

# Environmental & Social Report 2009



<Founder's Spirit>

# Grateful to serve for a better world

#### <Mission>

We, the YANMAR Group, will strive to create new and meaningful value together in partnership with our worldwide customers.

We will be innovators and leaders in harnessing energy, while contributing to an environmentally sustainable society, through the delivery of unrivaled products and services.

#### Contents

Top Message	2
Yanmar Group Business ······	4
HIGHLIGHT 1 — Business models that enhance Life Cycle Va Seeking to work with our customers to create product value for them, while working on business models that improve our customers' trust in us	llue 6
HIGHLIGHT 2 — Creating more satisfaction for customers throughout the world A global customer service system that supports the Yanmar brand	12
Social Responsibility Report Administrative Organization Relationship with Our Customers Relationship with Our Distributors and Dealers Relationship with Our Suppliers Relationship with Our Employees Relationship with Society	18 20 23 24 25 28
Environmental Management Efforts in Product Development Efforts to Prevent Global Warming Effective Use of Resources Appropriate Management of Chemical Substances Environmental Management Structure Environmental Communication	32 34 38 40 41 42 45

#### Reference Data

Environmental Performance Data	46
Site Report	50
History of Yanmar Group	
Environmental Activities	53

#### **Editorial Notes**

We issue this Report every year to inform Yanmar Group stakeholders of the philosophies, policies, and actions the Group has taken with respect to the environment and society as well as the records of our activities in fiscal year 2008 so as to improve our activities through mutual communication.

This issue Reports some of our typical activities in the opening pages of Highlights to help readers understand how the Group is trying to achieve its missions and responsibilities as good corporate citizen. The pages on our social responsibilities provide an outline of our management system and feature some of our actual activities for each stakeholder. The pages on our environment activities Report our activities conducted according to the secondary medium-term plan.

#### **Reference Guidelines**

- 1. "Environmental Report Guidelines (2007)" of the Japanese Ministry of Environment
- 2. "Sustainability Reporting Guidelines (3)" of the Global Reporting Initiative

#### Period Covered

The activities and data disclosed in this Report are for the period of fiscal year 2008 (March 21, 2008, to March 20, 2009). However, the Report also includes some items occurring in fiscal 2009.

#### Sites Covered

In general, the information in this Report applies to the Yanmar Group as a whole. Information specific to Yanmar Co., Ltd. or any particular area or related company is indicated as such in the text.

The term "Shiga Zone" used in this Report refers to our plants located in Shiga Prefecture: Biwa, Yamamoto, Kinomoto, Oomori, Nagahara, and the Nagahama Site. The term "Amagasaki Zone" refers to the Amagasaki and the Tsukaguchi plants.

#### Date of Issue

Published in September 2009 (the next issue is scheduled for September 2010).

#### **Corporate Profile**

- Trade name Yanmar Co., Ltd.
- 1-32 Chayamachi, Kita-ku, Head office
- Osaka
- Tokyo office 2-1-1 Yaesu, Chuo-ku, Tokyo March 1912
- Founded
- Capital ¥6.3 billion
- Chairman & Executive Director Tadao Yamaoka
- President Takehito Yamaoka
- Turnover (FY2008)
  - ¥548.2 billion (consolidated base) ¥221.6 billion (company base)
- Employees (as of March 20, 2009) 15,145 (consolidated base) 3,282 (company base)

#### Major Changes in 2008

- The second plant of Yanmar America, Atlanta was completed (March 2008)
- The YLS Kobe Center started full operations as a global service base (April 2008).
- The Technical Center of Yanmar Engine (Shanghai) Co., Ltd. was opened (June 2008).
- Companies selling agricultural equipment to the domestic market were integrated into our company, Yanmar Agricultural Equipment Sales Co., Ltd. was established (December 2008).
- The Technical Center of Yanmar Europe B.V. was opened (December 2008)
- Yanmar Agricultural equipment Co., Ltd. was merged into Yanmar Co., Ltd. to realize structural reform of our agricultural equipment business (February 2009)



**Major Indicators** 



 Ratio of Consolidated Sales by Segment in 2008



 Ratio of Consolidated Sales by Region in 2008



#### Employees (Consolidated)



 Ratio of Employees by Region as of March 20, 2009



#### Yanmar Co.,Ltd

#### Manufacturing

- Power System Operations Division
  - Manufacturing Management Dept.
  - Biwa Plant
     Yamamoto Plant
- Kinomoto Plant
- **Precision Equipment Division**
- Omori Plant 🔹 Nagahara Plant

#### Large Power Products **Operations Division**

Amagasaki Pant

#### Marine Operations Dept.

Production Dept. Tsukaguchi Plant

#### **Domestic Group Companies**

- Yanmar Agricultural Equipment Sales Co.,Ltd. Yanmar Agricultural Machinery Manufacturing Co.,Ltd.
- Seirei Industry Co.,Ltd.
- Kanzaki Kokyukoki Mfg. Co.,Ltd.
- Yanmar Energy System Co.,Ltd.
  Yanmar Energy System Mfg. Co.,Ltd
- Yanmar Construction Equipment Co.,Ltd.
- Yanmar Construction Equipment
- Sales Co.,Ltd. • Yanmar Marine System Co.,Ltd.
- Yanmar Shipbuilding & Engineering Co.,Ltd.
- Yanmar Casting Technology Co.,Ltd.
- New Delta Industrial Co., Ltd.
- Kyoritsu Metal Industrial Co.,Ltd
- Yanmar Logistics Service Co., Ltd.

#### **Overseas Group Companies**

#### Asia

Sales / Services

- YANMAR ASIA (SINGAPORE) CORPORATION PTE, LTD.
- YANMAR ENGINE (SHANGHAI)
- CO.,LTD. YANMAR AGRICULTURAL
- MACHINERY (THAILAND) CO., LTD. YANMAR AGRICULTURAL
- MACHINERY (KOREA) CO., LTD. YANMAR INDIA REPRESENTATIVE
- OFFICE

#### **Research & Development**

• YANMAR KOTA KINABALU R&D CENTER

#### Manufacturing / Sales

- P.T. YANMAR DIESEL INDONESIA
- P.T. YANMAR AGRICULTURAL
  - MACHINERY MANUFACTURING **INDONESIA**
- P.T.YKT GEAR INDONESIA
- YANMAR S.P. CO., LTD.
- YANMAR AGRICULTURAL EQUIPMENT (CHINA) CO., LTD.
- YANMAR ENGINE (SHANDONG) CO..LTD

#### North & South America

Manufacturing / Sales / Services YANMAR AMERICA CORP.

#### Sales / Services

- C.U.T. SUPPLY COMPANY LLC.
- YANMAR SOUTH AMERICA INDUSTRIA DE MAQUINAS LTDA.

#### Manufacturing / Sales

- TUFF TORQ CORPORATION
- TRANSAXLE MANUFACTURING OF AMERICA CORP.

#### Europe

#### Sales / Services

YANMAR EUROPE B.V.

#### Manufacturing / Sales

- YANMAR MARINE INTERNATIONAL B.V.
- YANMAR ITALY S.p.A.
- AMMANN-YANMAR S.A.S.
- MOSCOW REPRESENTATIVE OFFICE OF YANMAR., LTD.

## Contributing to our customers and to society through "Comprehensive Power" and "Solutioneering"

We are developing businesses in the major fields of "urban," "the land" and "the sea," in light of the Yanmar Group Mission of "We, the YANMAR Group, will strive to create new and meaningful value together in partnership with our worldwide customers. We will be innovators and leaders in harnessing energy, while contributing to an environmentally sustainable society, through the delivery of unrivalled products and services."

To go with this mission, we introduced in the spring of 2009 a new brand concept — "Solutioneering\* Your Everlasting Smile."

So far, to fulfill our corporate mission, our undertakings have focused on the development of fuel-efficient, performant and durable technologies and products, and the provision of world-class services. Yet at the same time, the environment that surrounds us continues to experience major shifts. Priority is being put on the global environment in terms of "creating sustainable societies," and rapid advances are taking place with globalization and information. I believe that we must also respond quickly to these changes.

Meanwhile, the needs of our customers are shifting within this environment. Such changes include an ever increasing number of items that transcend previously prescribed business fields.

To deal with these developments, I think we need to concentrate all of the management resources in our possession. I also believe that the supply of solutions using our comprehensive power will become imperative in future business and that fulfilling this role should be one of our missions for our customers.

We collect and employ our engineering technologies in a wide variety of fields and then strive to solve the problems that beset our customers. The process brings smiles to the faces of our customers and a sense of involvement and joy to our employees. That's the kind of brand we aim for at Yanmar. Specifically, we are adapting GHP (gas heat pump) air-conditioning technology for agricultural facilities, developing a next-generation powergeneration system that makes effective use of digestive gases emitted when the waste of livestock is treated at farms, and are involved in bio-fuel and engine research for the realization of carbon-neutral motors.

Furthermore, in the agricultural and fishing industries, we not only provide products and aftersale service, but we also leverage our cryogenic technologies and group-company networks to connect production areas (farming and fishing villages) with consumption areas (cities). Our involvement in the creation of this new business model is one example of Solutioneering. Nothing makes us happier than when we can contribute to the vitalization of regions that fostered Yanmar in the past. I believe that this is one of our social responsibilities that we must achieve.

To develop this form of Solutioneering, it is imperative we work harder to examine business from the perspective of our customers. Our VOC ("Voice of Customer") project was launched in January 2008. We have since been continuously listening to the voices of our customers and moving ahead in the new direction of a customeroriented business model.

As you will learn in this report, Yanmar is engaged in various efforts, including the research and development of environmental technologies, environmental conservation, and contributions to society. In the future, will closely abide by our corporate mission and the concept of Solutioneering and do our utmost to meet rapidly changing market needs, strive towards the realization of an environmentally-sustainable society, and carry out business activities that contribute to society.

Takehito Yamaoka President



<sup>\* &</sup>quot;Solutioneering" is a term we coined that combines the words "solution" with "engineering." "Engineering" indicates manufacturing with engines at its core and "Solution" indicates finding solutions to problems that affect our customers.



## Providing sustainable products and high quality service in the fields of "urban," "the land" and "the sea" to meet customer needs

#### Living-environment businesses that harmonize the city mechanism with a comfortable lifestyle

GHP (gas heat pump air conditioners)\*<sup>1</sup> and cogeneration systems\*<sup>2</sup>, which are used in response to energy and environmental problems, as well as regular and emergency power-generation equipment, help maintain comfort and safety in various aspects of living. In addition, we are working for the effective use of energy in our systems to convert to biomass-generation systems, which use carbon-neutral biomass as fuel that has no effect on the increase of CO<sub>2</sub> when burnt, and to thermal energy, which uses warm water, steam and other resources. Also, small construction machinery and general-purpose machinery, mounted with highly efficient and low-fuel consuming diesel engines, have been shown to be effective in high efficiency, labor-saving operations. Such environmental measures are being employed in the building of our streets and towns.

- \*1 Air-conditioning systems that produce low amounts of CO<sub>2</sub> emissions and are equipped with gas engines rather than electric motors to drive the compressors, which circulate the refrigerant.
- \*2 Systems that generate electricity by burning gas as fuel and then effectively use the heat to supply hot water or for air conditioning.

Outdoor unit of a gas heat pump air conditioner

GHPs, which create comfortable environments throughout entire commercial facilities, at the Rinku Outlet Mall



A mini-excavator, frequently used for infrastructure development in urban areas



Urban

Vertical water-cooled disel engines

Cool containers for rail use, which enable distribution while the cargo is refrigerated at the proper temperature.

DAG facilities, which regulate the natural dryness of stored grains so that the natural flavors are not altered

# Total support, from manufacturing to distribution, as we pursue safe and abundant "food."

YANMAR YANMAR

We contribute to the development of agriculture in all the relevant fields, from mechanization of individual tasks (by tractors, rice transplanters, combine harvesters, etc.) to uniform systemization (NAPURA systems) and facilitization. In addition, we have shown positive results in food distribution, whereby the food remains very fresh and operations are carried out at low cost. This is achieved through "transport cool containers," which enable fresh food products to be distributed at the right temperatures.



The NAPURA system, which has integrated all of the operations of dry-field farming, from seeding to harvesting

## The land

The sea

Seeking to achieve the ideal co-existence between humans and the sea in the fields of marine leisure, fisheries, and the development of large-scale marine engines

We have been enhancing our lineup of marine engines and pleasure boats to give people the opportunity to discover the wonders of the sea. Also, through efficient and high-output marine engines and the development of fishing boats as well as various machinery and facilities, we are contributing to the vitalization of the fishing industry, which provides us with our food. Furthermore, we are working on the pursuit of safe and comfortable sea journeys that take the Earth and the environment into consideration, through our improvements in the performance of diesel engines for large-scale ships and research and development of an electric propulsion system.\*<sup>3</sup>

\*3 A propulsion system that powers ships using propellers, whereby the propellers are connected directly to a motor that runs on electricity generated by a diesel engine



A marine propulsior diesel engine

A powerboat engine, widely used in the USA, Europe and other world markets. The engine has high output and is environmentally friendly.

#### Business models that enhance LifeCycle Value

## Seeking to work with our customers to create product value for them, while working on business models that improve our customers' trust in us

Yanmar's Large Power Products Operations Division produces large marine engines and powergeneration engines. These products have a long lifespan, normally being used for 20 to 25 years. During this period, it is crucial for the engines to maintain their performance in terms of product safety, economy, and environmental friendliness, and for us to continue our bond of trust with our customers.

Accordingly, in 2005 the Large Power Products Operations Division embarked upon a new business model that enhances "Life Cycle Value." We need to develop products in cooperation with our customers and then pursue value for our customers for periods long after the products' delivery, while carrying out services that include providing solutions and education. So we have sought approaches that have an eye on "offering products and services with customer focus."



#### Amagasaki Plant

The Amagasaki Plant was founded in 1936 as a factory for the production of the world's first practical diesel engine, developed by Yanmar back in 1933. Nowadays, the plant operates as a production factory for large diesel engines.

Being an urban-type factory, the facility is engaged in environmental-conservation efforts. During fiscal 2008, the plant opened its doors to 1,688 people for visits by customers to observe the factory's operations, field trips, and education of students at the Technical Training School, etc.

#### The Large Power Products Operations Division supports the global marine transport business

The Large Power Products Operations Division has a long history, even among Yanmar's diverse business activities. The headquarters has made great strides in its business endeavors, in parallel to the growth of the global marine-transport business. The base of these operations is our Amagasaki Plant. As a factory for the production of large diesel engines, it mass-produces boatpropulsion engines (large marine propulsion engines) and power generation engines (auxiliary marine engines), in addition to diesel and gas engines for land and general use. 93% of all these engines are for marine use, and fitted onto large ocean-going vessels, like for example, bulk carriers that

carry coal from Australia or tankers bringing crude oil from the Middle East. Each vessel is fitted with three or four power-generation engines (each with an output ranging from 180 to 3,300 kW). The Amagasaki Plant is a large factory, with 389 people working in the Production Department as of May 2009 and nearly 800 workers in total when the development, staff and other departments are included.

#### LCV (Life Cycle Value) aiming to create value together with our customers

The mission advocated by the Large Power Products Operations Division is "to provide market leading products and services." In pursuit of this mission, sales, development,

#### Hiroshi Ihara

Senior Executive Officer at Yanmar Co., Ltd and General Manager of the Large Power Products Operations Division. He joined the company, then called Yanmar Diesel Co., Ltd., in 1977. After spending seven years from 1985 posted to Singapore, he was appointed Executive Officer at the Engine Department and Large Product Marketing Department in 2002. In 2004 he was appointed an Executive Officer and Manger of the Large Power Products Operations Division and Manager of the Large Products Marketing Department as well as concurrently holding the position of President of Yanmar Engineering Co., Ltd. He became an Executive Officer at Yanmar Co., Ltd., and General Manager of the Large Products Operations Division in 2008. He has held his present posts since March 2009.

and production operations were amalgamated while restructuring got under way. A new business model that aimed to achieve "LCV Enhancement" was launched in 2005. The lifespan of large ocean-going ships, which sail the great oceans of the world, is 20 to 25 years. We started thinking with the idea that this lifecycle is extremely long compared to other products. The current Senior Executive Officer and General Manager of the Large Power Products Operations Division, Hiroshi Ihara, who spearheaded the reform as the General Manager of the sales department at the time, offers a definition of LCV:

"We start our sales efforts three years before engines are delivered. We gain the trust of our customers, deliver the engines, and then the ships' construction is completed. However, the objective of ship owners, who are the customers, is to use the ship and earn profits from it for a long period afterward, of 20 to 25 years. The real job starts after the product's delivery. The thinking behind LCV is to try to work with customers in pursuit of value for them. It's very important to stick together during the various events that take place during those 25 years."

It is not easy to build the trust of our customers during a period of 25 years. Various factors are involved in maintaining a relationship of trust, such as human ties, environmental factors, speed, credibility, information, and services. Improving LCV requires keeping all these factors in mind at the same time. When the time comes 25 years later for our clients to replace their ships, our aim is that they will choose us and say, "Right, let's make it Yanmar." That is a

(Fei

The 6EY18 Model Large Marine Diesel Engine for Power Generation

This product improves LCV, not to mention enhancing "harmony with the environment." It is the first Japanese-made marine engine to acquire certification as an engine compliant with the IMO Tire 2 NOx regulations, scheduled to come into effect from 2011. FISHERIES INSPECTION

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#### Improving development processes that enable "preestablishment of quality"

The number of units produced and ordinary income at the Large Power Products Operations Division rocketed from 2005 when we started to restructure under the LCV banner — until 2008. So what changes occurred during the restructuring?

One was improvements in the development processes. Before, the development

> departments were central when products were made, and sales staff then proposed these products to our customers. The sales and after-sales service departments were mainly the points of contact with customers. The people in charge of development would never directly meet with the customers. Development that takes place in a situation where the needs of the customer aren't correctly understood can get

bogged down during testing. Many modifications are made as products are sent back due to problems that crop up after delivery. As a result, the customer's trust is lost.

"Development process improvement was a prerequisite to LCV enhancement," says

Katsunori Izumi, Manager of Design Group 1, Development Department 1, Development Department at the Large Power Products Operations Division. "From the planning stage, we had customers involved in the planning and we heard a lot of discussion about the various demands the customers had demands that were reflected in the design of the products. In addition, before building the prototype, we asked our customers to be able to carry out preliminary and verification testing with the actual ways the engines would be used (for instance, operations running on heavy fuel) while on board. This process enabled us to establish quality during preliminary development, and so post-delivery modifications decreased," he says.

