crisis Management Office, provides instructions and advice to departments and committees responsible for day-to-day risk management activities, and coordinates relations among different departments.

2. Environmental Pollution Risk Management Manual

To manage risk properly, it is important to clarify the flow of commands and orders, to establish a system to enable immediate responses, and to develop documents such as company rules and manuals. In fiscal 2002, we started to create the "Crisis management Rules" and the manuals according to risk types. The Environmental Pollution Risk Management Manual is one of these manuals.

This manual specifies two core management policies: (1) employees must consider environmental issues throughout their work and (2) they must not focus on efficiency at the expense of causing environmental pollution. It also states that, if a crisis occurs, the Group shall immediately do the following: analyze risks and identify the risk level; establish a consensus view and inform related local governments, communities, mass media, and employees; and investigate the causes, eliminate pollution, and respond promptly.

These actions have already been taken at a site level. For example, the YMF Matsukawa factory received complaints from nearby residents about the noise of ventilation blowers. We immediately apologized to them, identified the cause, and took permanent measures. We also reminded all employees of the importance of environmental management.



Flow of Environmental Pollution Risk Management

3. Contingency Drills

We implement a contingency drill once a year. The drill at Headquarters assumed that an employee had discovered a fire at a stockyard near a hazardous-materials site during work and that in his haste, he had fallen on his side and lost consciousness. As a result, we received feedback such as "instructions and reporting of completion were not appropriate" and were able to identify improvement measures for contingency.



A Contingency Drill

4. Legal Compliance

Also in fiscal year 2002, no fines were levied for environment-related legal noncompliance.

Soil Purification

Summary : We are aware that soil and ground water pollution is an important issue in environmental risk management. In 2002, such pollution was discovered at the site of the demolished YMF Moroyama factory. We would like to express our sincere apologies to local residents, local governments, and other parties concerned. Through subsequent purification works, we successfully completed soil purification. Pollution values for ground water have also declined.

1. Response to Soil and Ground Water Pollution Risk

In the past, the Yokogawa Group used volatile organic compounds (VOC) and heavy metals, so we recognize that soil and ground water pollution is an important issue in environmental risk management. Since 1999, we have voluntarily investigated our factories with such records in Japan according to the Yokogawa Group's "Soil Investigation Judgment Standard." As a result, we found that part of the site of the demolished manufacturing building at Headquarters was polluted with VOC and heavy metals, so we performed a clean-up according to the guidance of the (then) Environmental Agency. We completed the purification of heavy metal pollution in June 2000 and that of VOC pollution in December 2001. After that, we enacted the "Yokogawa Group Soil Investigation Management Standard" in April 2002 in line with the Soil Contamination Control Law (promulgated in May 2002 and enforced in February 2003) and have carried out investigations of soil and ground water.

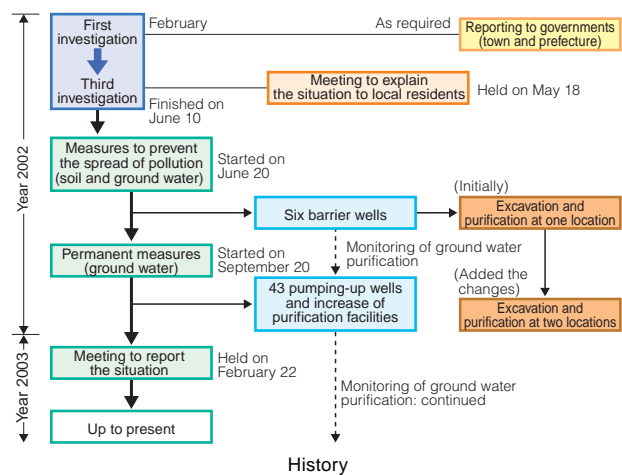
2. Pollution at the Site of the Demolished Moroyama Factory

In May 2002, soil and ground water pollution was discovered at the site of the demolished YMF Moroyama factory, for which we sincerely apologize to the local community. We also thank the local residents, local governments, and other parties for their cooperation in our subsequent investigation and purification activities.

We closed the YMF Moroyama factory at the end of January 2002 and started to investigate soil and ground water pollution in February. As a result, trichloroethylene of up to 83 mg/L (environmental standard: 0.03 mg/L) was detected in the ground water. This factory used trichloroethylene to clean parts from 1960 to 1983. We set up a countermeasures headquarters, with the YMF president as representative, as soon as the pollution was discovered. On May 18, we held a meeting for local residents to explain the situation and made a public announcement.

As the highest priority was the health of local residents, we investigated wells around the site with the local government and took measures to prevent the spread of pollution. We dug the soil at polluted locations to a depth of 5 to 12 meters, used a "soil processing plant" installed in the site to purify the soil, and back-filled the soil. For ground water, we set up barrier wells as a first step to prevent the spread of pollution. In September, we started to set up pumping-up wells as a permanent measure and to purify ground water using a pumping-up purification facility, which mainly consists of aeration equipment and activated carbon absorption towers. With these measures, we were able to confirm the completion

of the purification of polluted soil (removal of the pollution source), purification of ground water and prevention of its spread, and the progress of purification of ground water. Purification of ground water will take about two years to complete.



