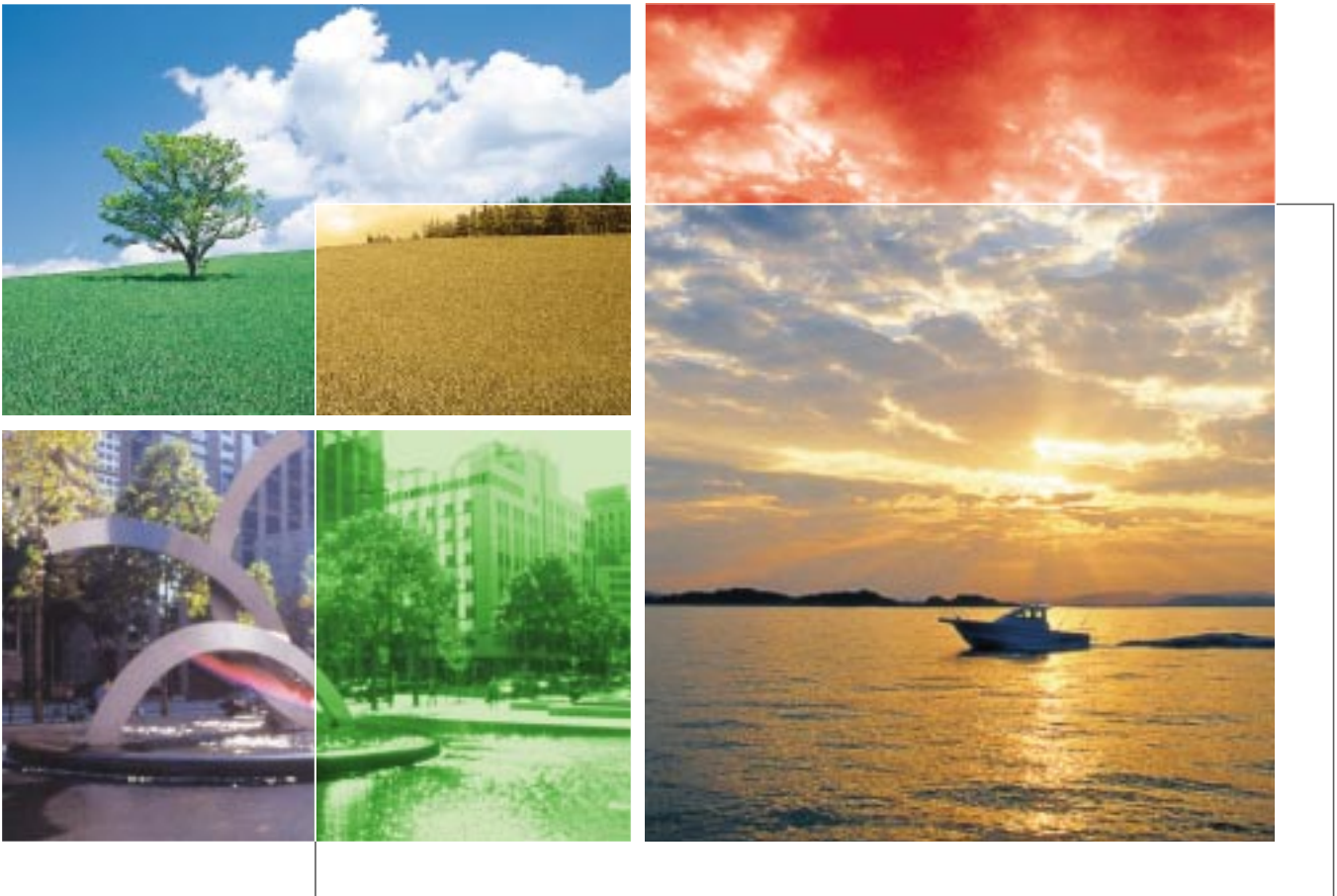


# Environmental & Social Report 2007





## Editorial Notes

We issue this Report to briefly and openly inform Yanmar Group stakeholders of the philosophies, policies, and actions the Group has taken with respect to the environment and society.

This issue includes a new report on our social responsibilities, in a section to inform readers about the actions we are taking in the areas of “customers,” “employees,” and “society”. The environmental report section explains the results from our activities that are based on the secondary medium-term plan, with 2006 as the initial year. The “highlight” pages feature detail information about various Group activities, some of which are quite impressive.

It is our hope that this Report will help the reader to better understand the Yanmar Group, and help strengthen the relationship of trust with our customers. We very much welcome the frank opinions and comments of our readers, as they help us enrich the content of our activities and this Report.

## Reference Guideline

The Environmental Report Guideline (2003 version) published by the Ministry of the Environment.

## Report Period

The activities and data disclosed in this Report are for the period of fiscal year 2006 (March 21, 2006, to March 20, 2007). However, the report also includes some items occurring after fiscal 2006.

## Reporting Organization

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, which include the Biwa, Yamamoto, Nagahama, and Kinomoto Plants, which produce small engines, and the Omori and Nagahara plants, which produce precision machinery. The “Amagasaki Zone” refers to the Amagasaki Plant located in Amagasaki City, Hyogo Prefecture, which produces large engines, and the Tsukaguchi Plant, which produces boat engines.

## Report Publication Period

Published in August 2007 (the next issue is scheduled for August 2008).

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Founder's spirit

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Grateful to serve for a better world

Mission

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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.

# Making effective utilization of our limited resources, and leaving beautiful nature, untouched, for future generations.

The preservation of our global environment is the most important issue we face today, and the resolution to this issue will require a collective wisdom of all humankind and a formation of an environmentally sustainable society with the promised development and prosperity.

The rapid economic and industrial development that took place in the latter half of the 20<sup>th</sup> century, had generated a great burden to the environment, exceeding the capability for the earth to bear, resulting in provoking the global warming and the destruction of nature.

So that we shall inherit the beautiful, irreplaceable environment to our future generation, we must embrace a keen awareness and a deeper understanding towards the environment, and establish a clear goal to protect our limited resources and live in a harmony with the environment.

The world's smallest diesel engine, at that time, developed by our team in 1933, had the founder's concept of "Effectively utilizing our limited resources and inheriting the beauty of nature to our future generation," flowing in its core. This concept was duly inherited to the present, and keeps its breath in our corporate philosophy stating

the importance of contribution to the harmonious co-existence of human society and environment.

In the year 2012, we will mark the 100<sup>th</sup> anniversary, and as we take our step into the next stage, we are to re-recognize the importance of inheriting the founder's DNA, the spirit to strive for the co-existence of human society and natural environment, to the next generation.

As we uphold "coexistence with the environment" as the theme to our daily business activity, we have always strived to further sophisticate our environment responsive technologies in a wide variety of fields. Especially, the development and popularization of Energy systems technology which uses "natural gas" as its power source, greatly contributes to the preservation and improvement of environment, as the CO<sub>2</sub> emission level, which in another words, burden to the environment, is very low, is one of our key commitment.

Also, as the pioneer of "effective utilization of energy," Yanmar continuously strives to provide products and services that contribute to the realization of environmentally sustainable society.

Biomass generation system, and Cogeneration system with our advanced engine and generation control technologies, utilizing biomass as its power source giving no effect in increasing CO<sub>2</sub>, could be given as one good example.

The diesel engine which has a better heat efficiency than the gasoline engine has, is now under the worldwide attracting attention. We, as the pioneer of diesel engine development, have always lead the world with advanced technologies, will further commit ourselves to improve heat efficiency, exhaust emission, and challenge for the realization of the cleaner engine which could exceed the requirement from the next tier of the U.S. EPA regulation.

What is truly necessary for the society and environment? It is my view that, what is required for us is to look firmly ahead to the future of humankind and earth, with a global outlook and a creative spirit that is not bound to existing concepts, and to accurately and quickly respond to the requirements.

We, as the environment oriented company, shall put greater efforts to our engine business as our core, and to other business field surrounding it. We are fully dedicated to pursuing the creation of unrivaled products and services which can contribute to the realization of environmentally sustainable society.

It is stated in our founding spirit that "We are grateful to serve for a better world," and

this means to create and share the sense of joy and gratitude with all those involved in our business activities. Also it is stated in our corporate mission that "We will strive to create new and meaningful value together in partnership with our worldwide customers," and by putting this mission in practice, by every each one of the employees, it is my belief that we can contribute to the realization of a rich society and preservation of our global environment.

**Takehito Yamaoka**  
President



# Overview of the Yanmar Group – Business Performance

## Corporate Profile

Trade name	Yanmar Co., Ltd.	Chairman & Executive Director	Tadao Yamaoka
Head office	1-32 Chayamachi, Kita-ku, Osaka	President	Takehiko Yamaoka
Tokyo office	2-1-1 Yaesu, Chuo-ku, Tokyo	Turnover( FY2006 )	¥553.9 billion (consolidated base) ¥184.3 billion (company base)
Founded	March 1912	Employees (as of March 20, 2007 )	15,365 (consolidated base) 2,678 (company base)
Capital	¥6.3 billion		

## Facilities and Group Companies

### Yanmar Co.,Ltd

#### Manufacturing

##### Power System Operations Division

Biwa Plant  
Yamamoto Plant  
Nagahama Plant  
Kinomoto Plant

##### Precision Equipment Division

Omori Plant  
Nagahara Plant

##### Large Power Products Operations Division

Amagasaki Plant  
Tsukaguchi Plant

### Domestic Group Companies

Yanmar Agricultural Equipment Co.,Ltd.  
Yanmar Marine System Co.,Ltd.  
Yanmar Energy System Co.,Ltd.  
Yanmar Construction Equipment Co.,Ltd.  
Yanmar Construction Equipment Sales Co.,Ltd.  
Yanmar Agricultural Machinery Manufacturing Co.,Ltd.  
Seirei Industry Co.,Ltd.  
Yanmar Shipbuilding & Engineering Co.,Ltd.  
Yanmar Energy System Mfg. Co.,Ltd.  
Kanzaki Kogyukoki Mfg. 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

##### 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

##### Sales / Services

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

### Manufacturing / Sales

YANMAR MARINE U.S.A. CORP.  
YANMAR AGRICULTURAL MACHINERY OF AMERICA CORP.  
TUFF TORQ CORPORATION  
TRANSAXLE MANUFACTURING OF AMERICA CORP.

#### Europe

##### Sales / Services

YANMAR EUROPE B.V.  
YANMAR MARINE INTERNATIONAL B.V.

### Manufacturing / Sales

YANMAR ITALY S.p.A.  
AMMANN-YANMAR S.A.S.  
MOSCOW REPRESENTATIVE OFFICE OF YANMAR.,LTD.

## Business Development

With energy conversion technologies at our core, we research, develop, manufacture, sell and maintain products for use on land and sea, and in other types of living spaces.



### Industry and Construction

Industrial Engines  
Construction Machinery  
Industrial Equipment (Projectors, Portable power generators)

### Energy

Power Generation Equipment  
Air Conditioners (GHP)  
Micro-gas Cogeneration



### Environmental Protection

Environmental equipment  
Environmental facilities  
Cool containers  
Household equipment



### Agriculture

Farm Machinery  
John Deere Tractors  
Unmanned Helicopters  
Hobby Farming Machinery  
Farm Facilities



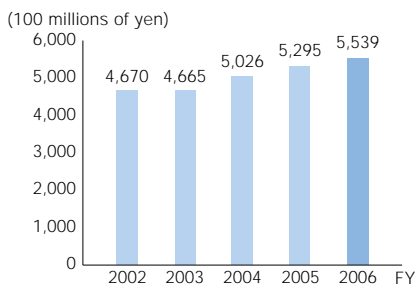
### Marine

Pleasure boats, Fishing boats  
Marine system equipment, Fish feed  
Marine main & aux. engines

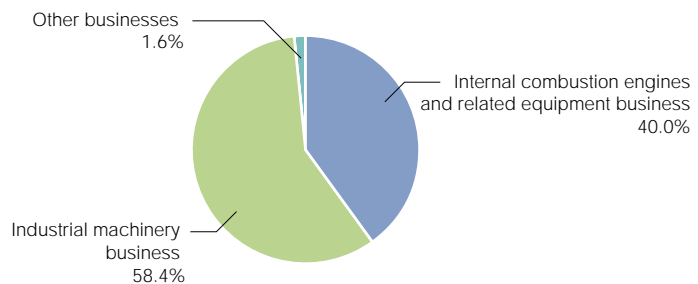


## Business Performance

### Consolidated Sales



### Ratio of consolidated sales by segment in 2006



## Undertaking the challenge of developing environment-friendly technologies

As environmental problems grow increasingly severe, it becomes important to not only further increase the thermal efficiency of diesel engines, but to also undertake efforts to clean exhaust gasses, and to promote research and development that work toward the realization of a sustainable, recycling-oriented society.



**Hiroshi Kanda,**  
Managing Director and Chief Manager  
of the Research & Development Center

### ■ Diesel Engine Exhaust Regulations

As the problem of global warming grows increasingly more severe, much attention is being given to the diesel engine, which offers high fuel efficiency and low levels of CO<sub>2</sub> emission, as a strong candidate for application to environmental countermeasures.

The diesel engine has a simple structure. Atomized fuel is injected into hot compressed air in a combustion chamber, resulting in natural ignition that burns the fuel. Thanks to combustion at high temperatures and pressures, the diesel engine produces 20% to 30% less CO<sub>2</sub> than gasoline engines in the same class.

However, there is the problem of atmospheric



pollution resulting from exhaust particulate matter (PM) and nitrogen oxides (NOx) contained in the exhaust gas. Thus, since the latter half of the 1990s, countries around the world have been strengthening their exhaust regulations related to diesel engines for industrial use.

### ■ Creating a clean diesel engine

Yanmar is putting major effort into research and development based on its original technologies for exhaust gas cleaning, in an effort to quickly achieve compliance with the exhaust gas regulations of countries around the world.

