

# Environmental Report 2006



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## Data Collection Period/Scope of Mabuchi Motor Environmental Report 2006

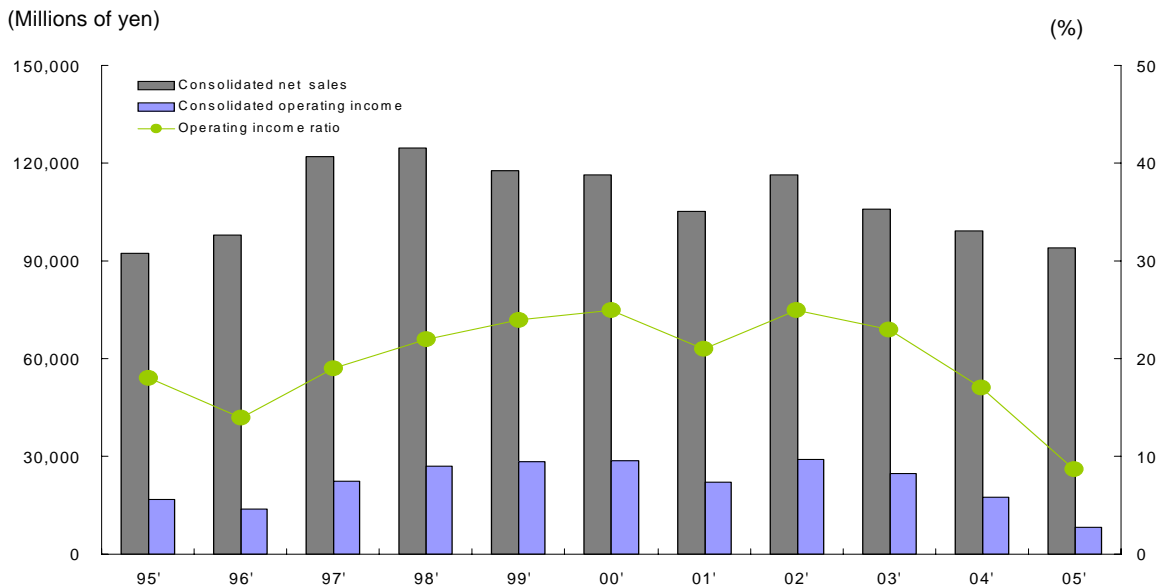
- Data collection period: Fiscal 2005 (January 1, 2005 - December 31, 2005)
- Scope: Head Office and overseas related companies
- \* Remarks: "The Mabuchi Group" is used in this Report as a collective term for the Head Office and the following overseas related companies (as of the end of December 2005):
  - Hong Kong Mabuchi (including Guangdong Mabuchi)
  - Taiwan Mabuchi
  - Kaohsiung Mabuchi
  - Dalian Mabuchi
  - Malaysia Mabuchi (Resolution for dissolution approved in November 2005)
  - Jiangsu Mabuchi
  - Vietnam Mabuchi
- Activities covered: Environmental activities related to the design, manufacture and sales of motors and provision of services

Note: The cover photos show some of the award-winning works of the Mabuchi Group's first poster / photo contest promoting environmental consideration.  
The photos at the top of some of the pages show the greening activities in the biotope at the new Mabuchi Motor Head Office.

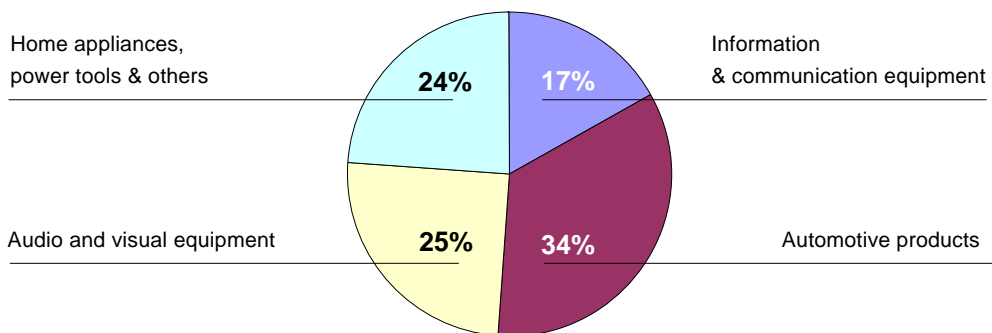
# Corporate Outline

Trade name:	MABUCHI MOTOR CO., LTD.	President:	Shinji Kamei
Established:	January 18, 1954	Address:	Head Office 430 Matsuhidai, Matsudo-shi, Chiba-ken, 270-2280 Japan
Field of Operations:	Manufacture and sales of small electric motors		TEL: +81-47-710-1111
Capital:	20,700 million yen (as of December 31, 2005)		
Employees:	Head Office: approximately 1,000 Mabuchi Group: approximately 50,000 (as of December 31, 2005)	Technology Center:	280 Ryufukuji, Motono-son, Inba-gun, Chiba-ken, 270-2393 Japan TEL: +81-47-710-1222

## Changes in consolidated net sales / consolidated operating income / operating income ratio



## Sales by application (fiscal 2005)





## Message from the President



Shinji Kamei  
President and Representative Director  
Mabuchi Motor Co., Ltd.

亀井慎二

The Mabuchi Group seeks to attain its Management Philosophy of “Contributing to International Society and Ever-expanding Our Contribution.” Underlying this purpose is the idea that Mabuchi should bear in mind its social responsibilities as a company and unceasingly maintain an attitude of sincerity worthy of the public’s trust, a company’s most important asset. Accordingly, we have used our acquisition of ISO 14001 certification to jump-start our efforts to establish an in-house framework for maintaining and further developing our environmental management system and to pursue tangible expansion of environmental activities into our business activities. These approaches have firmly integrated continual improvement activities aimed at achieving environmental targets into the PDCA cycle, resulting in a slow but sure heightening of environmental awareness within the Company as well as efforts designed to ensure that our business activities “promote the preservation of our earth’s environment and our own human health.”

Interest in environment issues has in recent years extended from readily identifiable local problems, such as air pollution, water quality deterioration, soil contamination and illegal dumping of waste, to problems of a global scale, such as global warming and the destruction of the ozone layer. These problems appear all the more

serious for the next generation when considered over a longer timeframe and on a greater scale.

