

As an enterprise existing in harmony with local communities, the Yokogawa Group is a leader in regional environmental protection activities and works together with local communities in various ways.

1) Activities of Kofu Plant: Leader in Achieving “Zero Emissions” Industrial Park

To help contribute to its local community, Yokogawa’s Kofu plant has been leading the recycling-based “zero-emissions” activities of a consortium of 23 local companies at the Kokubo industrial park (in Yamanashi Prefecture). Beginning these activities in 1992, the consortium has already implemented the following three steps:

- Step 1 – systems that recycle used paper into toilet paper
- Step 2 – systems that recycle by compressing waste plastics, wood chips, etc. into refuse-derived fuel (RDF)
- Step 3 – systems that recycle food waste into compost for organic fertilizer at local farms

The following steps are the next activities to be addressed:

- Step 4 – production of pulp molds from used paper
- Step 5 – neutralizing of waste acids and alkalis to render them harmless
- Step 6 – achieving of zero waste using a gasifying fusion furnace
- Step 7 – establishment of a waste separation plant

The overall objective is to create the world’s first “zero-emissions” industrial park together with the local community. Following the widespread acclaim of these activities in various environment-related journals and other media, including newspapers and TV, 2,480 people from various groups and the press visited Yokogawa’s Kofu plant in 1999 to see for themselves the environmental protection activities.

2) Activities of Headquarters

(1) Promotion of “Greening”

In line with Musashino city’s “2000 Symbolic Tree Plan,” Yokogawa Headquarters registered 50 large trees growing on its premises. In addition, many new trees have been planted in the area previously occupied by five factory buildings to add to our participation in the “greening” of the local community.

(2) Cooperation on “No Car” Day

As done during the last fiscal year, we reduced the number of cars used for commuting to an average of 53 percent during the “No Car” days set by the Tokyo municipal government for every Wednesday from November 1999 to February 2000.

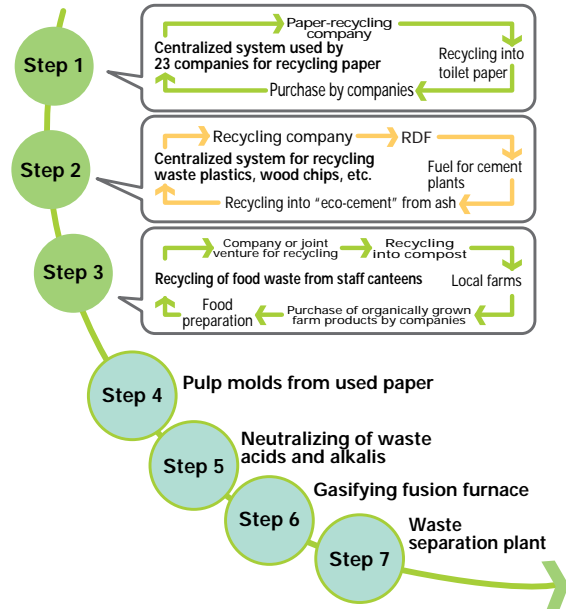
(3) Opening for Field Trips and Survey

Eight hundred students from nearby elementary and junior high schools have visited on field trips. To the citizens and those who have visited for an environmental survey from administrative offices or other companies, it has given us great pleasure to explain the ISO14001 environmental management system and provide advice if requested.

3) Activities of Yokogawa Flowtech: Voluntary Activities for Environment by All Employees

All employees of Yokogawa Flowtech Co., Ltd. (located in Hisai-shi, Mie Prefecture) have, in turn, been participating in voluntarily picking up litter in the areas around the plant

■ Recycle System



on the last Saturday of each month since 1994. This activity is a prime example of their willingness to work for the environment. In addition to the current activities, the company is actively encouraging the employees to join local voluntary “green” activities.



Certification of Appreciation for Automobile Pollution Prevention from Tokyo Municipal Government



Volunteers from Yokogawa Flowtech Working to Help the Environment

The Yokogawa Group has been striving to help forge a sustainable society through the efficient distribution of energy and resources and, thus, environmentally friendly products to meet customer needs. It has also been active in carrying out its own environmental protection activities to help reduce the Group's impact on the environment. Environmental accounting is a vital tool that clarifies the effects gained from the costs spent on environmental protection activities in order to implement these actions more effectively and that makes use of the diversified environmental information obtained by the accounting for business administration. By informing the public of this information, environmental accounting works to promote a better understanding of the Group's environmental activities. We shall upgrade our environmental accounting and integrate it with the environmental information system in our endeavor not merely to increase the effectiveness of environmental management but also to provide more detailed environmental information.