Tier 3 regulations of the EPA (the US Environmental Protection Agency) will go into effect in 2008. To comply with these regulations, we have made further improvements to conventional high pressure fuel injection pumps in order to achieve a sufficient mixture of fuel and air in the engine cylinders. We are also working on EGR (Exhaust Gas Recirculation) technologies to recirculate engine exhaust gas through the engine one additional time in order to decrease NOx emissions to the regulated levels. Recirculating the exhaust gas decreases the amount of oxygen in the engine exhaust gas, making it possible to decrease the combustion temperature and thereby suppress NOx emission. Tier 4 regulations are also expected to go into effect in 2012. Tier 4 regulations will require that PM emissions for small, general use diesel engines with an output of less than 56 kw be reduced to approximately 1/10 the current level, and for engines with an output of 56 kw or higher, in addition to the PM reduction, NOx emissions must also be reduced to approximately 1/10 the current level. In order to meet these standards, we must work not only to achieve improvements at the combustion stage, but also to develop methods for processing exhaust gasses after combustion. At Yanmar, we are working in the research of various types of post-processing equipment, such as a diesel particulate filter (DPF) that captures and processes particulate matter, and catalysts that reduce NOx into harmless nitrogen.

However, many issues such as durability and reliability which must still be overcome in order to achieve the practical application of these technologies. Diesel engines are used in various types of applications, including tractors, fishing boats, construction machinery, and electricity generators, so when using post-processing equipment, it is necessary to use controls that are optimized for each application. In preparation for 2012, the year that Tier 4 regulations will go into effect, Yanmar continues in its efforts to realize practical applications for these technologies.



Research Related to NOx Catalysts  
Converting Nitrogen Oxides into  
Harmless Nitrogen

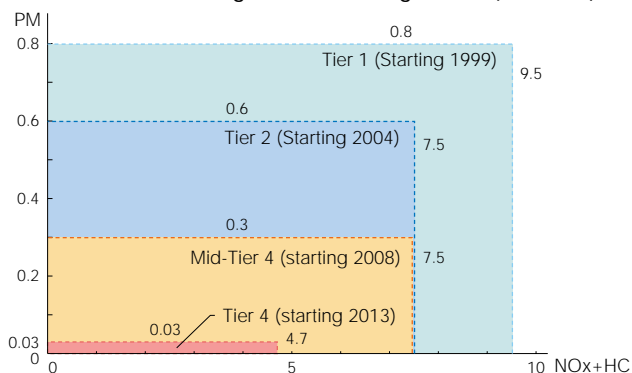
### ■ Technological Advancements That Make Good Use of the Blessings of the Earth

The industrial engines that are used in agricultural and construction machinery are nearly all diesel engines, with the exception of very small engines such as those used in lawnmowers. Industrial use requires a tough diesel engine that can use cheaper diesel oils and crude oils, rather than gasoline.

Yanmar embraces the spirit of "to conserve fuel is to serve mankind," a spirit that resolves to waste not even one drop of fuel, as we work to promote research and development targeting further improvements to the fuel efficiency of diesel engines and the efficient utilization of resources.



US Non-Road CI Engine Emission Regulations (19-37 kW)





Yanmar Research & Development Center

### ■ The Diesel Engine, an Engine That Can Run on Fuels Other Than Petroleum

Diesel engines run on diesel oil or crude oil. However, today, as the depletion of fossil fuels becomes an increasingly severe problem, attention is being given to biofuels from plants as an alternative fuel. The source material of biofuels is plants, which use photosynthesis to absorb CO<sub>2</sub> from the atmosphere. So with the Kyoto Protocol, an agreement on the prevention of global warming, total CO<sub>2</sub> emission is calculated as zero with the use of biofuels. There are many diesel vehicles in operation in Europe, so diesel oil mixed with biodiesel fuel in ratios ranging from a few percent to several dozen percent, as well as 100% biodiesel fuel are already being marketed there.

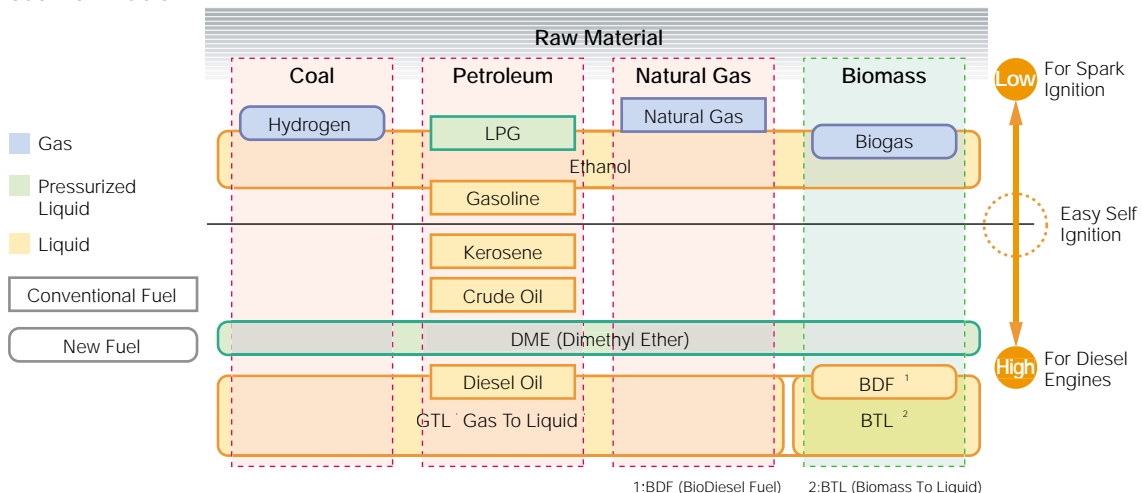
The diesel engine has always been able to use

various types of oil, however, if a modern diesel engine designed to use diesel oil is run on unaltered biodiesel fuel made from discarded vegetable oil, the engine will work, but there can also be various problems with engine durability. Utilizing the advantages offered by the fact that Yanmar manufactures its own fuel injection equipment in-house, the company is currently working in the development of a diesel engine that can utilize 100% biodiesel fuel.

### ■ A Need for Biodiesel Fuels That Do not Compete with Food Products

In Japan, rapeseed oil is fairly expensive compared with diesel oil, and cannot serve as an alternative fuel source. However, if discarded rapeseed oil is used as biodiesel fuel after being used as frying oil, then the oil

#### Various New Fuels



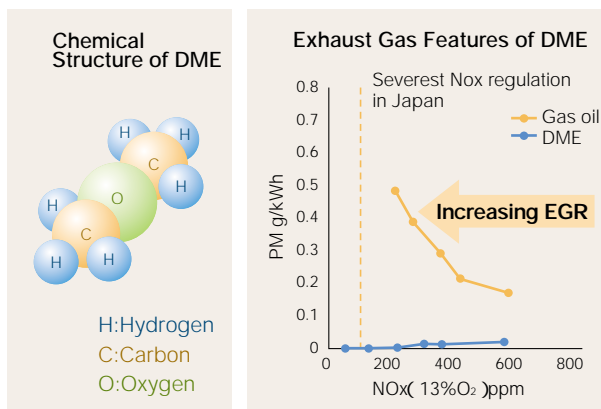
can be a practical source of fuel.

In Europe, biofuels are being made from rapeseed and sunflower seed, and in America, soybeans are being used. However, when fuel is made from something that is conventionally used as food, sharp increases in food prices can occur, and it could even lead to food shortages. The Jatropha, which grows in tropical regions, however, is not used for food, and it produces seeds that are rich in oil. Research has begun on biodiesel fuel production using the Jatropha, and progressive research is already being done with government support in India. In order to study the possibilities and practicality of biodiesel fuel, Yanmar began construction in the spring of 2007 on a research and development center in Kota Kinabalu of Malaysia that will study engines compatible with bio-type fuels.

### Promoting the Research and Development of Clean Alternative Fuels

Yanmar is working in the study of dimethyl ether (DME) as a new alternative fuel. The physical properties of DME are similar to those of LPG - it has a boiling point of -25°C, and at room temperature, it liquefies under a low pressure of approximately 0.6 Mpa. As such, existing LPG storage and transportation equipment can be used for DME simply by replacing or adjusting parts.

DME can be produced from coal, petroleum, natural gas, and from biomass, and is a clean fuel that does not produce PM or SOx when burned. In China, efforts are underway to produce DME from the country's abundant coal reserves, and plans are underway to produce electricity with diesel engines fueled by DME.



Yanmar has established technologies for fuel injection equipment, and these technologies are proving advantageous in applications that use DME as fuel. We are already conducting validation and durability tests of DME in Kawasaki city, and have had engines running trouble-free for 4,000 hours. Because DME produces approximately one-half the heat produced by diesel oil, and because it must be transported in pressurized containers, it is well suited for use with electrical generators and other equipment that is stationary during operation.



### Working to Create a Recycling, Self-Supporting Society

Yanmar began working with Higashiomi City, Shiga Prefecture, in September 2006 to test a wood biomass-based electricity generating system. Various types of wood materials are used as the biomass raw material, such as discarded lumber and tree clippings generated in the city, and the natural gas that is generated by gasification equipment is then used to generate electricity. As this natural gas has a low calorie content, dual-fuel engines using biodiesel fuel, (which promotes stable operation) are used in the generators. Yanmar is providing these engines as well as the gasification equipment for this project.

A system by which engine fuel is generated from waste material and used to generate electricity and heat is truly the first step in the realization of a recycling-oriented society. With the engine as a core technology, Yanmar continues to undertake the challenge of achieving coexistence with the environment.



Higashiomi Wood-based Biomass Electricity Generation Collaborative Research Testing Equipment

## Promoting Environmental Conservation through Increased Productivity

With "Our Precious Earth, Our Beautiful Lake Biwa!" as our slogan for our environment policies, Yanmar promotes a variety of environment-related activities at its Power System Operations Division located in the Kohoku region of Shiga Prefecture. Here, we are actively promoting projects to protect Lake Biwa, the "Mother Lake" of Japan.



**Seiji Kawahito,**  
General Manager, Power System Operations Division

### Protecting our Valuable Water Resources

All of our factories located in the Shiga zone look upon Lake Biwa, the primary water source for the Kinki region. The abundant water supply of the lake supports the lives and industries of the 14 million people in the Kyoto-Osaka-Kobe area. In order to protect this valuable water resource, Shiga Prefecture has established its own strict ordinances concerning the water of Lake Biwa, and the people of the prefecture have an exceptionally high level of awareness of the importance of water quality. The entire region is working as a single, unified force to develop and promote environmental conservation activities.

Taking all this into consideration, our factories as well have positioned environmental preservation as their most important issue, and are particularly concerned about wastewater from the factory, establishing voluntary internal standards for wastewater that are stricter than today's legal standards. Indeed, much effort is put into performing thorough water control and management. The areas inside the factories are also patrolled once a month, and training sessions are conducted once a year on how to handle potential leaks from the factory. In these ways, Yanmar is putting full effort into measures to allow for prompt and efficient response to any accidents that may occur.

**Efforts to Improve Productivity Are Linked to Environmental Preservation**

Yanmar has put much effort into quickly achieving compliance with exhaust gas regulations for its small diesel engines. These engines have been well-received throughout the world, leading to a rapid increase in production in recent years. Approximately 360,000 were manufactured in 2003, but an estimated 630,000 will be manufactured in 2007 and 850,000 in 2009, more than half of which will be manufactured at the Biwa Plant.

As production volume increases, so does the load on the environment. As a countermeasure to this serious matter, our Biwa Plant is putting considerable effort into increasing productivity efficiency. Approximately four years ago, all of our plants began implementing "YWK (YANMAR Way by Kaizen) radical reform activities" that aim for improvements to our productivity and quality. At the foundation of these activities is the concept of contributing to a reduction in environment load and to environment conservation by eliminating waste and increasing productivity.

All of our employees are striving to perform YWK activities on a daily basis in order to achieve solid improvements in productivity. These efforts include the implementation of careful and thorough maintenance for the equipment in plants, the strict observance of work standards, and efforts to minimize waste by

establishing accurate targets for stock supplies and lead times. Yanmar is also working to promote activities in 15 of our primary affiliates in the area of materials so that these efforts can achieve even greater results.

**The efforts of the Yanmar Biwa Plant, aiming to achieve a harmonious coexistence with the natural environment**

Our Biwa Plant is located in Nagahama city, Shiga Prefecture, at the northern part of Lake Biwa. The plant was constructed in 1995 as a base for the production of small diesel engines, and primarily produces 100-horsepower or smaller diesel engines for industrial use.

The Biwa Plant is introducing various types of equipment and facilities for contributing to the prevention of global warming and for reducing environment load. Since going into operation, the plant has introduced a cogeneration system developed by Yanmar, and this system produces approximately 30% of the electricity used by the plant. The plant has also introduced electricity regeneration equipment that recovers motive force generated during engine durability tests and converts this force into electricity. Yanmar plans to utilize the system to recover 3,100 kW of electricity in fiscal 2008.

As a result of these efforts, Yanmar was able to reduce the amount of electricity energy required to produce one engine by approximately 10% to 20%, comparing fiscal 2005 to fiscal 2006. Specifically, the amount of electricity use was reduced to 92%, liquid fuels to 62%, gas fuels to 75%, and oils to 85%.

Our Power System Operations Division are located in Shiga Prefecture, one of the strictest prefectures in Japan in terms of environmental matters, and Yanmar is fully dedicated to continuing to work with the local area to promote environment conservation as we strive to make our plant a leading example in environment-related matters.



Wastewater Processing Plant (for Plant Wastewater)

Exhaust Gas Processing Facility

Cogeneration System

Wastewater Processing Facility (for Rainwater)

## Fostering human resources capable of meeting the challenges of creating new value

By integrating the growth and development of each Yanmar employee into our corporate organization, we are working to realize the sustainable development of our business. Based on this concept, we strive to make our workplaces ones that allow each individual to enhance his or her expertise, to realize personal growth, and to feel a strong sense of satisfaction through daily work activities.



**Hiroto Misawa,**  
Executive Managing Director

### Yanmar fields of activity, expanding throughout the world

Our company's products are currently being used in more than 130 countries, and have become true global products. As the overseas development of our business activities continues to accelerate, we strive to fulfill our mission of providing products and services that will be well received in countries and regions throughout the world.

At Yanmar, we are turning out numerous qualified people who are instilled with the spirit of this mission and are capable of activity on a global scale. We are also working to cultivate a spirit of challenge that is the

driving force behind innovation. Likewise, we are promoting the implementation of education and training which increase the skills of our employees, which allow for exceptionally fair personnel evaluation, and which are geared towards the levels of each individual.

