

An Environmental Management System (EMS) Designed for Global Deployment

The Yokogawa Group is deploying an EMS globally with the aim of building a sustainable society.

EMS Activities for Deployment Throughout the Group

Previously, ISO14001 certification had been acquired at four integrated sites: the Yokogawa headquarters/plant, Yokogawa Electronics Manufacturing (YMF) Kofu Plant, YMF Komine Plant, and YMF Ome Plant. Activities geared to build a sustainable society were conducted using an identical EMS so that each of these organizations could move forward with environmental conservation activities in its respective field of operations. The Yokogawa headquarters/plant separated from these integrated sites in August 2004, and each company underwent assessment inspections for certification and re-certification as an individual site.

From here on, the Yokogawa Group will promote the building of a system where each company will take its own actions to achieve Group environmental targets. At the same time, the Group will promote environmental conservation while it develops its global business operations, thereby helping to build a sustainable society.

maintenance, and improvement of the EMS at all Group companies, and also promote activities for improving energy savings and reducing industrial waste on an on-going basis.

Economic Use of Water Resources by Improvements at Hazardous Substance Storage Warehouse

The Suzhou Yokogawa Meter Company used heat-dispersal sprinklers on the rooftop of its hazardous material storage warehouse when temperatures exceeded 35°C. By remodeling the warehouse's rooftop and allowing water to accumulate on the roof, where it functioned as an insulator from the heat, it eliminated the use of the sprinklers and reduced annual water consumption by 98.6%, from 1,600 m³ to 23 m³.



Suzhou Yokogawa Meter Company

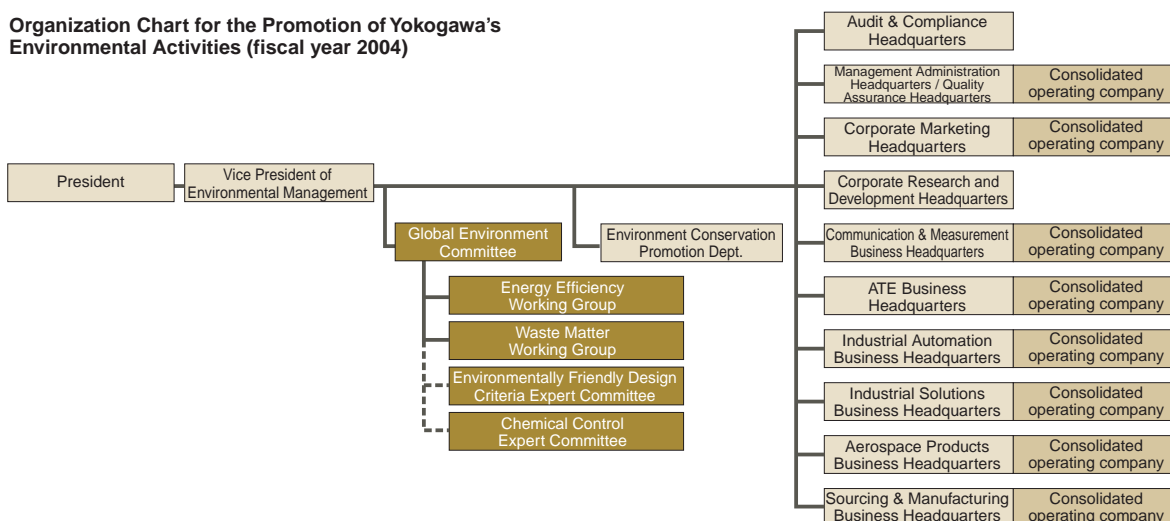
Promotion of the EMS Integrated into Existing Businesses

The business headquarters and divisions assume responsibility for providing EMS guidance and support to the consolidated operating companies that they are in charge of. In fiscal year 2004, each organizational unit carried out environmental conservation activities, following target themes that were closely integrated with their business practices. Through these activities, the Yokogawa Group was able to positively promote the establishment,

Reduced Water Consumption Through the Use of NEWater in Air Conditioners

As water sources are scarce in Singapore, the use of NEWater (high-quality treated and recycled water) is recommended. In line with this recommendation, Yokogawa Electric Asia Pte. Ltd. introduced air conditioners that use NEWater in December 2004. This move has helped make effective use of limited water resources.