As an effort to resolve such issues at the local level, Matsudo City, home to our head office, has been implementing a “Mottainai (What a Waste!)” campaign in pursuit of eco-friendly living without unnecessary waste. The campaign started by considering lifestyles that have imposed a substantial environmental burden and taking another good look at the abhorrence of waste that has long been a part of Japanese living. Not content just to reduce the direct environmental burden of our own corporate activities, Mabuchi will also pursue product development that incorporates environmental considerations from the product design stage so that the products and services we provide can also serve to reduce the environmental burden of our customers. Additionally, the Company will work toward the joint creation of customer value, help the public achieve even greater reductions in environmental burden, and contribute to building an even better society.

Mabuchi’s head office in Japan has collaborated with all of its business locations in China and elsewhere to develop comprehensive and systematic energy conservation activities. The result has been a 3.7% decline in total CO<sub>2</sub> emissions by volume from 2004 levels. We have similarly cut the volume of waste generated as planned by actively continuing Reduce, Reuse, and Recycle activities. Extraordinary cooperation from our suppliers with regard to environmental burden causing substances enabled us to ensure RoHS compliance for all products by the end of 2005. Although problems have emerged – a drop in capacity utilization led to an increase in the energy consumption per unit of production volume, and industrial waste disposal costs rose despite the smooth implementation of our Zero Emissions Program – we will clearly stipulate the measures to be taken to eliminate these problems and will continue in the future to exercise initiative in resolving the problems.

Our work depends on prosperous co-existence with local communities. Consequently, we believe that we have an obligation to inform the public on a regular basis of the environmental measures being taken by the Mabuchi Group and the results these measures are achieving. This FY2006 Environmental Report is our latest report on our environmental activities, and it is our earnest hope that this Report promotes greater understanding of our efforts. Your frank opinions and comments on these efforts would be most welcome.

December 2006

The Management Philosophy of Mabuchi Motor established by our founder is based on the fundamental principles of corporate management as well as the preservation and passing on of the Mabuchi Motor genes.

## Management Philosophy

### Contributing to International Society and Ever-expanding Our Contribution

The four Management Guidelines shown below more specifically clarify our contribution to international society.

Among them is “Conduct corporate activities that promote the preservation of our earth’s environment and our own human health.” Through this guideline, we feel that the current situation in society has just caught up with the farsighted vision of our founder.

We will continue to value these basic principles and conduct our corporate activities, always expanding our contribution.

## Management Guidelines

1. Create superior and reasonably priced products. Our hope is to help build a more satisfying and comfortable life for customers around the world who enjoy a life with products using our motors.
2. Transfer our technology and bring forth new opportunities for employment. We hope that our contribution can become a helping hand in leveling international economic disparities and stimulating global economic development.
3. By placing “people” as an important managerial resource, we strive to heighten individual potential through work, and to raise more productive citizens of society.
4. Conduct corporate activities that promote the preservation of our earth’s environment and our own human health.

## Mabuchi Motor's Basic Environmental Policy

1. We shall establish an environmental management system for taking business activities in consideration of the environment of the earth, and continuously try to improve the system.
2. We will strictly observe legal regulations relating to environment and other requirements, and positively determine and control selfimposed regulations.
3. To make the best use of limited resources, we will positively make effort in energy restriction, recycling and reduction in the amount of waste.
4. We will replace substances that cause a burden on the environment with substitutes.
5. We will positively conduct training and publicity activities to enhance the consciousness of the employees of environmental protection.
6. The environment policy will be penetrated to all employees and, if necessary, disclosed to the external parties concerned.



# Environmental Management System

## ■ Environmental Management Promotion System

In the Mabuchi Group, Managing Director is appointed as the Environmental Management Representative and manages the environmental management system of the entire Group.

An Environmental Management Committee is established at our Head Office.

This Environmental Management Committee, with the Environmental Management Representative as the chairperson, consists of the Head Office Environmental Manager and all the department managers. The committee discusses and determines the Mabuchi

Group's environmental policy, targets, and environmental measures, etc. In addition, the Environmental Management Committee has a Chemicals Task Force and Energy Saving Task Force to plan and propose specialized measures in each of these areas.

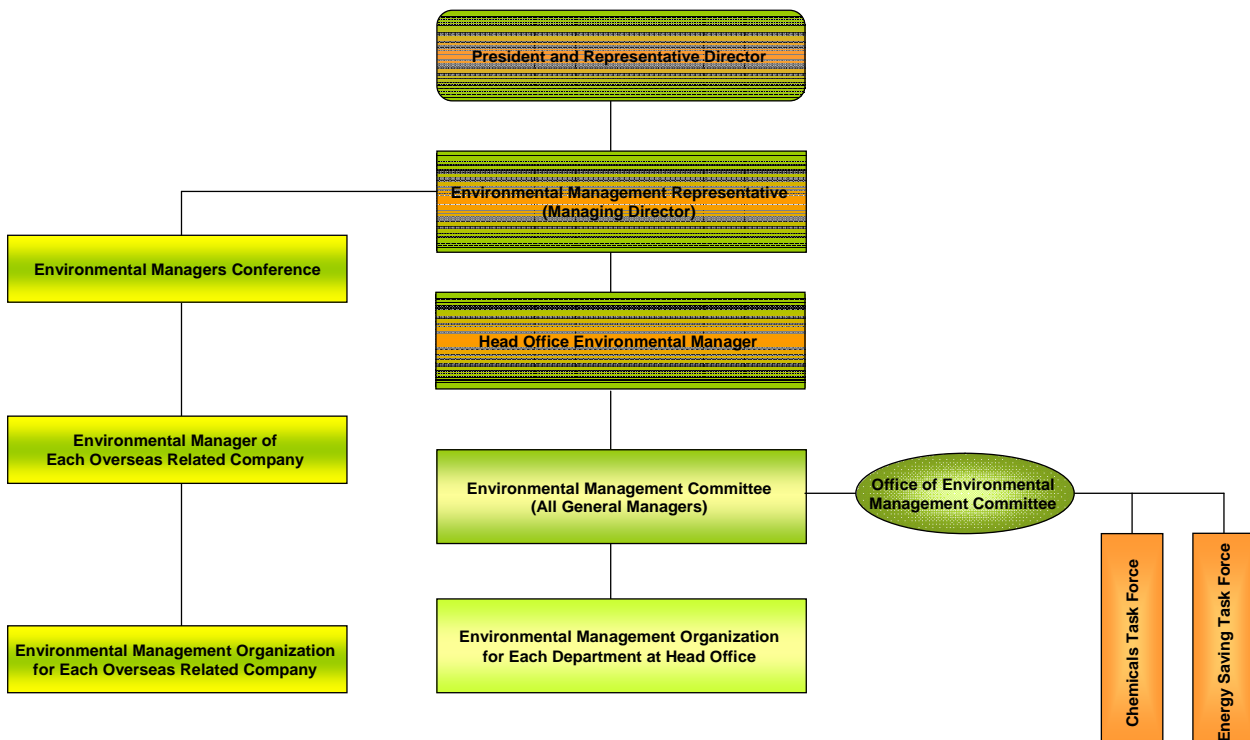
In fiscal 2005, in order to enhance the level of Mabuchi Group environmental management activities, the office of the Environmental Management Committee was moved from the Environmental and Safety Group in the General Affairs Department to the Product Environmental Quality Assurance Group in the Quality Assurance Department.