### ■ Establishing Core Fields By Enhancing Specialized Capabilities for Business

Yanmar encourages all of its employees to have a sense of pride as a professional in the work that they do, and to achieve levels of excellence that few can follow. These "core fields" include not only fields such as research and development, but also encompass all fields related to business activities, such as information and materials. The fundamental policy of Yanmar's human resource development is to realize the collective strength of its business through the integration of the individual capabilities our employees have honed in their core fields.

In particular, for people who have taken the initiative to formulate their own careers and develop specialized abilities that can also be applied outside of Yanmar, and for people with a drive to learn and grow, our company provides opportunities such as "Selective Training" seminars through which our employees can develop their capabilities. These activities provide support for our employees to grow, develop, and achieve self-sufficiency. Yanmar also conducts annual personnel evaluation interviews and self-assessment interviews in order to be able to fully reflect the concepts and ideas of our employees in our business activities. In these ways, Yanmar is striving to create many opportunities for employees to talk with their superiors about their own careers.

### ■ Fostering Global Concepts

Our global strategy involves three major points of operation -- Europe, the United States, and Asia. Based on our strategies, we have achieved a ratio of overseas product sales that exceeds 50%, including products purchased by domestic companies in Japan and then shipped overseas. We plan to further accelerate our

international exchange activities involving people, goods, information, etc.

At Yanmar, we aim to foster human resources capable of taking action from a global standpoint. To that end, Yanmar is working to actively create opportunities for our employees to work at our overseas bases, and even participate in long-term overseas assignments, and we are also working to employ foreign workers in Japan and to accept people for internships from abroad. Through our efforts to diversify our human resources, we are promoting cultural exchanges within the company itself. Furthermore, through personal exchanges such as our training programs with the plants and sales bases that Yanmar is developing throughout the world, we are working to foster human resources with flexible and "borderless" ways of thinking.

### ■ Cultivating a Spirit of Challenge

The fostering of human assets which embody these concepts challenge, diversity and growth is truly the mission of the Yanmar human resources department.

Approximately one century ago, the products of a small company first saw the light of day in Shiga prefecture. Today, the products of this company are being used by people around the world, and many people throughout the world are also involved in the manufacturing and sales of these products. In the journey that has led us to this type of development, we must carry on and respect the many assets fostered by our predecessors and embrace a spirit of challenge as we vigorously push to create new corporate value. The "Yanmar Dreams Come True" system is our unique program for recruiting within the company. The program was introduced as a means of supporting the spirit of challenge of Yanmar employees, and also to discover new business themes that will lead us to the future. Yanmar shall continue to foster the personnel who are the very building blocks of our business, and shall also continue to promote the formation of a workplace that is appealing to each employee, and which serves as a venue for self-realization.

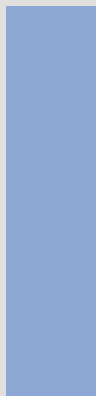
#### Primary Education Programs, and the Yanmar Personnel System

	New Employees	Regular Employees	Employees with Specific Qualifications for Their Posts
Selective Training	• Management Training (Basic)		• Management Training (Advanced)
Goal-Specific Training	• Challenge Seminars • Quality Assurance Education	• Self-Help and Support Systems (Correspondence Course, Foreign Languages) • International Exchange Programs	
Skill-Specific Training	• Engineer Training • Sales and Service Training	• Training Prior to Overseas Assignment	
Job Level-Specific Training	• New Employee Training • OJT Training • Career Planning • Management Training		• Compliance Mental Training • Foreign Executive Training (Planned)
Personnel-Support Systems (Motivational Systems)	• Dreams Come True System • Career Development for Female Employees • Employee Survey	• CDP System • Self-Assessment Interview System • Personnel Evaluation Interview System	• Support System for Reentering the Labor Market (Reemployment after Compulsory Retirement) • Early Administrative Position Appointment System • Commendation System



# Social Responsibility

Together with Our Stakeholders



## Our Relationship with Our Customers

We aim to create values that we can share with our customers, while forming a relationship of mutual trust with the customers.

## Our Relationship with Our Employees

We promote the renovation of our corporate culture, with the three key ideas of a “global viewpoint,” “challenging spirit,” and “establishment of specialities in core fields” as our primary themes.

## Our Relationship with Society

Embracing our founding spirit of “A Beautiful World with Sincere Thankfulness,” we strive to meet the needs of society as a good corporate citizen, and to promote the establishment of a humane society.



## Environmentally-Friendly Products

Positioning nature as a vital factor in our business activities, the Yanmar Group is committed to advancing the environmental performance of our products, staying true to the theme of "coexistence with nature."

## Environmental Conservation Activities at Production Sites

As a trailblazer of the effective use of energy, we help conserve the global environment by providing products that offer excellent environmental and economic performance.



Together with the Global Environment

# Environmental Conservation Activities

## Our Efforts to Achieve High Quality

Taking "The pursuit of the 'Number One' and 'Only One' products and services for a resource-recycling society" as its mission, Yanmar provides safe, high-quality and environmentally-friendly products and 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.

<sup>1</sup> 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.

<sup>2</sup> 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 Outlook on 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 of unparalleled quality and performance, and by offering prompt, suitable services.

## 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 has 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 18 units, including some overseas.

<sup>3</sup> The collective name for operations divisions (including the Power System Operations Division and Large Power Products Operations Division) and business companies (including Yanmar Agricultural Equipment Co., Ltd., Yanmar Construction Equipment Co., Ltd., Yanmar Energy System Co., Ltd., and Yanmar Marine System Co., Ltd.)

## Quality Assurance

We are conducting systematic activities to ensure product quality and safety in every stage of our business activities, including the planning, development, production, sales and service of our products. In 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).

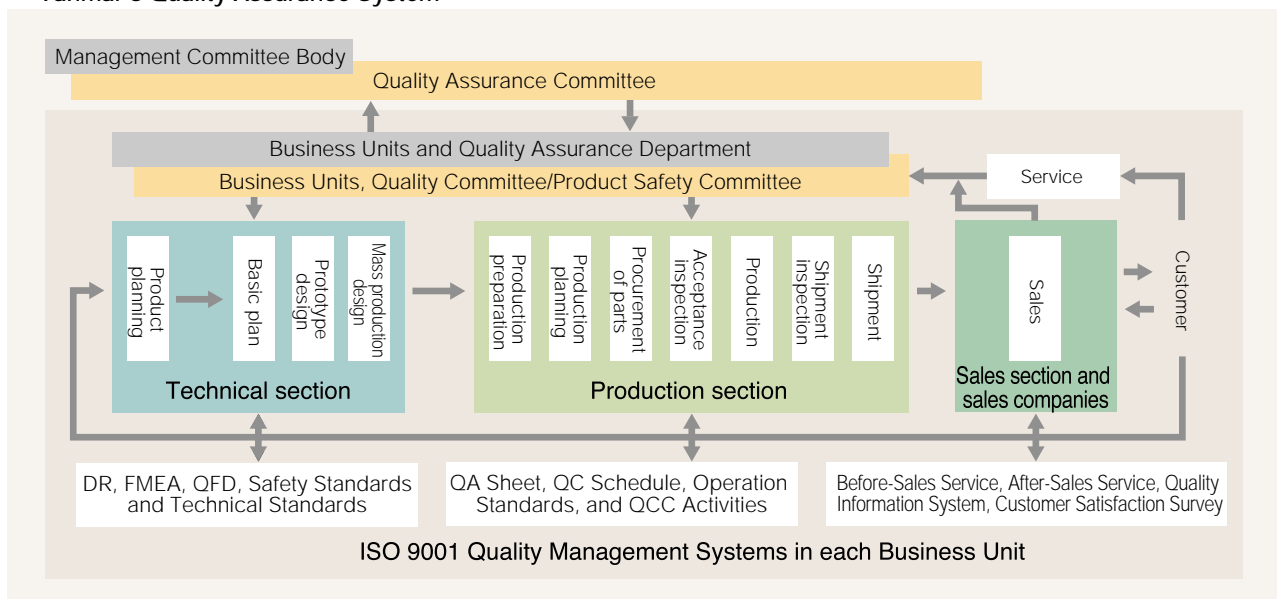
Product safety is particularly important. In addition to compliance with all applicable standards and regulations, we have a stricter set of in-house standards in place. We also constantly make design reviews, and hold evaluation meetings in each step of new product development. With this system, new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

In 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.



Operation Suitability Testing

## Yanmar's Quality Assurance System



## Seeking Operability and Comfort

Yanmar constantly strives to improve the operability and comfort of its products by introducing universal design concepts that incorporate ease of use, and by conducting operational trials with the users themselves. "Ease of use" is the key concept behind the products we offer to our customers. Take the design of our combine for example. The switches used frequently during operation are arranged on a multi-functional shift lever so that the user can perform important operations without releasing the grip on the lever.



Yanmar Combine AJ218

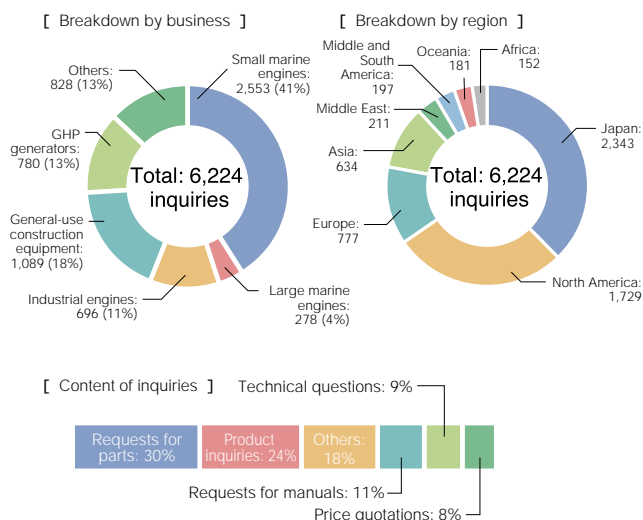
## Efforts to Improve Customer Satisfaction

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.

### Customer Consultation Office

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

### E-mail inquiries (FY2006)



## After-sales Service

Annual nation-wide customer questionnaire surveys are used to obtain information about our stores, sales activities, services and products. Yanmar Agricultural Equipment Co., Ltd. conducts customer satisfaction surveys on new products, mainly large agricultural equipment, choosing four machines as survey subjects in 2006. A guarantee that includes a checklist for free inspections is issued for some products as part of our after-sales service improvement policy.



Maintenance Being Performed by Yanmar Agricultural Equipment

## Quick and Accurate Provision of Information to Our Customers

Whenever serious quality problems are found, related information is posted on our website. Other information available on the website includes schedules for events held to help customers better understand our products, and maintenance instructions for sailboats, which are usually maintained by the users themselves.

## Provision of Dealer Information

Dealers are our direct window to our customers. We hold a Yanmar Convention once a year for our dealers, at which we explain our policies and share information on services and products, thereby strengthening our relationship with our dealers in order to improved customer satisfaction. The Internet is also used to provide information on products and services to dealers in Japan and abroad. We plan to further promote the provision of information, particularly to our overseas dealers.



Yanmar Marine System National Convention

### Yanmar Convention (FY2006)

July 2006	Yanmar Construction Equipment Block Convention
October 2006	Yanmar Marine System National Convention
January 2007	Yanmar Agricultural Equipment National Convention

## Response to Recall

If a problem is found in a purchased product that requires treatment, we swiftly implement the necessary actions, including recall, replacement, inspection and repair, placing primary importance on customer safety and the minimization of potential damage. To facilitate this, we are continuously making improvements to our in-house response system for such problems. Information about recalls and improvement measures is posted on our website.

## Personnel System

Yanmar gathers and develops world-class professional human resources, regardless of nationality, gender or age, in order to continue growth as a global corporation. Yanmar promotes a personnel management system that rewards deserving personnel in a reasonable manner, while considering the motivation of individuals and organizations.

To that end, we set a "personnel evaluation system focusing on the spirit of challenge in conjunction with objective management," "personnel evaluation system that emphasizes results," and "personnel evaluation system that is open and convincing" as the basic concepts of personnel evaluation. Through these ideas, Yanmar is improving its personnel system that allows every employee to demonstrate individuality and independence of mind.

## Diversity and Opportunity

Yanmar respects the diversity of its employees, and actively employs foreigners. 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 stability after retirement.

## Education Programs

Yanmar conducts various personnel programs to help employees who are voluntarily seeking to further their careers in their respective workplaces.

### Support for Self-motivated Personnel

Yanmar provides various opportunities for skill development to encourage employees to improve their careers through their work. Selective workshops ("Challenge Seminars") are one such opportunity. Employees who want to take on new tasks are allowed to use a direct application system, in which they can directly apply for a transfer to a new workplace, or to utilize the in-house open recruitment system (the Yanmar Dreams-Come-True System).

### Development of Human Resources for Future Managerial Positions

Yanmar holds "Management Training" for business leaders who will, in the near future, be supporting the corporate management of Yanmar and the Yanmar Group. The purpose of this training is to improve management skills through the development of the capacity for deep insight in such fields as management strategy, marketing strategic thinking, and financial knowledge. The training also helps employees to actively act on their ideas.

## Development of Global Human Resources

Another aspect of education which Yanmar emphasizes is global communication, and the company provides language training, primarily English, as well as intercultural communication training. The language training program in particular provides various course options that are optimized to particular types of work. In addition to English, Chinese language training is also offered.

## Norms of Conduct

When striving for commercial success, the Yanmar Group is not only led by results. The manner in which these results are achieved also deserves the attention of the company. Yanmar's "Norms of Conduct" has been drafted to provide its employees with clear guidelines for morally and ethically sound business behavior.

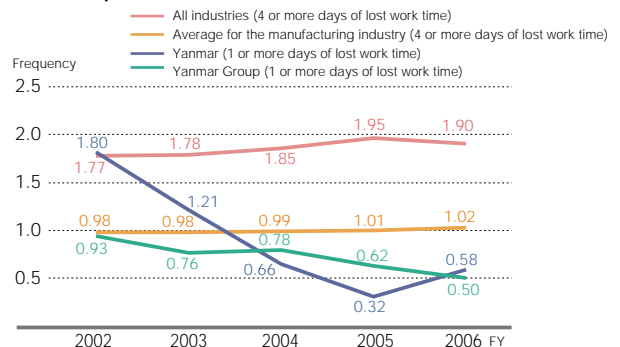


Compliance Guidebook

## 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: Number killed or injured per one million working hours (A frequency of 1.0 indicates the rate at which one worker is annually involved in an accident that causes 4 or more days-off at a plant of 500 employees.)