The reliability of products with a long lifespan cannot be fully understood merely by conducting ground tests in factories. So we carry out testing on customers' ships during the early stage of product development. There might be doubts whether our customers are happy to comply with this. However, Mr. Ihara responds by saying:

"Both the engineers at the ship-making companies and the engineers at this factory are cooperative. Companies that own a large number of ships generally use engines from various manufacturers, yet the areas that wear are generally the same. The owners often say



Assembly process inside a clean room



#### The 6EY18 Model was born in our new development process

Katsunori Izumi

Manager of Design Group 1, Development Department 1, Development Department at the Large Power Products Operations Division.

stage.

The 6EY18 model is a new product (on sale from June 2007) that was born from the new development process that aims for LCV improvements. Previous engine development focused on trying to get "performance" either high output or fuel economy. But what our customers hope for is "performance plus reliability." In other words, we must ensure operation without problems cropping up suddenly.

Running engines on heavy fuel will dirty the combustion chambers, stain the turbochargers, create blow-by for the intake and exhaust valves, and cause abrasion to the piston rings and cylinder liners. In addition, dirty lubricating oil causes abrasion to the various sliding parts and the prompt clogging of the lubricating oil strainer. These problems were in our mind during the development of this engine, and so we incorporated new technologies to suppress

contaminants. We also managed to boost the engine's overall reliability and endurance by equipping it with an application to deal with moderate amounts of contaminants without any loss of performance, which we thought was connected to LCV improvement.

Future engine development will involve not only the development departments but will also bring together sales, manufacturing, procurement and service departments as we work on projects. We think it will be important to be able to complete appealing products through both communication and preliminary testing with our customers during the development

Reforming the process by which products are made





Large diesel engine assembly process

things like, "Well, try mounting a Yanmar engine on one of our ships once." Since we deal with the same worries, they work with us in efforts to create things. I also think it's indispensible to LCV improvement to build ties of co-existence and co-prosperity with our customers." This joint work becomes an opportunity to construct mutual ties with the customer. It's also connected to the idea of making products that have received the consent of the customer and making products that are loved by the customer.

#### Supporting our customers and widening human exchanges through "TQP Subcommittee Activities" and "TT School"

The TQP Subcommittee Activities are another policy for LCV improvements. This is based on the idea of the necessity to heighten customers' LCV through services in order to win their trust, and it is an activity that completes customer services after a product's delivery.

As Mr. Ihara explains: "We identified tasks that emerge crosswise throughout the departments and then established the subcommittees. By strengthening associations in order to solve problems within a subcommittee or among the subcommittees, we increased the speed of TQP (Tokki Quality Plan: "Tokki" being the abbreviated Japanese name of the Large Power Products Operations Division) realization. Due to this, the number of complaints has fallen, and we are seeing contributions to higher profit ratios." Mr. Ihara adds, "When a ship owner designates Yanmar, then that's also important for the education of the engineers." The T.T. (Technical Training) School is joined with the Amagasaki Plant, along with a guesthouse for accommodation. The school carries out training on engine technology and maintenance, not only for company employees, but also for ship owners and engineers from shipbuilding facilities in Japan and overseas.

Within the company, meanwhile, the handing down of engineering skills to the younger generation has become an urgent issue, due to the large number of skilled engineers who will be approaching retirement age in the near future. The T.T. School established a skills transmission committee made up of former employees and our main engineering corps in 2008. The body conducts follow-up training sessions, divided by levels, while also restructuring the system whereby technical skills are passed on.

Through the switch to a development process in which customers take part, the internal TQP Subcommittee Activities, and utilization of the T.T School, we have seen the emergence of positive effects that were originally unimagined. The wheel of human exchange inside and outside the company is expanding. We are seeing lively communication — which never took place before — among co-workers who used to keep to themselves even though working at the same Amagasaki Plant, as well as among developers inside and outside the company and service providers.



A training session for company employees

#### Aiming for high-quality service engineering and the expansion of networks

One of the policies at the Large Power Products Operations Division is to use our environmental technology and engineering strengths to take on the challenges of marine transport. With the keywords "environmental sustainability," "laborsaving technologies," and "safety responses," we are making efforts in technology to deal with NOx (nitrogen oxide) regulations of the IMO (International Maritime Organization) and in the development of electric propulsion ships.\*

In the following passage, Mr. Ihara gives us his thoughts on the future of the Large Power Products Operations Division. "If we imagine our customers as being the audience in a theater, then our 'performance' would not merely be the engines, but rather the entirety of our services and the achievement of LCV. Products with a long lifespan bounce around all over the place.



Report

No. 8 Shoei Maru, an ocean-going longline tuna fishing boat equipped with an electric propulsion system.

They're used on second-hand ships that sail all over the world, and we have no idea where they will be in the world when service is required. Since we can't simply replace the engines, as with a car, we must get aboard the ships during their voyages to do the repairs. Maintaining service bases throughout the world is very difficult. But this in itself provides a business opportunity, as we can put our efforts into expanding our high-quality service engineering and global networks."

Mr. Ihara's dream is the creation of a control center capable of knowing in real time the current location of ships equipped with Yanmar engines, by using a global map. If a problem occurs, then a system to rush to the scene could be quickly established. Yanmar engines move across the world's oceans and tie together the world's cities. Through development that involves our customers and services that seek value for our customers, that sense of trust is expected to rise steadily.

These are ships equipped with a system to run motors and drive propellers using electrical power from a generator. From the propulsion of ships to supplying power to shipboard equipment, the system can handle all of a ship's needed electrical energy. At the same time, it can achieve lifecycle-cost reductions, a greater degree of freedom in a ship's layout, and a redundancy of systems that lead to improved safety. Furthermore, the system is low-vibration and low-noise and cuts a ship's emission of CO<sub>2</sub>, NOx and SOx, enabling sea journeys that are friendly to humans and the environment. The systems are seeing wider use in recent years, from various types of commercial vessels, to survey ships and fishing boats.



Workers replace the factory's south wall.

# Aiming for "an open factory" to the community and to society, while the factory is being reformed

Yasuhiro Kanai Manager of the Production Engineering Group at the Large Power Products Operations Division.

The Amagasaki Plant is striving to improve the local scenery and reduce noise, as the factory is located in an area with many houses. Work to replace the factory's south wall, which is adjacent to some detached houses, was carried out in January 2009. Trees were planted outside the wall and

street lights installed, to the satisfaction of the residents. For the sake of a cluster of condominium buildings to the east of the factory, the direction of exhaust pipes of six factories was altered and mufflers installed, reducing noise. In other measures carried out in the interest of environmental conservation, low energy lighting and a sewage treatment system that separates oil and water will be introduced.

We are currently working on reforming our factory so that it "gives emotion to our customers." Our factory upholds the idea of things, people and management as a necessary element for making things. However, as our base, we should have a culture that gives thanks to the customers we have here. I believe that it will be important to carry out our work after everyone joins together to carry out the 3S's, which are the foundation of things; turning employees into multiskilled workers, the foundation of people; and the visualization, the foundation of management.

# Yanmar's Cogeneration System that is employed at an Antarctic base

Yanmar has been involved in the development and production of gas engines from early on. Its congeneration system, which uses clean natural gas and delivers "electricity and heat," is used in various industrial fields and also at the Showa observation base in the Antarctic.

Yanmar has been dispatching staff to the Japanese Antarctic Research Expedition since the 25th expedition in 1983 to manage the power-generation equipment at the Showa Base. By the time of the 51st expedition in 2009, a total of 30 Yanmar employees had taken part in this project. I myself took part on the 49th Japanese Antarctic Research Expedition in 2007 as the person responsible for the power-generation equipment throughout the winter. At the Showa Base, two S165 Models, used as power generators, are switched every 500 hours (approximately 20 days). Yet during the 49th expedition, I did an overhaul of generator No. 1.

Apart from 500-hour inspections when the base's power source was switched, I was also responsible for construction work on base equipment, roadwork, observation support, snow removal, maintenance of generators in observation cabins, supporting an inland observation tour, and so on. I was also involved in "Antarctic Classroom" (held about 40 times a year), which links the Showa Base with schools in Japan via an Internet TV-conferencing system for lectures.

Parts used for engine maintenance

Keiji Amasaki Outfitting Group, Amagasaki Plant, Large Power Products Operations Division

must be compatible with the items at the base, until the time the next expedition arrives. In addition, of all the staff, I was the only one whose job involved the engines. So I had to resolve problems using my own judgment. While single-handedly taking care of the lifelines of electricity, air-conditioning and hot-water supply, I felt the pressure daily of being the only one responsible and of the necessity that observation activities not be interrupted.

The moment I felt the real value of this work was when the engines performed without incident and the staff could do their activities without having to worry. This is definitely a job that isn't noticeable on the surface. Yet the operation tendencies of the engines had been passed down from each of our predecessors in the form of data files. I was uplifted by thinking that, "There is no way that these Yanmar engines that have been maintained by those before me will break down." That let me carry out my duties. If I had the chance, I would take part again.



Overhauling a generator





Adelie penguins

## Creating more satisfaction for customers throughout the world A global customer service system that supports the Yanmar brand

From early in its history, Yanmar has managed to expand its business fields to markets overseas, and to date our products are loved by customers in 130 countries. We are aiming towards a 100% repeat business and striving to establish a service system that would be fully consistent throughout the world. As part of this plan, we have developed a uniform-management system of parts that is in use globally. We completed Kobe Center, Yanmar Logistics Service Co., Ltd., in April 2008 as a warehousing hub center for Yanmar throughout the world. Thanks to this, we are now able to deliver Yanmar parts quickly and precisely to every corner of

the world.

The creation of a global system that responds to the needs of our overseas customers has been the focus of our efforts.



#### Tying together the strings of "service" that cover Yanmar's vast business territories

Yanmar is developing business through a four-pole system comprising Europe, America, Southeast Asia and China, while aiming to carry out appropriate support for all customers involved with Yanmar products. Yet surmounting language and cultural barriers and satisfying the demands of the world are no easy tasks.

So in March 2006, with the objective of offering consistent customer service throughout the world, we launched the Global Customer Service (GCS) Department at the head office in Osaka. Three service departments — parts, technology and logistics — which had previously operated separately in Japan and overseas — were all amalgamated to become a unit with a total workforce of about 100 people.

As GCS Chief Manager Masafumi Yoshino explains: "It's important to offer the three services of parts, technology and logistics as a single solid block. Even if you have the item, it's useless if it can't be delivered to the customer. If you've only got the parts, then you can't do the repairs. And if you can't share all of your information concerning your products, then there's no point. That's the premise behind our way of thinking. Our job is to tie together the strings of service that cover all of Yanmar's vast territories. From the point that our area is on a global scale and that our target is all of Yanmar's products, then our work covers a diverse range.

"As a basic policy of GCS, "The GCS Way" is displayed in the diagram on the right. This is arranged as a yardstick of the global community consisting of everybody involved in services for Yanmar products, not just Yanmar's employees around the world but also exclusive agents and retail stores,

3 Services



among others. The basic value is "No downtime service." GCS holds a "Global Meeting" twice a year that gathers together people responsible for customer-service departments in each country. We are attempting such projects as well as the sharing of information.

#### The opening of the Kobe Center, a hub for the global supply of parts

This facility, which embodies "The GCS Way," was launched in April 2008 on Kobe's Port Island. Its official name is Kobe Center, Yanmar Logistics Service Co., Ltd., (simply called Kobe Center in following references). Prior to the launch, GCS spent two years and 1.3 billion yen for the development of a uniform-management system of global parts. Kobe Center is a hub supporting the uniformmanagement system from the hardware side, while at the same time fulfilling the role of coordinator of Yanmar's global warehouse. Mr. Yoshino, who was the force behind the planning and development of the uniformmanagement system, explains the role of Kobe Center:

"For example, the service situation at a branch in France can be ascertained at the head office in Osaka, or if an accident occurs outside of service hours in the United States. then parts centers in other countries can respond. This is enabled by the uniformmanagement system. GCS collects information from local subsidiaries overseas and bases throughout Japan and analyzes to determine the most efficient inventory situation at each of them." Based on the outcome, parts are sent and delivered to depots in Japan or overseas by Kobe Center. We've realized a system here fulfills customer focus on 'offering uniform and globally common services so that our customers will not be hindered '

#### "The GCS Way"

Mission Enhance the Yanmar brand image through improved customer services

#### Vision

Providing complete customer satisfaction to achieve a 100% repeat rate

#### ......

No down-time service' worldwide/Mutual reliability

## Guiding Principles

Work from the customers' perspective/On-site priority/Global perspective /Teamwork/Face to Face

#### Masafumi Yoshino

Executive Officer, Chief Manager of the Global Customer Service Department Joined Yanmar Diesel Co., Ltd., in 1980 Manager of Corporate Planning Group and Senior Manager of Corporate Strategy Department, Senior Manager of Sales Planning Department in Sales Corporate Department of Yanmar Co., Ltd. in 2004, then held consecutive posts in sales planning, including Senior Manager of the Planning Department in 2005. He has held his current post since 2006.

#### Facilities and equipment that opt for a semiautomatic approach and environment friendliness

Kobe Center is located in a three-story building with total floor space of 15,830 m<sup>2</sup>. Medium-capacity rack locations number 81,336, while heavy-duty pallet racks number 3,382. The center boasts capacity roughly 50% bigger than the Osaka Parts Center, which served as the nucleus of the company's parts-supply operation for over 40 years.

The center's leading feature is its receiving and shipping lines. Using semiautomatic carrier machines, one line is for domestic shipments and five for overseas shipments, and acceptance inspection and packing can be carried out smoothly.

"For the new center, we studied whether to go with hi-tech from the start, and then made the bold decision to use semiautomatic methods," Mr. Yoshino explains. "If we had gone ahead with a fully automated computercontrol system, it could have ended up causing problems for our customers by failing to pick up parts in the event of power outages or equipment faults. Our philosophy is "No down-time service," and in the end we settled on a concept that enables people to take proper backup procedures."

A special feature of Kobe Center is its various environment-friendly aspects. Gas heat pumps, which use less energy and emit lower levels of CO2 than electricity, are used in the air-conditioning system. In consideration of the neighboring community and scenery, the buildings' heights were kept to no higher than three-stories, while 10% of the factory site is greened. Also, to deal with the characteristics of the land on Port Island, which is prone to subsidence, the land and buildings are made to sink simultaneously, while a foundation is used that exerts no influence of the subsidence on the equipment. The lighting system inside the warehouses is sensitive to human perception and highly energy efficient. Even during an eight-hour working shift, the lights are actually on for 4.7 hours, attaining a 40% cut. Regarding the working environment, barrier-free facilities have been introduced in such places as the parking areas, washrooms, and second-floor offices.





#### Kobe Center Outline

	~
Name:	Y
	L
Location:	Э
	ł
Site area:	2
Building area:	8
Total floor space	e: 1
Aggregate	
investment:	¥
Main business	5
areas:	f
	4



Storage and shipment of parts for overseas Assembly and manufacturing of engine parts

> シマー物流サービス(別) 神戸センター

#### Yanmar's customer services employ the two wheels of "IT" and "the human connection"

There are generally two types of customer services, according to the GCS view. One is the expert use of IT. The other is the "human connection" that listens to the voices of our customers, face to face. In the past, when the unified-management system was created, GCS's IT network was almost in place. Now, from this year, GCS is launching Yanmar's own independent "GOYOKIKI" system.

"Goyokiki" is a Japanese word that refers to a custom from the Edo Period of tradesmen aoing door to door to visit their customers. In today's world, however, customers' faces are often never seen, due to such modern IT-based factors as communication by e-mail. So now it is common for service representatives not to know what to do in order to go out to meet their customers. Conversely, customers often complain that service people pay uninvited visits. Yet the current GOYOKIKI system employs IT plus the human connection. While displaying data on a personal computer, the service representative can explain how support technology was conducted in the past and that now we seem to be approaching an era when such problems no longer occur.

"In the future, as the practical application of IT and GOYOKIKI make global inroads, at the same time we want to do more of our thinking

from the aspect of customer focus," Mr. Yoshino says enthusiastically.

"The target of our services is the exclusive agents who are directly connected to the customer, and the people at sales locations. How are the customers' voices, which are being heard by those people, being taken in? We've managed to have a network between local subsidiaries and sales locations. However, we want to have a speedier

transmission of information reaching the head office to know what's really taking place or what kind of demands our customers have and what should be done. This means 'making information seamless.' Yanmar products reach our end customers after being subjected to many different processes. But we consider only the information being seamless."

Yanmar's products cover a wide range, and its customers are a diverse group of people. However, there is one thing they have all in common – the "Yanmar brand." GCS is striving every day to deliver greater satisfaction to its customers around the world as part of its mission to "improving customer services to enhance the Yanmar brand."



#### Report

# Supplying parts quicker and more precisely to ensure no down-time service

Kiyomi Tomizawa Manager of Kobe Center, Yanmar Logistics Service Co., Ltd

In fiscal 2008, the first year the Center opened, it was able to contribute to meeting the GCS sales target of 20.5 billion yen (an achievement rate of 131%, and 164% compared to the previous fiscal year). This includes growth of 150% for the handling of airmailed packages sent in response to emergencies, while the demands have grown and become more sophisticated than before. In order to respond to these demands a bit quicker, we switched to a same-day shipping system whereby Kobe Center ships items on the same day for orders received by 10 a.m. and for orders received by 2 p.m. in the case of items sent in response of accidents. The Osaka Parts Center, by comparison, used to ship items from orders received the previous day. If logistics systems are set up at regional airports in the future, then we would aim to

use this one-day system for orders received by 3 p.m. on the same day for both domestic and overseas shipments.

Along with making efforts to establish a shipping system that meets the delivery expectations of our customers, bolstering the emergency-parts shipping system, and additionally improving the

improving the quality of transport packing materials, we aim to provide support as much as possible based on the GCS policy.



## With the aim of gaining the trust of all our stakeholders, Yanmar is engaged in the creation of an environmentally sustainable society.















#### Administrative Organization

We are pressing ahead with our CSR management while bolstering our corporate-governance system to ensure our future growth as a trusted and reliable corporation. .... P18

#### **Relationship with Our Customers**

#### Relationship with Our Distributors and Dealers

We aim for the sharing of information concerning our products and business attitude with distributors and dealers in overseas and domestic markets. With this in mind, we are constructing an elaborate network with the goal of making us the world's No. 1 in customer satisfaction. ......... P23

#### **Relationship with Our Suppliers**

By creating partnerships with business associates who are motivated about environmental preservation in countries around the world, we are able to promote "Green Procurement", an environmentally conscious system of procurement. P24

#### **Relationship with Our Employees**

#### **Relationship with Society**

Aiming to move forward together with the regions and societies we serve, we work to make contributions to societies and regions in Japan and abroad. These efforts include the revitalization of agriculture, support for education and sports, and charitable contributions. **P28** 

#### Relationship with the Environment

Taking "Symbiosis with Nature" as our corporate theme, we are placing greater effort in the development of environment-oriented products, environmental preservation in our manufacturing processes, and "environmental communication" activities. **P32** 

Responsibility Environmental Conservation Activities

# Yanmar promotes CSR management in order to remain a corporation trusted by society.

#### **Corporate Governance System**

Yanmar has put in place a corporate governance system that realizes quick decision-making and clearly defined responsibilities, with the aim of improving stable corporate value over the long term.