This organizational change reinforced Mabuchi Group environmen-

tal activities by focusing on avoiding the use of environmental burden causing substances directly related to product manufacturing, in addition to conventional activities such as the implementation of the ISO 14001 system and reductions in the uses of energy and resources and waste.

We have added the environment (E) to Mabuchi Motor's conventional elements, quality (Q), cost (C) and delivery (D), and thereby continue to make efforts to provide customers with better products.

## Mabuchi Motor Environmental Management Organization







Collaborating with Environmental Managers in Overseas Related Companies



An Environmental Managers Conference, consisting of Environmental Managers from the Mabuchi Group Head Office and overseas related companies, has been held annually since 2000.

The photo on the left shows the 6th Overseas Environmental Managers Conference held in Vietnam in 2005.

**■ Acquisition of ISO 14001 Certification**

Head Office and all of Mabuchi Motor's overseas related companies have acquired ISO 14001 certification, starting with Head Office in December 1999 and completed with Vietnam Mabuchi in March 2001.

To make ISO 14001 certification activities smoother and more efficient for Head Office and overseas related companies, we have tried to limit the certification bodies employed to Det Norske Veritas (DNV) since fiscal 2004.

This action is planned to be completed in fiscal 2006.

Starting in fiscal 2005, the transition of ISO 14001 certification for the entire Mabuchi Group from the 1996 version to the 2004 version has been underway. This is also planned to be completed in fiscal 2006.



Training being conducted for the lead-free soldering process in Dalian Mabuchi

**■ Education and Training**

Mabuchi Motor has established an ISO 14001 environmental management system and environmental education system as well.

This environmental education system provides a basic general education, which all employees must receive, as well as environmental education and training based on the employment level and on the type of workplace and operation.

In order to manufacture products that comply with the RoHS Directive that came into effect in July 2006, education on the Group's policy that Mabuchi Motor products shall "not include, not be mixed with and not emit" hazardous substances has been provided to employees at Head Office and overseas related companies since fiscal 2005, and education and training on avoiding the use of hazardous substances based on the type of workplace and operation have been provided.



# Environmental Accounting Report

In fiscal 2003, Mabuchi Motor introduced an environmental accounting system at Head Office and at Jiangsu Mabuchi, one of its overseas related companies.

Since then, every year we have collected and totaled data on the

previous year's environmental cost for Head Office and Jiangsu Mabuchi. Based on this, costs for the environmental management activities of Head Office and Jiangsu Mabuchi are calculated for the year.

The results obtained are pub-

lished in the annual environmental report and also used as reference materials for decisions on environmental management.

## ■ Fiscal 2005 Environmental Cost

(Millions of yen)

Classification	Fiscal 2004		Fiscal 2005				Main Efforts (Fiscal 2005)	
	Amount of investment	Amount of cost	Amount of investment	Compared with Previous Year	Amount of cost	Compared with Previous Year		
Cost within business area	Pollution prevention cost	17.9	5.0	2.1	(88.1%)	8.1	62.4%	Construction, checking and measurement of septic tanks at the new office building and measures to reduce the use of lead
	Global environmental preservation cost	545.7	34.0	0.0	0.0%	35.2	3.5%	Operation and maintenance of energy-saving equipment in the office building at Head Office, etc.
	Resources recycling cost	3.5	51.3	0.3	(91.1%)	16.5	(67.8%)	Recycling and proper disposal of waste and construction of facilities for utilizing rainwater
	Subtotal	567.1	90.3	2.4	(99.6%)	59.8	(33.8%)	
Upstream and downstream costs	1.0	48.3	0.0	0.0%	235.6	387.3%	Cost of switching to eco-motors and recycling and proper disposal of packing materials	
Management activity cost	53.5	72.7	0.0	(100.0%)	127.8	75.8%	Maintenance and operation of the environmental management system, examination and analysis of contained chemical substances, disclosure of environmental information, environmental education for employees and greening activities at the new office building area	
Research and development cost	0.0	827.0	0.0	0.0%	1,069.3	29.3%	Reducing and eliminating the use of hazardous chemical substances, research and development on resource-saving and energy-saving motors, etc.	
Cost for remedying environmental damage	75.8	223.4	336.1	343.5%	236.8	6.0%	Decontaminating soil and groundwater	
Total	697.4	1,261.7	338.5	(51.5%)	1,729.3	37.1%		