## Social Contribution Activities

The Yanmar Group has been supported and nurtured by the local societies it serves. As such, we are eager to participate in various social contribution activities as a token of our gratitude for the support we have received.

### Fostering Sports Culture

Yanmar supports the activities of the Cerezo Osaka J League professional soccer team as an operating organization for the team. Yanmar is working together with local administrations and leading corporations to help promote sports culture rooted 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

### The Revitalization of Agriculture

#### Yanmar Student Essay Contest

Yanmar Agricultural Equipment Co., Ltd. annually invites submissions for a "Student Essay Contest" to create a forum of discussion with young people about the future of agriculture and rural areas. Many proposals are submitted each year. A total of 471 entries, including 58 theses and 413 essays, were received for the 17th Student Essay Contest.



Student Essay Contest Awardees

#### Children's Picture Exhibition

Yanmar Agricultural Equipment Co., Ltd. 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 picture exhibition, first held in 2000, received over 9,000 entries in 2007, from which 23 prize winners, 108 entries and 28 group prize winners were selected. The Yanmar Prize winner was "My Grandad's Tractor" drawn by Akiko Iwata, a 4th grade elementary school student from Okayama City.



Awards ceremony

### Educational Support Activity

The Yamaoka Scholarship Foundation was established in 1950 by Yanmar's first president Magokichi Yamaoka for the purpose of developing 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 the Foundation currently makes scholarship grants and loans available to high school, junior college, university and graduate school students. The foundation also operates a student dormitory, Son-o Juku, for college students in the Tokyo Metropolitan area. Over 5,000 students have successfully finished their academic courses with the help of Foundation scholarships.

#### Scholarships Granted in 2006

(unit: persons / ¥1 million)

Classification		No. of Students	Amount
Graduate Students	Japanese Students	32	23
	Foreign Students	12	14
College Students		76	26
High School Students		30	3
Total		150	66

## Local 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.



Operation "No Refuse" (Maibara City, Shiga Prefecture)



Cleaning of commuter roads (Amagasaki City, Hyogo Prefecture)

### List of Group Company Activities

Company or division	Activities
Head office	Chayamachi Voluntary Cleaning (twice a month) Chayamachi Graffiti Erasing (Nov. 25, 2006)
Large Power Products Operations Division	Amagasaki Plant Participated in the 100,000 My Town Cleaning Operation (May 18, 2006) Cleaning of gutters around the plant compound (once a month)
	Tsukaguchi Plant Cleaning of plant compound and surrounding area (twice a year)
Power System Operations Division	Cleaning of prefectural roads around the plant as a participant in the ECO Foster scheme Participation in lake-wide cleaning of Lake Biwa Volunteer cleaning of the Nagahamashinsen River Planting of reeds in Lake Biwa
Yanmar Energy System Mfg. Co., Ltd.	Cleaning and weeding of the area around the plant twice a year Cleaning of prefectural roads around the plant
Yanmar Agricultural Machinery Manufacturing Co., Ltd.	Cleaning of area around the plant (Picked up refuse in area around the business site as part of a community-wide cleaning project) (June 2006)
Yanmar Construction Equipment Co., Ltd.	Cleaning of public water channels twice a year Weeding of area around the plant Cleaning of area around the ground
Yanmar Shipbuilding and Engineering Co., Ltd.	Processing of garbage in the sea Cleaning on Marine Day
Kanzaki Kogyukoki Mfg. Co., Ltd.	Cleaning of sidewalk from the company to the JR station once a month Cleaning of water channels around the plant twice a month
Seirei Industry Co., Ltd.	Efforts to deepen the sense of community union through cleaning projects conducted five times a year Cleaning of area around the plant
Matsue Division, Yanmar Casting Technology Co., Ltd.	Cleaning of the compound twice a year, in June and November General cleaning before the O-bon vacation season and the year-end holiday season
Koga Division, Yanmar Casting Technology Co., Ltd.	Participation in cleaning at the Nozu River floodplain on Lake Biwa Day Cleaning of the Yasugawa Ground next to the plant

## 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 "Beautiful World with Sincere Thankfulness," 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

1. We position environmental conservation as one of the most important management objectives of the Yanmar Group for the purpose of Group-wide environment management.
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.
3. 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.
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 achieved 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.

### 2012 Environmental Vision

The Yanmar Group, in full recognition that it does handle products that can impose environmental load, undertakes to:

1. Contribute to the growth of a sustainable, resource-recycling society  
[A society that promotes the prevention of global warming, zero-emission, re-use, and recycling]
2. Provide number-one, only-one, as called, products that are compatible with both environmental and economic needs  
[Products that emit cleaner exhaust gas, have higher energy efficiency, and reduce harmful substances]
3. Fulfill social responsibilities in cooperation with society  
[Promote legal compliance, voluntary regulations, information disclosure, and communication with the communities]



To achieve these objectives, the Group shall:

- (1) Construct extensive common environmental preservation systems for all consolidated companies in Japan and abroad
- (2) With implementing environmental preservation activities step-by-step, providing environment-friendly products, increase the brand image and reliability of the Yanmar Group as a whole
- (3) Provide business resource to the prevention of global warming and reduction of harmful substance in order to stay one step ahead of the requirements
- (4) Expand environmental education for associated companies and dealers

## Second Environmental Mid-term Plan

Yanmar developed the Second Environmental Mid-term Plan (2006-2010) to achieve its Environmental Vision 2012, and has set 23 achievement goals in the five fields of "Structure," "Environmental Management," "Business Operation," "Product Measures" and "Society."

In 2006, we achieved our goals in all of these fields, except "Product Measures." Our production facilities in

particular were able to improve their production efficiency through resource and energy savings as they made extensive efforts in the field of "Business Operation," thereby realizing great contributions to the reduction of environmental load.

In the field of "Product Measures," one of our major goals is to realize our philosophy of "environmentally conscious design," that is, environmental-friendliness incorporated into product development. Yanmar will further its efforts to promote and reinforce the life cycle assessment of products in order to achieve these goals.

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

Category	Item	Mid-term targets	2006 Group Goals	2006 Group Results	Evaluation
Structure	Transformation to a CSR Structure	Start of publication of CSR Report in 2008	Promotion of consultation to establish CSR structure	Consultation to establish CSR structure	
	Expansion of the Global Environment Committee	Participation of overseas affiliated companies, and expansion of Global Environment Meeting	Promotion of each site' Environmental Conservation Committee activities	Start of each site's Environmental Conservation Committee activities	
Environmental Management	Environmental Audits	Start of the use of consolidated accounting in 2008 by domestic companies			
	Environmental Performance Management	Environmental accounting, risk management, preparation of internal environment report			
	Acquiring ISO 14001 Environmental Certification	(Domestic and overseas) Production companies: 100% Non-production companies: 50% or more	Yanmar Shipbuilding & Engineering Co., Ltd. to acquire certification Yanmar Helicopter Service Co., Ltd., Hokuto Yanmar Co., Ltd. and Tokyo branch office to acquire extended certification	Yanmar Shipbuilding & Engineering Co., Ltd. acquired certification Yanmar Helicopter Service Co., Ltd., Hokuto Yanmar Co., Ltd., Tokyo branch office and Yanmar Logistics Service Co., Ltd. acquired extended certification	
	Execution of Environmental Education	Establishment and implementation of environmental education system based on hierarchy			
Business Operation	Reduction of Gases Causing Global Warming	Six global warming gas emission: Reduction of 5% or more (compared with 2005)	Reduction of 1% or more (compared with 2005)	CO <sub>2</sub> emission: Reduction of 9.6% (compared with 2005)	
	Reduction of Energy Consumption	5% per year reduction (compared with 2005)	Reduction of 1% or more (compared with 2005)	Reduction of 8.9% (compared with 2005)	
	Resource Savings	Water consumption: Reduction of 20% (compared with 2000)	Reduction of 5% or more (compared with 2000)	Reduction of 15.7% (compared with 2000)	
	Elimination of Materials That Produce Environmental Load	Banning of the use of prohibited hazardous materials: total elimination by 2008	Survey to verify the content of materials that create environmental load	Preparation for and start of content survey, and start of system to manage materials that create environmental load	
		PRTR substances: 30% reduction (compared with 2001)	PRTR substances: 5% or more reduction (compared with 2001)	PRTR substances: Reduction of 13.9%	
	PCB Treatment	Disposal of PCB: disposal by 2016	Development of PCB disposal plan and application	Disposal plan developed and application filed	
	Waste Reduction	10% reduction (compared with 2005)	Reduction of 3% or more (compared with 2005)	Reduction of 21.2% (compared with 2005)	
	Paper Resource Savings	Paper recycling ratio: 70% or more (compared with 2005)	Paper recycling ratio: 30% or more (compared with 2005)	Paper recycling ratio: 67.0% (compared with 2005) (only for the head office)	
Promotion of Green Purchasing	Eco office goods purchasing ratio: 70% or more (compared with 2005)	Eco office goods purchasing ratio: 30% or more (compared with 2005)	Eco office goods purchasing ratio: 42.9% (compared with 2005)		
Product Measures	Improvement of the Environmental Performance of Products	Advance achievement of clean emission regulation	Advance achievement of clean emission regulation	Advance achievement of clean emission regulation	
	Improvement of Energy Efficiency	Operating efficiency: 20% or more (engine thermal efficiency: 5% or more) (compared with 2005)			
	Environment Coordination Design	Implementation of LCA for all new products	Development of product LCA mechanism	Test trials with tractors	
	Elimination of Materials That Produce Environmental Load	Total elimination of six substances under consideration for banning: total elimination by 2008	Survey of content of materials that create environmental load	Verification of the use of two substances (PBB and PBDE) and efforts to eliminate these substances	
	Provision of Environment-Related Information	Inclusion of information on the environment, recycling, and waste disposal in instruction manuals			
	Development of Ecologically Friendly Products	Development of products with Environmental Label III			
	Reduction of Environment Burden at Time of Product Disposal	Research and improvement of product disposal processes			
Social Contribution	Voluntary Activities	Local voluntary activities: 5 or more	Local voluntary activities: steadily 5 or more	Cleaning of the area around the plant, My Hometown Cleaning Movement, "Cherry Blossom Festival" garden opening, summer festival, "Wasshoi Carnival," etc.	
	Communication with Local Residents	Holding of social gatherings: 1 or more	Holding of social gatherings with local residents: 1 or more	Participated in local events	
	Promotion of Tree and Flower Planting	Promotion of tree-planting	Increase in the number of trees planting	Started tree-planting activities	

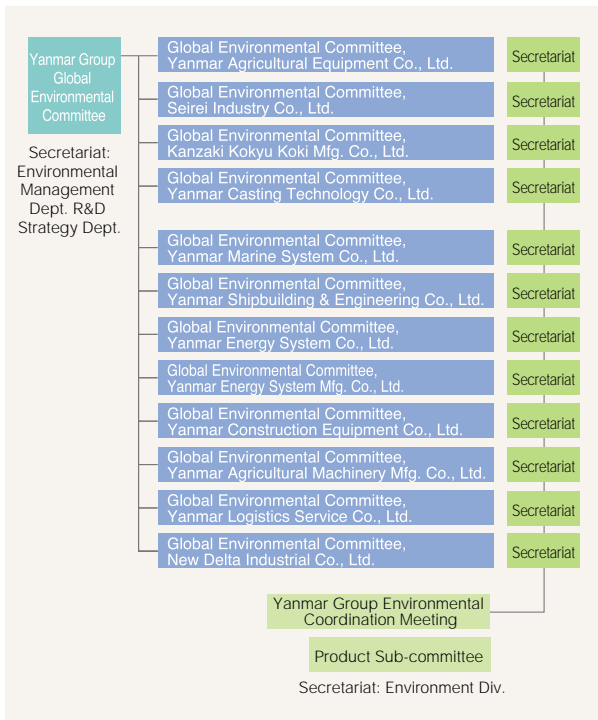
## Implementation Structures

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. The Committee is managed by 13 Group companies engaged in production, sales, and distribution. 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

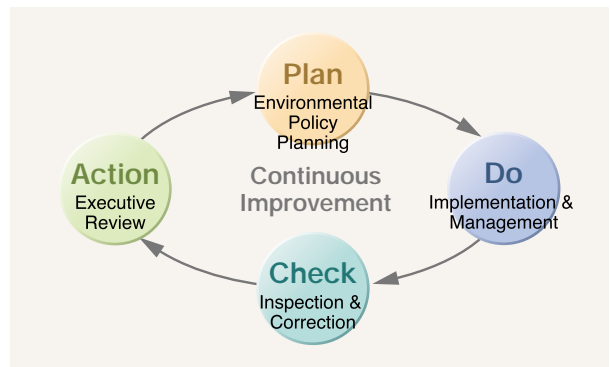


## ISO Certification

The Yanmar Group promotes Group-wide efforts to achieve certification for ISO 14001, an international standard for environmental management systems, as part of our efforts to continuously promote environmental conservation activities. In July 2006, Yanmar Shipbuilding & Engineering Co., Ltd. was certified for the ISO 14001 standard.

We are continuing to promote ISO accreditation by non-production facilities.

### Continuous Improvements Under ISO14001



### 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	770250	Jun. 1997
Power System Operations Division (Shiga Zone)	Biwa / Kinomoto / Yamamoto / Omori / Nagahama / Nagahara Plants	JQA	JQA-E-90134	Mar. 1998

[ Group Companies ]

Company Name	Accredited Business Units	Audit & Registration Organ	Register No.	Accredited Date
Yanmar Agricultural Machinery Mfg.	Head Office, Ibuki Plant	LRQA	4002304	Mar. 1999
Kanzaki Kokyukoki Mfg. Co., Ltd.	Head Office Plant	LRQA	772501	Mar. 1999
Seirei Industry Co., Ltd.	Okayama / Yamada Plants	JQA	JQA-EM 0277	Dec. 1998
Yanmar Construction Equipment Co., Ltd.	Fukuoka Plant	JQA	JQA-EM 0281	Dec. 1998
Yanmar Casting Technology Co., Ltd	Head Office / Matsue Division	LRQA	JBC-4002315	Aug. 2003
New Delta Industrial Co., Ltd.	Head Office Plant	JICQA	JICQA-E 840	May 2004
Yanmar Energy System Mfg. Co	Head Office Plant	JIA-QA Center	JE0464A	Jul. 2004
Yanmar Agricultural Equipment Co., Ltd.	Head Office / Facility Div. / Each Development Division	JQA	JQA-EM 4278	Oct. 2004
Yanmar Shipbuilding & Engineering Co., Ltd.	Head Office, the 1st and the 2nd Plants	JQA	JQA-EM 5433	Jul. 2006

[ Yanmar Group Overseas Companies ]

Company Name	Accredited Business Units	Audit & Registration Organ	Register No.	Accredited Date
P.T. YANMAR DIESEL INDONESIA	Head Office Plant	KEMA Quality B.V	2032854	Jul. 2003



## Environment Audits

Facilities that have acquired ISO 14001 certification are committed to the continuous improvement of their environmental management systems. Specifically, they disclose their environmental policies and periodically audit their environmental performance to the status of compliance with ISO standards.