As our administrative organization, in 2000 we introduced an executive officer system to promote separation between administrative supervision and the execution of duties. Since then, the Board of Directors has specialized in the determination of duty execution and supervision of execution. Yanmar has 16 directors as of March 20, 2009, and the Article of Incorporation stipulates that there should be no more than 20 directors.

Under the Board of Directors are three management committees: the Management Strategy Committee (in charge of actual decision-making for the entire Yanmar Group), the Business Execution Committee (in charge of PDCA management for business execution), and the Monthly Business Review Committee (in charge of the monthly progress management of business execution), which serve to enhance the executive power of administration.

Yanmar turns to two external auditors out of four members, whose job is to monitor managerial operations, to reinforce the check-and-balance capability and deterrent capability with respect to duties, thereby enhancing the transparency of our corporate conduct. Each auditor conducts auditing in line with the policies and audit programs determined by the Board of Auditors.

#### Corporate Governance Organization Chart



#### **Internal Control**

Yanmar resolves the fundamental policy on the establishment of a system at the Board of Directors and is establishing an appropriate internal control system in order to ensure the appropriate execution of businesses in compliance with the Corporate Act. To be specific, Yanmar has determined basic policies concerning the formation of an internal control system at the Board of Directors as follows:

#### Basic Policies for Formation of the Internal Control System (outline)

- Promoting development and implementation of internal compliance systems based on the compliance regulations
- Establishing a system to extensively and comprehensively manage risks for the entire Group
- Establishing a management system for appropriate implementation of businesses by the entire Group
- When a critical decision is to be made, a serious management condition occurs, or material damage or loss of trust is likely, Directors or employees should immediately notify the auditors if they find any violation of law or material act of tort. Corporate Auditors may request that a report be made at any time.

In addition to the above, the Basic Policies also deal with appropriate storage and management of information, establishment and improvement of management system, and independency of assistants to auditors.

#### **Compliance Promotion System**

#### Group Compliance Committee

The Yanmar Group set up the Group Compliance Committee (with the Executive Vice President as the head and representatives of each business company and operation division as members plus external members <lawyers>).

The purpose of the Committee is to have the top management as well as all Group employees fully understand the corporate ethics and the importance of legal compliance, and to establish and maintain a system that prevents any conduct in violation of social ethics and laws and regulations. The Committee has in place the Yanmar Code of Conducts and formulates compliance policies for the entire Group based on the Code. Each Group company stipulates its own compliance promotion plan based on the Group-wide policies and carries out compliance programs.

#### Promotion Activities

Full check of compliance risks
 A Group-wide full check of compliance risks

A Group-wide full check of compliance risks was conducted from July to November 2008.

#### 2 Acquisition of Pledges of Compliance

Pledges of Compliance were acquired from Group employees and executives except for overseas companies. As of the end of March 2009, 98% of staff members have submitted pledges.

#### Stablishment of a system for overseas

In November 2008, internal compliance officers of overseas companies were invited to Japan to hold an Overseas Subcommittee. The condition and status of their promotion activities were confirmed by the Subcommittee.

#### 4 Internal education activities

The Rinri ("ethics" in English) News is issued on the intranet bimonthly. In October 2008, posters were created in order to improve employees' recognition of their internal reporting system.

#### Internal Reporting System "Complaint Box for Ethics"

Yanmar has in place a "Complaint Box for Ethics," which allows employees to notify or consult when they have learned of or have doubts about any inappropriate, unlawful, illegal or unethical conduct at workplaces or during business activities. The Secretariat receives these notifications by phone, fax, e-mail or in personal consultations, and the Compliance Committee addresses problems in order to develop solutions. In 2008, the number of notifications to the Complaint Box for Ethics increased from 7 in the previous year to 22 as a result of wider recognition through poster advertising of the internal reporting system.

#### Group Companies Establishing their Compliance Committees

Business companies and operation divisions also establish their own Compliance Committees as subordinate organizations of the Group Compliance Committee and formulate their own compliance policies. The purpose is to expose dormant, hidden but present compliance problems and take measures to avoid their recurrences as preventive actions.

#### **Risk Management Promotion**

The Yanmar Group set up a section dedicated to risk management in August 2006 and established the Group Risk Management Committee (with the Executive Vice President as the head and representatives of each business company and operation division as members) in April 2007. The Committee, designed to ensure accurate management and practice against varying risks affecting our business, has been assigned the tasks of reviewing Group-wide policies and directions, addressing issues and responses related to risk management promotion, and confirming the decisions made.

#### Major Activities

such field surveys.

#### Utilization of the Risk Event Report Database

We promoted utilization of the Risk Event Report Database that started in June 2007. Whenever any progress in handling each risk event that occurred in the Yanmar Group is made, risk management officers put it on record in the Database for sharing with the top management. There were 15 events entered in the Database in 2008.

2 Risk assessment for the Yanmar Group's major plants External specialists visit our major plants to check their capabilities to resist accidents and disasters so as to improve current risk countermeasures. In 2008, nine plants underwent

## 8 Emergency communication network and communication test

Yanmar introduced a safety confirmation system in January 2006 and conducts general drills for the entire Group in January and September every year. In 2008, we established an emergency communication network that enables swift transmission of danger information from each facility in the Group on no-work days, and conducted a communication test every two months.

#### **Promotion of CSR Activities**

In March 2008, we set up the Corporate Social Responsibility Dept. as an organization dedicated to the further promotion of CSR activities in the Yanmar Group. Composed of the Intellectual Property Dept., Legal & Business Ethics Group, Environmental Management Dept., and Planning Group, the Corporate Social Responsibility Dept. is actively implementing crosssectoral measures in order to incorporate the varying requests of stakeholders into business operations.

#### Organizational chart for CSR promotion



Social Responsibility Report

## Quality is the "bond of trust with customers." True to this motto, we strive to reinforce our partnership with customers.

#### Efforts to Improve Quality

The Yanmar Group regards "quality" as a bond of trust with customers. Each employee continuously strives to earn the trust of customers by providing products with the industry's top levels of quality and performance, and by offering prompt, suitable services. In 1968, we were the engine industry's first winner of the Deming Application Prize<sup>\$\*1</sup>, the greatest honor bestowed for the pursuit of quality control, and since that time, all of our employees have been striving to achieve quality improvements and product safety through the ongoing promotion of TQM<sup>\$\*2</sup> and QC circle activities.

1 This award is given to organizations that have achieved distinctive performance improvement through the application of TQM in a designated year. The Deming Prize Committee is established in the Union of Japanese Scientists and Engineers.

2 A systematic activity that conducts effective and efficient operation of all of the organizations of a company, and contributes to the achievement of the company's target so that satisfying commodities and services can be provided at the right time and at the right price. Also referred to as a "general quality commitment."

#### **Our Quality Assurance System**

Yanmar is engaged in quality assurance activities in all stages of business activities, ranging from the planning and development of products to production, sales and service, with the quality assurance department of each business unit<sup>\*\*3</sup> serving as the general contact. Every business unit thas a Product Safety Committee in place to ensure product safety. The entire group is being monitored for quality assurance by the group-wide Quality Assurance Committee. We have also obtained ISO 9001 certification at 28 units, including some overseas.

3 The collective name for operations divisions (including the Power System Operations Division, Large Power Products Operations Division, Marine Operations Dept., and Tractor Division) and business companies (including Yanmar Construction Equipment Co., Ltd., Yanmar Energy System Co., Ltd., and Kanzaki Kokyukoki Mfg. Co., Ltd.).

#### Quality Assurance and Product Safety Activities

We are conducting systematic activities to ensure product quality and safety at every stage of our business activities, including the planning, development, production, sales and service of our products. At the development and design stage, we incorporate market needs and customer requirements into design quality through QFD (quality function development) and predict and identify potential problems in the life cycle of each product through FMEA (failure mode effect analysis).

Product safety is particularly important. In addition to compliance with all applicable standards and regulations both domestically and internationally, we have a stricter set of in-house standards in place. We also conduct continuous design reviews as well as risk assessments, and hold evaluation meetings at each step of new product development. With this system, new products must undergo assessment from the viewpoints of both quality and safety before being put into mass production.

At the production stage, quality and safety are indispensable factors in each process. Our quality management system is constantly being improved through QC circle and ISO 9001 activities.



QC meeting at a workplace



#### • Yanmar's Quality Assurance System

## Incorporating the Concept of Universal Design into our Products is Our Solution to Refinement of "Standing in the User's Shoes"

#### **Universal Design**

Agricultural machinery is characterized by the following uniquenesses in use, which are not seen in automobiles or construction machinery, because of where and how they are used:

- Since users carry out farming while moving, they are required to carry out two kinds of operations, i.e. "moving" and "farming," at the same time.
- Agricultural machines are used in severe working environments such as steeply sloped semimountainous areas or muddy paddy fields.
- 3) Farmers carry out different kinds of work, i.e. tilling, puddling, rice planting, and yielding, according to the season and over short time periods, and use different kinds of machines. By the time a farmer feels he has become used to using one machine, the work for which the machine is used is over, and the farmer won't use it again until the following year. This makes it more difficult for farmers to learn how to operate each machine more efficiently.
- Farmers, who are users of agricultural machinery, are aging every year, which is causing a widening gap in physical capability among users.

Fully aware of the need to develop agricultural machinery that is user-friendly for both aged and beginner users, Yanmar actively uses the concept of universal design (UD) for each agricultural machine. We have established a guideline in the form of the "Ten Rules," composed of the conventional "Seven Rules of Universal Design," including ease of understanding, simplicity, safety and security, plus three additional rules from the viewpoint of machines for agriculture, namely "economic efficiency," "aesthetic beauty" and "environmental friendliness." We then conduct use tests involving users including the aged and women to conduct numeral evaluations in terms of operability or comfort during use. The results of trial use tests are then analyzed by age or the level of experience to identify and eliminate problems and make improvements, with the result that new findings are constantly incorporated into new product development. The AJ218 Series Combine harvester is one of the fruits born form these efforts.

We intend to continue to practice UD and create and improve products while "standing in the user's shoes."

In addition to agricultural machinery, we promote the concept of UD in all our business activities including construction machinery and energy systems.

#### **Topics**

# Yanmar's Exhibit in the "Japan UD Experience Pavilion" at the Taiwan Design Exposition 2008

Yanmar displayed the Combine harvester AJ218 in the Japan Universal Design Experience Pavilion, which introduced advanced cases of universal design in Japan, at the Taiwan Design Exposition 2008 held in Tainan from October 4 to 19 in 2008.

A large number of people showed an interest in the AJ218, which features various universal-design elements, including a wing lever that meets the two demands of viewability and ease of use,

and an operation panel designed to be easy to look at. Many visitors actually rode on the combine harvester to touch and feel the UD features of the machine. About 380,000 people visited the Exposition during the period, many of whom visited the Japan UD Experience Pavilion and saw Yanmar's products.

A presentation, Yanmar's Universal Design Promotion, was held as one of Japan's advanced case examples of UD in the Taiwan UD Seminar held during the Exposition period. The Expo and seminar provided a good opportunity for Yanmar to connect with visitors, and Yanmar came to firmly believe that UD, which embodies the concept of standing in the user's shoes, is understood by people around the world despite linguistic barriers and regardless of the type of product.



## We put a lot of importance in communication with our customers, so that you can use our products with a sense of security.

#### **Response to and Support of Customers**

Communication with our customers is very important for Yanmar as we strive to help our customers use our products safely and appropriately. We quickly and accurately respond to customer complaints, opinions and requests in order to improve customer satisfaction.

#### Responses to Customer Inquiries

In Japan, we have established a Customer Consultation Office that responds to telephone inquiries from customers. Customers can also send their opinions and requests by e-mail from our website.



#### Response to customer requests



#### After-sales Service

Annual nationwide customer questionnaire surveys are used to obtain information about our stores, sales activities, services and products from customers selected from random sampling. For agricultural machinery, customer satisfaction surveys are implemented with regard to products launched each year, and the 2008 survey was conducted for one machine. Guarantees that include checksheets for free inspections are issued for some products as part of our after-sales service improvement policy.

# The Swift and Accurate Provision of Product Safety Information

Regulations for product safety have recently been reinforced as a result of, for example, revision of the Consumer Product Safety Act. In response, Yanmar has improved various internal systems for compliance with product safety regulations, including enhancement of the Yanmar Technical Information System (YTIS, e-claim<sup>\$\*1</sup>) that gathers technical information by means of the web and the intranet, and established the Customer Consultation Office. In addition, we actively provide the relevant authorities<sup>\$\*2</sup> with information on accidents.

\*1 YTIS: Yanmar Technical Information System (in Japan) e-claim: overseas warranty handling system

2 Ministry of Land, Infrastructure, Transport and Tourism, Ministry of Economy, Trade and Industry, Ministry of Agriculture, Forestry and Fisheries, etc.

#### Enhanced Response to Recall

In case an unexpected problem arises affecting products purchased by customers and action is judged necessary, Yanmar will swiftly implement appropriate actions, including the recovery, repair, inspection or replacement of products with customer safety and damage prevention as top priorities. In case of a recall, we shall notify the relevant organizations<sup>(#3)</sup> and disclose this information in recall notices in newspapers and on our website to ensure our compliance with the recall rules.

3 Ministry of Land, Infrastructure, Transport, and Tourism, Ministry of Economy, Trade and Industry, Ministry of Agriculture, Forestry and Fisheries, the Japan Boating Industry Association, CPSC, EPA, etc.

#### Important News on Quality http://www.yanmar.co.jp/quality/info.htm

#### Number of recalls



\*\* MLIT Recall and Improvement Measures, product recalls based on the Consumer Product Safety Act, and the number of recalls notified to the CPSC

# We have established a firm relationship of trust with suppliers and dealers around the world.

#### Holding of the Yanmar Convention

The Yanmar Group holds the Yanmar Convention every year to encourage efforts to share ideas, directions and product information with dealers throughout the country and reinforce relationships of trust with them.

The Yanmar Construction Equipment Convention was held at Marine Messe Fukuoka, Fukuoka city, on July 9, 2008, and 450 participants, mainly rental contractors, attended the convention from 19 countries. The Yanmar Agricultural Equipment National Convention was held at Kobe Portopia Hotel, Kobe city, on January 19, 2009. The first part was a presentation of the new company Yanmar Agricultural Equipment Sale Co., Ltd, established by merging 10 sales companies in December 2008, and in the second part, with the upcoming merger with Yanmar (Feb. 21), the participants vowed to achieve further "evolution" under the slogan "Let's combine all the forces of the Group and advance even further with Yanmar always being the customer's choice".

#### Report

Yanmar Marine National Convention — a Great Opportunity to Renew Our Commitments towards Our Dealers

Akihiro Katayama Planning Group, Domestic Sales Management Dept. Yanmar Marine System Co., Ltd.

The Yanmar Marine National Convention 2008 was held at Hotel New Otani Osaka on October 1, 2008. Under the slogan of "Establishment of a customeroriented business model," specific examples of "proposal-type business models" employed by Yanmar Marine System's sales offices and dealers were presented. All participants in the Convention renewed their commitment.

During the Convention, the new 6CXB engine model was also introduced. Other new boat models including the Hunt24 were shown at the Yanmar New Boat Presentation held at the New Nishinomiya Yacht Harbor on the 2nd and 3rd of October.

Yanmar Marine System is determined to continue providing our customers with products and services that satisfy them.



Yanmar Marine National Convention

#### Communication with Overseas Agents

Yanmar Group holds product exhibitions in various parts of the world every year to allow as many people as possible to get to know our products and boost ties with dealers. Distributor and Dealer Conventions are also held to promote the introduction of new products and the exchange of notes among participants in order to vitalize communication among dealers.

Report



Hua Min Manager, Sales Dept. Yanmar Agricultural Equipment (China) Co., Ltd.

The 12th China International Agricultural Machinery Exhibition was held on October 26 and 27, 2008. 1,816 companies in and outside China participated in the Exhibition, and over 100,000 people visited the venue daily, which reaffirmed the current and future potential for growth of the Chinese market of agricultural machinery.

Tractors, diesel engines, power generators, rice and wheat harvesters, paddy rice transplanters, and vegetable harvesters were on display throughout an impressive area of 135,000m<sup>2</sup>. Among these, the Ee60 combine for two-lane harvesting and designed particularly for use in mountainous areas drew much attention. Some 800 units have been sold in China since its launch in 2006.

During the Exhibition, Yanmar received the support of 40 dealers from the Henan Province. Their professional sales staff provided excellent high-quality services to visitors, helping us successfully conduct the exhibition.



China International Agricultural Machinery Exhibition

## Yanmar Communicates with Suppliers in and outside Japan in Various Ways to Deepen Mutual Understanding.

#### **Fundamental Purchase Policy**

The Yanmar Group ensures thorough compliance with "value, quality and delivery time," the basic functions of procurement service, on a global level and with strategic group-wide purchasing. We also collaborate with suppliers in environmental conservation efforts and other activities in order to meet social needs from a long-term standpoint.

#### Reinforcement of Partnership

From a long-term perspective, we promote the deepening of mutual understanding and trust with suppliers.

#### Stable Supply

We audit suppliers in terms of equipment capability, personnel reinforcement, productivity improvement and supply from overseas bases, provide the necessary instructions concerning those matters, and promote partnerships with suppliers to ensure the stable acquisition and timely delivery of materials and parts from those suppliers.

#### Quality Assurance

We aim to ensure the appropriate quality of parts delivered by suppliers by taking various actions, including quality audits and guidance to suppliers, a quality committee, the initial stable management of new products, and implementation of the Quality Priority Management System<sup>\*</sup> and Quality Control Excellent Plant Certification System.

\* Quality Priority Management System: System to provide special quality instructions every year to suppliers with low-rated quality evaluations.

#### Cost Reduction

We set up cost targets and target cost reduction with this in mind.

#### Legal Compliance

We comply with social norms, laws, regulations, and their spirit and ensure thorough compliance with security protection.

#### **Purchase Policy Briefing**

One of these ways is a Purchase Policy Briefing session held every year for our major suppliers at the beginning of the year at seven locations in Japan to explain the policies for the entire year and for the mid-term. In February 2009, based on the prediction that the present severe market conditions would last at least for two more years, two-year cost reduction targets were determined. In order for the entire Group to fulfill these targets, suppliers are encouraged to propose various ideas for cost reductions and help us together make a difference in terms of improvements of product functions, sharing of parts, and enhancements of productivity.