Organization Chart for the Promotion of Yokogawa's Environmental Activities (fiscal year 2004)



ISO14001 Certification

The establishment of an appropriate EMS is indispensable for the implementation of environmental management practices that are aimed at building a sustainable society. Environmental management activities are based on the Yokogawa Group Basic Environmental Management Rules (see page 3). By fiscal year 2005, each of the Group companies is expected to establish, maintain, and improve an EMS that is tailored to its business operations and organization. As of the end of March 2005, there were nine ISO14001-certified sites in Japan and seven outside Japan.

Environmental Auditing

(1) Internal Audits

The Yokogawa Group conducts system, legal compliance, and performance internal audits. Starting in fiscal year 2004, internal audits were conducted at all sites. Although some inconsistencies and watch items were discovered, these were quickly addressed and corrected.

(2) Periodic Inspections

As a result of the breakup of the four integrated business sites, the Yokogawa headquarters and plant underwent inspections by the certifying organization, and YMF was assessed for re-certification. These sites were found to satisfy the ISO14001 requirements, and YMF maintained its registration. Yokogawa Denshikiki Co., Ltd., Kokusai Chart Corporation, and other sites were judged to be implementing effective EMSs and also maintained their registrations.

ISO14001

As of end of March, 2005

Site		Date Certified
Yokogawa Electric Corporation Headquarters/plant		July 1997
Yokogawa Electronics Manufacturing Corporation *	Headquarters/Komine Plant	July 1997
	Kofu Plant	July 1997
	Ome Plant	July 1997
	Komagane Plant	November 1999
Kokusai Chart Corporation		January 1999
Yokogawa Trading Corporation		February 1999
Yokogawa Field Engineering Service Corporation		February 2000
Yokogawa Denshikiki Co., Ltd.		November 2000
Suzhou Yokogawa Meter Company	China (Suzhou)	May 1998
Yokogawa Electric Asia Pte. Ltd.	Singapore	October 1998
Yokogawa Shanghai Instrumentation Co., Ltd.	China (Shanghai)	March 2000
P.T. Yokogawa Manufacturing Batam	Indonesia	April 2000
Yokogawa Sichuan Instrument Co., Ltd.	China (Chongqing)	December 2000
Yokogawa Engineering Asia Pte. Ltd.	Singapore	August 2001
Yokogawa Electric China Co., Ltd.	China (Suzhou)	May 2004

* The following sites have general certification: YMF Headquarters/YMF Komine Plant, YMF Kofu Plant, YMF Ome Plant

Environmental Audit Inspection Items

Internal Audit	Systems audit	Audit of organization/system, target management, education, operations management/corrections, and other data to check whether the system is functioning effectively
	Legal compliance audit	Audit of the operation and monitoring of regulated values (qualification, notice submissions, and measurement data) and other data to check whether legal and other requirements are being followed
	Performance audit	Audit of targets and actual results, regulated values, and other data to check whether the self-determined operation items are being implemented properly

Setting and Using Groupwide Indicators to Assess Overall Environmental Impact

The Yokogawa Group assesses and maintains an overview of the environmental impact of its business activities with the aim of building a sustainable society.

Understanding Environmental Impact as a Whole

The Group believes that assessing and managing an “eco-balance”^{*1} of the inputs and outputs in its business activities will help effectively use resources, improve energy efficiency, prevent global warming, and improve the waste reclamation ratio, so as to build a sustainable society.

The figure below illustrates the eco-balance of the Group in fiscal year 2004.