Internal audits are conducted once a year, and third-party examinations by an external certification organization are also conducted once a year. In 2006, no major problems related to compliance with laws and regulations were found.

## 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.



New Recruit Training

### 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.

## Support for Group Companies for the Acquisition of ISO 14001 Certification

Yanmar supports the establishment of environmental management systems to ensure the smooth and efficient acquisition of ISO 14001 certification by Group companies that are working to acquire such certification.

## Environmental Awareness through Internal Publications

The environmental awareness of employees is also promoted through an internal publication by the Yanmar Group, "ECHO." Every issue includes information that helps employees keep abreast of the latest environment-related information.



New Year Issue of ECHO

Spring Issue	Do You Know the Energy Saving Act?
Summer Issue	Selective Enforcement Audit (SEA) of the US Emission Control Regulations
Autumn Issue	What is revealed from Environmental Audits
New Year Issue	Environmental conservation activities of Yanmar Agricultural Equipment

### 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	

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

	Shiga Zone	Amagasaki	Tsukaguchi	R&D Center	Head Office	Total
Pollution Control Manager for Water Quality	8	2	2	5	2	19
Pollution Control Manager for Air Quality	8	7	2	2	2	21
Pollution Control Manager for Noise	9	2	1	3	2	17
Pollution Control Manager for Vibration	5	1	2	3	0	11
Specially Managed Industrial Waste Control Manager	12	3	1	1	0	17
Waste Disposal Facility Engineering Manager	1	1	0	0	0	2
High Pressure Gas Control Manager	9	1	0	2	1	13
Chief Electrician	5	0	1	0	0	6
Type 2 Chief Electrician	26	0	1	0	0	27
Type 3 Chief Electrician	10	8	2	8	1	29
Class 1 Boiler Engineer	4	0	0	0	0	4
Class 2 Boiler Engineer	22	4	0	2	1	29
Environmental Management System Auditor Assistant	1	1	0	0	2	4
Internal Environmental Auditor	44	26	15	0	0	85
Energy Control Manager (Electricity)	4	0	0	0	0	4
Energy Control Manager (Heat)	4	1	1	1	0	7
Energy Control Manager	5	1	0	2	0	8
Energy Controller	2	0	0	2	0	4
Total	179	58	28	31	11	307

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.

## 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 disclose the analyzed data to related parties in and out of the company in order to promote the understanding of Yanmar environmental efforts. 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 2006 was approximately ¥4.6 billion, 93% 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 disclose our environmental accounting information in 2003. We will continue to disclose information for use in environmental management tools and indices.

### Environmental Conservation Costs

(Unit: ¥1 million)

Classification of environmental conservation costs	Main items covered by related activities	Investment	Total Cost
Cost of Controlling Environmental Load within Business Area:		29.7	236.6
Public nuisance prevention costs	Air quality, water quality, waste, vibration and noise	8.5	188.2
Global environment conservation costs	Prevention of greenhouse effects, energy-saving, improving distribution efficiency	21.2	21.0
Resources recycling costs	Reduction of oil/grease, water, and waste	0	27.4
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.	0.4	82.3
Environmental conservation costs in R&D activities	Improvements related to engine exhaust gas, R&D to improve environmental performance	186.7	4,260.3
Environmental conservation costs in social activities	Environmental volunteer activities, etc.	0	2.0
Costs of repairing environmental damage		0	0
Total		216.4	4,581.1

### Quantitative Effects

(Unit: ¥1 million)

Outline of Effect	Environmental effect index	Reduction volume	FY2006
Energy Consumption per production unit volume	kl (in terms of crude oil) / ¥100 million	8.9%	30.1
Oil/grease consumption per production unit volume	kl / ¥100 million	4.7%	1.00
Water consumption per production volume	ton / ¥100 million	16.1%	635.4
Discharge of waste per production unit volume	ton / ¥100 million	21.3%	2.45

### Economic Effects

(Unit: ¥1 million)

Outline of Effect	Economic items	FY2006
Income from recycling	Sales of wastes, etc.	27.3
Cost reduction through energy saving	Change of electric power supplier, use of cogeneration system, production process restructuring	262.3
Cost reduction through resource-saving	Oil and grease, water resource recycling	-66.1
Reduction of waste treatment cost	Improved yield, recycling, simple packing	17.4

### Compilation Method

- (1) Period of compilation: March 21, 2006 to March 20, 2007
- (2) Range: Yanmar only, not consolidated
- (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
- (8) Production in FY2000 was used as the denominator for the calculation of the unit volume index up to the Environmental Report for 2006. The production of FY2005 is newly used for the said denominator in this Report.

## 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	Item	Description
Engine technology	Low emission	Improvement of engine combustion
		Electronic control technologies
		Emission gas post-processing equipment
System technology	Improvement of system efficiency	Coolant cycle technology Control technologies
	Gas engine for GHP	Combustion, emission post-processing and engine control technologies
	Reduction in engine fuel consumption	Improvement of combustion, loss of air intake and discharge, etc.
	Low vibration and noise	Proprietary analysis system VINAS
Agricultural technology	Ecology and economy	Reduction in fuel consumption, improvement of work efficiency
	Easy operation	FDS (forced differential transmission)
	Transplanting Technologies	Horizontal controls
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 intend to apply LCA to all new products in FY2008. We implemented LCA for tractors in 2006 on a trial basis, and in 2007, we will establish procedures for using a CAD system and LCA calculation software, and for implementing LCA for some primary Yanmar products.

## 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 emission focus on the development of elemental technologies for emission, resulting in compliance with the third EPA regulations and the primary regulations of the IMO Convention, prior to the actual enforcement of these regulations. The focus of other efforts in this respect are product energy savings, resource savings, recycling, and the extension of service life. We aim to improve the operating efficiency of our products by over 20%, on average, by 2010.

For the control of hazardous materials, we are also developing environmental technologies that allow us to comply with the ELV Directive and RoHS Directive.

## Disclosure of 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 I 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 "self-declared 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 in 2009.

## 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 Friendly Products

### Industrial and Construction Machinery Field

#### Industrial Engines

##### TNV Series (vertical water-cooled diesel engines)

###### Cleaner and Quieter

We offer a lineup of diesel engines with output ranging from 10 kW to 62.5 kW, all of which comply with the environmental standards of various countries around the world. The analysis of air flow in the combustion chamber, accurate adjustment of fuel injection timing, and improvement of the injection nozzle have allowed us to create cleaner and quieter diesel engines by uniformly mixing fuel and air in the combustion chamber to increase combustion efficiency and reduce the amount of pollutants in the exhaust gas.



##### LV Series (air-cooled diesel engines)

###### Our Proprietary Technology Meets 2006 Emission Gas Regulations

The LV Series are our new air-cooled diesel engines that have been awarded the Label of Conformity for Voluntary Regulation, established by the Japan Land Engine Manufacturers Association (LEMA). These also satisfy the second emission regulation of the EPA (Environmental Protection Agency of the USA). Yanmar's advanced direct injection technologies and combustion technologies are combined to realize the reduction of pollutants in engine exhaust. LV series engines can be installed on small work vehicles because of their light weight and compact design. The use of a high-performance balancer considerably reduces vibration.



##### NF Series (horizontal water-cooled engines)

###### Meeting the Global Need to Reduce Resource Use

The improvement of the combustion chamber, fuel injection valves and injection pump further enhance combustion efficiency and boost output in the low to middle speed range. Yanmar's own biaxial balancer structure reduces engine vibration, while the use of a large-capacity muffler and large air cleaner reduces engine noise. Thanks to these features, the NF Series fully complies with Japanese voluntary emission regulations and the environmental regulations of other countries in Southeast Asia.



#### Construction Machinery

##### Backhoes

###### Complying with the Latest Emission Regulations of Japan, the US and Europe

Our backhoes are fitted with direct injection engines that satisfy the Japanese voluntary emission regulations for engines of 19 kW or less in output, special vehicle emission regulations, off-road regulations, the third regulation for construction machinery of the Ministry of Land, Infrastructure and Transport (MLIT), and the latest emission regulations of the USA and Europe.

Our mini backhoes, frequently used in urban areas, have been awarded the status of super low-noise construction machinery by the MLIT and satisfy the more stringent Europe noise control Stage II.

Yanmar backhoes also excel in energy saving performance. Our own hydraulic system efficiently distributes the oil discharged from the hydraulic pump to each actuator according to the type of work being done, thus achieving both reduced fuel consumption and improved operating efficiency. Recyclability is another feature of these backhoes. The major exterior parts of the backhoe, such as the hood, are made of steel plates structurally designed for ease of repair and reuse. Resin parts are labeled with material identification for easy separation and disposal.



Vio 50-5 Backhoe B6-6 Backhoe

#### The Field of Energy

##### Co-generation Systems

##### CP25VB1 Series (Biogas)

###### Zero CO<sub>2</sub> Emission through a Resource-Recycling System

Large energy saving is created by our co-generation system that generates electric power using biogas (methane fermented gas), which is converted from organic materials originating from animal and vegetable material found in food waste, livestock excreta, and sewage, and simultaneously recovers waste heat generated by the process. Since the fuel is a recyclable resource, it does not increase CO<sub>2</sub> in the atmosphere. The power generation efficiency of the CP25VB1 Series is very high, at 32% to 33%, and eight units of our co-generation systems can meet power demands of up to 200 kW. The lineup also includes a version that can automatically switch on in the event of a power failure.



## The Field of Agriculture

### Rice Transplanter

#### VP80D

##### Maintaining Water Quality by Preventing the Outflow of Fertilizer to Rivers

The VP80D is fitted with an electronically controlled HMT transmission that regulates two types of power balances, mechanical gear and hydraulic transmission, to ensure a continuously variable transmission. This feature realizes a soft start from a stationary position as well as smooth, continuous variable transmission during movement. Offering excellent transmission efficiency and fuel savings, our rice transplanter is an environmentally-friendly and economically efficient choice for paddy fields in Japan. As it is also equipped with a fertilizer applicator, it can automatically apply an appropriate amount of fertilizer into the soil near the rice seedlings that are transplanted, thereby reducing the outflow of fertilizer and thus reducing pollution flowing into rivers, ponds and lakes.



### Tractor

#### EG700

##### Further Improvements in Operating Efficiency and Stability

The EG700 is our large tractor that gives professional farmers what they want - improved operating efficiency, improved operating precision, and improved operability. The tractor is fitted with a regulation-compliant TNV direct-injection eco diesel engine that features our advanced technologies, such as our latest fuel injection and combustion technologies. Whenever the load suddenly increases during work, the machine maintains stable power, without experiencing a drop in engine speed. The electronically controlled HMT transmission that ensures easy, accurate and smooth continuous variable transmission can maximize operating efficiency when pulling or towing.



## The Field of Marine Products

### Boats

#### Marine Hunter FZ Series

##### Meeting the Needs for both Low Fuel Consumption and a Smooth Ride

The Marine Hunter is available in two models, the FZ25G and FZ30, measuring approximately 8 m and 9.5 m in length, respectively. The FZ30 is a boat developed jointly

with Yamaha Motor Co., Ltd. Both boats have V-shaped hulls and thus can ensure stable operation while maintaining high performance and a smooth ride, even at speeds as high as 30 knots. Equipped with a diesel engine, the FZ Series consumes only about two-thirds the amount of fuel used by a four-cycle gasoline outboard of the same class. It also has a reinforced plastic fuel tank to meet the requirements for both weight reduction and longer service life.



Boats with a V-shaped front hull offer excellent travel performance.

### Marine Engines

#### Type 6EY18

##### Improved Life Cycle Value

This product is designed to be environmentally friendly and to offer improved life cycle value. The engine maintains reliability and durability, ensuring a long-term sense of safety and low-cost operation throughout its service life. Some of its major features are Laussac fuel injection valves as well as technologies that reduce dirt in the combustion chamber and dirt-resistant applications. The 6EY18 uses 30% fewer parts than conventional engines, making the engine easier to maintain. The engine has been designed to comply with the future second environmental regulation of the IMO without major changes.



## The Environment and Daily Life Field

### Biomass Power Generation System

#### Wooden Gas Power Generation Plant (300 kW co-generation plant)

##### Wooden Biomass for Energy Recycling

This plant generates thermal decomposed gas from the wood chips produced from lumber processing, and the gas is used as fuel to provide power and heat. Featuring dual-fuel technology, the plant can even use low-calorie gas, and provides stable electricity generation even when the fuel gas is changed.

The plant has a power output of 190 kWh per year, using approximately 5 tons of wood chips per day, and reduces CO<sub>2</sub> emissions by 1500 tons, thereby contributing to the prevention of global warming.

Because it uses waste biomass, the system offers economic advantages and environmental value to the customer.



## Eco Balance

The Yanmar Group understands that it is essential to quantitatively measure and ascertain the environmental loads created by all stages of its business activities, namely, the stages from the procurement of raw materials to production, transportation, distribution, use and disposal. It is also essential that we take the actions necessary to reduce these loads.

In fiscal year 2006, environmental loads were measured at eight Yanmar plants to gather necessary data. In the future, we will continue to work to understand the environmental loads created in each stage of the product life cycle, and to promote the analysis and review of the identified loads for all companies, including Group companies.