#### Supporting Suppliers' Effort for Improvement

The Procurement Dept. of the Yanmar Group selects certain of our domestic and overseas suppliers from the viewpoints of value, quality and delivery time every year and provides instructions for improvement.

Since 2007, we have been promoting YWKS activities\* to enhance the constitutional improvement of suppliers and reinforce partnerships with them. In 2008, 19 suppliers were invited to participate in these activities to make efforts for "quality improvement," "productivity enhancement," and "inventory reductions."

\* YWKS stands for Yanmar Way by Kaizen with Suppliers, which is an extended version of YWK activities to include suppliers. YWK (Yanmar Way by Kaizen) activities are ongoing improvement activities conducted by the Yanmar Group and specifically include efforts to reduce defect ratios and achieve lead time and production cost reduction at 6 divisions and 17 plants in Japan.

#### **Green Procurement**

#### Reinforcing the Green Procurement System

Since the establishment of the Yanmar Green Procurement Guideline in April 2003 (revised in December 2006), we have been promoting the procurement of safe parts and components designed and produced in an environmentally-friendly way while collaborating with our suppliers at various parts of the world. In November 2006, we formulated the Regulations on Restrictions of Use for Environmental Hazardous Substances to identify substances which we should voluntarily refrain from using.

In selecting suppliers, we prioritize transactions with suppliers enthusiastic about environmental conservation activities with an established environmental management system in addition to such evaluation items as value, price and delivery time. With the Procurement Dept. of the head office as the main player, we hold briefing sessions to the management of all suppliers to request their cooperation with a green procurement survey and green procurement.

#### Survey for Parts and Materials

We check materials and parts provided by suppliers for substances banned by our guidelines.

In 2008, we started putting chemical substance content information from suppliers into a database to establish the Product Content Chemical Substance Management System for the integrated management of these substances. We promote the internal disclosure of information on chemical substances contained in Yanmar products.

#### Green Procurement Guideline :

http://www.yanmar.co.jp/aboutus/env/green\_01.htm

# Yanmar devotes its energy to nurturing personnel capable of working on a global scale while standing in the customer's shoes.

#### Human Resources Vision

In order for Yanmar to survive amid competition on a global scale, we need to "strengthen" not only our products but also our organization and individual employees. Based on this understanding, we formulated visions from the viewpoint of organization and personnel and apply these to actual management.

#### The Vision for Personnel (Acquisition and Fostering of Human Resources)

- (1) We have professional human resources capable of working on a global scale; regardless of nationality, gender or age.
- (2) We operate a career development program that can swiftly foster human resources for future management positions.
- (3) We promote personnel exchange in the Yanmar Group, including overseas, in order to make effective use of the group personnel.
- (4) We have in place a system that allows us to respect the plans, desires and intentions of each individual employee in terms of personnel development and assignments.

#### The Vision for Mechanism (Personnel and Treatment System)

- (1) We fairly evaluate the achievements of individuals and the company and convincingly allocate the results.
- (2) We have a system in place that allows high-achieving employees to enjoy above level compensation in the industry.
- (3) Long-term employment is the basic pattern of employment in principle, and measures are available that help each employee lead a career life that matches his/her respective lifestyle.

#### The Vision for Organization and Functions (Organizational System and Business Operations)

- (1) We have an organizational system based on mission management, to ensure full awareness of the target direction of each business by all employees, and have clearly defined the duties and roles for all employees based on each mission.
- (2) We have a simple and efficient chain of command in place, conduct appropriate delegation of authority, and can engage in swift decision-making.
- (3) We have clearly defined core operations in each division in order to ensure the implementation of business operations with a small organization and a small group. Non-core operations are actively outsourced.

#### **Global Talent Development**

When a company faces ongoing challenges in terms of operation and management, the lack of concentration on human resources development directly results in the loss of power for evolution. Now, when the entire Group is seen from a global viewpoint, we realize the increasing demand for personnel. To meet such demand, we intend to provide fair learning opportunities and appropriate educational environments in all business fields including overseas companies, and impart the capabilities of an innovative mindset to each employee. We support the Group-wide structure for capability development in order to foster personnel who are eager to take on all challenges and play important roles in global businesses. We provide education and training to our employees to help them become better persons with wide frames of reference, by providing training on fundamental skills and imparting business knowledge and know-how so as to ultimately strengthen manufacturing capabilities.

#### Development of Human Resources Capable of Standing on Their Own with Customers' Viewpoints Always in Mind

We are engaged in the development of human resources who can motivate themselves to enhance their capabilities as well as help their customers solve problems in order to achieve successful results. We provide various opportunities for capability development such as "engineer (basic) education," "selective workshops ('Challenge Seminars')" and "correspondence education," particularly to those employees who "are determined to learn by themselves" and "want to enhance their capabilities and performance for greater contributions to customers."

#### Nurturing of Human Resources Active in Global Businesses

To promote the 'globalization' of our personnel, we emphasize specialized training, such as that designed to improve practical English capabilities centering on conversation skills and international business skill training ("English business writing classes" or "training for presentations and negotiations in English"). We also continue to reinforce our training programs for employees assigned to overseas sites (such as problem-solving or overseas risk management training), and support our employees stationed in foreign countries to help them swiftly adapt to working and living in foreign countries. We are continuously committed to strengthening our education and training for global players.

#### Development of Human Resources for Future Managerial Positions

We provide learning opportunities for improvement of management capabilities such as the Yanmar Management School to help our employees who are destined to play pivotal roles in management positions in the future. To further help them serve as global leaders, we support capability development such as communication with and leadership for foreign employees. We will increase learning opportunities to help employees acquire in-depth knowledge on management from a global viewpoint.

# Flexible Systems Available for Respect for Employee Diversity.

#### Listening to the Employees' Voices

We conduct an employee awareness survey as a means of listening to their voice. The way in which employees' awareness varies over the years is monitored and analyzed in our survey concerning employees and their feelings of happiness or burden against "work," "workplace," "superiors" and the "company"; issued once every three to four years via the intranet in a questionnaire format. Analysis of the results is used to develop measures to revitalize the organization and workplaces.

#### **Employment of Personnel**

Yanmar employs capable people in various ways based on the objective of "acquiring professional personnel who can work globally, regardless of nationality, gender or age." Two types of employment patterns are used, namely graduate recruitment and mid-career recruitment. In recent years, the emphasis on diversity management that respects individual diversity has encouraged us to hire more foreigners and more women for main career tracks. As of May 20, 2009, Yanmar alone, on a nonconsolidated basis, had 3,398 employees, with a malefemale employment ratio of 88.3% (3,000) versus 11.7% (398).

 Man-woman employment ratio (as of May 20, 2009) (Yanmar Co., Ltd.)



• Man-woman graduate recruitment ratio for 2008 (Yanmar Co., Ltd.)



#### Diversity and Opportunity

#### Supporting a Balanced Life between Work and Family

Yanmar develops and improves employment environments to help stabilize the careers and family lives of employees who raise children or take care of aged parents by providing a recently revised child nurturing and nursing care system, a female employee reemployment system intended for former woman employees who quit due to marriage or childbirth, and more.

#### • Systems introduced and users (Yanmar Co., Ltd.) (Units: persons)

Sustem	Number of users								
System	2004	2005	2006	2007	2008				
Child-care leave	16	20	22	21	26				
Family-care leave	0	0	2	1	1				

#### Promotion of Employment of the Physically Challenged

As of March 2009, the physically-challenged employment ratio is 1.62% (Yanmar Co., Ltd.), 7 persons short of the statutory level of 1.8%. Therefore, we are making a group-wide effort to attain the statutory physicallychallenged employment ratio. Recruitment activities are implemented at employment bureaus as well as in conjunction with graduate recruitment activities; including visits to schools or participation in briefing sessions. After employment, physically challenged employees have the opportunity for consultations in the third year in the case of graduate recruitment, and the second or third year in the case of mid-career employment, as well as consultations with the newly employed to help them stay with the company.

#### Reemployment of Older People

An over-60 re-employment scheme for hiring people 60 and older, has also been put in place to promote the propagation of technical expertise and help workers achieve post-retirement stability.

#### **Respect for Human Rights**

Yanmar holds workshops with internal and external lectures for new employees as well as younger and midcareer employees, sends these young employees to external workshops, and makes educational texts available via internal publications to create bright working environments where human rights are respected. In addition, we utilize morning meetings and in-house bulletin boards to impart the importance of human right to employees. In the Shiga Zone, Yanmar is a member of the Shiga Corporations Coordination Meeting on Antidiscrimination and, as a managing member, is actively engaged in educational activities to promote antidiscrimination in other member companies.

## We are taking various actions to ensure the health and safety of our employees.

#### **Promotion of Health Improvement**

#### Health Management and Promotion Committee

The Health Management and Promotion Committee is formed by the members of the labor union engaged in the health insurance union, personnel and labor affairs sections, General Affairs Dept. of the Power System Operations Division, and General Affairs Dept. of the Large Power Products Operations Division. The Committee consults on and promotes various healthrelated matters such as periodic medical checks and measures to mitigate "metabolic syndrome."

#### Health Control

Yanmar conducts a periodic medical check for all employees every year. We also provide a medical check for adult disease prevention for employees aged 30, 35 and over 40 as well as optional checks when requested. As a result of these checks, those diagnosed as having metabolic syndrome are qualified to take specific healthcare guidance at their request or by appointment of the company since 2008.

In addition, we focus on the healthcare of overworked employees. For example, hard-working employees whose overtime exceeds 100 hours a month or whose average overtime in three months exceeds 80 hours are qualified to see industrial medical advisors, and are recommended to undergo adult disease checkups as required.

#### Mental Healthcare

Mental healthcare training is conducted as part of managerial worker training and rank-specific training curriculums (such as newly appointed key job training or upper supervisory job training). We also host a lecture by an industrial medical advisor at the head office once a year. In addition, we provide a variety of information on mental health, including the placement of mental health information on group bulletin boards and references to mental health consultation services, in order to prevent the occurrence of mental diseases.

#### Labor-Management Relationship

Yanmar maintains a stable relationship with the Yanmar Labor Union and engages in periodic negotiations and discussions on employee working conditions. We also have the opportunities to explain and discuss the financial conditions of the company by holding meetings to explain the corporate condition and other labormanagement meetings.

#### **Occupational Health and Safety**

The Yanmar Group has an occupational health and safety committee at every production plant to fully ensure the health and safety of workers. Each plant maintains and reinforces their occupational health and safety management by conducting health and safety patrols and other activities under the direction of the Occupational Health and Safety Committee. The status of safety management of each plant is reported to the head office in monthly occupational hazard reports. These reports are used to improve employee awareness and to prevent the recurrence of accidents through measures such as the in-house disclosure of report information and the incorporation of the lessons learned into education and training programs. Since the working environment differs from plant to plant, each plant utilizes its own management system.

#### Occupational Hazard Statistics



\*\*Frequency: Fatalities or injuries per one million working hours \*\*Subject period: From January 1, 2008, to December 31, 2008 \*\*Two companies were added in FY 2007, namely Yanmar Casting Technology Co., Ltd. (casting) and New Delta Industrial Co., Ltd. (fabrication and assembly). Because of the impact of the disasters that occurred (number of injured) at these two companies, the accident occurrence ratio of the entire group was eventually pushed up.





Inspection in Yanmar's Biwa Plant

## Yanmar engages itself in various activities to make contributions to our society for the Earth, local communities and children.

#### **Social Contribution Activities**

#### The Revitalization of Agriculture

#### Yanmar Student Essay Contest

Since 1990, Yanmar has been annually holding the "Student Essay Contest" to create a forum of thinking and discussion with young people concerning the future of agriculture and rural areas. There are many universities that traditionally take on our essay contest as part of seminar activities or many agricultural colleges that incorporate the essay contest as part of their curriculums. We receive many proposals and recommendations from those young students. For the 19th Student Essay Contest based on the theme of "Agriculture Changes and Agriculture Responds. Now Lay the Groundwork for the Future. 'Food' that Nurtures Life, 'Agriculture' that Produces Foods, and 'Farming, Mountain and Fishing Villages' that Protect the Environment," we had 485 entries, including 115 theses and 370 essays from 81 universities and schools in Japan. The grand-prize winner in the thesis category was Keita Sawaguchi, Graduate School of Kyushu University, who wrote a thesis on "Is the Pen Stronger Than the Spade?" The grand-prize winning essay was "Change of Mind" written by Nanae Yoshimitsu, Agricultural Department, Oita Prefectural College of Agriculture.



19th award ceremony

#### Children's Picture Exhibition

Yanmar provides support for a children's picture exhibition entitled "Countryside Paddies and Streams" sponsored by the National Federation of Land Improvement Associations (National Midori Net). The 9th exhibition held in 2008 received 12,411 entries, and as a result of a five-day screening process, 22 prize winners, 110 entries and 60 group prize winners were selected.

The Yanmar Prize went to a picture drawn by Ayumu Kurokawa, a 6th grader from an elementary school in Chiba prefecture, titled "Threshing in Terraced Paddy Fields." Awardwinning and selected pieces were on display at the venue of the Midori Experience Event 2008 held in the underground mall of the Shiodome Shiosite, Tokyo, from October 29 to November 3, 2008.



"Threshing in Terraced Paddy Fields" by Ayumu Kurokawa, Chiba Prefecture

#### Support for Sports

• Supporting the activities of Cerezo Osaka (J league) Yanmar supports the activities of the Cerezo Osaka J League professional soccer team as an operating

organization for the team together with Osaka's local administrations and leading companies as part of our effort to help promote sports culture in the local community. Cerezo team members contribute to the growth of athletic activities by holding soccer lessons at local elementary schools, and by participating in events and other types of community interaction.



Cerezo

#### Foundation Activities — Education Support

Yanmar's first president Magokichi Yamaoka established the Yamaoka Education Foundation in 1950 to develop human resources capable of contributing to world peace and prosperity and cultural improvement. Magokichi's commitment to this project has been passed down through successive generations, and even after 59 years since its establishment, the Foundation still makes scholarship grants and loans available to high school, college and university graduate students as well as foreign exchange students. So far over 5,000 people have received these scholarships and moved on to perform active roles in various fields. In 2008, scholarships were granted to a total of 115 students including 44 graduate students (including 12 foreign exchange students), 44 college students, and 27 high school students.

#### Scholarships Granted in 2008

		(Unit: Perso	ons/¥1 million)
С	lassification	No. of Students	Amount
0 1 1		44	37
students	(Japanese students)	32	23
otadonto	(Foreign students)	12	14
College st	udents	44	16
High scho	ol students	27	3
	Total	115	56

#### **Topics**

Yanmar supports the Biodiesel Challenge Project, an attempt to drive around the world using biodiesel.

Yanmar provides diesel power generators to the Biodiesel Challenge Project initiated by photo journalist Shusei Yamada. In 2008, Mr. Yamada drove through North Africa, Europe, Central Asia, and Russia and safely returned to Japan on December 1, 2008. The total traveling distance covered during the Project was 47,853 km. He was provided with used vegetable oil in various parts of the world, produced fuel in his car over 150 times, and successfully covered the entire distance using only biodiesel fuel. Mr. Yamada visited the head office of Yanmar on January 30, 2009, and talked about the hardships he experienced in gathering and refining used vegetable oil on his way, the warm friendship and communication with people going beyond racial barriers, and the high levels of reliability and durability of Yanmar's generators that made a good showing in emergency situations.



Shusei Yamada treats fuel with the biodiesel refining unit.



#### **Topics**

Yanmar donated construction machinery for the construction of a park that helps conserve the environment and contributes to the betterment of local communities.

Construction of the Izumisano Hills Green Park is ongoing under the slogan "Creating Green Areas Jointly with Osaka Citizens" in the southern part of Osaka Prefecture. This project is being pursued as the concerted effort of prefectural citizens and corporations to create a park that promotes



Executive Vice President Hatayama receives a certificate of appreciation from Governor T. Hashimoto

environmental improvement and environmentally friendly living for local people. Supporting the project as one of the corporate groups rooted in the Kansai district, Yanmar donated a compact Vio20-3 hydraulic excavator, a C12R crawler carrier, and a G2400-6LE power generator for construction of the park on January 13, 2009. In response, Osaka Governor, T. Hashimoto, issued a certificate of appreciation to Yanmar on March 27. The

park is going to be a place of natural amenity and pleasure for prefectural citizens where a variety of natural habitats coexist including woods, bamboo forests, terraced paddy fields, and flower nurseries as the work continues.

Vio20-3

excavator

mini hydraulic

#### **Relationship with Society**

## Each of the Group companies is engaged in social contribution activities deeply rooted in each locality.

#### **Voluntary Activities**

Yanmar helps local communities enhance their societies by participating in voluntary activities that include cleaning projects. Such activities help increase the awareness of environmental importance.

Participating in the All-out Lake Biwa Cleaning (Power System Operations Division) We participate in the all-out cleaning of Lake Biwa held annually on the Day of Lake Biwa (July 1), designated by Shiga Prefecture, and gather refuse and litter scattered on the lakeside.



All-out Lake Biwa Cleaning

#### Holding the Cherry Blossom Festival in the Company's Garden (Kanzaki Kokyu Manufacturing Co., Ltd.)

Kanzaki Kokyu Manufacturing annually opens its garden to the public during the cherry blossom season, and invites local residents through their respective residents' associations as well as the residents of local homes for the aged to deepen communication with local people.

#### Participating in the 100,000 People My Hometown Cleaning Movement (Large Power Products Operations Division)

We participate in the 100,000 People My Hometown Cleaning Movement, held annually all around the city of Amagasaki, and gather refuse, empty cans, fallen leaves and other litter from around the plant.



Clean Movement



Cherry Blossom Festival

Yanmar actively provides support to disaster-stricken areas and conducts environmental conservation activities outside Japan.

#### Social Contribution Activities in Foreign Countries

#### Support for the damage by the largescale earthquake in Sichuan, China

The major earthquake that occurred in Sichuan, China, on June 4, 2008, was a devastating natural disaster that took almost 70,000 lives. Aware of the agony that survivors and local residents are experiencing as they suffer shortages of electric power and continuing aftershocks, Yanmar Engine (Shanghai) Co., Ltd., a local Yanmar corporation in China, donated 100 portable power generator sets to China's Red Cross. The donated generators were sent to the afflicted area by the Red Cross to help local people in their restoration efforts.