Yokogawa’s Eco Point Environmental Burden Indicator

Since fiscal year 2000, the Yokogawa Group has been using the eco point (EP) indicator as a common numerical indicator for measuring environmental impact. Eco points are calculated by multiplying the eco factor^{*4} used by Switzerland’s Ministry of the Environment by the LCA^{*2} inventory analysis^{*3} result for each environmental load value. This method enables the Group to uniformly evaluate the effect on the environment. The greater the EP value, the greater the environmental impact.

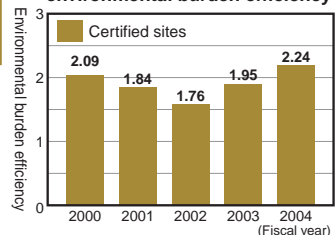
The eco point score for fiscal year 2003 at 14 certified sites was 35,495EP, representing an environmental impact reduction of 1,481EP from the previous fiscal year.

Environmental Management Indicator

The Yokogawa Group uses “environmental burden efficiency” as an indicator for expressing the progress of its environmental management activities. The environmental burden efficiency indicator shows the efficiency of environmental management in generating economic value for a specific environmental impact, and is defined as follows.

$$\text{Environmental burden efficiency} = \frac{\text{Gross profit on sales}}{\text{EP}}$$

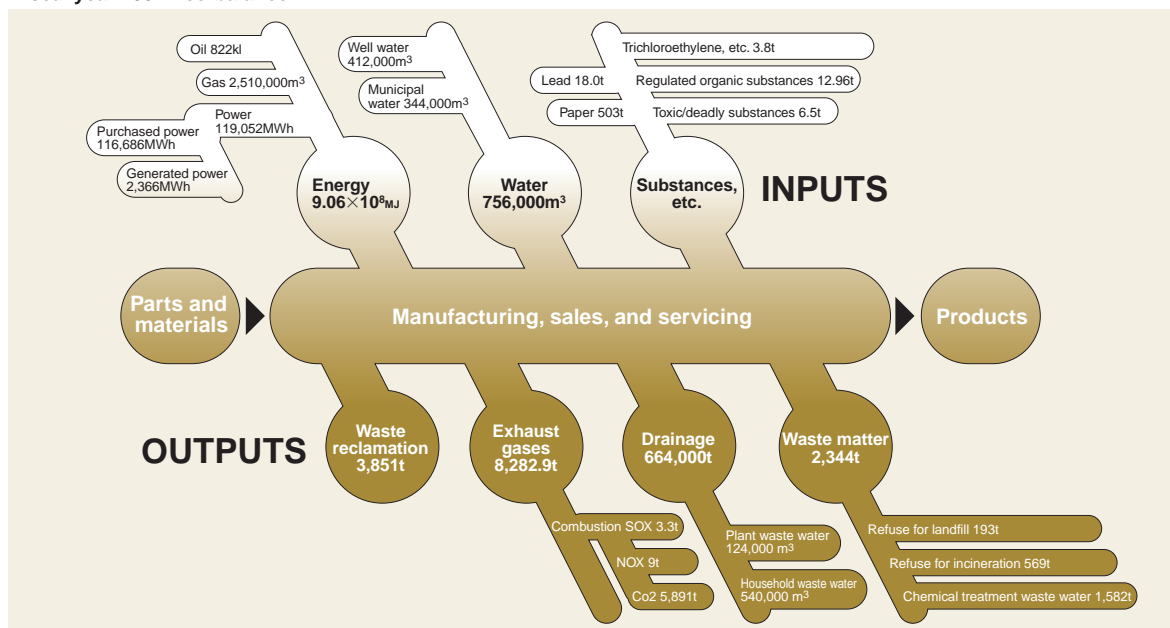
Changes over time in environmental burden efficiency