## INPUT

### Energy

Electricity	108,423 MWh	Town gas	1,442,000 m <sup>3</sup> N
Bunker A	6,705 kl	Butane	95 t
Kerosene	423 kl	LPG	470 t
Light oil	1,249 kl	LNG	2,882 t
		Gasoline	96 kl

## Business Activities

### Development and design

Ecology & Economy  
Development of environmentally-friendly products



### Procurement of materials

Reduction in chemical materials  
Green procurement



### Production

Prevention of global warming (energy savings)  
Waste reduction  
Reduction in hazardous chemical materials  
Underground piping survey  
Storage of equipment containing PCB: 988 pcs.

**Intra-plant circulating material**  
Raw materials  
Water 92,478 m<sup>3</sup>



## OUTPUT

### Discharge to the atmosphere

CO <sub>2</sub>	76,391 t-CO <sub>2</sub>
SO <sub>x</sub>	14.9 t
NO <sub>x</sub>	197.9 t
PRTR-controlled substances	273 t

### Discharge to waters

Sewerage	383,959 m <sup>3</sup>
River	509,587 m <sup>3</sup>
BOD	3.46 t
COD	1.41 t

### Calculation


- CO<sub>2</sub> 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.
- SO<sub>x</sub> emission** : Calculated by multiplying heavy oil and light oil consumed by "specific gravity" and "S content ratio."
- NO<sub>x</sub> emission** : Calculated from the exhaust gas data of combustion facilities.
- PRTR-controlled substances** : 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."

### Materials



Major materials  
Steel, etc.  
Indirect materials  
Oil 1,401t

### Water resource




Total water resource input 893,546m<sup>3</sup>  
Groundwater 396,576m<sup>3</sup>  
Industrial water 166,220m<sup>3</sup>  
Clean water 330,750m<sup>3</sup>

### PRTR-controlled substances



280t

### Distribution energy



Light oil 98.6 kl

### Distribution

Reduction in packaging materials  
Introduction of low-emission vehicles



### Sales and Service

Provision of environmentally-friendly goods



### Use

Provision of information on appropriate use and disposal



### Recovery and dismantling

FEP boat recycling  
Design for ease of recycling at time of disposal




### Generation and disposal of waste




Waste generated 3,442 t  
Waste recycled 2,221 t  
Waste finally disposed of 342 t

### Discharge to the atmosphere - Distribution



CO<sub>2</sub> 258 t-CO<sub>2</sub>  
Yanmar Logistics Service Co., Ltd.  
(14 units owned)

### Products



No. produced: 456,477 units  
Production horsepower: 15,088,000 PS

## Prevention of Global Warming

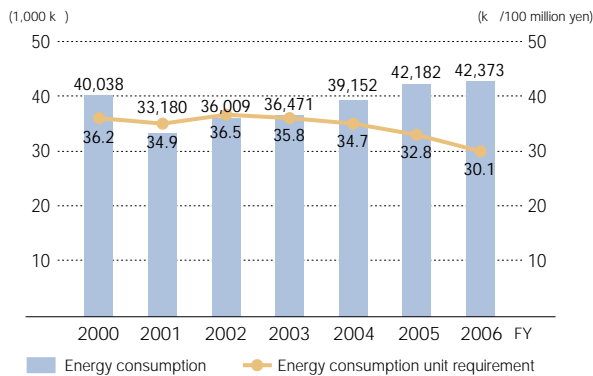
### Promotion of Energy Savings

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.

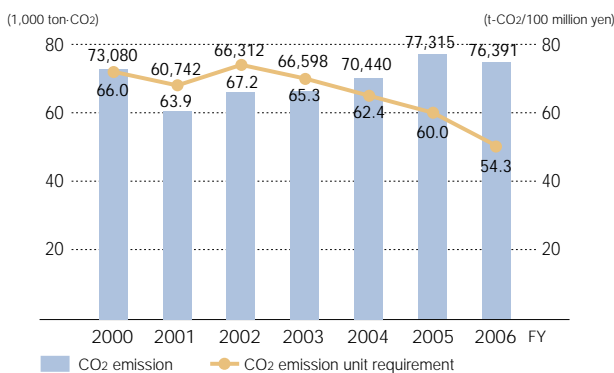
In FY2006, the Yanmar Group put considerable effort into reducing energy consumption in production processes and introducing high-efficiency equipment. Through these efforts, the Group successfully reduced CO<sub>2</sub> emission in unit requirement by 9.6%. For total emission, although production increased, a reduction of 1.2% was achieved.

The Yanmar Group set a goal of a 5% reduction in energy consumption and a 5% reduction in CO<sub>2</sub> emission by 2010, relative to 2005 levels.

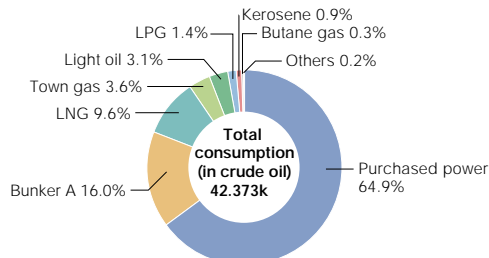
Energy consumption (in crude oil) and energy unit requirements (Yanmar)



Total CO<sub>2</sub> emission and CO<sub>2</sub> emission unit requirement (Yanmar)



Energy consumption by type



### Specific Activities

The Shiga Zone is introducing power regenerating systems that recover power generated from engine durability tests and convert the power into electricity. One such system, introduced in 2006, regenerates about 210 kW, which is equivalent to a saving of 82 t-CO<sub>2</sub> (equivalent to some 7,300 cedar trees). In FY2007, we intend to introduce four more of the systems, and to further increase the number of systems to 15 by FY2009.

Electric power Recovery Plan and Expected Effects

FY	No. of units	Power collected kW	Power recycled kW	CO <sub>2</sub> Emission Reduction t-CO <sub>2</sub>	Value of power collected Unit: ¥1,000
2005	1	53	209	82	2,714
2006	0	0	0	0	0
2007	4	213	835	326	10,856
2008	10	534	2,088	816	27,140
Total	15	800	3,132	1,224	40,710

### <Other Activities>

- Improvement of power efficiency by using V-connections for transformers
- Improvement of power efficiency by introducing energy-saving mercury lamps (high-efficiency lighting)
- Improvement of energy efficiency by shifting to GHP for air-conditioners
- Optimal management of heating boilers based on outside air temperature
- Improvement of power efficiency by introducing inverters for hydraulic units (use of pumps and motors with inverters)
- Repair of leaks from compressed air piping systems (Amagasaki: 80 locations)
- Replacement of outdated compressors
- Change to two-stage control for pneumatic pressure
- Replacement of 11 EHP-based air-conditioners with 9 GHP-based units
- Replacement of external lights with energy-saving lights

In the distribution field, Yanmar Logistics Service Co., Ltd. reduced power consumption for its warehouses. Specifically, the installation of an automatic on-off lighting system using infrared timer sensors for the lighting in warehouses resulted in considerable energy savings at our distribution centers. The systems installed at the distribution centers in Chugoku, Tohoku, Kanto and Kyushu regions promote power consumption savings.

The production in FY2000 was used as the denominator for the calculation of the unit volume index up to Environmental Report for 2006. The production of FY2005 is newly used for this denominator in this Report.



## Effective Use of Resources

### Waste Reduction

The Yanmar Group takes 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 means of a list of waste separation rules posted at necessary locations, including waste storage sites in plants, worksites and offices. Employee education programs are also used to promote understanding. In FY2006, the Yanmar Group introduced returnable pallets and other measures to promote recycling, and began converting waste oil produced from plants 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 and the recycling of shredded paper waste.

By 2012, we aim to achieve a 10% reduction relative to the 2005 level. In FY2006, we reduced waste generation by 21.2% in unit requirement.



Change from wooden to iron pallets for the shipping of engines (Tsukaguchi Plant)

### Waste production and unit requirement of waste (Yanmar)



### Recycling of Abandoned FRP Boats

FRP boats<sup>1</sup> are difficult to dispose of properly because of their high strength, which is one of the reasons why the number of illegally abandoned FRP boats has increased. Unlike fishing boats that can be handled as industrial waste, pleasure boats are treated as general waste when put to disuse. This makes it difficult to dispose of these boats because of the poor availability of disposal routes.

Considering these circumstances, the Japan Boating Industry Association launched a project to establish an FRP boat recycling system. Because of their effort, the category of "abandoned FRP boat" was added to the scope of exceptions in the disposal of general waste in September 2005, and the FRP boat recycling system started operation in November of the same year. Companies that disassemble ships are in charge of the rough disposal of abandoned FRP boats, and the final recycling of the materials from the boats is handled by cement companies.

Actively participating in this system, the Yanmar Group 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 effort to form a recycling society and prevent illegal dumping.

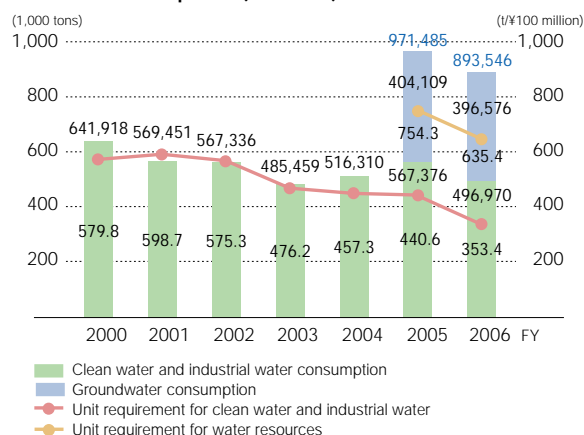
- <sup>1</sup> FRP boat: FRP (fiber reinforced plastics) greatly strengthens the body of a boat and generally ensures a durability of over 30 years. The fibers used are glass fibers or carbon fibers. FRP boats are made by molding FRP.  
<sup>2</sup> EPR: extended product responsibility

### Reduction in Water Resource Consumption

Our active promotion of the recycling of water and the reuse of rainwater for plants has allowed us to reduce water resource consumption by 15.7% relative to the standard level of 2005 in unit requirement, with about 78,000 tons of water consumed for FY2006.

In particular, the Tsukaguchi Plant made a good showing in water resource consumption reduction, achieving a 32.3% compared with the previous year, as a result of the recycling of cooling water used for test operation, and the recovery and reuse of rainwater.

### Water consumption and unit requirement for water consumption (Yanmar)



Measurement of groundwater consumption started in FY2005.

## Appropriate Management of Chemical Substances

### 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.

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

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

Div.	Shiga Zone	Amagasaki Plant	Tsukaguchi Plant	R&D Center	Head Office	Total
PCB equipment items	782	204	2	0	0	988

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

Company Name	Seirei	Kanzaki	New Delta	Matsue Division of Yanmar Casting Technology Co., Ltd	Koga Division of Yanmar Casting Technology Co., Ltd	Yanmar Agricultural Machinery Mfg.	Yanmar Energy System Mfg.	Yanmar Construction Equipment
PCB equipment items	400	5	1	2	23	2	89	1

#### Yanmar's Consumption of Chemicals Covered under the PRTR Law

(Unit : kg)

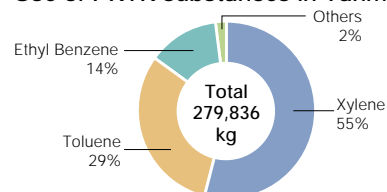
Reg. No.	Names of Chemicals	Seirei	Kanzaki	New Delta	Matsue Division of Yanmar Casting Technology Co., Ltd	Koga Division of Yanmar Casting Technology Co., Ltd	Yanmar Agricultural Machinery Mfg.	Yanmar Energy System Mfg.	YMR Shipbuilding	YMR Construction Equipment	Yanmar	Total
1	Water soluble zinc compounds	3,370	0	0	0	0	450	0	0	1,371	258	5,449
16	2-aminoethanol	0	11	0	0	0	0	0	0	0	1,415	1,426
24	Straight chain alkyl Benzenesulfonic acid and its salt form	0	0	0	0	0	0	0	0	0	2	2
25	Antimony	0	0	0	0	3,140	0	0	0	0	0	3,140
30	Bisphenol A Epoxy resins	1,422	0	0	0	0	0	0	0	0	100	1,522
40	Ethyl benzene	32,104	353	2,990	398	0	4,614	0	34	8,246	39,029	87,768
43	Ethylene glycol	7,600	17	0	0	0	82,810	90,468	0	0	927	181,822
63	Xylene	124,805	1,571	4,848	1,319	0	18,296	0	94	35,077	153,307	339,317
68	Chrome and trivalent chrome	142	0	0	299,652	47,370	0	0	0	0	0	347,164
69	Hexavalent chrome	2	0	0	0	0	0	0	0	69	11	82
101	Ethylene glycol monoethyl ether acetate	0	0	0	0	0	0	0	0	0	35	35
145	Dichloromethane (ethylene dichloride)	0	0	0	0	0	63	0	0	0	0	63
176	Organic tin compound	19	14	0	0	0	18	0	0	331	25	407
177	Styrene	0	0	0	0	0	0	0	163,950	0	0	163,950
211	Trichloroethylene	0	0	0	0	0	0	0	0	0	18	18
224	1,3,5-trimethylbenzene	1,464	0	0	122	0	1,535	0	4	2,281	1,966	7,372
227	Toluene	29,710	6,615	4,634	4,158	0	41,392	0	1	14,568	81,874	182,952
230	Lead and lead compounds	25	0	0	40	0	0	0	0	341	53	459
231	Nickel compounds	0	0	0	0	261	0	0	0	0	0	261
232	Nickel compound (nickel nitrate (II) (6-hydrate))	99	0	0	0	0	48	0	0	164	0	311
243	Barium	0	0	0	0	994	0	0	0	0	0	994
253	Hydrazine	0	0	0	0	0	0	0	0	0	100	100
266	Phenol	0	0	0	15,246	0	0	0	0	0	1	15,247
270	Phthalic acid di-N-butyl	3	0	0	0	0	13	0	0	19	182	217
272	Phthalic acid di-2-ethylhexyl	0	0	0	0	0	0	0	0	0	60	60
279	2-(4-tert-butylphenoxy)cyclohexyl=2 propynyl-sulfate	0	0	0	0	0	22	0	0	0	0	22
299	Benzene	0	0	0	0	0	395	0	0	0	0	395
304	Boron and its compounds	0	0	0	0	0	0	0	0	0	36	36
307	Polyoxyethylene=alkylphenylether	164	0	0	0	0	0	0	0	0	99	263
309	Polyoxyethylene=nonylphenylether	267	156	0	0	0	0	0	0	0	327	750
310	Formaldehyde	122	0	0	4	0	0	0	0	0	0	126
311	Manganese and manganese compounds	29	0	0	58,944	89,600	0	0	0	3,979	0	152,552
314	Methacrylic acid	0	0	0	0	0	0	0	8	0	0	8
346	Molybdenum and its compounds	9	0	0	0	1,920	17	0	0	0	11	1,957
	Total	201,356	8,737	12,472	379,883	143,285	149,673	90,468	164,091	66,446	279,836	1,496,247

### Reduction in Chemical Substance Emission

The Yanmar Group is reducing the consumption and emission of PRTR-controlled substances and voluntarily banned some substances as part of its effort to develop environmentally-friendly products and reduce environmental risks. Although the amount of PRTR-controlled substances used in FY2006 increased to 60.9 t (27.7%) in total relative to the standard level of 2001, the consumption was a 13.9% reduction in unit production volume. We continue to seek for and use alternative materials instead of substances that have been banned voluntarily, or through regulations. For toxic heavy metals contained in paints, we jointly worked with a paint manufacturer on the development of alternative paints and completed the replacement of such paints with new non-toxic paints.