## ■ Fiscal 2005 Environmental Effects

Details of effects		Classification of indicator	Value of indicator for fiscal 2003 (basic unit)	Value of indicator for fiscal 2004 (basic unit)	Value of indicator for fiscal 2005 (basic unit)	Value of indicator compared with that for the preceding fiscal year (basic unit)
Effects corresponding to cost within business area	1) Effects on resources input to business activities	Energy input (GJ)	1,011,221	1,128,110	1,092,347	Reduction of 35,763 GJ
		GJ per million units	555	567	603	Increase of 36 GJ per million units
		Water input (10 thousand tons)	136	137	128	Reduction of 90,000 tons
		Tons per million units	0.075	0.069	0.071	Increase of 20 tons per million units
		Usage of PRTR substances (tons)	2,627	2,930	3,918	Increase of 988 tons
		Tons per million units	1.4	1.5	2.2	Increase of 0.7 tons per million units
	2) Effects of environmental burden and waste from business activities	Amount of discharged waste (tons)	39,676	43,711	39,123	Reduction of 4,588 tons
		Tons per million units	21.8	21.9	21.6	Reduction of 0.3 tons per million units
		CO <sub>2</sub> emissions (tons)	173,733	176,942	170,445	Reduction of 6,497 tons
		Tons per million units	95.4	88.9	94.1	Increase of 5.2 tons per million units



In fiscal 2005, 2,068 million yen in total was injected into environmental management activities at Mabuchi Motor Head Office and Jiangsu Mabuchi.

Out of this amount, investment in the environment accounted for 339 million yen (51.5 percent decrease from the previous year).

On the other hand, the environmental cost accounted for 1,729 million yen (37.1 percent increase from the previous year).

The amount of investment decreased because a large-scale environmental investment in facilities had been made within fiscal 2004 related to the new office building and most of the amount of investment in fiscal 2005 was for the cost of maintaining the facilities.

There are two reasons for the cost increase of 37.1 percent.

One is the cost required for changing our complete motor models to new models containing no

hazardous substances (e.g. disposal costs for parts and materials for environmentally non-compliant motors, costs for measures for materials and parts suppliers, etc.)

The other is the cost for decontaminating the soil on the Mabuchi Motor Head Office site contaminated by tetrachloroethylene and trichloroethylene used in previous times, as well as for constructing barrier wells and additional incidental facilities to prevent the area of contamination from spreading outside of the premises.

Environmental effects are based on the statistical results for the entire Mabuchi Group.

Out of the fiscal 2005 environmental effects, the total amounts of energy input, water input, discharged waste and CO<sub>2</sub> emissions were all reduced; however, energy input, water input and CO<sub>2</sub> emissions per million units all increased.

This was due to the impact of the drop in capacity utilization in fiscal 2005.

The usage of PRTR substances described in the table for fiscal 2005 environmental effects is also based on the statistical results for the entire Group, including Mabuchi Motor Head Office and overseas related companies. With regard to the usage of substances at Head Office in Japan, which is originally subject to the regulations under the PRTR Law, there were no substances to report because usage did not exceed the amounts which must be otherwise reported.

## ■ Basic Points of Mabuchi Motor's Environmental Accounting

1. Period:  
January 1, 2005 through  
December 31, 2005
2. Scope of calculation:  
Cost: Head Office (including the  
Technology Center)  
Jiangsu Mabuchi  
Effect: Entire Mabuchi Group
3. Standard for calculating environmental preservation costs
  - 1) Depreciation cost  
The depreciation cost in terms of financial accounting is re-

- ported.
- 2) Labor cost  
All labor costs relating to environmental preservation activities are calculated.  
Formula:  
the number of operations x  
hours per operation x average  
wage by site
- 3) Research and development cost  
Costs specific to individual research and development themes are individually calculated. Those that cannot be di-

- rectly grasped are proportionally calculated according to working hours by theme.
- 4) Standard for reporting compound costs  
Only costs relating to environmental protection activities are reported in accordance with Environmental Accounting Guidelines (in 2005).





## Manufacture of Environmentally-Conscious Products by Mabuchi Motor

Mabuchi Motor declared the following company policy:

“Stop manufacturing products that do not comply with the RoHS Directive by the end of 2005. Manufacture products that comply with the RoHS Directive starting on January 1, 2006.”

The RoHS Directive, which has a significant impact on companies exporting products to Europe, finally came into effect in July 2006.

It was very important for Mabuchi Motor, with its corporate customers categorized as the companies above, to complete preparations for compliance with the RoHS Directive before the start of the year 2006.

Motors are functional parts, and they are manufactured and delivered to our customers' factories, where they are assembled with other parts into final products or, in some cases, into semi-final products, which are delivered to customers of our customers to be assembled into final products. Then these are loaded into a container and exported to Europe. Taking into account the time required for this process, our deadline for completing the preparation was six months before the RoHS Directive came into effect.

Some customers requested our compliance with the RoHS Directive more than a year in advance; however, requests from customers varied.

Under these circumstances, Mabuchi Motor declared its company policy: “Stop manufacturing products that do not comply with the RoHS Directive by the end of 2005.

Manufacture products that comply with the RoHS Directive starting on January 1, 2006.”

### ■ Responding to RoHS Starting with Parts and Materials

Before changing a part or a material, a basic rule is to obtain the customer's approval based on data or some information that demonstrates that the product using the new part has functions and characteristics equivalent to or better than that of the current product after evaluation.

Therefore, we started with a request for cooperation from our long-term parts/materials suppliers in order to respond to environmental requirements. Our suppliers were very cooperative in an atmosphere of increasing environmental awareness throughout society. However, in some cases, even though no problems had been found in the evaluation of prototype products manufactured using environmentally-compliant prototype parts or materials from suppliers, problems in processability or workability occurred in the evaluation of mass-produced products and the process would have to be repeated from the beginning almost



RoHS compliant motors from Mabuchi Motor



endlessly.

This kind of steady work was repeated to change the specifications of each product to meet environmental requirements.

In the second half of fiscal 2005, in order to implement the above-mentioned company policy, the entire company took various internal actions, such as switching procured parts and materials, modifying and maintaining documents for production instructions, adjusting production planning and controlling the identification of parts and products.



Employee education on reduction in the use of environmental burden causing substances

### ■ Responding to RoHS in the Manufacturing Process

Environmental compliance of parts and materials alone will not be enough.

Materials that are used in some of the production processes adhere to the products that are delivered to our customers. Such materials include machining oil and mold releasing agent used when processing parts and materials, cleaning fluid, marker pen ink, and other similar materials. Environmental pollution caused by these sub-materials was also examined, and we decided to use only environmentally-friendly ones.