An appreciation letter from the Shanghai Red Cross

#### Environmental Conservation Activities of Yanmar Agricultural Equipment (China) Co., Ltd.

Yanmar Agricultural Equipment (China) Co., Ltd. started cleaning ErMaoshan mountain-climbing Road (an approximately 2 hour return journey on foot) adjacent to Wuxi Municipal Xihui Park, in May 2008. In 2008, some 100 employees and their families including the president participated in this activity intended to contribute to the betterment of the local community and enhance employees' awareness of the environment.



Cleaning activity on the mountain trail

#### Support for the Cyclone Damage in Myanmar

On May 2, 2008, a powerful cyclone occurred in the southern part of Myanmar and wreaked great havoc. Yanmar immediately informed the Office of the United Nations High Commissioner for Refugees (UNHCR) of its intention to donate power generators, learned that there was great demand in the damage-stricken area in Myanmar for power generators, and swiftly arranged the donation of 62 power generator sets to the afflicted area via the UNHCR. As a result, rescue activities were considerably improved, and the UNHCR presented a letter of appreciation to Yanmar on August 26, 2008. At present, Yanmar's power generators are being used in local restoration activities at 13 sites in Myanmar.





Letter of appreciation presented to Yanmar by the UNHCR (top) Power generator sets sent to the cyclone-devastated area (lower left and right)



## The Yanmar Group is pursuing the 2012 Environmental Vision as a milestone of the centenary of our foundation to ensure thorough Group-wide implementation of environmental management.

#### **Policies for Environmental Activities**

Our society is still facing a variety of serious problems, including global warming, the depletion of resources, the destruction of nature, and environmental pollution. True to its founding spirit of a "Grateful to serve for a better world" Yanmar has been engaged in environmental conservation activities ever since the company was established. In 1995, we established the Yanmar Global Environmental Charter, and all of Yanmar's production facilities obtained certification for the ISO 14001 Environmental Management System standard in 1998. In these ways, Yanmar is making steady and continuous progress in its efforts to reduce environmental load.

In 2002, Yanmar updated its Yanmar Global Environmental Charter, creating the Yanmar Group Global Environmental Charter to further promote environmental awareness in the management philosophy of the Group as a whole.

	Yanmar Group Global Environmental Charter
Environmental Philosophy	The Yanmar Group aims to contribute to the sustainable development of society by constructing a harmonious relationship between group development and the needs of the global environment.
Action Guidelines	<ol> <li>We position environmental conservation as one of the most important management objectives of the Yanmar Group for the purpose of Group-wide environment management.</li> </ol>
	2. We strictly observe the laws of all countries and the ordinances and regulations of all districts where we conduct production activities, and when necessary, establish voluntary environmental regulations in order to achieve superior levels of environmental conservation.
	<ol> <li>The Yanmar Group Global Environment Committee establishes environmental promotion guidelines and disseminates them throughout the Group to achieve an overall promotion of environmental conservation by the Group.</li> </ol>
	4. We actively disseminate environmental conservation information internally and externally to promote the understanding of Group companies and partners about the need for cooperation in the efficient promotion of environmental conservation activities.
	5. We promote effective measures systematically and on a continuous basis in the following four environmental fields:
	The establishment of technologies that contribute to environmental conservation, and providing products and services that reduce environmental load.
	The reduction of environmental load in each stage of business activities.
	The joining of forces and cooperation with external parties to contribute to local communities and disseminate environmental information.
	The raising of environmental awareness among Yanmar employees, and the promotion of internal environmental education, lifestyle innovation, etc.
	(Revised March 2002)

#### **Environmental Vision**

Yanmar established the 2012 Environmental Vision to define goals to be achieve by 2012, the 100th anniversary of our founding. We never stop moving ahead with this vision as the common goal for the entire Group, working towards the realization of a sustainable society.



#### Second Environmental Mid-term Plan

Yanmar developed the Second Environmental Mid-term Plan (2006 - 2010) to achieve its 2012 Environmental Vision and has set 24 achievement goals in five domains of "Structure," "Environmental Management," "Business Operation," "Product Measures" and "Society." In the field of "Product Measures," we revised the product assessment regulation that incorporates environmentally conscious design into product development. Yanmar will further strive to promote and reinforce the life cycle assessment (LCA) in order to achieve these goals.

 $\bigcirc$  Target achieved  $\triangle$  Partly achieved (more than 70%)

#### \* Evaluated as group results except some items in 2008.

#### Targets of the 2nd Environmental Mid-term Plan (2006 - 2010) and the Status of Achievement

× Not achieved (less than 70%) Category 2008 Group Goals 2008 Group Results Transformation to a CSR Structure Publication of Environmental & Social Start of publication of CSR Report in 2008 Publication of CSR report  $\triangle$ Report Structure Participation of overseas affiliated companies, and expansion of Global Environment Meeting Expansion of the Global Environment Committee Promotion of activities of each site's Environmental Conservation Committee Implementation of Environmental Conservation Committee activities at each site 0 Start of the use of consolidated accounting in 2008 by domestic companies **Environmental Audits** Environmental compliance audit Auditing at 5 sites Environmental Performance Management Environmental accounting, risk management, preparation of internal environment report Establishment of the Environmental Information System Review of introduction × Koga Division of Yanmar Casting Technology Co., Ltd. and Yanmar Marine System Co., Ltd. to acquire certification Koga Division of Yanmar Casting Technology Co., Ltd. and Yanmar Marine System Co., Ltd. acquired certification (Domestic and overseas) Production companies: 100% Fnvironmen Acquiring ISO 14001 Environmental Certification Management Non-production companies: 50% or more Establishment and implementation of environmental education system based on hierarchy Execution of Environmental Education  $CO_2$  emissions: Reduction of 5% or more (compared with 2005) Reduction of Gases Causing Global Warming CO<sub>2</sub> emissions: Reduction of 3% or more CO<sub>2</sub> emissions: Reduction of 23.3% (compared with 2005) 0 (compared with 2005) Reduction of Energy Consumption Reduction of 3% or more (compared with Reduction of 5% (compared with 2005) 23.5% drop (compared with 2005) 0 2005) Reduction of 15% or more (compared with 2000) Water consumption: Reduction of 20% Resource Savings 29.3% drop (compared with 2000)  $\cap$ (compared with 2005) Banning of the use of statutorily controlled Implementation of content survey, and operation of management system for Survey to verify the content of environmentally burdensome materials substances Reductions in the use of voluntarily controlled  $\triangle$ Elimination of Materials That Produce Environmental Load environmentally burdensome materials substances (See p. 34) Business PRTR substances: 30% reduction (compared with 2001) PRTR substances: Reduction of 15% or more (compared with 2001) PRTR substances: 8% drop (compared Operation × with 2001) Development of a PCB disposal plan and Disposal plan developed and PCB Treatment Disposal of PCB: disposal by 2016 0 application application filed Emissions: Reduction of 10% or more (compared with 2005) Emissions: 37.1% drop (compared with Emissions reduction of 10% Waste Reduction (compared with 2005) 2005) Paper Resource Savings Paper recycling ratio: 60% or more Paper recycling ratio: 66.8% Paper recycling ratio: 70% or more Promotion of Green Purchasing Eco office goods purchasing ratio: 60% Eco office goods purchasing ratio: 70% or Eco office product purchasing ratio:  $\bigtriangleup$ more 56.9% (Yanmar Co., Ltd.) Improvement of the Environmental Performance of Products Advance compliance with clean emission regulations Advance achievement of clean emission regulation Advance achievement of clean emission regulations Operating efficiency: 20% or more (engine thermal efficiency: 5% or more) (compared with 2005) Improvement of Energy Efficiency Environment Coordination Design  $\bigtriangleup$ Implementation of LCA for all new products Test trials by Development Dept. Selection of models by Development Dept. Banning of the use of statutorily controlled Survey to verify the contents of environmentally burdensome materials Elimination of Materials That Balling of the base of the substances Reductions in the use of voluntarily controlled substances (See p. 34) Green procurement survey conducted  $\bigtriangleup$ Product Produce Environmental Load easure Inclusion of information on the environment, recycling, and waste disposal in instruction manuals Provision of Environment-Related Information Development of Ecologically Friendly Products Development of products with Environmental Label II Reducion of Environment Burden at Time of Product Disposal Research and improvement of product disposal processes Cleaning of plant vicinity, My Hometown Cleaning Movement, "Cherry Blossom Festival" garden opening, summer festival, "All-out Lake Biwa Cleaning," etc. Local voluntary activities: consistently 5  $\cap$ Voluntary Activities Local voluntary activities: 5 or more or more Social Communication with Local Social gatherings with local residents: 1 Contribution Participated in local events Holding of social gatherings: 1 or more Residents or more Promotion of Tree and Flower Planting Increase in trees planted Conducted tree planting activities Promotion of tree-planting

# Yanmar is engaged in the advancement of environmentally friendly techniques in all product fields.

#### **R&D** with Foresight

The Yanmar Group has been consistently involved in the advancement of the environmental friendliness of all of our products, namely, the development of engines with cleaner emission and lower noise and vibration levels. We contribute to the development of a recycling society by pursuing and providing products that help reduce environmental load.

#### R&D (Abstract)

Field	ltem	Description						
E t		Improvement of engine combustion						
technology	Low emission	Electronic control technologies						
leennology		Emission gas post-processing equipment						
	Improvement of system	Coolant cycle technology						
	efficiency	Control technologies						
	Gas engine for GHP	Combustion, emission post-processing and engine control technologies						
System technology	Reduction in engine fuel consumption	Improvement of combustion, loss of air intake and discharge, etc.						
	Low vibration and noise	Advanced vibration and noise control technology, structural optimization technology						
	Utilization of new forms	Biodiesel fuel utilization technology						
	of energy	Power generation using wood biomass						
Agricultural technology	Ecology and economy Easy operation	I-HMT (Integrated Hydraulic Mechanical Transmission)						
	Planting and harvesting technology	Planting and harvesting acceleration technology						
Applied Technologies	Construction equipment, distribution equipment, transmissions, marine products and environmental fields							

#### Introduction of LCA

The Yanmar Group is introducing LCA (Life Cycle Assessment) that quantitatively ascertains the effects on the environment of a product throughout its entire lifecycle, as well as from the standpoint of the procurement of raw materials, production, transport, distribution, use and disposal of the product.

The creation of numeric data reflecting the effects on the environment requires the accumulation and analysis of the necessary data for assessment from all related processes, namely from the design to production stages. We applied LCA to the tractors in FY2007.

In the future, we will apply LCA to our major representative products such as backhoes, GHPs, rice transplanters, combines and boats.

# Development of Environmental Technology

Yanmar takes on the challenge of further refining environmentally friendly technologies for our products to help create a recycling society. Specifically, our efforts in the area of cleaner engine emissions focus on the development of elemental technologies for emissions to cope with the emission regulations of a variety of countries around the world that are becoming stricter every year, resulting in compliance with the third and intermediate fourth EPA regulations. For marine engines, Yanmar became the first domestic manufacturer to acquire expert evidence for the second emission regulations of the IMO Agreement in May 2009.

For removal of environmental load substances, the original target of "total disposal by 2008" was revised based on the actual results of the effort.

For substances banned for use (controlled substances), we ban their use in products. For voluntarily controlled substances, we establish in-house application standards and promote the systematic elimination of these substances.

#### Legally and voluntarily controlled substances

Substances banned for use	Asbestos, specified chlorofluorocarbons, triethanolamine, polychlorinated biphenyls (PCB), polybrominated biphenyls (PBB), polybrominated diphenylether (PBDE)
Substances voluntarily controlled by Yanmar	Lead and its compounds, mercury and its compounds, cadmium and its compounds, and hexachromium and its compounds

#### Labels Indicating Product Environmental Information

The Environmental Label is intended to inform the market of the environmental aspects of a product or service, and serves as a judgment criterion for customers when selecting a product. ISO 14020 sets the standard for three Environmental Labeling schemes: Type 1 labels are awarded to products by a third party based on their predetermined standards. An example is Japan's Eco Mark. Type II labels are based on a manufacturer's self-declared claim about a product's environmental performance and are therefore called "selfdeclared labels." Type III labels provide environmental data quantified based on the LCA method, and it is up to the purchaser to decide how to judge the information.

The Yanmar Group plans to develop products for Type III labeling.

# Reduction of Environmental Load from Product Disposal

Environmental consideration is incorporated into our products from their design stage so that the products can be easily disassembled, and the disassembled parts easily recycled. In the design and development stage, factors related to the dismantling and recycling performance of a product are quantified as numeric values, and targets are set based on these values. Those targets allow us to minimize the environmental load of products as well as the parts or materials that constitute the products when they are disposed of. We will promote the further investigation of how products are disposed of in order to achieve greater improvements in this area.

#### Yanmar's Environmentally Oriented Products

#### Industrial Engines

#### Complying with the Emission Regulations of Various Countries around the World including EPA-Tier 4 of North America

#### MINIMAX Series

#### (Vertical Water-cooled Diesel Engines)

This is a compact diesel engine designed using the concepts of "ultra compact and high performance," "low noise and vibration," and "environmental friendliness." This engine covers a power output range from 6 to 17 kW, and is intended for the compact power generator and lawn mower market. Due to the use of a ladder-frame



structure, introduced to Yanmar products for the first time, this series features a reduction in noise of approximately 2 dB (A). In addition, compactness (power density\*1) has been increased by approximately 10% in comparison with existing models.

\*1 Power density = maximum output / packaging volume

#### **Topics**

#### Compact Horizontal Water-cooled Diesel Engine Type HB and Others Certified as Heritages of Industrial Modernization

The Heritage of Industrial Modernization is a scheme, initiated by the Japanese Ministry of Economy, Trade and Industry in 2007, which certifies buildings and machines that have supported the modernization of Japanese industry as heritages useful for local vitalization. In 2008, the second year of the scheme, over 500 facilities and items were selected. Among these are engines conserved by Yanmar that were

lauded as those among the "Additional 33 Heritages of Industrial Modernization in 2008" for their contributions to the growth of steam engines and internal combustion engines that supported a wide variety of industries including heavy industry, agriculture, forestry and fisheries.



Compact horizontal water-cooled diesel engine Type HB

#### The Field of Energy

Power Generation Efficiency of 34%, the World's Highest Level in this Class, Achieved

#### CP35VC (35 kW Micro Cogeneration System)

In November 2008, Yanmar launched the 35 kW Micro Cogeneration System. This product is fitted with technology of our own development, the high-efficiency lean-burn mirror cycle engine 4GPF 106 Type that optimizes ignition timing and matching in the combustion chamber. It features the world's highest level of power generation efficiency in this class, or 34%, thereby achieving improvements both in energy saving and economic efficiency.

As it allows for multiple operation of up to 16 units (power generation capacity ranging from 35 kW to 560 kW), this product realizes extremely high-efficiency operation for largescale users such as hospitals, welfare facilities, business hotels and factories by ensuring optimal unit number operation control with regard to changes in power demands at such large facilities.



#### R&D

#### Gasified Power Generation System Capable of Accepting a Wide Range of Biomass Wastes

Yanmar possesses a biomass-based power generation system that is fueled with sawdust which is then gasified to produce electric power. We are now developing a new system based on this existing system. The new system under development is capable of using various kinds of waste biomasses including waste wood chips and bark generated during the production of lumber, twigs and branches trimmed from street trees, rice husk ash, and agricultural residuals, producing thermally

decomposed gas, and supplying electric power and heat.

300 kW biomass gasification cogeneration system



#### Yanmar's Environmentally Oriented Products

#### The Field of Agriculture

#### Standard Combine that Realizes High Efficiency and Performance with a Builtin Threshing Unit

#### Soybean Combine GS380

Soybean Combine GS380, put on the market in 2008, is equipped with a new TNV engine (maximum output of 38 ps / 2,800 rpm) that complies with the second emission regulations. In addition, a newly developed "rolling type pipe concave" reduces the ratio of dirty beans by approximately 60% in comparison with our own existing machines, thereby realizing increases in yields of highquality beans.

Furthermore, the use of a new axial flow long rotor and weight-savings in the machine help the GS380 realize 1.2 times greater operational efficiency and 1.5 times greater



#### Home-use Mini Cultivator Featuring both Ease of Use and Environmental Friendliness

#### QT10e

This mini cultivator is the best choice for home gardens that are growing in number these days, satisfying "ease of use" and "environmental friendliness." As it uses a battery and a motor designed to be recharged with a home-use 100V power source, it eliminates troublesome engine maintenance, start-up operation, and fuel procurement,

and therefore is ready for use by mechanically challenged users. Use of a battery means that the cultivator has "zero emissions." In addition, a unique "rotor in motor" mechanism (motor and decelerator installed in the fork shaft) realizes an optimal weight balance by providing high operational efficiency and downsizing the motor output. Other environmentally friendly features include low noise (engine ratio - 20 dB) and zero waste fuel.

#### Construction Machinery

Complying with the Latest Emission Regulations in Japan, US and Europe

#### Crawler Backhoe SV100-1

The SV100-1 is equipped with a direct fuel-injection engine that complies with Japanese non-road special motor vehicle emission regulations, US EPA Tier-3 emission regulations, and Euro 3A regulations. Improved efficiency of the hydraulic system also realizes improved fuel consumption approximately 20% better than conventional machines. The SV100-1 is an environmentally friendly machine with lower CO<sub>2</sub> emissions, one of the causes of global warming. It also boasts excellent recyclability as steel is used for the bonnet and cover for ease of repair and reuse.

#### The Field of Marine Products

#### Family-oriented Boat with Excellent Environmental and Safety Performance

#### Hunt24 (Model: EF24AZ)

A complete diversion away from the conventional focus on fishing, the Hunt24 was developed as a product for family use.

Environmentally, the Hunt24 has better fuel consumption, or approximately two thirds that of gasoline outboards due to a newly installed four-stroke diesel engine. Use of a new technique that produces cabins and hatches using LRTM (light resin transfer molding) remarkably reduces discharges of VOCs (volatile organic compounds) into the air. Passages have been installed on both sides of the cabin for easy movement to the front deck. Safety performance has also been enhanced by installing handrails on the bow and the sides of the cabin.



#### Highest Class Output Engine with Environmental Friendliness

#### 6CXB-GT

This new engine is capable of providing the highest output in its class (363 kW: below 4.0 tons in tonnage category) while reducing fuel consumption by approximately 10% at the rated output, and remarkably lowering the smoke ratio (in comparison with existing engines). This business use engine also complies with the IMO II emission regulations (NOx emissions) to be applied in 2011.

To realize enhanced output, the major components of the engine, or crankshaft, cylinder block, and clutch, feature optimized strength and rigidity levels. In addition, the fuel injecting timing has been optimized with the use of a timer mechanism for low emissions, and the

geometry of the air supply and exhaust passages have also been optimized for reductions in fuel consumption. With these

innovations, the targets of high output, high reliability and low emissions have simultaneously been satisfied by this earthfriendly 6CXB-GT engine.