1. Objectives

2) Externally

- a. Internally, to identify the costs spent on environmental protection activities and the effects derived from them, and to consider the balance between cost and effect in making decisions on effective implementation of environmental protection activities in the future.
- b. Externally, to provide stockholders, customers, and creditors with useful corporate information related to the environment, and to demonstrate our attitude towards environmental protection, accomplish environmental accountability, and win confidence.

2. Scope

In fiscal 1999, environmental accounting was carried out at the nine sites listed on page 1 of this report.

3. Basic Policy

In principle, the environmental accounting policy complies with **Developing an Environmental Accounting System (Year 2000 Report)** published by the Environment Agency of Japan.

1) Environmental Protection Costs

a. Costs to be totaled:

Whether a cost should be regarded as an environmental protection cost must be determined, in principle, by whether it is an

expenditure for the purpose of environmental protection. As necessary, the judgment may be supplemented by taking the effect into account.

b. Classification of investments and expenditures:

In principle, must comply with the classification in financial accounting.

c. Calculation of depreciation for investments:

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. The depreciation retroactive to the previous fiscal year is included in the depreciation of the current term.

d. Costs of mixed purposes:

Declare any difference that additionally resulted from including environmental protection in the purposes of a cost, as an environmental cost. Should it be difficult to determine the difference, divide the cost in proportion to the ratio of the purpose of environmental protection to all purposes.

e. Calculation of personnel expenses:

• As environmental protection costs, declare all personnel expenses occurring within a unit (department, section, etc.) that was formed

Environmental Accounts for Fiscal 1999

(Millions of yen)

Environmental Protection Costs				
Category	Major Measure	Investment	Expenditure	
1. Costs Occurring within Operation Area (environmental protection costs for inhibiting environmental impact caused within own operation area by production and service activities)	Subtotal	311	403	
Item	(1) Pollution Prevention (Investment in plant and equipment, and costs for measures to inhibit the impact on the environment at the end of a pipe)	Cleaning with substitutes for toxic substances, air/water/soil pollution prevention	230	151
	(2) Global Environmental Protection (efficient use of energy, prevention of global warming gases and ozone layer depletion, etc.)	Efficient use of energy (energy-efficient building/equipment, co-generation, solar power generation), cleaning with substitutes for HCFCs	76	113
	(3) Recycling of Resources (efficient use of resources and water, recycling, reduction of waste disposal, waste treatment)	Reduction of paper used, expansion of recycling, reduction of waste disposal, waste treatment	6	138
2. Costs Occurring Upstream and Downstream (costs for limiting environmental impact caused downstream or upstream of the operation area by production and service activities, e.g., "green" purchasing and recycling/recovery/reproduction and sale/disposal of products)	"Green" purchasing	0	11	
3. Management Activity Costs (costs for environmental activities, e.g., configuration/implementation/accreditation of EMS, monitoring/measurement of individual environmental impact items, education)	Configuration and implementation of EMS, monitoring and measurement of individual environmental impact items, personnel expenses for environmental education	1	527	
4. Research and Development Costs (costs in research and development in planning, engineering, manufacturing, distribution, and sales phases)	Development of environmentally friendly products, lead-free soldering process, and cleaning method using safe substitutes for toxic substances	3	100	
5. Costs of Social Activities (environmental protection costs for social activities, e.g., promotion of nature preserves, activities for local communities, disclosure of information)	Promotion of nature preserves and "greening," measures for harmony with local community, disclosure of information	0	51	
6. Costs of Environmental Damages (costs of environmental damages, e.g., restoration of polluted soil and destruction of nature)	Investigation, analyses and restoration of polluted soil	2	25	

Expenditures include maintenance and operation expenses such as the depreciation of investments in plants and equipment and personnel expenses.

Item	Details	Amount
Total investment of term in question	Total investment in plants and equipment including those investments not related to the environment	10,111
Total research and development cost of term in question	Total research and development including those costs not related to the environment	17,510

mainly for the purpose of environmental protection, as well as the personnel expenses of those employees who are deemed as working exclusively in environmental protection even if they belong to a department whose main objective is not environmental protection.

- For the environmental protection activities of personnel other than above, multiply the total activity time (in hours) by the specified rate and declare the result as environmental protection costs.