### ■ Responding to RoHS in Employee Awareness

Education on environmental burden causing substances has been pro-

vided to all employees, including those in overseas related companies, in fiscal 2005.

In manufacturing, it is considered important for workers to understand clearly what they are manufacturing in order to produce good products.

In the Mabuchi Group, in addition to Head Office, all manufacturing factories have acquired ISO 14001: 2004 certification. Employees have a high level of environmental awareness and participate in environmental activities not only in their companies but also in their local communities. All employees, ranging from factory workers to Head Office employees, have been told that the EU RoHS Directive now prohibits the use of lead, cadmium, hexavalent chromium, mercury, PBB and PBDE exceeding the respective threshold values and that although lead, cadmium, and

hexavalent chromium had been used for Mabuchi motors, measures had been taken to stop their use.

They are also told that erroneous shipment of parts containing environmental burden causing substances will result in disposal of all the parts concerned because screening is impossible, and the potential damage from this could result in bankruptcy of our company if damage to customers is included.

Mabuchi's motors are manufactured by workers who have this kind of knowledge, using parts and materials that are recorded on the production instructions and checked, so that customers can use our environmentally-friendly motors free from concern.





## Preventing Global Warming

The entire Mabuchi Group is continuously striving to reduce emissions of carbon dioxide (CO<sub>2</sub>), a greenhouse gas, in a concerted drive to prevent global warming.

### ■ Efforts to Reduce CO<sub>2</sub> Emissions

CO<sub>2</sub> is the main gas responsible for accelerating global warming, and its generation must be reduced on a global scale.

The reduction targets for CO<sub>2</sub> agreed upon in the Kyoto Protocol are applicable only within Japan. However, since our small motors are manufactured overseas, even if we reduce our emissions within Japan, the Mabuchi Group's corporate re-

sponsibilities will not be fulfilled while our emissions are increasing overseas. Therefore, the entire Mabuchi Group, including all its overseas facilities, is proactive in its constant activities to reduce CO<sub>2</sub> emissions.

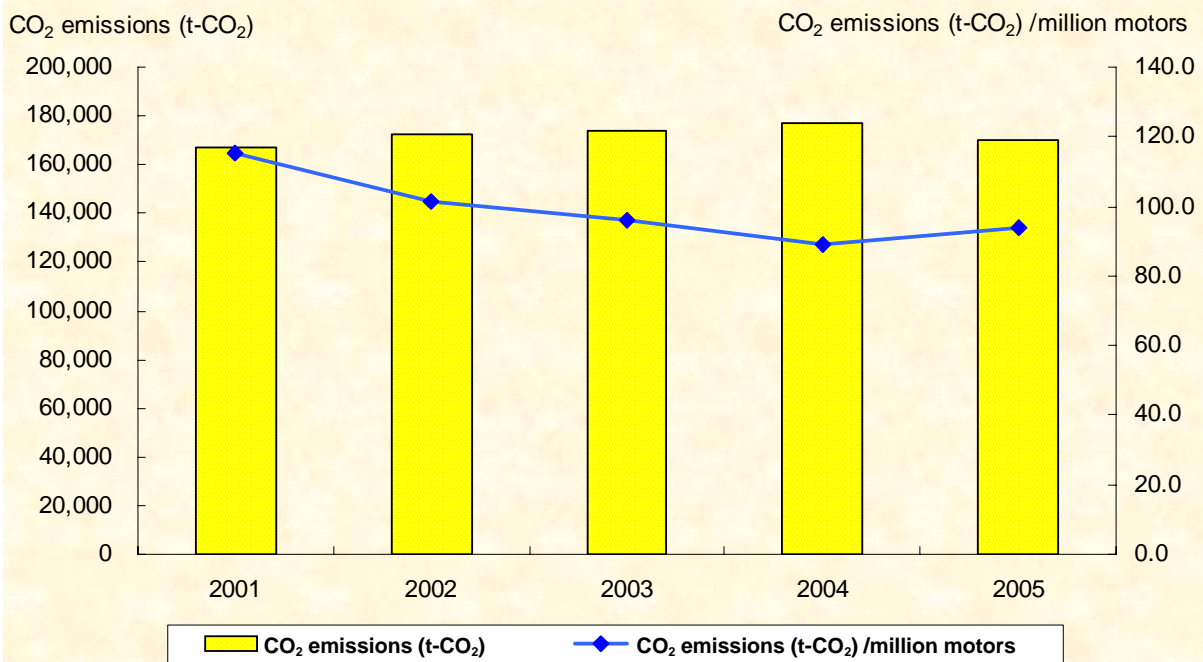
### ■ Efforts at Head Office

In October 2004, our Head Office moved to a new office building equipped with energy saving facilities. In order to ensure a continuous reduction in CO<sub>2</sub> emissions in the new office building, in fiscal 2005, the following were considered and developed: a system for calculating energy consumption (including the power consumed in each area of business) and rules for its application.

In order to prevent global warming, the Ministry of the Environment issued wide calls for businesses to set the temperature of the air conditioners in their offices at about 28°C during the summer and the "COOL BIZ" campaign is part of these efforts. The campaign encourages workers to dress lightly for business during the summer, which enables them to work comfortably and efficiently at a room temperature of 28°C.

As part of measures to prevent the increasingly serious problem of global warming, Mabuchi Motor Head Office introduced COOL BIZ between July 20 and September 30, 2005.

Changes in CO<sub>2</sub> emissions per one million motors produced in the Mabuchi Group





Above: Notice for visitors in the lobby at Mabuchi Motor Head Office during the "COOL BIZ" campaign.



Board standing in the elevator hall inside the new Mabuchi Motor Head Office building (See below \* for a detailed description.)

As part of the energy-saving campaign, the catchphrase; "Using the stairs to go up one floor or down two floors is good for your health and the environment!"\* was introduced to encourage people not to use the elevator so much to help reduce CO<sub>2</sub> emissions and prevent global warming.

We will continue to expand energy-saving educational activities and the energy-saving campaign and make efforts to reduce CO<sub>2</sub> emissions by saving electricity

through a review of the running of facilities that use electricity, as well as a review of their functions.