Explanation of Terms

- *1 Eco-balance**
The annual balance between energy and resource inputs (consumption) and outputs (emissions), excluding parts, materials, and products
- *2 Lifecycle assessment (LCA)**
An assessment which comprehensively evaluates the environmental impact of a specific product throughout its lifecycle, from material purchase, manufacture, and distribution to its use and disposal
- *3 Inventory analysis**
A technique which uses LCA data to analyze levels of emissions into the atmosphere and hydrosphere (ground water) from supplied power, natural gas, and chemicals as well as emitted substances, and which also calculates emission amounts (inventory) by category (greenhouse gas, ozone-depleting potential substances, etc.)
- *4 Eco factors**
Weighting factors established to evaluate the environmental impact of individual emitted substances determined through inventory analysis

Fiscal year 2004 Eco-balance



Applying Environmental Accounting to Realize Optimal Environmental Management

In fiscal year 2004, the Yokogawa Group applied environmental accounting to 14 sites.

Environmental Accounting for Fiscal Year 2004

The table below shows the environmental accounting of the Group for fiscal year 2004. Calculation criteria in environmental accounting are in compliance with the "Environmental Accounting Guidelines (Fiscal Year 2005 Version)" published by the Ministry of the Environment,

Japan.

Up till last year, the estimated effect was factored into the economic effects of environmental conservation. This year, however, only the intrinsic effect is posted as the factoring of the estimated effect is influenced by uncertain

Environmental Conservation Costs (in millions of yen)

Category	Item	Main Initiatives	Investment	Amount
(1) Costs for reducing environmental impact occurring within factories (areas of operation)	1) Pollution prevention costs	Monitoring and measurement	15	339
	2) Global environmental conservation costs	Energy savings	88	47
	3) Resource recycling costs	Minimized generation of waste matter	0	197
(2) Costs for reducing environmental impact from procurement and logistics		Green procurement	0	4
(3) Environmental conservation costs in EMS activities		EMS update, education	0	265
(4) Environmental conservation costs in R&D activities		Development of environmentally friendly products	0	12
(5) Environmental conservation costs in community activities		Environmental events	0	52
(6) Costs of addressing damage to the environment		Soil recovery	0	0
Total			103	916

Environmental Conservation Effects

Category	Description of Effect (unit)	FY2003	FY2004	Effect
Resource expenditure	Total amount of energy consumed (TJ)	777	797	-20
	Total amount of water resources consumed (km ³)	797	646	151
Global warming prevention	CO ₂ emissions (kt)	42	40	2
	CO ₂ emissions on unit sales basis (t-CO ₂ /100 million yen)	16	15	1
Air pollution	NO _x emissions (t)	38	38	0
	SO _x emissions (t)	36	38	-2

Economic Effects of Environmental Conservation Measures — Intrinsic Effect — (in millions of yen)

Description of Effect	Amount
Reduction in expenditures due to recycling (sale of valuables, etc.)	40
Reduction in expenditures due to energy savings (power, etc.)	21
Reduction in expenditures due to resource savings (reduction of paper and water, etc.)	33
Total	94

Capital Expenditures and R&D Costs (in millions of yen)

Item	Description	Amount
Total capital expenditure for period	All capital expenditure including environmental expenditures	16,451
Total R&D costs for period	All R&D costs including environmental expenditures	29,141

Sales of Environmental Business Products and Total Sales (in millions of yen)

Item	Description	Amount
Sales of environmental business products	Sale of products and systems (for the term) that exclusively contribute to reduction of social and environmental impact, including environmental business products (water purification, atmosphere protection, waste treatment, etc.)	20,160 (7.7%)
Total sales for period	Grand total	261,625

Data was taken from ISO14001-certified sites excluding Yokogawa Electric China Co., Ltd. and Yokogawa Field Engineering Service Corporation (see page 11) during the period April 1, 2004 to March 31, 2005.

Overview of Environmental Activities in Fiscal Year 2004

As a responsible corporate citizen, the Yokogawa Group is engaged in global conservation activities and social activities taking the business operations of each Group company and the regional character of its operations into consideration, in accordance with the “Basic Environmental Management Rules for the Yokogawa Group” (see page 3).