2) Environmental Protection Effects

a. Effects to be totaled:

Determine the quantity of a limited, avoided, or improved environmental impact as an effect of environmental protection activities.

b. Units of measurements:

Clarify the effects on environmental protection as physical quantities of environmental impact. Only an item that cannot be grasped quantitatively may be evaluated qualitatively.

c. 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.

d. Calculation of effects:

In principle, determine the annual rates of reduction by making a comparison to the year before the respective environmental protection activities were initiated. Should this method be difficult to apply, declare the annual rates of reduction by making a comparison to a specified reference year.

e. Effects resulting from environmentally friendly products:

Life-cycle assessments elucidated that Yokogawa Group's products exhibit significantly higher levels for carbon dioxide emissions than other environmental impact factors. Hence, as the effect of an environmentally friendly product on environmental protection, declare the total amount of the reduction of carbon dioxide emissions during usage over its life-cycle in comparison to that of

the prior model.

3) Economic Results from Environmental Protection Activities

a. Results to be totaled:

The results to be totaled should be those incomes and reductions in expenditures that were actually gained, and the monetary values for environmental risks that could be deemed as avoided.

b. Returns from investments in plants 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. Calculation of reduction in expenditures actually gained by environmental protection measures other than investments in plants or equipment:

Declare the annual rates (monetary values) of the reduction in comparison to the year before the respective environmental protection measures were 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.

4. Environmental Accounts for 1999

Shown in the tables below.

5. Future Tasks

We will:

- (1) Extend the same method of environmental accounting to all sites of the Yokogawa Group that have obtained ISO14001 certification.
- (2) Upgrade the policy and processing methods reflecting the Yokogawa Group's characteristics while complying with the guidelines published by the Environment Agency of Japan. In particular, we will consider the suitability of counting costs that are regarded as avoidable based on an assumption, costs that are equivalent to effects from environmentally friendly product design, and overhead costs for the business itself.
- (3) Configure an environmental information system that can supply fundamental data to environmental accounting.

(Millions of yen)

Environmental Protection Effects		Economic Results from Environmental Protection Activities	
Details of Effect	Indexes of Environmental Performance	Details of Effect	Monetary Value
1. Environmental Protection Effects Occurring within Operation Area		Subtotal - reduction in expenditures because of:	404
• Reduction in amounts of toxic substances used • Reduction in environment polluting substances used	Reduction in trichloroethylene, tetrachloroethylene by 17.1 tons	Reduction in toxic substances used and from avoiding risk	* 138
• Reduction in carbon dioxide emissions by efficient use of energy (offsetting an increase in consumption of city gas supplies) • Reduction in HCFCs used	Reduction in carbon dioxide emissions by 1,900 tons (from power consumption of 8,980 MWh) Reduction in HCFCs by 4 tons	Energy efficiency and reduction in HCFCs used	186
• Reduction in paper used • Reduction in waste • Expansion of recycling	Reduction in paper by 101 tons Reduction in waste by 856 tons (excluding recycled materials)	Reduction in paper/water used, and waste; income from sale of valuable goods	80
2. Environmental Protection Effects Occurring Upstream and Downstream		"Green" purchasing, reuse of parts, etc.	1
• "Green" purchasing	Increase in "green" purchasing ratio (for stationery and office equipment at Headquarters) to 92%	Subtotal	936
3. Other Environmental Protection Effects		Reduction in material fees because of development of environmentally friendly products, and effects from research and development	**
• Reduction in carbon dioxide emissions resulting from energy-efficient, environmentally friendly products • Social activities • Activities for local communities	Reduction in carbon dioxide emissions by 280 tons (emitted over the service life of an environmentally friendly product) 2,480 people visited (Kofu plant) to observe environmental protection activities Promotion of "zero emissions" activities (at Kokubo industrial park in Kofu)	Effects from education and reduction in education expenditures Reduction in expenditures from avoiding risk	***

Item	Details	Amount (percent)
Sales of environmental business products	****	27,416 (12%)
Total sales for fiscal 1999	Grand total	220,400 (100%)

* 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 plants and equipment was deemed as being the economic result and declared as such.

** The monetary value of the reduction in the material fees per product, 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 fees was declared as the added value of investment in research and development.

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

**** Sale of products and systems (for the period in question) that exclusively contribute to environmental protection, including those products from the environment business (for water purity improvement systems, preservation of the atmosphere, waste treatment systems, etc.)