### ■ Efforts by Our Related Companies

Electricity accounts for 85 percent of all the energy used in the entire Mabuchi Motor Group. Cutting back on the amount of electricity used is one measure that reduces CO<sub>2</sub> emissions toward the Mabuchi Group's goal of reducing global warming.

In fiscal 2005, an energy-saving month was introduced as one measure for continuous promotion of our energy-saving activities. In overseas factories, environmental targets were set for the energy-saving month, and apart from energy-saving activities aimed at reducing CO<sub>2</sub> emissions and periodical inspections of facilities and equip-



Air intake of an absorption type air-conditioner in the Dalian Mabuchi factory

Ventilation using outdoor air in the summer consumes a large amount of electricity due to high outdoor temperatures.

This not only places a burden on the environment but also costs a lot.

In Dalian Mabuchi factory, starting from 2005 ventilation was improved in the summer by using well water to cool outside air before it is taken in.

This produced a cooling capacity of 183,485 kcal/h, and about 186,111 kWh of electricity was saved annually.

ment, cooling towers, air conditioners, air compressors, belt-conveyors and so on were cleaned and inspected to increase their energy efficiency and thereby reduce electricity use.



## Reducing and Recycling Waste

### ■ Achieving Zero Emissions

The entire Mabuchi Group is taking on the challenge of “Zero Emissions” in an effort to produce a recycling society, one in which waste is recovered and reused in the form of resources to reduce landfill waste.

Taking on the challenge of “Zero Emissions,” Mabuchi Motor reduces incinerated and landfill waste and promotes reuse (recycled use), aiming to reduce the percentage of incinerated and landfill waste to 1.0 percent or below. In order to achieve this goal, in addition to reducing the generation of waste, it is essential to convert generated waste into usable resources.

### ■ Status of Recycling

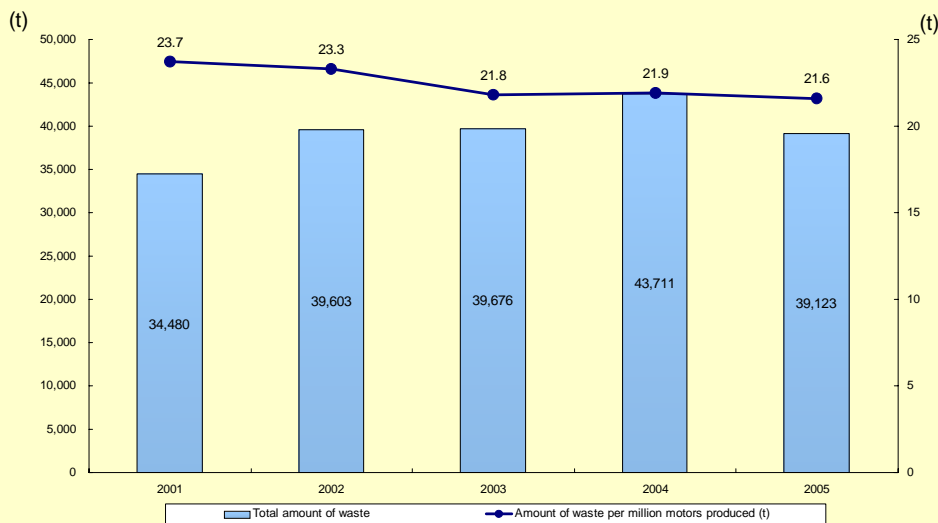
The amount of waste generated by the entire Mabuchi Group in fiscal 2005 was 39,123 tons, an increase of 4,643 tons over the 34,480 tons generated in fiscal 2001. The total amount of waste increased due to the increase in the number of motors produced (from about 1.5 billion units in fiscal 2001 to about 1.8 billion units in fiscal 2005). In contrast, waste per production of million motors was reduced by 2.1 tons over the fiscal 2001 figure.

The recycling rate in the entire Mabuchi Group for fiscal 2005 stood at 97 percent, an increase of about 11 percent from the 86 percent for fiscal 2001. Recycling activities for

materials and parts generated in production processes, more appropriate purchase quantities for office and other supplies used in offices and indirect departments by reviewing those supplies, and the promotion of recycling activities for the used goods and materials, made major contributions to the result.

Another factor leading to improvements in recycling is wider options when selecting waste processing companies, because sorting waste by material of each part was made possible thanks to improvements in the production process, and this has made recycling easier.

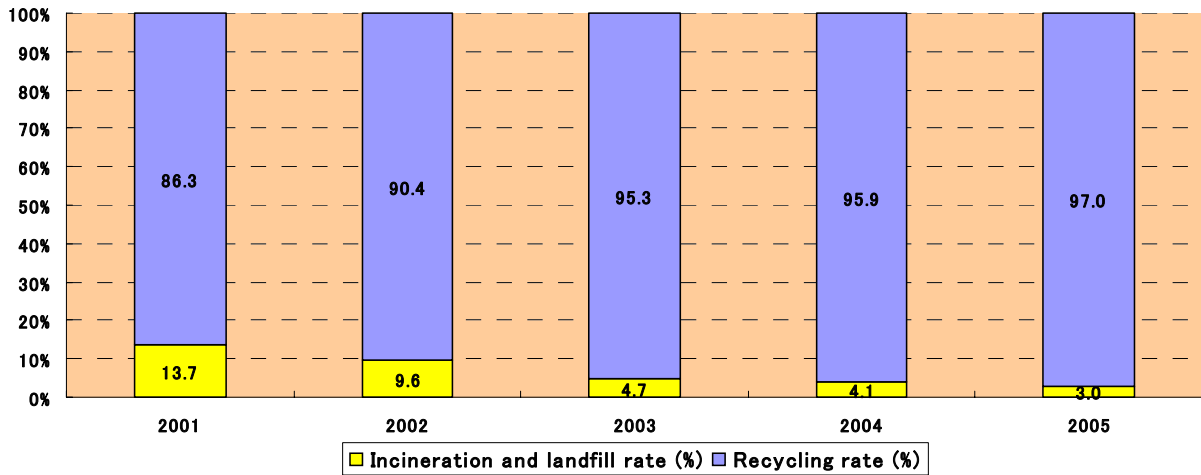
Changes in the Total Amount of Waste and the Amount of Waste Per Million Motors Produced in the Mabuchi Group between 2001 and 2005







Changes in the waste recycling and landfill rates for the Mabuchi Group between 2001 and 2005



**Thorough and Improved Sorting/Reduction of Waste**

The Distribution Control Department at Dalian Mabuchi (Dalian, China) changed the material used for packing belts for transportation from the conventionally disposable type to a reusable type, thereby reducing costs and eliminating disposal.