For wastewater discharged to rivers and sewer systems, we check the water quality of the effluent water every week according to our own standards, which are stricter than legal regulations, so as to ascertain the conditions of any potential pollution from chemical substances. In response to the revised Clean Air Act (enacted in 2006), we are actively involved in reducing the emission of volatile organic compounds (VOC) used mainly in coating processes.

#### Use of PRTR substances in Yanmar



## Green Procurement

### Reinforcement of the Green Procurement Structure

The "Yanmar Green Procurement Guidelines" were established in April 2003 (and revised in December 2006), and promote our effort to work with business partners in procuring environmentally safe parts and components around the world. In November 2006, the "Usage Regulations for Materials with Environmental Load" was drafted to define substances that have been voluntarily banned.

Our determining factors in selecting business partners include quality, price and delivery date, and another important factor is whether the candidate company is actively involved in environmental conservation activities with its own environmental management system in place. The Purchasing Department of the head office plays the main role in holding briefing sessions for the management staff of all business partners, requesting their cooperation in our survey on green purchasing, and with green purchasing itself.

#### List of substances banned for use in products, and substances voluntarily banned by Yanmar

Substances banned for use	Asbestos, designated CFC, triethanolamine, polychlorinated biphenyl (PCB), polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE)
Substances voluntarily banned by Yanmar	Lead and its compounds, mercury and its compounds, cadmium and its compounds, chromium hexavalent and its compounds

### Survey on Parts and Materials

We check materials and parts supplied by business partners for the content ratio of banned substances according to our Guideline.

In 2008, we intend to establish a system for managing the chemical substances contained in our products. The system will compile a database of information related to the contents of chemical substances gathered from business partners, and consolidate the information so that we can easily disclose information about the chemical content of our products.

The Guideline is accessible on our website:  
<http://www.yanmar.co.jp/index-eco.htm>

## Green Purchasing

### Green Purchasing

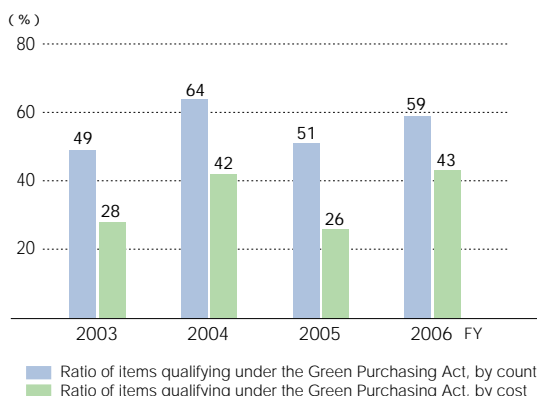
A member of the Green Purchasing Network of the Japan Environment Association, the Yanmar Group promotes green purchasing that favors products with less environmental load, such as Eco Mark products, when purchasing office supplies.

We use the "Benri Net", an electronic purchasing system, to increase the ratio of ecologically conscious products that we purchase, and we are encouraging Group companies to do the same. This system was introduced with the goal of improving the efficiency of purchasing operations and ensuring the proper selection of purchased items.

Yanmar spent ¥12,550,000 on green purchasing for FY2006 with a green purchasing ratio of 43%. The ratio improved by 17% compared with the previous year. Yanmar continue its efforts to realize further improvements to its green purchasing ratio.

Benri Net is an electronic purchasing system operated by Net Kokuyo Co., Ltd.

#### Green purchasing ratio (Yanmar)



## YANMAR GROUP Green Procurement Guideline (Revised in December 2006)

### Criteria for Selecting Suppliers

- (1) Submission of written guarantees on disuse of environmentally hazardous substances in products  
A written guarantee shall be required in 2009 and beyond.
- (2) Submission of chemical data
- (3) Chemical management systems  
The supplier must establish and manage a chemical management system in compliance with ISO 9001 or ISO 14001, or a similar environmental management system.
- (4) Environmental management systems (EMS)

### Criteria for Selecting Materials

- (1) Materials must comply with all laws and regulations concerning recyclable resources, energy, etc.

- (2) Materials must not contain any substances prohibited under the "Restrictions of use for Environmentally Hazardous Substances" of the Yanmar Group.
- (3) It must be possible to identify the quantity of substances contained in products, which are prohibited under the "Restrictions of use for Environmentally Hazardous Substances" of the Yanmar Group.
- (4) Chemicals used in products must place low environmental load on the air, water and soil.
- (5) The use of recycled resources and parts and product miniaturization must be employed to reduce resource and energy consumption.
- (6) Materials must be designed for recycling.
- (7) Environmental information on materials must be disclosed.
- (8) Packaging materials must conserve resources, be recyclable, and reduce waste volume and chemical content.

## 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.

Yanmar Logistics Service Co., Ltd. earned ISO 14001 certification as an internal company of the Power System Operations Division in March 2007.

### Expansion 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. In FY2006, the method used to ship goods from the Biwa Plant, Shiga Prefecture, to Yanmar Construction Equipment Co., Ltd., Fukuoka Prefecture, was shifted from trucking to JR container trains to successfully reduce energy consumption by 5.2% and CO<sub>2</sub> emission by 5.8%. This change has also produced other results, such as reduced wood material use and reduced transportation costs.



Transportation of engines in JR containers

### Environmental Actions in Packing and Packaging

The Yanmar Group started improving its product packing and packaging methods in 1978. In 1995, the Group introduced the full-scale use of "exposed" shipping and returnable pallets that use almost no packing materials, and completed improvements to its transportation methods in 2001.

We also abandoned the use of disposable wooden crates and cardboard for packaging, and instead adopted the use of reusable steel pallets. This has led to a further savings in wood resource consumption. In addition, we shifted to recyclable and easily reusable materials for packing and packaging goods, including adhesive tape, thereby reducing environmental load related to packaging. For example, we now only purchase cushioning material for the Osaka Parts Center.

### Improvement of Packaging for Items Procured Overseas

For overseas distribution, we are making ongoing efforts to reduce the amount of wasted packaging-related materials such as wood and cardboard. We began applying a reusable packaging scheme to overseas distribution in 1999, and the scheme was also applied to the shipping of engines from Indonesia in FY2005.

Previously, engine shipping resulted in wasted wood resources, and other expenses were incurred in the disposing of the waste materials. These problems were eliminated by the introduction of packaging with net pallets. The pallets are then used to transport parts back to Indonesia, returning the pallets to the engine plant.

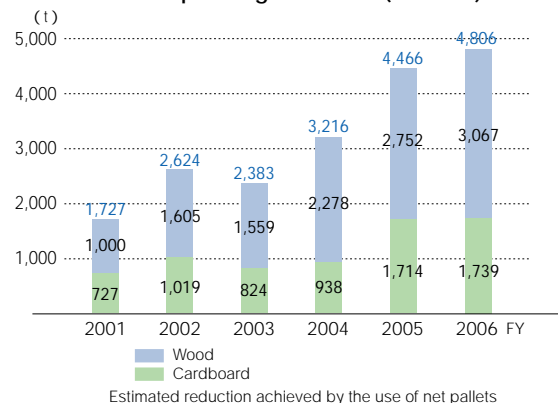


Packaging with closed wooden boxes



Returnable net pallets

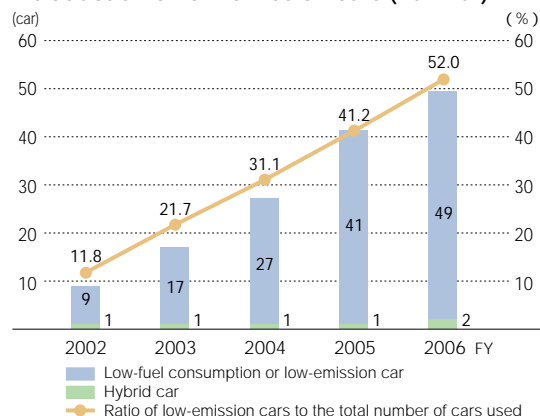
### Reduction of packing materials (Yanmar)



### Introduction of Low-emission Vehicles

The Yanmar Group is systematically shifting to low-emission vehicles such as low-emission gas or hybrid cars for company cars and sales personnel cars. The ratio of low-emission vehicles in FY2006 was 52%, and Yanmar continues to introduce more low-emission vehicles into its fleet.

### Introduction of low-emission cars (Yanmar)



## Environmental Exhibitions

### Exhibits at the Lake Biwa Environmental Business Messe

Yanmar exhibited the following three products at the 9th Lake Biwa Environmental Business Messe held at the Nagahama Dome in Shiga Prefecture for three days, from October 25 to 27, 2006, and presented our biomass power generation technology at the event.

#### Wood biomass power generation system

The system uses electricity and heat to gasify wood biomass, converting electricity and heat to energy at a high rate of efficiency. The dual fuel technique allows stable power generation despite changes in fuel gas.

#### Methane biomass power generation system

Methane gas generated from livestock excreta and food processing residue is converted to electric and thermal energy by this system. Featuring a very high power generation efficiency of 31%, the system offers top level performance for this class.

#### Biodiesel fuel

This research focuses on using diesel engines to convert biodiesel fuel produced from waste cooking oil, rape and palm to motive energy, electricity and heat.



Lake Biwa Environmental Business Messe

## Support

### Earth Day Tokyo 2007

As one of our attempts to realize our corporate mission of the "Realization of a Resource-Recycling Society," Yanmar provided support for Earth Day Tokyo 2007 held at the Yoyogi Park, Tokyo, on April 21 and 22, 2007. "Proposal of a Near Future Society Two Steps Ahead" was the concept of the event, while "Energy" was one of its themes.

Earth Day Tokyo was held using nothing but natural energy, and the power used for the venue was generated from biodiesel fuel originating from waste cooking oil gathered from inside Tokyo. We lent the event 12 diesel generators free of charge.

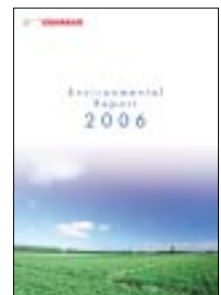
Yanmar provided support for the exhibition of biodiesel carts and biodiesel fuel refining mini plants produced by high schools and universities in and out of Japan, which were displayed at our exhibition booth. We also demonstrated the process by which recovered waste cooking oil is turned into diesel fuel. The Ukyo Katayama team, who participated in the Paris-Dakar Rally using cars 100% fueled by biodiesel fuel, was also supported by Yanmar. The actual car that participated in the rally was also on display.



Earth Day Tokyo 2007

## Environmental Reports

The Environmental Reports that summarize the environmental activities of the Yanmar Group have been posted on our website every year since 2003. We actively provide the general public with information on environmental conservation, including our ideas about environmental management, and information about our activities to interact with local communities in order to ensure the clarity of our business activities as a good corporate citizen.



<http://www.yanmar.co.jp/index-eco.htm>

## Biwa Plant

Kawamichi-cho 1009-2  
Nagahama, Shiga Pref.  
Tel. 0749-72-5151



### Major Products

Vertical WC diesel engines, Gas engines



Vertical WC diesel engines

### Business Outline

Integrated production (development, machining, assembly, test operation, painting, and shipping) of vertical WC diesel engines for use with farm machinery, construction equipment and industrial equipment in general; assembly of gas engines for air conditioning

### Environmental conservation activities

1. Energy saving activities
  - Reduction in power consumption
  - Repair of air leaks
  - Reduction of compressor load
  - Reduction of hydraulic energy-saving pump load
  - Shifting to low-emission forklifts
  - Shifting to energy-saving mercury lamps
2. Resource saving activities
  - Management of machine cutting fluid concentration
  - Promotion of waste recycling (work gloves, cloth rags, waste paper, wood chips, cardboards)
  - Prevention of clean water leaks
3. Legal compliance
  - Maintenance of disposal/treatment facilities
  - Maintenance of boiler facilities
  - Maintenance of co-generation facilities
  - Maintenance of compressor facilities

## Yamamoto Plant

Yamamoto 3198, Kohoku-cho,  
Higashi Azai-gun, Shiga Pref.  
Tel. 0749-79-0305



### Major Products

Cast aluminum alloy parts used in engines, agricultural machines and construction machines



Aluminum die-cast parts

### Business Outline

Casting of aluminum alloy parts that are vital to the reduction of the weight of engines and other working machines

### Environmental conservation activities

1. Energy saving activities
  - Reduction in power consumption
  - Quick repair of air leaks
  - Reduction in liquid fuel consumption
  - Prevention of combustion efficiency decrease through periodic inspections of melting furnaces
2. Resource saving activities
  - Reduction in the consumption of oil
  - Line-based management of oil consumption
  - Promotion of waste recycling (recovery of used paper, cardboard, and board pallets)
3. Environmental conservation activities
  - Provision of environmental education
  - Holding of environmental conservation committee meetings
  - Environmental investment work

## Nagahama Plant

Sanwa-cho 7-35, Nagahama,  
Shiga Pref.  
Tel. 0749-65-3008



### Major Products

Diesel outboard engines, sail drive units, molded products



Performance testing of small engines

### Business Outline

Development and testing of engines, design and manufacture of processing jigs and aluminum die-casting molds, and service as a distribution center for the products of six factories in the Shiga Zone