#### Topics

# Energy-saving Live Fish Tank (FS6000NA) Won the Chairman's Award of the Japan Machinery Federation

Yanmar's horizontal convection filtering live fish tank won the 2008 Japan Machinery Federation Chairman's Award. Live fish tanks are water tanks to keep fish and shellfish alive, and are used at local wholesale markets, fishery cooperatives and supermarkets in Japan.

Since live fish tanks have to operate circulation pumps on a 24 hours basis due to their structure, energy saving had posed a problem. The FS6000NA has incorporated various energy-saving techniques including the installation of an energy-saving circulation pump developed by us, and the use of an FRP insulated structure for the water tank and the water channel, thereby realizing power savings of more than 70% in comparison with the previous



**Environmental Report** 

# Yanmar is striving to reduce CO<sub>2</sub> emissions at our production sites for the prevention of global warming.

#### **Promotion of Energy Savings**

The Yanmar Group is reducing all kinds of energy used in production activities, including electricity and fuel, in order to tackle the challenge of contributing to the prevention of global warming.

The Yanmar Group has set a target of a 5% reduction in energy consumption and a 5% reduction in CO<sub>2</sub> emissions in unit requirements by 2010 in comparison with 2005.

In 2008, the Group undertook the challenge of reducing energy consumption in production processes and introducing high-efficiency equipment. Through this challenge, the Group was able to reduce energy consumption and CO<sub>2</sub> emissions in unit requirements by



## • Total CO<sub>2</sub> emission and CO<sub>2</sub> emission unit requirement (Yanmar Co., Ltd.)



#### Consumption of energy by type



#### Introduction of the Power Regenerator

In th. Zone, we introduced 7 power regenerating systems that recover power generated from durability tests of engines as electric energy, which can regenerate a maximum of 900 MWh of electricity per year and reduce CO<sub>2</sub> emissions by 346 tons.

In 2008, three power regenerating systems were introduced to the Amagasaki Plant to regenerate electricity produced in test operations, apply it as power for the operation of equipment, and the cooling fans of the load equipment formerly driven by commercial power

were shifted to regenerated electricity. The load equipment was also changed from conventional water tanks to a heater-equipped dry type, which resulted in is a 10% decrease in water consumption.



Power regenerator (Amagasaki Plant)

# Energy Saving Activities of the Group Companies

Being a member of the Team Minus 6%, a group organized for promoting the prevention of global warming, the Yanmar Group is engaged in varying energy-saving activities:

- Replacing lighting equipment with energy-saving types
- Promoting lights-out during lunchtimes and after hours
- Implementing "Cool Biz"
- Replacing cooling water pumps with inverter types (for adjusting water volumes through control of rotational speeds) (CO<sub>2</sub> reduction of 23 tons per year) [Amagasaki Plant]
- Introduction of recycling equipment for water-soluble cutting fluids [Amagasaki Plant]
- Replacing air-conditioners with energy-saving GHPs [Marine Operations Dept., Amagasaki Plant, Research & Development Center, Biwa Plant, Yanmar Agricultural Machinery Manufacturing, Yanmar Construction Equipment Sales]
- Replacing substation transformers with top-runner types to reduce transformation losses [Marine Operations Dept.]
- Recycling solvents used in coating processes through the introduction of automatic solvent recycling equipment (recovery and reuse of 78% of waste thinner) [Marine Operations Dept.]
- Energy saving by installing pneumatic piping dedicated to thermal processing [Kanzaki Kokyukoki]
- Energy saving by turning off substation breakers (VCBs) on days-off [Kanzaki Kokyukoki]
- Converting waste materials such as wooden pallets or packing wood boxes into bioethanol [Kanzaki Kokyukoki]
- Tanabata lights-out campaign (total lights-out in sites)
- Eco safety driving campaign

# Environmental Conservation in Distribution

#### Improvement of Shipping Efficiency

The Yanmar Group works with Yanmar Logistics Service Co., Ltd., which is in charge of product shipping for our Group, to promote the rationalization of distribution so as to realize Group-wide reductions in environmental loads.

The revision of the Energy Saving Act in April 2006 requires every merchant to put effort into saving energy. The Yanmar Group assigns Energy Saving Officers at Yanmar sites and transport companies to quantitatively check and monitor the distribution loads of the Group activities, including consigned distribution, and develops and promotes energy saving programs.

#### Promotion of Modal Shift

The Yanmar Group expedites "modal shift" that switches means of transport from trucking to freight trains and ships to reduce CO<sub>2</sub> emission from shipping activities.

#### Introduction of Low-emission Vehicles

The Yanmar Group is systematically shifting to lowemission vehicles such as low-emission gas or hybrid cars for company cars and sales personnel cars. The ratio of low-emission vehicles in FY2008 was 63.6%, and Yanmar continues to introduce more low-emission vehicles into its fleet.

#### Introduction of low-emission cars (Yanmar Co., Ltd.)



**Topics** 

# Yanmar won the highest environmental ranking consecutively for four years in the environmental rating of the Development Bank of Japan

In November 2008, the Development Bank of Japan (President Minoru Murofushi, DBJ) provided Yanmar Co., Ltd. (President Takehito Yamaoka) with financing employing environmental ratings in cooperation with Shiga Bank Ltd.

#### [Contents of Evaluation]

- True to its founding spirit of "Grateful to serve for a better world", Yanmar is determined to fulfill its social responsibility by getting involved in activities that aim at creating harmony between the society and the environment, thus enhancing the value of enterprise.
- Yanmar is helping users reduce environmental loads by providing environmentally conscious products that comply with the strict emission regulations of a variety of countries around the world.
- Yanmar is engaged in advanced undertakings toward the realization of clean alternative fuels including biofuels.
- Yanmar boasts high environmental performance as evidenced by a 7.7% reduction in CO<sub>2</sub> in unit requirements relative to the previous year.

The DBJ Environmental Rating is the world's first financing scheme to introduce the special technique of "environmental rating," which rates a company's level of environmental management using a screening system developed by DBJ, selects excellent companies and provides preferential interest rates in three stages of financing according to the rating.



In November 2008 the company received a Development Bank of Japan Ioan based on its being rated at the highest grade in DBJ's fourgrade environmental rating schedule: "companies with particularly impressive environmental programs."

## Yanmar is engaged in the formation of a cyclic society by promoting reductions and recycling of wastes, and the conversion of wastes into valuable resources.

#### Waste Reduction

The Yanmar Group is taking aggressive actions to curb the generation of waste from production processes and decrease the total amount of waste disposal by promoting the recycling of waste by type, converting the waste into material with value.

To ensure thorough separation of waste by type, employees are frequently informed of the importance of waste separation by a list of waste separation rules posted at necessary locations, including waste storage sites in plants, worksites and offices. Employee education programs are used to promote understanding. Efforts are also made to promote further recycling including the introduction of returnable pallets. Waste oil produced from plants is also converted into a valuable resource by using improved production processes that prevent foreign materials from mixing with the oil.

Other actions taken to reduce costs include the reuse of cardboard materials as valuable types and the recycling of shredded paper waste.

By 2010, we aim to achieve a 10% reduction relative to the 2005 level. In FY2008, we reduced waste generation by 37.1% in unit requirement.

• Waste production and unit requirement of waste production (Yanmar Co., Ltd.)





#### **Recycling of Abandoned FRP Boats**

It is difficult to dispose of FRP boats<sup>\*1</sup> because of their high strength, which is one of the reasons why the number of illegally abandoned FRP boats is increasing.

The FRP boat recycling system was started by the Japan Boating Industry Association upon acquisition of wide-area authorization by the Environment Minister in 2005. A total of 2,319 FRP boats during the four years from 2005 to 2008 were recycled. 1,152 of these, or 49.7%, were sunken or disabled boats including illegally dumped boats, the recycling of which is requested by local governments with grants from the Japan Foundation. 871 boats were general decommissioned boats recycled by their owners at their own cost.

Actively participating in this system, the Yanmar Group readily fulfills its role as an FRP boat manufacturer in terms of EPR\*<sup>2</sup> by promoting the appropriate disposal of FRP boats as part of our efforts to form a recycling society and prevent illegal dumping.

- I FRP boat: FRP (fiber reinforced plastics) greatly strengthens the body of a boat and generally ensures a durability of over 30 years. The fibers used are glass fibers or carbon fibers. FRP boats are made by molding FRP.
- \*2 EPR: extended product responsibility



#### Changes in the number of disabled FRP boats recycled

# Reduction in Water Resource Consumption

Our active promotion of the recycling of water for plants has allowed us to reduce water resource consumption by 29.3% relative to the standard level of 2005 in unit requirements, with approximately 123,266 tons of water consumed during FY 2008.

Water consumption and unit requirement for



- Unit requirement for clean water and industrial water consumption
- Unit requirement for water resources consumption

# Yanmar pursues the appropriate management and reduction of chemical substances to reduce environmental risks

# Legal Compliance and Prevention of Pollution

The Yanmar Group aggressively pursues the appropriate management and reduction of chemical substances according to applicable laws and regulations, including the PRTR\* Act, in order to avoid environmental risks associated with production activities. We annually submit reports on the amounts of PRTR-controlled substances emitted or moved with respect to our business activities.

All plants of Yanmar strictly practice the appropriate storage, management and notification of PCB-containing equipment, including capacitors, in accordance with the PCB Special Measures Act and the Waste Disposal Act.

#### No. of PCB equipment items at Yanmar Co., Ltd. plants

Div.	Shiga Zone	Amagasaki Plant	Tsukaguchi Plant	R&D Center	Head Office	
PCB equipment items	943	204	0	0	0	1,147

#### • No. of PCB equipment items at Yanmar Group companies

Company name	Yanmar Agricultural Machinery Manufacturing	Seirei Industry	Kanzaki Kokyukoki Mfg	Yanmar Energy System	Yanmar Construction Equipment	Matsue Div. of Yanmar Casting Technology	Koga Div. of Yanmar Casting Technology	New Delta Industrial	
PCB equipment items	2	427	54	88	0	2	23	1	597

## , in accordance with the We continue to pursue and use alternative materials

2001.

Emission

instead of substances that have been controlled voluntarily, or through regulations.

**Reduction in Chemical Substance** 

The Yanmar Group is reducing the consumption and

environmentally-friendly products and reduce environmental risks. The amount of PRTR-controlled

emissions of PRTR-controlled substances and voluntarily

banned some substances as part of its effort to develop

substances used in FY2008 was reduced by 169 tons

relative to 2007. This consumption was an 8% reduction

in unit production volume relative to the standard level of



(Unit: ka)

#### • Yanmar's Consumption of Chemicals Covered under the PRTR Act

												( 3)
Reg. no.	Names of Chemicals	Yanmar Co., Ltd.	Yanmar Agricultural Machinery Manufacturing	Seirei Industry	Kanzaki Kokyukoki Mfg	Yanmar Energy System Mfg	Yanmar Construction Equipment	YMR Shipbuilding	Matsue Div. of Yanmar Casting Technology	Koga Div. of Yanmar Casting Technology	New Delta Industrial	Total
1	Water soluble zinc compounds	274	420	2,487	0	0	804	0	0	0	0	3,984
16	2-aminoethanol	5,558	0	0	0	0	0	0	0	0	0	5,558
25	Antimony and its compounds	0	0	0	0	0	0	0	1,564	2,665	0	4,229
30	Bisphenol A epoxy resins	104	0	408	0	0	0	0	0	0	0	512
40	Ethyl benzene	38,762	4,841	29,849	351	0	20,514	0	535	0	5,430	100,282
43	Ethylene glycol	833	74,438	6,270	0	82,000	0	0	0	0	0	163,541
63	Xylene	132,897	19,117	114,594	1,042	0	27,732	0	1,402	0	6,886	303,670
68	Chrome and trivalent chromium compound	0	0	0	0	0	0	0	270,969	50,450	0	321,419
69	Hexavalent chromium compound	28	0	0	0	0	52	0	0	0	0	80
100	Cobalt and its compounds	5	0	0	0	0	0	0	0	0	0	5
101	Ethylene glycol monoethyl ether acetate (acetate 2-etoxyethyl)	16	0	0	0	0	0	0	0	0	0	16
102	Vinyl acetate	24	0	0	0	0	0	0	0	0	0	24
113	1,4-dioxane	0	0	0	0	0	0	0	458	0	0	458
145	Dichloromethane (ethylene dichloride)	0	77	0	0	0	0	0	0	0	0	77
176	Organic tin compound	0	21	23	23	0	272	0	0	0	0	339
177	Styrene	0	0	0	0	0	0	95,993	0	0	0	95,993
224	1,3, 5-trimethylbenzene	2,307	2,336	2,339	0	0	1,846	0	142	0	0	8,969
227	Toluene	62,432	38,289	28,148	2,349	0	21,500	0	6,032	0	2,436	161,186
230	Lead and its compounds	74	0	0	0	0	298	0	0	0	0	372
231	Nickel	0	0	0	0	0	103	0	0	238	0	341
232	Nickel compound	0	45	24	0	0	0	0	0	0	0	69
243	Barium and its water-soluble compound	0	0	0	0	0	0	0	18	0	0	18
253	Hydrazine	69	0	0	0	0	0	0	0	0	0	69
266	Phenol	0	0	0	0	0	0	0	20,686	0	0	20,686
270	Di-normal-butyl phthalate	103	36	0	0	0	19	0	0	0	0	158
272	Phthalic acid bis (2-ethylhexyl)	82	0	0	0	0	0	0	0	0	0	82
299	Benzene	0	323	0	0	0	0	0	0	0	0	323
304	Boron and its compounds	264	0	0	0	0	0	0	0	0	0	264
307	Polyoxyethylene=alkylphenylether	74	0	23	0	0	0	0	0	0	0	97
309	Polyoxyethylene=nonylphenylether	274	0	0	228	0	0	0	0	0	0	502
310	Formaldehyde	0	0	74	0	0	0	0	5	0	0	79
311	Manganese and its compounds	0	0	0	0	0	4,334	0	79,993	75,800	0	160,127
346	Molybdenum and its compounds	7	10	0	0	0	0	0	133	3,465	0	3,615
	Total	244.188	139.950	184.239	3.993	82.000	77.474	95.993	381.936	132.618	14.752	1.357.144

PRTR Act = Act concerning the reporting, etc., of the release into the environment of specific chemical substances, and the promotion of improvement to the management of the substances

**Environmental Report** 

Yanmar has set up a fine-tuned implementation structure to achieve appropriate environmental management.

#### Implementation Structures

The Yanmar Group Global Environmental Committee, consisting of top executives from each Group company, was established in 2002 to promote high-level environmental management for the Group as a whole. Each Group company has its own Global Environmental Committee that takes the initiative in promoting environmental conservation activities under the leadership of the top management of the company. The Yanmar Group Coordination Meeting is also formed by the secretariats of those company-level committees as a subordinate organization of the Yanmar Group Global Environmental Committee, and engages in the communication of activity policies and discussion of activity status. In addition, the Product Subcommittee, consisting of the development managers of Group companies, was established under the Coordination Meeting and undertakes various activities to improve the environmental performance of our products.



Yanmar Group Global Environmental Committee

 Organization Chart of the Yanmar Group Global Environmental Committee



#### Acquisition of ISO 14001 Certification

The Yanmar Group promotes group-wide efforts to achieve ISO 14001 certification, an international standard for environmental management systems, as part of our efforts to continuously promote environmental conservation activities (See the table of ISO 14001 Certification by Site on page 49).

We also help group companies planning to acquire ISO 14001 certification establish their own environmental management systems so as to ensure smooth and efficient activities toward acquisition.

We endeavor to encourage both domestic and international non-producing facilities to acquire certification.

#### Report

#### Efforts to Acquire ISO 14001 Strengthen the Bond of Solidarity

#### ISO Promotion Group (Secretariat), Yanmar Marine System Co., Ltd

Yanmar Marine System is a sales company that specializes in sales and servicing of ship and boat engines.

Being always aware that what we do affects the environment is taken as one of our social obligations. Based on this idea, we started working harder towards the acquisition of ISO 14001 in August 2007, with the aggressive undertaking of environmental conservation activities as our objective.

To begin with, we set up the ISO Promotion Group, selected environment promotion committee members from the sections in the site, started holding Environmental Promotion meetings twice a month, examined all the jobs we do, identified all environmentally related aspects, determined targets, and discussed present problems and future tasks to be tackled.

In the beginning, we were confused as we were not sure of terminologies and specific procedures to follow. But as we repeated discussion, we felt our energy was gradually directed to strengthening of the bond of solidarity toward the set targets. Finally, we successfully obtained ISO 14001 certification in August 2008.

We have in place a mechanism that allows for company-wide analysis of summations of energy consumption, and we continue to hold Environmental Promotion Committee sessions approximately once a month even though we have acquired certification so that our continued efforts remain effective. Last but not least, the most important point is that each one of us should improve awareness towards environmental issues.

#### **Environment Audits**

ISO 14001 certified facilities are committed to continuously improving their environmental management systems. Specifically, their environmental policies are disclosed and their environmental performance periodically audited to ensure ISO compliance. Internal audits are conducted annually, likewise third-party examinations by an external certification organization.

#### Implementation of the Environmental Compliance Audit

Environmental compliance audits were carried out for the five sites of the Yanmar Group, i.e. the Yamamoto Plant, Kinomoto Plant, Koga Division of Yanmar Casting Technology, Yanmar Logistics Service, and Yanmar Energy System Manufacturing in 2008.

The audits revealed certain discrepancies requiring improvement, including no submission of necessary notifications, inadequate monitoring of management conditions, and unclear indications of storage locations on signboards.

Accordingly, these sites were instructed to make necessary corrections including clarification of the scope of legal control and the subjects of control and notification of necessary reports and renewal. In addition, we instructed them to "visualize" management conditions and indicate information again on signboards.



Environmental Audits

• Continuous Improvements Under ISO14001



#### Legal Compliance

Yanmar vows to comply with environmentally related laws and ensure strict control of relevant operations, including the retention and reporting of measurement records. There were no group-wide violations of applicable laws in 2008, but an accident involving a diesel oil spillage occurred. Although this was immediately taken care of and no serious aftereffects occurred, we conducted a complete inspection of equipment at all sites as a preventive measure.

#### Prevention of Air Pollution

Yanmar endeavors to prevent air pollution during operations, including recovery of exhaust gas emitted from engine durability tests and pre-shipment product test runs with exhaust gas recovery equipment.

#### Prevention of Soil and Water Pollution

Pollution checks are conducted on parcels of land scheduled for sale or alternative use and any pollution emerging is subject to remedial measures with the guidance and attendance of the administration.