Before the improvement, 66 new belts were used each month; however, new belts are not required after the improvement.

Thanks to this change in packing material, the use of packing tape was also reduced to a third.

This change contributed to both reducing the amount of waste discharged and saving resources.



Conventional packing material



Packing belt after improvement

Taiwan Mabuchi had been wiping off machine oil remaining after the production process by using sheets of paper. The oil-soaked waste paper was disposed of in the same trash bins as any other waste paper, and everything including all

the oil-free paper was sorted as combustible refuse.

To increase the waste recycling rate, separate bins were provided for oil-soaked waste paper in fiscal 2005, and this was then disposed of separately from general waste paper. These measures made it possible to recycle all general waste paper from fiscal 2005, which had not been recyclable until then.



Separate trash bin for oil-soaked waste paper



## Resource Saving

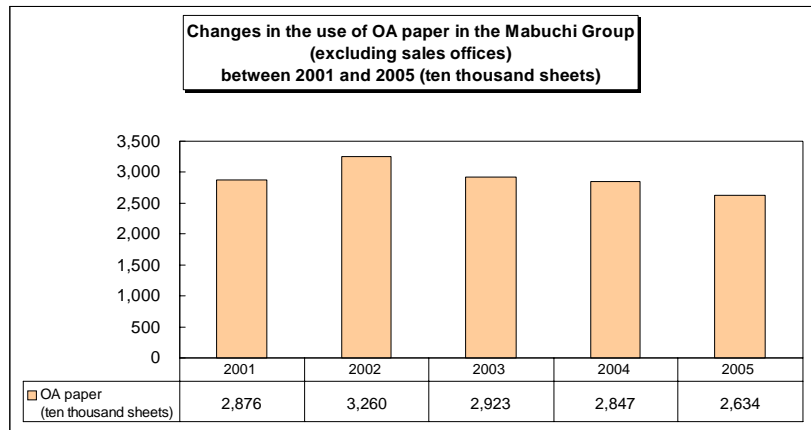
### ■ Efforts to Reduce the Use of Office Automation (OA) Paper

At Head Office and at each overseas related company, Mabuchi Motor is continuously striving to reduce the use of OA paper by promoting the use of electronic formats for the distribution of interoffice documents and the archiving of business records.

Dalian Mabuchi started to use electronic formats for inter-process operation request sheets and inter-warehouse delivery and warehousing slips in the factory and reduced OA paper use by about 180,000 sheets per year.

Jiangsu Mabuchi used to distribute all kinds of regulations in paper formats.

In fiscal 2005, it was made possible to distribute regulations and the like in electronic formats. These measures could reduce OA paper use by about 30,000 sheets per



year.

These paperless inter-office documents contributed to saving resources and reducing waste, as well as enhancing the security level of internal information and reducing costs.

### ■ Efforts to Reduce the Use of Wood Resources

Kaohsiung Mabuchi (Kaohsiung, Taiwan) used to dispose of wood used for packing parts and materials delivered from suppliers as combustible refuse. Large amounts of wood resources were consumed and waste disposal was costly as well.

In fiscal 2005, in an effort to protect forest resources, a way to reuse these wooden packing materials was sought. After negotiations with suppliers, about 40 tons of wooden packing materials were reused in fiscal 2005.



Documents in electronic formats make production workplaces in Jiangsu Mabuchi increasingly paperless



Wooden packing materials being reused





## Decontamination

### ■ Efforts at Head Office

We have used organic chlorinated cleaning solvents in the production process for small motors. The type of each of the solvents used has varied at different times. However, in the initial stages of using the cleaning solvents, control was less than adequate due to lack of knowledge of their properties. Consequently, soil contamination was discovered during the voluntary soil contamination research conducted before the construction of our new office building.

In light of this fact, we reported the situation to Matsudo City and at the same time, after discussions with them, we removed contaminated soil and now continue with decontamination work for groundwater by double extraction of soil gas and groundwater. Barrier wells were also installed on the downstream side at the boundary of the premises to prevent contaminants from flowing out. The range was expanded beyond the contaminated areas to ensure prevention of any outflow.

Since the concentration of the contaminants is now lower than before, decontamination is not advancing as fast as it was in the initial stages and the concentration is only gradually decreasing. One of the causes of the slower decontamination speed with the decrease in concentration is the presence of the contaminants in the clay layer. Extraction methods have only a limited effect on decontaminating clay soils, and the decontamination is behind its original schedule.

While we will proceed with em-



Soil decontamination facilities installed at Mabuchi Head Office

ploying the double extraction method for the time being, we are now studying an alternative method to speed up the decontamination because the current method requires a long time. However, decontamination using chemicals without any in-depth study will be avoided unless it can be proven not to cause dual contamination in the future. Now that measures have been completed to prevent leakage outside of the premises, we are proceeding with our study to find a method that has the least burden on the environment in the long term.

### ■ Efforts at a Subsidiary

Since our subsidiary in Tatebayashi City terminated operation, we also voluntarily examined that site. As a result, contamination exceeding the environmental quality standard was detected and we reported the contamination to Gunma Prefecture and Tatebayashi City. After discussions with them on the decontamination method, we are now en-

gaged in decontamination work. As we were able to demolish buildings in the contaminated area, we have completed decontamination of the soil by employing the oxidation catalytic method. Since concentrations of contaminants in the groundwater are still higher than the environmental quality standard, wells for decontamination were sunk to decontaminate the groundwater using activated charcoal to adsorb the contaminants.

To prevent any outflow of the contaminants from the premises, sheet piles are installed to the first aquifer and barrier wells are installed to the second aquifer. Now the concentrations in the groundwater are decreasing and we will continue the current method, pumping groundwater, until the concentrations become lower than the environmental quality standard, although it will take some time.