Entire View of the Pumping-up Purification Facility

3. Compliance with Soil Contamination Control Law

In addition to the aforementioned case of the YMF Moroyama factory, trichloroethylene was detected at the site of the demolished Hachioji factory, which was closed in December 2002, and the pollution level was about two to three times larger than the environmental standard values. We promptly started to improve the quality of soil and completed the work in April 2003. The Yokogawa Group will drastically change its manufacturing organizations in Japan, aiming at completion by the end of fiscal year 2003. For the locations where factories will be closed due to this reorganization, we will apply the "Yokogawa Group Soil Investigation Management Standard" in compliance with the Soil Contamination Control Law so that we can properly manage possible risks associated with soil and ground water pollution.

Environmental Accounting

Summary : The Yokogawa Group applied environmental accounting to 19 sites including those in other countries in fiscal year 2002. Although expenditure on environmental protection slightly decreased partly because of the penetration of basic measures, investment increased substantially due to soil pollution investigations and measures. In terms of environmental protection effects, we were able to decrease the environmental burden indicator by 5,368 EP thanks to substantial contributions from the reduction of paper resources and waste, reduction of materials in manufacturing environmentally friendly products, and reduction of the amount of carbon dioxide emissions when such materials are used. In addition, reduction of materials used for making environmentally friendly products yielded major economic benefits.

1. Environmental Accounting for Fiscal Year 2002

The table below shows the environmental accounting of the Yokogawa Group for fiscal year 2002. The scope of coverage expanded from 18 sites in fiscal 2001 to 19 sites with the exclusion of Yokogawa Rental & Lease Corporation and inclusion of the YMF Ome factory and Ando Electric Co., Ltd.

Expenditure on environmental protection decreased by 21.4% over the previous fiscal year, largely because the Group strengthened direct business activities rather than administrative ones in fiscal 2002 due to the changing economic environment. Environmental protection costs within operations also decreased by 8.9% thanks to the penetration of environmental protection measures arising from business activities. The Group will address environmental protection activities that will bring about substantial effects. There was a large increase in investment of 342 million yen due to soil pollution investigations and measures for the site of the demolished YMF Moroyama factory and the Hachioji factory. Among these costs, the Yokogawa Group has treated fund infusions having long-term effects as investments since fiscal 2000, while their economic results have been recorded only for the relevant fiscal year.

Thanks to the injection of these environmental protection

costs, the Group successfully reduced the environmental burden indicator by 5,368 EP (up 11% over the previous year), worth savings of 1,847 million yen. In particular, "reduction in material fees because of development of environmentally friendly products" almost doubled over the previous fiscal year, as the environmentally friendly design standards and guidelines of the Group took effect during the year.

2. Environmental Protection Indicators

The Yokogawa Group has established the following indicators in order to integrate economic and environmental protection activities:

(1) **Environmental improvement efficiency = EP reduction / environmental protection costs**

Fiscal year 2002: 6.1 = 5,368 EP / 880 million yen

(2) **Eco-efficiency = economic results / environmental protection costs**

Fiscal year 2002: 2.1 = 1,847 million yen / 880 million yen

Their historical changes are shown below:

Fiscal year	2000	2001	2002
Number of sites	16	18	19
Environmental improvement efficiency	3.7	4.3	6.1
Eco-efficiency	0.93	1.07	2.1

Note: Higher efficiencies indicate improved environmental management.

Environmental Protection Costs

(Millions of yen)

Category	Major Measure	Investment	Expenditure
(1) Environmental protection costs for preventing environmental burden caused within own operation area by production and service activities			
Item (1)-1 Pollution prevention costs	Cleaning with substitutes for toxic substances, air/water/soil pollution prevention	18	206
(1)-2 Global environmental protection costs	Efficient use of energy (energy-efficient buildings/equipment, co-generation, solar power generation), cleaning with substitutes for HCFC	21	96
(1)-3 Resource efficiency costs	Reduction of paper used (computerization of documents), expansion of recycling, reduction of waste disposal, waste treatment	4	159
	Subtotal	43	461
(2) Costs for limiting environmental impact occurring downstream or upstream of the operation area by production and service activities	"Green" purchasing	0	2
(3) Environmental protection costs in management activities	Configuration and implementation of EMS, environmental education	0	344
(4) Environmental protection costs in research and development activities	Development of environmentally friendly products, lead-free soldering process, and cleaning method using safe substitutes for toxic substances	0	17
(5) Environmental protection costs in social activities	Promotion of nature preserves and "greening," measures for harmony with local community, disclosure of information	0	55
(6) Costs of environmental damages	Investigation and restoration of polluted soil	342	1
	Total	385	880

Investment in Plant & Equipment and Research & Development Cost

(Millions of yen)

Item	Details	Amount
Total investment for term in question	Total investment in plant and equipment including investments not related to the environment	13,427
Total research and development cost for term in question	Total research and development including costs not related to the environment	25,157

*1 The monetary value of the reduction in the material fees per product from those for the prior model, multiplied by the annual number of new products sold, in the accounting for the same fiscal year as when the product was developed, was declared as the economic result from an environmentally friendly product. In addition, the monetary value equivalent to the development cost was declared as the added value of investment in research and development.