The quality control for water discharged from our plants is strictly regulated by setting our own voluntary standard more stringent than applicable legal requirements. A once monthly patrol in the plants and drill are also conducted assuming a spill accident once a year to ensure continual alertness whenever an accident may occur.

#### Measures against Noise and Malodor

All complaints from local residents concerning noise or malodors are recorded. In response, we hold briefing meetings to explain the situation and immediately take actions for correction or improvement.

We also take measures to prevent, mitigate and avoid noise and odors detrimental to neighbors by installing active silencing systems (system products manufactured by our company) and equipment designed to remove black smoke.

#### **Reduction of Environmental Risk**

Regular proactive drills and updating of risks are conducted for foreseeable risks to prevent the occurrence of risks such as environmental pollution.

The Yanmar Group identifies environmental risks, in line with ISO 14001, and updates them as required by taking necessary actions, conducting drills or making internal audits. Identified environmental risks are reported to the Risk Management Committee as those affecting the entire Group for recording and annual updating.

## Yanmar emphasizes environmental education to enhance the environmental awareness of each and every employee.

#### **Environmental Education**

Yanmar provides continuous environmental education to help each employee improve his or her awareness of the environment. Our environmental education consists of general courses intended for new recruits and general employees, and special courses for employees engaged in special work and for internal environment auditors. Thus Yanmar employees can participate in educational programs that are well suited to their specific job requirements.

#### Environmental Education for New Recruits

New recruit education is provided to new employees to promote environmentally appropriate actions at the jobsites to which they are assigned. They acquire a basic understanding of environmental issues and deepen their understanding of the environmental activities of the Yanmar Group.



Environmental education for new recruits

#### Environmental Education at Production Sites

Education on methodologies and technologies related to environmental protection is provided to all employees, based on their jobs, at every plant once a year. Facilities that have acquired ISO 14001 certification provide environmental education and training to employees in line with this ISO standard. Employees working at worksites that can have a major impact on the environment are provided with special training that teaches the employees about the operating procedures of relevant equipment and systems. Employees thus learn to ensure environmental protection at their jobsites.

External educational institutes are also used to help our employees obtain qualifications related to the environment

#### • Education at Yanmar Co., Ltd.

Staff Category	General Education	Special Education
Staff in special fields	_	Work practices for boilers, liquid waste processing facilities, etc.
Internal environmental auditors	_	ISO Auditing methods 1. ISO environmental regulations and Yanmar standards 2. Legal stipulations 3. Processes for reaching environmental targets / Auditing techniques
General staff	Environmental targets and implementation by business division	_
New recruits	Introduction to environmental issues	_

#### Environmental Awareness through Internal Publications

The latest information is provided to our employees through "ECHO," an internal publication produced by the Yanmar Group. Every issue includes information that helps employees keep abreast of the latest environmentally related information. Since the spring issue of 2008, ECHO has featured information on CSR for greater awareness of corporate social responsibility.

2008 Spring Issue	[CSR Series] Reductions in environmental loads of products
2008 Summer Issue	[CSR Series] What is CSR?
2008 Autumn Issue	[CSR Series] What is the Environmental & Social Report?
2009 Winter Issue	[CSR Series] Compliance

#### Report

I obtained the license of "energy manager," and at the same time I gained a sense of achievement and confidence.



#### Shuuji Mitamura

Facilities & Environment Group, General Affairs Dept. Large Power Products Operations Division

Since I came to be involved in environmentally related services, I have started learning about the environment by, for example, participating in related seminars. I decided to materialize my efforts by becoming a license holder as qualified personnel are required at jobsites.

I attended a workshop for "energy managers" two years ago; took a six-day lecture and sat the test on the 7th day.

The workshop started at 9 am and ended at 5 pm every day. In addition to laws and regulations, I learned about past changes in conditions, future projections and other matters related to energy management, the principles of heat and electricity, the principles of equipment based on these, and many other fields. On the last day, I took tests for four subjects which took 80 to 110 minutes.

I was kept very busy during the workshop, taking lectures all day long and doing revision and preparation after lectures everyday. But it was a good change of atmosphere as I was able to get away from daily work. I felt a strong sense of achievement when I received my certificate. I also gained a "can-do" sense of self-confidence. I highly recommend taking on this challenge if you find that it interests you. Yanmar promotes communication with the public on various environmentally related themes to allow the public to gain an understanding of our environmental conservation efforts.

#### **Environmental Exhibitions**

#### Exhibits at the Lake Biwa Environmental Business Messe 2008

Yanmar exhibited products at the Lake Biwa Environmental Business Messe environmental industrial fair held at the Nagahama Dome in Shiga Prefecture from November 5 to 7, 2008. This is one of Japan's largest environmental industrial fairs, which is held annually in Shiga, the trailblazing prefecture in the field of the environment. We have participated in this exhibition every year since its start, and focused on the comprehensive capabilities of the Yanmar Group under the theme of the "Environment" in this 11th event. We exhibited environmental products and the efforts of each division

and department in our booth. In addition, we introduced

our environmental management. Among these, the highperformance compact diesel engine MINIMAX, which features a small "size" but high "power," drew a particularly large amount of attention.



11th Lake Biwa Environmental Business Messe 2008

#### Report

"Yanmar Loved by the People" will not be built in a day

#### Misato Kaji

Advertising Promotion Group, Brand Management Dept. (Presently Sales Planning Dept., Large Product Marketing, Large Power Products Operations Division)

Prior to celebrating the 100th anniversary of our foundation in 2012, we wanted to go back to the basics, go back to where Yanmar was born and to the spirit of foundation, and, based on that thinking, set up our booth "colored totally in Yanmar Red" and exhibited environmentally conscious products from our nine business divisions in the Lake Biwa Environmental Business Messe.

Among many visitors were a farmer couple whose agricultural machines are all Yanmar made and an elderly person whose father used to work for Yanmar. This was a real evidence to show that Yanmar has a history of almost 100 years and that Yanmar products have been loved by so many people.

Information and personal contacts within and outside the Group and which exceed departmental barriers are essential elements in the creation of a customer-oriented business model and contribute to the realization of an environmentally sustainable society.

#### Donation of Engine for Trial Use with Biodiesel Fuel

Yanmar is engaged in a variety of activities toward the formation of a resource recycling society. As one of these efforts, we invited applications for donations of Yanmar engines for trial use using biodiesel fuel on our website, screened the applicants, and decided to donate one to the Tokai University Challenge Center Trans-Japan Caravan Team (South Route) on March 31, 2009. The caravan team is driving a bus fueled by biodiesel from Kyushu to Kanto while promoting the need for "prevention of global warming" at local elementary and junior and high schools in locations they visit.



Tokai University Challenge Center Trans-Japan Caravan Team

#### Supporting the Kotonarie Summer Festa

Yanmar supported an eco event for reductions in environmental loads, the Kotonarie Summer Festa 2008, held at Hibari Park, Higashi-omi City, Shiga Prefecture, from August 9 to 16, 2008. Following on from the previous year, Yanmar provided a power generator set (AG25SS) for trial use with biodiesel in the 5th event in 2008. The venue was decorated with lights for each theme, and part of the electricity for some 250,000 lights was provided by the Yanmar power generator. The fuel that was used consisted of vegetable oil gathered from local residents, which was then refined into biofuel. The Festa attracts over 100,000 visitors every year and is establishing itself as one of the local summer attractions.



Trial-use power generator set (AG25SS)

#### **Eco Balance**

The Yanmar Group understands the need to quantitatively measure and ascertain the environmental loads created by all stages of its business activities, namely from raw material procurement to production, transportation, distribution, use and disposal. It is also essential that we strive as required to reduce these loads.

In fiscal year 2008, environmental loads were measured at production plants of Group companies to gather the necessary data. In future, we will continue striving to determine the environmental loads created at each stage of the product life cycle, and promote the analysis and review of the identified loads for all companies, including Group companies.

## INPUT

Energy			
Electricity Bunker A Kerosene Diesel oil Gasoline	187,739 MWh 9,317 kl 526 kl 1,494 kl 273 kl	Town gas LPG, etc. Coke	3,624,000 Nm <sup>3</sup> 4,882 t 5,908 t



#### **Development and Design**

- Ecology & EconomyDevelopment of
- environmentally-friendly products

#### Procurement of Materials

- Reduction in chemical materials
- Green procurement

#### Production

Prevention of global warming Intra-plant (energy savings) circulating material

Raw materials

Water

- Waste reduction
  Reduction in hazardous
  - chemical materials
- Underground piping survey
   Storage of equipment containing PCB: 1,744 pcs.

#### Calculation

1)	CO2	Emission	Calculated by multiplying electricity or fuel consumed by a "CO <sub>2</sub> emission factor." The "CO <sub>2</sub> emission factor" used here is based on the greenhouse effect gas emission calculation and report manual of an act related to the "Promotion of the Measures to Cope with Global Warming." Note that the CO <sub>2</sub> emission factor for electric power is fixed at 0.378 t-CO <sub>2</sub> /1,000 kWh.
2)	SOx	Emission	Calculated by multiplying heavy oil and light oil consumed by "specific gravity" and "S content ratio."
3)	NOx	Emission	Calculated from the exhaust gas data of combustion facilities.
4)	PRTR- S	-controlled ubstances	: Calculated based on the regulations of an act related to reports, etc., about "Releases to the Environment of Specific Chemical Substances and

Promoting Improvements in Their Management."

## **OUTPUT**

Discharge into	Discharge into
the Atmosphere'	Waters
CO <sub>2</sub> 142,952 t-CO <sub>2</sub> SOx 76.7 t NOx 281.5 t PRTR-controlled substances 572 t	Sewerage 501,503 m <sup>3</sup> River 1,018,017 m <sup>3</sup> BOD 20.4 t COD 13.7 t







#### **Environmental Accounting**

The purpose of environmental accounting is to fully and quantitatively grasp and analyze costs related to environmental conservation in business activities and the resulting effects, to provide feedback to business activities, and to share the analyzed data with related parties in and out of the company in order to promote the understanding of Yanmar environmental activities. Data compilation complies with the Environmental Accounting Guidelines of the Ministry of the Environment.

#### Cost of Environmental Conservation

The total cost of environmental conservation for fiscal year 2008 was approximately ¥6.1 billion, 92% of which was for R&D. The principal business activities of Yanmar involve the manufacturing and sales of engines, and since R&D expenses for new engines result from the improvement of fuel efficiency and gas emission, nearly all of these

expenses fall within the category of environmental conservation.

#### Effects of Environmental Conservation Activities

We have been able to successfully reduce energy consumption, oil consumption, service water consumption, and waste material output per production unit volume compared with the previous year.

#### Future Developments

We started to announce our environmental accounting information in 2003. We will continue to announce information for use in environmental management tools and indices.

(Unit: ¥1 million)

Environmental Conservation Costs     (Unit: ¥1					
Classification of Environmental Conservation Costs	Main Items Covered by Related Activities	Investment	Total Cost		
Cost of controlling environmental load within business area:		621.17	408.00		
① Public nuisance prevention costs	Air quality, water quality, waste, vibration and noise	355.09	254.71		
② Global environment conservation costs	Prevention of greenhouse effects, energy-saving, improving distribution efficiency	17.25	46.21		
③ Resources recycling costs	Reduction of oil/grease, water, and waste	248.84	107.07		
Cost of controlling environmental load up and down stream from Yanmar facilities	Green procurement, removal of products from the market, recycling, etc.	0	0		
Environmental conservation costs in administrative activities	Environmental education, EMS, greenery promotion, information disclosure, environmental advertising, management personnel cost, etc.	0	81.84		
Environmental conservation costs in R&D activities	Improvements related to engine exhaust gas, R&D to improve environmental performance	329.15	5,615.37		
Environmental conservation costs in social activities	Environmental volunteer activities, etc.	0	0		
Costs of repairing environmental damage		0	0		
Total		950.32	6.105.21		

#### Quantitative Effects

Outline of Effect	Environmental effect index	Reduction volume	FY2008
Energy consumption per production unit volume	kl (in terms of crude oil) / ¥100 million	9.6%	25.21
Oil/grease consumption per production unit volume	kl / ¥100 million	13.9%	0.66
Water consumption per production unit volume	t / ¥100 million	6.9%	539.67
Discharge of waste per production unit volume	t / ¥100 million	24.4%	2.20

#### Economic Effects

Outline of Effect	Economic items	FY2008		
Income from recycling	Sales of wastes, etc.	230.5		
Cost reduction through energy saving	Change of electric power supplier, use of cogeneration system, production process restructuring	-96.6		
Cost reduction through resource-saving	Oil and grease, water resource recycling	50.5		
Reduction of waste treatment cost	Improved yield, recycling, simple packing	1.1		

#### Compilation Method

(1) Period of compilation: March 21, 2008 to March 20, 2009

(2) Range: Yanmar Co., Ltd.

(3) Method complies with Environmental Accounting Guideline of the Environment Ministry.

(4) Cost amount includes personnel cost and depreciation cost.

(5) For complex items, the portion related to environmental improvement is extracted or calculated proportionally.

(6) R&D for new engine development relates mostly to combustion and exhaust gas improvements. Accordingly, almost all such costs have been appropriated.

(7) For economic effects, only the measurable items are appropriated; no assumed effects are appropriated.

#### ISO 14001 Certification by Site

#### • Yanmar Domestic Facilities

Division Name	Accredited Business Units	Audit & Registration Organ	Register No.	Accredited Date
Large Power Products Operations Division (Amagasaki Zone)	Amagasaki Plant, Tsukaguchi Plant	LRQA	YKA 0770250/J	Jun. 1997
Power System Operations Division (Shiga Zone)	Biwa Plant Omori Plant Kinomoto Plant Nagahara Plant Yamamoto Plant Nagahama Site Yanmar Logistics Service Co., Ltd.	JQA	JQA-E- 90134	Mar. 1998
Agricultural Equipment Strategic Marketing Division, Farm Plant Operations Division, Tractor Division, Agricultural Machinery & Equipment Division Agricultural Implement & Equipment Division	Each development department of the Head Office, Hokub Yammar Co., Ltd., Yammar Agricultural Equipment Sales East Japan Co., Ltd., Yammar Agricultural Equipment Sales Chrubs Kinki Co., Ltd., Yammar Agricultural Equipment Sales Chrubshikoku Co., Ltd., Yammar Helicopter Service Co., Ltd., Yammar Gene System Co., Ltd.,	JQA	JQA-EM 4278	Oct. 2004

#### Group Companies

Company Name Accredited Business Units		Audit & Registration Organ	Register No.	Accredited Date
Yanmar Construction Equipment Co., Ltd.	Fukuoka Plant	JQA	JQA-EM 0281	Dec. 1998
Yanmar Energy System Co., Ltd.	Head Office	CIJ	CI/5129E	Mar. 2008
Yanmar Energy System Mfg. Co., Ltd.	Head Office Plant	JIA-QA Center	JE0464B	Jul. 2004
Yanmar Agricultural Machinery Mfg.	Head Office, Ibuki Plant	LRQA	YKA 4002304/J	Mar. 1999
Seirei Industry Co., Ltd. Okayama Plant, Kochi Plant, Yamada Plant		JQA	JQA-EM 0277	Dec. 1998
Kanzaki Kokyukoki Mfg. Co., Ltd.	Head Office Plant	LRQA	YKA 0772501	Mar. 1999
New Delta Industrial Co., Ltd.	Head Office Plant	JICQA	JICQA-E 840	May 2004
Yanmar Technical Service Co., Ltd.	Head Office	CIJ	CI/5221E	Feb. 2007
Yanmar Casting Technology Co., Ltd	Head Office / Matsue Division	LRQA	YKA- 4002315/J	Aug. 2003
Yanmar Casting Technology Co., Ltd	Koga Division	CIJ	CI/6025IE	Mar. 2009
Yanmar Marine System Co., Ltd.	Head Office, West Japan Sales Dept., and Osaka Branch	CIJ	CI/9396E	Aug. 2008
Yanmar Shipbuilding & Engineering Co., Ltd.	Head Office and Plant No. 2	JQA	JQA-EM 5433	Jul. 2006
Yanmar Sangyo Co., Ltd.	Head Office, Tokyo branch	CIJ	CI/7751E	Mar. 2007

#### • Yanmar Group Overseas Companies

Company Name	Accredited Business Units	Audit & Registration Organ	Register No.	Accredited Date
P.T. YANMAR DIESEL INDONESIA	Head Office Plant	B4T	01-06/01	Jul. 2003
YANMAR AGRICULTURAL EQUIPMENT (CHINA)CO.,LTD.	Head Office Plant	CHINA QUALITY CERTIFI- CATION CENTRE	00108E2 0099R0M /3200	Mar. 2008

#### Number of Staff Members with Major Environmental Qualifications

#### Number of Staff Members with Major Environmental Qualifications (Yanmar Co., Ltd.)

	Shiga Zone	Amaga saki	Tsuka guchi	R&D Center	Head Office	Total
Pollution Control Manager for Water Quality	13	4	3	6	2	28
Pollution Control Manager for Air Quality	14	5	3	6	1	29
Pollution Control Manager for Noise	11	3	2	3	1	20
Pollution Control Manager for Vibration	6	1	2	3	0	12
Specially Managed Industrial Waste Control Manager	11	5	1	1	0	18
Waste Disposal Facility Engineering Manager	0	2	0	0	0	2
High Pressure Gas Control Manager	5	1	0	2	1	9
Type 2 Chief Electrician	0	0	1	0	0	1
Type 3 Chief Electrician	12	8	2	8	0	30
Class 1 Boiler Engineer	4	0	0	1	0	5
Class 2 Boiler Engineer	22	4	3	4	2	35
Environmental Management System Auditor Assistant	0	1	0	0	1	2
ISO 14001 Internal Environmental Auditor	42	34	14	8	26	124
Environmental certified public measurer (vibration and noise)	0	1	0	3	0	4
Environmental certified public measurer (concentration)	0	1	0	4	1	6
Odor judgment technician	1	0	0	2	1	4
Energy Control Manager (Electricity)	3	1	0	0	0	4
Energy Control Manager (Heat)	2	1	0	1	0	4
Energy Control Manager	5	2	0	3	0	10
Energy Controller	1	0	1	1	0	3
Total	152	74	32	56	36	350

\*Merged into the Energy Control Manager (covering both electricity and heat) in April 1, 2006. The number of people having each type of qualification is shown.

#### **Green Purchasing Ratio**

A member of the Green Purchasing Network of the Japan Environment Association, the Yanmar Group promotes green purchasing that favors products with less environmental load, such as Eco Mark products, when purchasing office supplies.