In fiscal year 2004, environmental activities were successfully promoted throughout the Group. In particular, as part of our environmentally friendly product development, we were able to provide customers with a variety of products and solutions including the Enemap Energy Management Package.

Upon the Kyoto Protocol coming into force, it is our intention from fiscal year 2005 onwards to further enhance environmental activities mainly in the area of reducing CO₂ emissions and energy saving measures.

Environmental Policy of the Yokogawa Group		Fiscal year 2004 (main sites)			Ref. page(s)
		Target / goal	Fiscal year 2004 result	Self evaluation	
EMS implementation, maintenance, and improvement	Establish an EMS to promote and continually improve environmental conservation activities. In order to achieve this, it is necessary to accurately understand the impact of business activities on the environment, establish environmental targets that are technically and economically feasible, and work to achieve these targets while conducting environmental audits to maintain and improve the system.	• Promote environmental conscious business activity initiatives (promotion of activities closely integrated with business operations)	• 49 themes close to business operations attained	○	10
	Provide all employees with environmental education so that they understand the environmental policy, improve their environmental awareness, and consider environmental conservation throughout the corporate and civil activities under their own initiative.	• Provide basic environmental education (100% target) • Provide specific environmental education to those engaged in business (100% target)	• 100% achieved • 100% achieved	○ ○	32
Legal compliance	Comply with all legislation, regulations, agreements, and industrial guidelines pertaining to the environment, and strive to protect the global environment.	• Improve soil management in line with Group soil management criteria	• Study of installation of a monitoring well in progress	△	25
Promotion of recycling-based management	Strive to use resources and energy efficiently throughout corporate activities, reduce waste, and promote reuse and recycling, with the aim of achieving zero emissions.	• Reduce CO ₂ emissions by 2% on unit sales basis (compared to fiscal year 2003)	• 4.2% reduced	○	23
		• Reduce total waste matter by 2% on unit sales basis (compared to fiscal year 2003)	• 5.7% reduced	○	28
Reduction of environmental pollutants	Reduce the use of substances that adversely affect the environment, such as toxic, global-warming, and ozone-depleting substances, by adopting alternative technologies as much as possible, thereby avoiding the risk of environment pollution.	• Roll-out of lead-free soldered products	• Lead-free soldered products introduced	○	27
		• Study alternative plate technologies for hexavalent chromium	• Studied	○	27
		• Study alternative plate technologies for cyan	• Studied	○	27
		• Reduce toluene and xylene	• Introduced low-toluene and low-xylene paintings	○	24
Environmentally friendly product development	Supply products with low environmental impact by developing and manufacturing products with careful consideration for their impact on the environment throughout their lifecycle, from materials procurement, manufacturing, and distribution, through usage and disposal.	• Investigate hazardous substances contained in parts and materials	• Primary investigation completed	○	16
		• Establish a plan for the total abolition of six substances according to the RoHS Directive	• Establishment of plan on-going	△	26,27
		• Apply product assessment standards and LCA standards to reduce CO ₂ emissions in developed products by 25%	• Completed for 9 models	○	17,19
		• Increase the use of environmentally friendly packaging	• Completed for 33 models	○	29
Providing environmental solutions	Help protect the global environment by supplying value-added products and services, based on measurement, control, and information processing technologies.	• Popularize environmental conservation products and promote environmental solutions	• Participated in exhibitions and held seminars	○	36
Contributing to society by protecting the environment	Participate in regional environmental conservation activities, support employees who initiate such activities, and strive to maintain harmony with local communities as a responsible corporate citizen.	• Participate in community and regional activities	• Participated in various regional cleaning activities	○	35
Disclosure of information on environmental conservation	Disclose the Environmental Policy and information on the Group's global environmental conservation activities to broaden communications with communities.	• Increased number of data sources	• Data sources expanded to include 46 Group companies	○	36
			• CSR (corporate social responsibility) related page substantiated	○	30-36