### Environmental conservation activities

1. Energy saving activities
  - Reduction in power consumption
  - Quick repair of air leaks
  - Energy-saving operation for compressors
  - Power regeneration from engine test power
  - Promotion of energy-saving design
  - Energy-saving hydraulic units
2. Resource saving activities
  - Management of machine cutting fluid concentration
  - Promotion of waste recycling (work gloves, cloth rags, waste paper, wood and cardboard)
  - Prevention of clean water leaks (promotion of aerial piping)
3. Promotion of environmental conservation activities
  - Environmental conservation committee and environmental education
4. Ensuring legal compliance

## Kinomoto Plant

Kuroda 650, Kinomoto-cho,  
Ika-gun, Shiga Pref.  
Tel. 0749-82-3322



### Major Products

Water- and air-cooled engines, major engine parts, and tractor parts



Major parts of engines

### Business Outline

Assembly, operation, painting, and shipment of engines, primarily vertical water-cooled diesel engines; pressing, welding, and painting of major engine parts and tractor parts; and production of resin parts

### Environmental conservation activities

1. Energy saving activities
  - Reduction in power consumption
  - Reduction of compressor load
  - Shifting to energy-saving hydraulic units
  - Improvement of boiler operation efficiency
  - Temperature management for air-conditioning
2. Resource saving activities
  - Reuse of supernatant from cleaning fluid
  - Checks for clean water leaks
  - Control of generation of industrial waste (grinding waste, wood chips, waste paper, waste alkali)
3. Local contribution activities
  - Participation in the cleaning of national roads
4. Ensuring legal compliance

## Omori Plant

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

Tel. 0749-85-3000



### Major Products

Fuel Oil injection pumps



Fuel Oil injection pumps for diesel engines

### Business Outline

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

### Environmental conservation activities

1. Energy saving activities
  - Reduction of compressor loads
  - Improvement in the cooling efficiency of air conditioners
  - Additional installation of sprinklers for outdoor units
2. Resource saving activities
  - Oil leak prevention measures
  - Recycling of cleaning liquids
  - Promotion of the return of board pallets to the original providers
3. Pollution prevention
  - Shifting of discharge from rivers to sewerage lines
4. Ensuring legal compliance

## Nagahara Plant

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

Tel. 0749-89-1151



### Major Products

Fuel Oil injection nozzles



Fuel Oil injection nozzles

### Business Outline

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

### Environmental conservation activities

1. Energy saving activities
  - Reduction in compressor power consumption
  - Introduction of inverter compressor and unit number control
  - Air blow operation changed to blower operation
  - Air leak repair
  - Reduction in power consumption
  - Shifting to top-runner transformers
  - Use of Eco Cute water heater
2. Resource saving activities
  - Reduction in oil consumption
  - Recycling of grinding oil
  - Reuse of filtered oil
3. Pollution prevention
  - Reinforcement of oil separation from wastewater
4. Ensuring legal compliance
5. Promotion of environmental education

## Amagasaki Plant

Higashi-dori 1-1-1, Nagasu, Amagasaki

Tel. 06-6489-8005



### Major Products

Large diesel engines, gas engines, gas turbines



Auxiliary diesel engines for boats

### Business Outline

Integrated production (machining to test operation) of main and auxiliary marine engines, large industrial diesel and gas engines, and gas turbines.

### Environmental conservation activities

1. Energy saving activities
  - Introduction of energy-saving equipment
  - Use of inverters for cooling water pumps
  - Use of thermal insulation in walls and ceilings
2. Resource savings, Reductions in waste
  - Recycling of water-soluble cleaning liquids
  - Reduction in the amount of disposed wood chips and cardboard
3. Reduction in the generation of waste plastic
  - Reduction in use of cloth rags through the use of rental cloth rags
4. Reduction in cooling water consumption
  - Shifting of water-tank type loading devices to dry type devices
5. Improvement in the environmental performance of products
  - Reduction in the use of hazardous substances
  - Development of electronically controlled fuel injection pumps
6. Harmonization with local communities
  - Participation in the My Hometown Cleaning Movement, etc.

## Tsukaguchi Plant

Honcho 5-3-1, Tsukaguki, Amagasaki

Tel. 06-6428-3122



### Major Products

Medium diesel engines



Main diesel engines for boats

### 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.

### Environmental conservation activities

1. Energy saving activities
  - Shifting to energy-saving lighting equipment
  - Improvement of production efficiency and reduction of equipment operation time
  - Reduction in fuel consumption by reducing test operation man-hours
2. Resource saving and recycling
  - Reduction in the generation of industrial waste through the aggressive return of packing pallets and plastic cases to their manufacturers
  - Reduction in the generation of waste wood by shifting to returnable steel pallets
  - Recovery of rainwater for reuse
3. Additional compliance of laws and regulations on air, water quality, vibration and noise
4. Harmonization with local communities
  - Cleaning and beautification of the area around the plant

		Biwa Plant	Yamamoto Plant	Nagahama Plant	Kinomoto Plant	
<b>Input/output</b>						
Energy consumption	Electricity	MWh	36,449	10,137	8,604	16,456
	Gasoline	kl	6	17	41	19
	Kerosene	kl	129	15	24	14
	Diesel oil	kl	76	13	771	68
	Bunker A	kl	303	676	162	788
	Town gas	1,000m <sup>3</sup> /N	-	-	248	-
	LPG, etc.	t	3,168	11	0	98
	Total	kl	14,174	3,309	3,428	5,192
CO <sub>2</sub> emission	t-CO <sub>2</sub>	23,766	5,807	6,383	8,910	
Air pollutants	NOx	t	17	4	28	7
	SOx	t	1	2	1	3
Water consumption	Groundwater	t	-	15,795	185,409	123,930
	Industrial water	t	0	0	0	0
	Clean water	t	105,594	8,687	54,248	34,731
	Total	t	105,594	24,482	239,657	158,661
Discharge (sewage)	t	34,508	645	30,565	33,124	
BOD emission	kg	445	-	232	656	
COD emission	kg	-	-	-	-	
Waste	Amount generated	t	959	400	411	198
	Amount disposed of	t	157	20	15	25

**Water Quality**

		Standard value		Measured value			Standard value		Measured value			Standard value		Measured value			Standard value		Measured value		
		Max.	Min.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.	Max.	Min.	Ave.			
Discharged to Sewage Lines	PH	5 ~ 9	5.4 ~ 8.6	8.3	6.3	7.7															
	BOD	mg/L	600	480	95	1.1	12.9														
	SS	mg/L	600	480	100	3.2	14.6														
	Oil content	mg/L	5	4	0.7	0.5	0.5														
	T-N	mg/L	60	48	43	4.7	16.6														
	T-P	mg/L	10	8	3.7	0.01	0.74														
Discharged to Rivers	PH						6.0 ~ 8.5	6.2 ~ 8.2	7.5	6.7	7.2	6.0 ~ 8.5	6.2 ~ 8.2	8.1	7.3	7.8	6.0 ~ 8.5	6.2 ~ 8.2	7.2		
	BOD	mg/L					30	24	12	0.6	3.7	20	4	3.1	0.5	1.2	30	24	3		
	COD	mg/L					30	24	9.2	0.5	4.2	20	16	5.3	0.5	1.4	30	24	5		
	SS	mg/L					70	56	8.8	1	1.5	70	4	34	1	1.4	70	56	15		
	Oil content	mg/L					5	4	1	0.5	0.6	5	4	1.8	0.5	0.5	5	4	3.1		
	T-N	mg/L					12	9.6	0.8	0.4	0.6	8	6.4	0.7	0.1	0.3	12	9.6	1.5		
	T-P	mg/L					1.2	0.96	0.1	0.0	0.0	0.8	0.64	0.12	0.03	0.08	1.2	0.96	0.11		

**Air Quality**

		Facilities	Standard value			Measured value			Facilities	Standard value			Measured value			Facilities	Standard value		
			Standard value	Voluntary value	Measured value	Standard value	Voluntary value	Measured value		Standard value	Voluntary value	Measured value	Standard value	Voluntary value	Measured value				
NOx	ppm	Boiler (Kerosene)	Not regulated			38			Metal melting furnace (Bunker)	180	108	27				Boiler (Bunker A)	180 ~ 250		
		Boiler (LNG)	150	90	39										Dry kiln	230			
		Co-Gen(LNG)	600	360	150														
SOx	Nm <sup>3</sup> /h	Boiler (Kerosene)	4.65	2.79	<0.01	0.61	0.37	<0.03	<0.03							1.16 ~ 8.13	0.70 ~ 4.88		
		Boiler (LNG)	7.35 ~ 8.09	4.40 ~ 4.90	<0.01										Dry kiln	1.23 ~ 1.79			
		Co-Gen(LNG)	0.65	0.40	<0.01														
Soot particles	g/Nm <sup>3</sup>	Boiler (Kerosene)	Not regulated			0.01			Metal melting furnace (Bunker)	0.20	0.12	<0.01				Boiler (Bunker A)	0.3		
		Boiler (LNG)	0.10	0.06	<0.01										Dry kiln	0.2			
		Co-Gen(LNG)	0.05	0.03	<0.01														

**Noise Level (Max.)**

		Standard value	Voluntary value	Measured value	Standard value	Voluntary value	Measured value	Standard value	Voluntary value	Measured value	Standard value	Voluntary value
Morning	dB(A)	65	63	60.5	60	58	53	60	58	50	65	63
Day time		70	68	61.2	65	63	58	65	63	53	70	68
Evening		70	68	55.2	65	63	57	65	63	53	70	68
Night		60	58	56.8	55	53	52	55	53	48	60	58

**Vibration Level (Max.)**

		Standard value	Voluntary value	Measured value	Standard value	Voluntary value	Measured value	Standard value	Voluntary value	Measured value	Standard value	Voluntary value
Day time	dB(A)										70	56
Night											65	52



	Omori Plant	Nagahara Plant	Amagasaki Plant	Tsukaguchi Plant
	12,226	6,930	12,016	5,605
	1	2	5	5
	1	0	238	2
	3	4	113	286
	84	200	3,815	677
	-	-	1,106	88
	7	12	150	0
	3,199	1,981	8,604	2,485
	4,883	3,213	18,530	4,900
	4	2	125	11
	0	1	6	1
	68,040	3,402	0	0
	0	0	140,922	25,298
	4,134	4,459	105,370	13,527
	72,174	7,861	246,292	38,825
	-	-	246,292	38,825
	-	-	985	151
	-	-	-	-
	491	303	557	124
	9	29	76	11

	Measured value		Standard value	Voluntary value	Measured value			Standard value	Voluntary value	Measured value			Standard value	Voluntary value	Measured value			
	Min.	Ave.			Max.	Min.	Ave.			Max.	Min.	Ave.			Max.	Min.	Ave.	
	6.2	6.6																
	0.8	19.8																
	1.2	5.5																
	0.5	0.8																
	2.7	8																
	0.01	0.05																
	6.9	7.1	6.0~8.5	6.2~8.2	7.7	6.8	7.2	6.0~8.5	6.2~8.2	7.8	6.8	7.3						
	0.6	1.3	30	24	20	0.8	4.7	40	32	13	0.5	2						
	0.5	1.4	30	24	17	0.9	5.7	40	32	10	0.5	2.3						
	1	2.3	70	56	2.8	1	1.3	90	72	24	1	1.7						
	0.5	0.6	5	4	1.3	0.5	0.6	5	4	2	0.5	0.6						
	0.8	0.95	12	9.6	2.8	0.7	1.5	15	12	4.9	0.0	0.3						
	0.01	0.03	1.2	0.96	0.1	0.0	0.1	1.5	1.2	0.1	0.0	0.0						

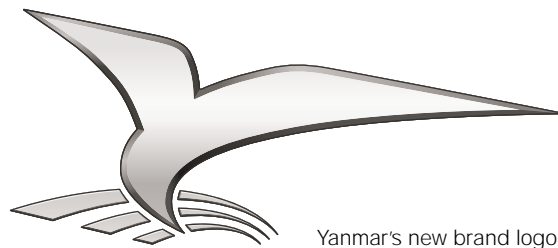
Voluntary value	Measured value	Facilities	Standard value	Voluntary value	Measured value	Facilities	Standard value	Voluntary value	Measured value	Facilities	Standard value	Voluntary value	Measured value	Facilities	Standard value	Voluntary value	Measured value
108~150	76					Boiler (Bunker A)	Not regulated		90	Boiler (Bunker A)	150~250	75~200	31~42	Boiler (Bunker A)	180~250	75~100	74
138	20																
0.03~0.07	0.05					Boiler (Bunker A)	7.62	4.57	0.04	Boiler (Bunker A)	0.354	0.2	0.04	Boiler (Bunker A)	0.039	0.02~0.05	0.037
0.74~1.07	<0.01																
0.18	<0.01					Boiler (Bunker A)	Not regulated		0.001	Boiler (Bunker A)	0.05~0.30	0.03~0.08	0.01~0.03	Boiler (Bunker A)	0.3	0.01~0.10	0.02
0.12	<0.01																

Measured value	Standard value	Voluntary value	Measured value	Standard value	Voluntary value	Measured value	Standard value	Voluntary value	Measured value	Standard value	Voluntary value	Measured value
58	65	63	45.4	60	58	46.1	70	67	62	70	65	61
64	70	68	48.5	65	63	49.7	70	67	65	70	65	62
63	70	68	46.5	65	63	50.2	70	67	63	70	65	59
57	60	58	45.2	55	53	48.1	60	57	55	60	55	55

Measured value	Standard value	Voluntary value	Measured value	Standard value	Voluntary value	Measured value
31						65
32						60

# History of Yanmar Group Environmental Activities

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



Yanmar's new brand logo

The three lines represent the regions where Yanmar is active - the sea, land, and cities, while the curvature of the lines represents our planet earth. The logo represents the Yanmar Group propelling along these fields toward the future.

Please direct inquiries about  
this Environmental & Social Report to:

Environmental Management Department  
R&D Strategy Division

**Yanmar Co., Ltd.**

1-32 Chayamachi  
Kita-ku Osaka 530-8311  
Japan

TEL: 06-6376-6402  
FAX: 06-6377-0741

<http://www.yanmar.co.jp/>