*2 The monetary value equivalent to the education cost and to the reduction in outside lectures and consultant fees was declared as the added value of environmental education.

3. Basis of Environmental Accounting

In principle, the basis of the Yokogawa Group's environmental accounting complies with Environmental Reporting Guidelines (Fiscal Year 2002 Version) published by the Ministry of the Environment of Japan, and is supplemented by the following.

(1) Environmental Protection Costs

Use the straight-line method to calculate depreciation in each term without taking the residual or scrap value into account. Regardless of the period over which returns from the investment may be gained, the depreciation of an investment can be declared as a cost for a maximum of five years after the year in which the investment was made.

(2) Environmental Protection Effects

- a. For costs to be totaled, determine the quantity of a limited or avoided environmental impact as an effect of environmental protection activities. In principle, determine the annual rates of reduction by comparing to the case where the respective environmental protection activities were not carried out. If this is difficult, declare the annual rates of reduction by comparing to a specified reference year.
- b. The effects (returns) from an investment in plant or equipment must correspond to the declarations of the corresponding expenditures and hence cannot be declared for more than five years from the year when the investment was made.

- c. Life-cycle assessments showed that environmentally friendly products produce significantly less carbon dioxide during usage than the corresponding, prior models. Hence, regarding the effect of an environmentally friendly product on environmental protection, declare the total reduction of carbon dioxide emissions during usage over its life-cycle in comparison to that of the prior model.
 - d. Clarify the environmental protection effects as physical quantities of environmental impact and declare the reduction in the environmental burden indicator EP.
- #### (3) Economic Results from Environmental Protection Activities
- a. The results to be totaled should be the incomes and reductions in expenditures that were actually gained, and the monetary values for environmental risks that were avoided.
 - b. The returns from investments in plants or equipment must correspond to the declarations of the corresponding expenditures, and so cannot be declared for more than five years from the year when the investment was made.
 - c. For the reduction in expenditures actually gained by environmental protection measures other than investments in plant and equipment, declare the annual rates (monetary values) of the reduction in comparison to the case where the respective environmental protection measures were not put into practice, as an economic result of the current term; however, these can be declared for only one year from the year when a measure is taken, in principle.

Environmental Protection Effects

Item	Details of Effect	Environmental Burden Indicator (Performance)
(1) Environmental Protection Effects Occurring within Operation Area	<ul style="list-style-type: none"> • Reduction in amounts of toxic substances used • Reduction in environment polluting substances used 	Environmental burden indicator: Reduced by 5,368 EP Reduction in trichloroethylene, tetrachloroethylene, etc. by 40.1 tons
	<ul style="list-style-type: none"> • Reduction in carbon dioxide emissions by efficient use of energy • Reduction in HCFC used 	4,146 tons (by power consumption of 12,317 MWh, etc.) Reduction in HCFC, etc. by 6.0 tons
	<ul style="list-style-type: none"> • Reduction in paper used • Reduction in waste • Expansion of recycling 	Reduction in paper by 353 tons Reduction in waste by 1,410 tons (by resource circulation, etc.)
(2) Environmental Protection Effects Occurring Upstream and Downstream	<ul style="list-style-type: none"> • Reduction in carbon dioxide emissions resulting from energy-efficient, environmentally friendly products • Improvement of packing 	9,585 tons (emitted over the service life of an environmentally friendly product) Reduction of packing materials by 10 tons
(3) Other Environmental Protection Effects	<ul style="list-style-type: none"> • Reduction in carbon dioxide emissions resulting from resource-efficient, environmentally friendly products • Social activities • Activities for local communities 	581 tons (by efficient use of materials in manufacturing of environmentally friendly products)
Total		Environmental burden indicator: Reduced by 5,368 EP

Economic Results from Environmental Protection Activities (Millions of yen)

Details of Effect	Monetary Value
Reduction in toxic substances used and from avoiding risk	218
Energy efficiency and reduction in HCFC used	217
Reduction in paper/water used, and waste; income from sale of valuable goods	91
Subtotal	526
Reduction of costs by reuse of packing materials	2
Reduction in material fees because of development of environmentally friendly products, and effects from research and development	885 ^{*1}
Effects from education and reduction in education expenditures	91 ^{*2}
Reduction in expenditures from avoiding risk	343 ^{*3}
Subtotal	1,319
Total	1,847

Sales of Environmental Business Products and Total Sales

(Millions of yen)

Item	Details	Amount (percent)
Sales of environmental business products	Sale of products and systems (for the period in question) that exclusively contribute to reduction of social and environmental burden, including those products from the environment business (for water purity improvement systems, preservation of the atmosphere, waste treatment systems, etc.)	20,944 (9.2%)
Total sales for term in question	Grand total	226,816

*3 Where it was impossible to subjectively calculate the monetary value of avoiding risk and compliance with regulations, the monetary value equivalent to the environmental monitoring and measuring costs and the depreciation cost for the corresponding investment in plant and equipment was considered to be the economic result.