#### • Green purchasing ratio (Yanmar Co., Ltd.)



### Yanmar Co., Ltd. Production Plants in Japan

#### Biwa Plant Vamamoto Plant Kawamichi-cho 1009-2 Nagahama, Shiga Pref. Yamamoto 3198 Kohoku-cho Higashi Azai-gun, Shiga Pref. **Business Outline** Business Outline Integrated production (development, machining process, assembly, test operation, painting, and shipping) of vertical WC diesel engines for use with farm machinery, construction equipment and industrial equipment in general. Casting and machining process for aluminum alloy parts that are vital for reductions in the weights of engines, and the design and production of dies industrial equipment in general Electricity MWh 31,778 9,418 Gasoline 0 0 kl Kerosene kl 32 13 Diesel oil kl 83 7 Bunker A 288 kl 572 Town gas 0 0 1,000Nm<sup>3</sup> LPG, etc. t 1,664 10 Total kl 10,802 2,998 17,582 5,192 t-CO2 Input/Output NOx 23.48 3.73 t SOx 0.03 1.97 t Dust and soot t 0.20 0.05 Groundwater 66,640 15,470 t Industrial water t 0 0 Clean water 7,948 6,381 t Rainwater t 0 0 48,042 17,668 t kg 375 27 kg 27 743 Amount generated t 291 Amount disposed of 115 25 t

				Kinomoto Plant	Nagahama Site
				Kuroda 650 Kinomoto-cho Ika-gun, Shiga Pref. Business Outline Integrated production covering machining process for crank shafts and cylinder heads for diesel engines; pressing, welding, resin molding, and painting of tractor parts; and assembly, operation and shipment of diesel and gasoline engines	Sanwa-cho 7-35 Nagahama, Shiga Pref. Business Outline Design and development of internal combustion engines for agricultural equipment, construction machinery, industrial machinery and ships; design and production of processing jigs for engine parts; and service as a distribution center for the products of six plants in the Shiga Zone
	Energy co	Electricity	MWh	16,521	6,352
		Gasoline	kl	22	44
		Kerosene	kl	15	8
		Diesel oil	kl	51	593
	nsu	Bunker A	kl	588	274
	mp	Town gas	1,000Nm <sup>3</sup>	0	213
	tion	LPG, etc.	t	49	2
		Total	kl	4,931	2,748
=	CO <sub>2</sub> emission t-C		t-CO2	8,211	5,271
ndt	cъ	NOx	t	7.28	21.98
ð	lir p	SOx	t	2.03	1.00
utp	ts ⊖	Dust and soot	t	0.05	0.00
Ĕ	8≷	Groundwater	t	121,380	181,594
	ater	Industrial water	t	0	0
	- mp	Clean water	t	39,113	55,785
	tion	Rainwater	t	0	0
	Dischar	ge (sewage)	t	160,347	212,664
	BOD	emission	kg	176	255
	COD	emission	kg	353	383
	<	Amount generated	t	192	518
	aste	Amount disposed of	t	17	8

#### Omori Plant



Shigenori 354 Takatsuki-cho Ika-gun, Shiga Pref.

#### **Business Outline**

Integrated production (machining, assembly, test operation, shipping) of Fuel Oil injection pumps, a key component of a diesel engine.

#### Nagahara Plant



Sho 18 Nishi-azai-cho Ika-gun, Shiga Pref.

#### Business Outline

Integrated production (machining, assembly, test operation, shipping) of Fuel Oil injection nozzles, a key component of a diesel engine.

	Energy consu	Electricity	MWh	11,401	6,994	
		Gasoline	kl	1	2	
		Kerosene	kl	1	0	
		Diesel oil	kl	2	4	
		Bunker A	kl	72	140	
		Town gas	1,000Nm <sup>3</sup>	0	0	
	ion	LPG, etc.	t	65	9	
		Total	kl	3,052	1,933	
5	CO2	emission	t-CO2	4,710	3,066	
Put	Air poll- utants	NOX	t	3.69	2.35	
ò		SOX	t	0.25	0.48	
utput		Dust and soot	t	0.00	0.02	
	Water consumption	Groundwater	t	66,640	3,332	
		Industrial water	t	0	0	
		Clean water	t	3,339	6,233	
		Rainwater	t	0	0	
	Discharge (sewage)		t	77,130	8,568	
	BOD emission		kg	62	9	
	COD	emission	kg	77	15	
	Wa	Amount generated	t	364	442	
		Amount disposed of	t	3	4	

#### Amagasaki Plant



Nagasu-Higashidori 1-1-1, Amagasaki

#### **Business Outline**

Integrated production of main and auxiliary marine engines and large industrial diesel engines, gas engines and gas turbine engines covering machining processes, assembly, rigging, test operations, and shipment

#### Tsukaguchi Plant



#### Tsukaguchi-Honmachi 5-3-1, Amagasaki

#### **Business Outline**

Integrated production (machining to test operation) of main and auxiliary marine engines, as well as land and industrial engines, gas engines, and compressors.

	Energy consu	Electricity	MWh	13,357	6,078
		Gasoline	kl	4	3
		Kerosene	kl	233	11
		Diesel oil	kl	100	313
		Bunker A	kl	5,031	1,148
	mpt	Town gas	1,000Nm <sup>3</sup>	1,082	74
	lion	LPG, etc.	t	0	2
		Total	kl	9,933	3,103
5	CO <sub>2</sub> emission		t-CO2	21,784	6,424
p r	Air poll- utants	NOX	t	165.33	12.11
δ		SOx	t	7.97	1.86
utput		Dust and soot	t	0.35	0.23
	Water consumption	Groundwater	t	0	0
		Industrial water	t	118,224	21,882
		Clean water	t	122,933	11,325
		Rainwater	t	0	0
	Discharge (sewage)		t	241,157	34,674
	BOD emission		kg	—	132
	COD emission		kg	—	_
	×.	Amount generated	t	828	72
	aste	Amount disposed of	t	119	4

## Major Domestic Group Companies (Production)

				Yanmar Agricultural Machinery Manufacturing Co., Ltd. 931 Noishiki Maibara, Shiga Pref.	Okayama Site of Seirei Industry Co., Ltd. Enami 428, Naka-ku, Okaya- ma City, Okayama Pref.	Kochi Site of Seirei Industry Co., Ltd. 203 Satokaida Nangoku, Kochi Pref.	Kanzaki Kokyukoki Mfg. Co., Ltd. 2-18-1 Inadera Amagasaki, Hyogo Pref.	Yanmar Energy System Mfg. Co., Ltd. Saidaiji Shinchi 383-2, Higashi-ku, Okayama City, Okayama Pref.
				Business Outline Manufacture of tractors and transmissions for tractors.	Business Outline Manufacture of agricultural machines including compact and medium-sized combines, binders, tillers, vegetable transplanters, and vegetable harvesters.	Business Outline Manufacture of agricultural machines including medium and large-sized combines, self-traveling threshers, and hullers.	Business Outline Manufacture of gears, machine tools, hydraulic equipment, transmissions and marine gears.	Business Outline Production of GHP outdoor units and micro gas cogeneration systems.
		Electricity	MWh	11,860	5,196	8,829	14,603	837
		Gasoline	kl	88	59	11	13	0
		Kerosene	kl	6	60	43	33	0
		Diesel oil	kl	17	39	103	27	0
		Bunker A	kl	724	0	156	154	0
		Town gas	1,000Nm <sup>3</sup>	0	1,098	0	631	0
		LPG, etc.	t	578	91	506	10	28
		Cokes	t	0	0	0	0	0
5		Total	kl	4,587	2,748	3,203	4,609	250
Ę	CO	2 emission	t-CO2	8,448	4,911	5,678	7,460	397
ò	⊊⊵	NOX	t	10.35	1.54	3.26	4.76	0.28
ਰਿ	ants	SOx	t	1.19	0.01	0.22	0.17	0.00
두	‴ ≑	Dust and soot	t	0.23	0.03	0.06	—	0.00
	co∦a	Groundwater	t	0	0	487,847	0	0
	ter Isur	Industrial water	t	0	0	0	0	0
		Clean water	t	39,641	52,090	2,332	55,964	4,110
	9	Rainwater	t	0	0	0	2,145	0
	Disch	narge (sewage)	t	31,439	23,902	494,608	55,964	4,110
	BOI	D emission	kg	25	33	11,252	7,574	54
	COI	D emission	kg	145	176	11,796		
	Xa	Amount generated	t	1,050	390	584	416	40
		Amount disposed of	t	144	70	331	70	3

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				Yanmar Construction Equipment Co., Ltd.	Yanmar Shipbuilding & Engineering Co., Ltd.	Matsue Division of Yanmar Casting Technology Co., Ltd.	Koga Division of Yanmar Casting Technology Co., Ltd.	New Delta Industrial Co., Ltd.
			1717-1 Oaza Kumano Chikugo, Fukuoka Pref. Business Outline Development, production, and servicing of small construction machines and general products		3286-3 Itoharu Musashimachi Kunisaki, Oita Pref.	960 Yahata-cho Matsue, Shimane Pref.	360 Kojibukuro Konan, Shiga Pref.	767 Umena Mishima, Shizuoka Pref.
					Business Outline Production of pleasure boats, business boats, FRP, îloading piers, sea water filtering equipment, aquariums, amusement facility- related equipment, wind power generator blades, and FRP molds.	Business Outline Manufacture and processing of core parts of diesel engines for marine and land use and industrial machine parts.	Business Outline Manufacture of cast iron cylinder blocks and cylinder heads and production of aluminum casting.	Business Outline Manufacture and sale of agricultural equipment, industrial high- pressure pumps and blowers.
		Electricity	MWh	10,833	635	15,235	16,482	1,330
		Gasoline	kl	1	5	2	8	9
		Kerosene	kl	46	2	18	3	0
		Diesel oil	kl	33	19	40	59	1
		Bunker A	kl	73	37	0	59	0
		Town gas	1,000Nm <sup>3</sup>	0	0	0	339	186
		LPG, etc.	t	668	13	891	296	0
		Cokes	t	0	0	1,872	4,036	0
3		Total	kl	3,763	240	6,531	8,186	544
E	CO	2 emission	t-CO2	6,499	445	14,675	21,286	914
Ìğ	⊊Þ	NOx	t	4.65	0.25	5.25	10.71	0.44
ਰਿ	anto	SOx	t	0.12	0.05	18.78	40.52	0.00
두	‴ ≒	Dust and soot	t	0.02	0.00	0.69	1.53	0.00
	88	Groundwater	t	33,992	0	0	0	36,742
	nsur	Industrial water	t	0	0	10,007	0	0
	npti	Clean water	t	22,578	3,004	14,789	20,422	1,782
	S	Rainwater	t	0	0	0	0	0
	Disch	narge (sewage)	t	22,501	3,004	24,796	20,422	38,524
	BOI	D emission	kg	104	—	159	51	96
	COI	D emission	kg	152	81	188	76	191
		Amount generated	t	940	220	3,820	26,742	91
	ste	Amount disposed of	t	62	161	3,581	15,908	4

## History of Yanmar Group Environmental Activities

	Yanmar Group Activities	Events in Japan and around the World
1993		<ul> <li>Basic Environmental Law established.</li> </ul>
1994	<ul> <li>Environmental Management Division established.</li> <li>Yanmar Global Environment Committee established.</li> <li>First Global Environment Committee held.</li> </ul>	<ul> <li>Waste Disposal Law revised.</li> <li>Environment Basic Plan guidelines established.</li> </ul>
1995	<ul> <li>Yanmar Global Environmental Charter established and distributed.</li> <li>Environmental voluntary plan submitted to MITI.</li> <li>Environmental Preservation Basic Rule and organization implementation rules established.</li> </ul>	<ul> <li>Foul Odor Control Law revised.</li> <li>Containers and Packing Recycling Law established.</li> </ul>
1996	<ul> <li>Standard for selecting and displaying resin parts established.</li> <li>Environmental Preservation Activities Mid-Term Plan (1996-2000) formulated.</li> </ul>	<ul> <li>Air Pollution Control Law revised.</li> <li>ISO 14001 Standard issued.</li> <li>Water Pollution Control Law revised.</li> </ul>
1997	<ul> <li>Large Power Products Operations Division certified under ISO14001.</li> </ul>	<ul> <li>New Energy Use Special Measures Law (RPS Law) established.</li> <li>Environmental Impact Assessment Law established.</li> <li>Kyoto Protocol adopted.</li> </ul>
1998	<ul> <li>Six plants of the Power System Operations Division certified under ISO14001.</li> <li>Participated in the 1st Lake Biwa Environmental Business Messe.</li> <li>Three plants of Seirei Industry Co. Ltd. certified under ISO14001.</li> </ul>	<ul> <li>Energy Saving Law revised.</li> <li>Electric Appliance Recycling Law established.</li> <li>Act Concerning the Promotion of Measures to Cope with Global Warming established</li> </ul>
1999	<ul> <li>Three plants of Kanzaki Kokyukoki Mfg. Co. Ltd. certified under ISO14001.</li> <li>Recycling goals established for major products.</li> <li>Showa Precision Machinery Co., Ltd. certified under ISO14001.</li> </ul>	<ul> <li>Dioxin Special Measures Law established.</li> <li>PRTR Act established.</li> </ul>
2000	<ul> <li>Voluntary Action Plan submitted to Kansai Economic Federation.</li> <li>Annual Environmental Report 2001 Edition posted on company website.</li> <li>Environmental accounting approach introduced.</li> <li>The 2nd Stage Environmental Preservation Mid-Term Plan formulated (2001-2005).</li> <li>Environmental Performance Assessment Standard for Products formulated (recycling, etc.).</li> </ul>	<ul> <li>Green Procurement Law established.</li> <li>Construction Recycling Law established.</li> <li>Recycling Society Formation Basic Law established.</li> <li>Food Recycling Law established.</li> <li>Resources Recycling Law revised.</li> </ul>
2001	<ul> <li>Full-scale rationalization of packing and wrapping.</li> <li>The 1st Group Environmental Coordination Meeting held.</li> </ul>	<ul> <li>Environment Ministry inaugurated.</li> <li>PCB Special Measures Law established.</li> <li>Freon Recovery and Destruction Law enacted.</li> </ul>
2002	<ul> <li>Purchasing Division begins green procurement.</li> <li>All production sites abolished the use of organic chlorine-based compounds.</li> <li>The 1st Group Global Environmental Committee held.</li> <li>Yanmar Group arranged measures to comply with PRTR law.</li> <li>Yanmar Global Environmental Charter revised to the Group Global Environmental Charter.</li> <li>Yanmar Environmental Report posted on the website.</li> </ul>	<ul> <li>Soil Pollution Control Law established.</li> <li>Automobile NOx / PM Regulation revised.</li> <li>Law on Waste Disposal and Cleaning revised.</li> <li>The Basic Environment Law revised.</li> <li>Act Concerning the Promotion of Measures to Cope with Global Warming revised.</li> <li>End-of-Life Automobile Recycling Law established.</li> <li>Oil Alternative Energy Law revised.</li> <li>New Energy Use Special Measures Law (RPS Law) revised.</li> </ul>
2003	<ul> <li>Green Procurement Guidelines established.</li> <li>The 2nd Group Global Environmental Committee held.</li> <li>YADIN and Matsue Diesel certified under ISO 14001.</li> </ul>	<ul> <li>Law on Waste Disposal and Cleaning revised.</li> <li>Act Concerning the Examination and Regulation of the Manufacture, etc. of Chemical Substances revised.</li> <li>Fire Defense Law revised.</li> <li>Environmental Education Law established.</li> </ul>
2004	<ul> <li>New Delta Industrial Co., Ltd. and Yanmar Energy System Mfg. Co., Ltd. certified under ISO 14001.</li> <li>The 3rd Group Global Environmental Committee held.</li> <li>The 1st Product Sub-committee held.</li> <li>Yanmar Global Environmental Committee integrated to Yanmar Group Global Environmental Committee.</li> <li>Yanmar Agricultural Equipment Co., Ltd. certified under ISO9001 and ISO 14001 concurrently.</li> </ul>	<ul> <li>POPs Treaty put into effect.</li> <li>Law on Waste Disposal and Cleaning revised.</li> <li>Air Pollution Control Law revised.</li> <li>Environment-conscious Promotion Law established.</li> <li>ISO14001 Standard revised.</li> </ul>
2005	<ul> <li>Yanmar Group Management Philosophy revised as a mission statement.</li> <li>2012 Environmental Vision formulated.</li> <li>Yanmar Group 2nd Stage Environmental Preservation Mid-Term Plan formulated.</li> <li>The 4th Group Global Environmental Committee held.</li> <li>Full-scale Group activities get underway for the elimination of harmful substances.</li> <li>Environmental audit started.</li> </ul>	<ul> <li>Kyoto Protocol brought into effect.</li> <li>Law on Waste Disposal and Cleaning revised.</li> <li>Act Concerning the Promotion of Measures to Cope with Global Warming revised.</li> </ul>
2006	<ul> <li>YN Group expanded ISO 14001 certified area (Hokuto Yanmar, YN East Japan, and YN Kansai)</li> <li>Power System Operations Division expanded ISO 14001 certified area (Yanmar Logistics Service Co., Ltd.)</li> <li>Yanmar Shipbuilding &amp; Engineering and Yanmar Sangyo certified under ISO 14001</li> <li>The 5th Group Global Environmental Committee held.</li> <li>Usage regulations and rules for environmental burden materials established.</li> <li>Green Purchasing Guideline revised.</li> </ul>	<ul> <li>EU REACH regulations promulgated.</li> <li>Energy Saving Law revised.</li> </ul>
2007	<ul> <li>YN Group expanded ISO 14001 certified area. (Yanmar Agricultural Equipment Kanto and Yanmar Agricultural Equipment West Japan.)</li> <li>Yanmar Energy System Co., Ltd. and Yanmar Agricultural Equipment (China) Co., Ltd. certified under ISO 14001.</li> <li>The 6th Group Global Environmental Committee held.</li> <li>Yanmar Environmental &amp; Social Report printed version issued.</li> <li>Green procurement survey started.</li> <li>Product LCA started.</li> <li>CSR organization established.</li> </ul>	<ul> <li>Law on Waste Disposal and Cleaning revised.</li> <li>Act Concerning the Examination and Regulation of the Manufacture, etc. of Chemical Substances revised.</li> </ul>
2008	<ul> <li>Yanmar Marine System and Yanmar Casting Technology (Koga Division) acquired ISO14001 certification</li> <li>The 7th Group Global Environmental Committee held</li> </ul>	<ul> <li>Act Concerning the Rational Use of Energy revised.</li> <li>Act Concerning the Promotion of Measures to Cope with Global Warming revised.</li> <li>PRTR Act revised.</li> </ul>



Please direct inquiries about this Environmental & Social Report to:

Planning Group Corporate Social Responsibility Dept.

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