1971	Set up a pollution prevention organization.
July 1974	Constructed wastewater treatment facilities in accordance with municipal bylaws.
May 1987	Began studying environmental assessments.
October 1989	Established a chlorofluorocarbon (CFC) reduction committee.
April 1991	Formed the Global Environmental Protection Promotion Department.
February 1993	Assigned an executive director of environmental management and formed a corporate global environment committee.
August 1994	Reported on the results of voluntary environmental activities in 1993.
December 1994	Completed the phasing-out of specific CFCs and trichloroethane for cleaning.
June 1995	Decided to obtain ISO14001 certification as the first step to becoming an environmentally friendly enterprise, and merged a voluntary environmental plan in with the plan to obtain the certification.
October 1995	Reformed the corporate global environment committee.
March 1996	Established corporate rules for environmental protection management.
May 1996	Formed a global environment committee at each plant site (Headquarters, Kofu plant, and Komine plant [now Yokogawa Fine Technology]).
July 1997	Kofu plant obtained ISO14001 certification.
February 1998	Headquarters and Komine [now Yokogawa Fine Technology] plants obtained ISO14001 certification.
May 1998	Employed a co-generation system (Two 585-MW generators).
September 1999	Issued Yokogawa Environmental Report 1999.
December 1999	Rated as the number two company in the manufacturing industry by the Nikkei Shimbun newspaper in the third study on the extent of environmental operations.
September 2000 (present)	Two Yokogawa Electric Corporation sites, and nine domestic and four overseas Group companies have obtained ISO14001 certification.

■ Status of Accreditation for ISO 14001 Certification

Company or Site	Date of Certification
Kofu Plant, Yokogawa Electric Corp., Japan	July 1997
Headquarters, Yokogawa Electric Corp., Japan	February 1998
Yokogawa Fine Technology Corp., Japan	February 1998
Yokogawa Flowtech Co., Ltd., Japan	August 1998
Kokusai Chart Corp., Japan	January 1999
Yokogawa Trading Corporation, Japan	February 1999
Yokogawa M&C Corp., Japan	April 1999
Yokogawa Rental & Lease Corp., Japan	May 1999
Yokogawa Electronics Co., Ltd., Japan	September 1999
Yokogawa Precision Corp., Japan	November 1999
Yokogawa Engineering Service Corp., Japan	February 2000
Suzhou Yokogawa Meter Co., People's Republic of China	May 1998
Yokogawa Electric Asia Pte. Ltd., Singapore	October 1998
Yokogawa Shanghai Instrumentation Co. Ltd., People's Republic of China	March 2000
P.T.Yokogawa Manufacturing Batam, Indonesia	April 2000

■ Report of Third-party Verification

<u>第 三 者 検 証 意 見 書</u>	
	2000年9月14日
横河電機株式会社 代表取締役社長 内田 勲 殿	株式会社中央サステナビリティ研究所 (中央青山監査法人グループ)
	取 締 役 井上壽枝 公認会計士
	公認会計士 寺田良二

1. 検証の範囲及び目的

当研究所は、横河電機株式会社（以下、会社という）の責任のもとに作成された「YOKOGAWA グループ環境報告書 2000」（以下、同報告書という）に関する検証を実施した。この検証は、同報告書の記載情報全般を対象としているが、当年度は検証の初年度であるため、同報告書に記載されている前年度以前の情報については検証の範囲としない。

この検証の目的は、同報告書を作成するための情報収集過程及び集計方法並びに同報告書の記載情報について、独立した立場で意見を表明することである。但し、この検証は記載情報の信頼性を保証するものではない。

2. 実施した主要な手続

意見の根拠とした主要な検証手続は、経営者、環境管理責任者及び各業務の担当者に対する質問、諸規程、関連文書及び記録の閲覧、内部及び外部資料の比較分析、事業所の視察並びに記載情報とその根拠資料との適反的な照合であり、これらは会社の同意に基づき、主にサンプリングの方法によって実施した。

3. 意見

検証から得られた情報を総合的に判断した結果、当研究所の意見は次のとおりである。

(1) 同報告書を作成するための情報収集は、会社所定の方法に従い合理的に行われている。

(2) 同報告書の記載情報は、当研究所が入手した証拠資料と矛盾していない。

以 上

■ Changes from Previous Environmental Reports

1. The scope of the data has been expanded to include the data for seven Group companies that have obtained ISO14001 certification.
2. The contents are enriched based on the proposal to establishing an environmental accounting system in the year 2000 report published by the Environment Agency of Japan.
3. This report has been verified by a third party.
4. An attempt to portray the "eco-balance" has been made for the first time.
5. Not only the names but also the quantities are shown for the controlled chemicals under PRTRs.
6. The carbon dioxide emissions figures shown for energy efficiency have been changed from the equivalent carbon weights to the equivalent carbon dioxide weights as the Japanese electric industry association has changed the respective indications in its publications.



Published by: Yokogawa Electric Corporation (November 2000)
2-9-32 Nakacho, Musashino-shi, Tokyo 180-8750, Japan

For questions about this report, contact:

Environmental Conservation Promotion Dept.
Yokogawa Electric Corporation
Phone: +81-422-52-9561
Fax: +81-422-52-4197
email: enviinfo@csv.yokogawa.co.jp