## Communication

Mabuchi Motor discloses environmental information both inside and outside the company to proactively address environmental issues.

### ■ Environmental Information Disclosure Both Inside and Outside the Company via the Website

Mabuchi Motor discloses its environmental policy, the result of environmental conservation activities and information on environmentally-conscious product development both inside and outside of the company on its website.

For internal communication, the environmental information database ECOLOG, which was started in 2003 on the company's intranet, has been increasingly recognized year by year and significantly contributes to research and development and sales promotion of environmentally-conscious products while also playing a significant role in developing environmental awareness among employees.

### ■ Poster / Photo Contest Promoting Environmental Consideration

In fiscal 2005, the "Poster / Photo Contest Promoting Environmental Consideration" was held for the first time. This was a new environmental conservation activity for every type of member participation and further enhanced environmental awareness among individual employees of Mabuchi Group.

Many entries were sent to us from employees at Head Office and overseas related companies. Out of these, a total of 16 entries were selected as winners of first to third prizes. (The cover photos show some of the award-winning entries.)

This contest has further enhanced environmental awareness among all Mabuchi Group members and strengthened their willingness to protect the Earth.



First prize in the contest's photo category: "We dream of swimming here!"



Creator: Mr. Giang Vy Hung  
Vietnam Mabuchi

### Enhance environmental awareness for every individual

In 2005, an interview with Mr. Itokawa, General Manager of Quality Assurance Department and Environmental Manager at Mabuchi Motor's Head Office, was posted on ECOLOG. The interview was on environmental issues, entitled "Solar panels turned my house into a power plant." He appealed to employees through the company intranet, "Taking the first step, however small it may be, is very important... There are a number of environmental issues to be addressed now. I think that each of us must improve our environmental awareness so that we can join in activities at both company level and government level."







## Contributions to Society

Mabuchi Motor is actively engaged in social contributions that go beyond the scope of business in the process of implementing its Management Philosophy: "Contributing to International Society and Ever-expanding Our Contribution."

### ■ Cosponsoring the Robot Contest

Every year since 2002, Mabuchi Motor has been a cosponsor of the "ABU Asia-Pacific Robot Contest" and "Robocon: The idea battle-national technical collage robot contest" with support for running the contests and providing motors.



Mr. Shinji Kamei, President of Mabuchi Motor, presents a special prize to Tribhuvan University of Nepal in a contest held in Beijing, China in fiscal 2005

### ■ Cooperation in Local Environmental Activities

To support environmental protection for public utilities in Dalian City, on June 5, 2005 eighty employees of Dalian Mabuchi participated in an environmental protection publicity campaign on the theme, "Let's all participate in building a green house," which was hosted by the Dalian environmental protection ad-

ministration (held in Dalian Xinghai Square).

In the campaign, Mr. Okuma, General Manager of Dalian Mabuchi, signed his name on the "Companies' Environmental Declaration" initiated by local companies as a representative of Dalian Mabuchi.



Employees of Dalian Mabuchi participating in the environmental protection publicity campaign hosted by the Dalian environmental protection administration

Mabuchi Motor's related companies in China support tree-planting and greening activities in their separate communities every year.



Employees of Guangdong Mabuchi participate as volunteers in the spring tree-planting activities.



Employees of Jiangsu Mabuchi cooperate in greening activities in their local community

### ■ Support for Local Education Activities

Mabuchi Motor actively extends cooperation with and support for educational activities in separate local communities as part of their corporate social responsibility.

Head Office cosponsors a "Science Show" hosted by Chiba Museum of Science and Industry every year as part of their cooperation with local public institutions and to provide educational support for manufacturing and science for children.



"Let's make a paper clip motor" workshop at Science Show 2005

Dalian Mabuchi has designated three elementary schools, namely, Zhuanghe, Wafangdian and Pulandian as targets for its support, and provides scholarships and extends cooperation in factory tours for their students every year.



Periodic visit by General Manager of Dalian Mabuchi to one of its supporting schools



## History of Mabuchi Motor Environmental Conservation Activities

June 1993	Adopted the management guideline: "Carry out our corporate activities of developing, manufacturing, and selling small electric motors in a way that preserves both our own health and the global environment" as part of the Management Philosophy.
December 1993	Reported on development of the first cadmium-free materials for motor commutators.
January 1994	Set targets for recycling rate and reduction of in-house waste in the annual program and started continuous control of numerical targets.
June 1997	Set up "Environmental Management Committee" for managing information on environmental problems at Business Platform Innovation Headquarters.
November 1997	Started modifications and improvements in cadmium-free materials.
January 1998	Revised the Standards for Waste Disposal Control for Procedures based on the three Rs.
July 1998	Set up ISO 14001 certification project (E-Project) at Business Platform Innovation Headquarters. Started feasibility study for acquiring ISO 14001 certification.
October 1998	Established the Mabuchi Group's "Basic Environmental Policy." E-Project started activities to acquire ISO 14001 certification.
May 1999	Established Environmental Policy at Head Office in line with the requirements of ISO 14001.
May 1999	Announced Interim Environmental Targets for Head Office.
June 1999	Started operating EMS (Environmental Management System) at Head Office.
December 1999	Head Office acquired ISO 14001 certification.
January 2000	Started to eliminate and reduce the use of trichloroethylene.
January 2000	Started activities to develop a new method of lead-free soldering.
March 2000	Kaohsiung Mabuchi (Kaohsiung, Taiwan) acquired ISO 14001 certification.
May 2000	Eliminated the use of trichloroethylene at Head Office.
July 2000	Malaysia Mabuchi (Ipoh City, Malaysia) acquired ISO 14001 certification.
August 2000	Jiangsu Mabuchi (Jiangsu, China) acquired ISO 14001 certification.
August 2000	Dalian Mabuchi (Liaoning, China) acquired ISO 14001 certification.



September 2000	Started developing hexavalent chromium-free material for motors.
October 2000	Started green procurement activities.
December 2000	Completed evaluation of selection of cadmium-free substitutes.
December 2000	Taiwan Mabuchi (Hsinchu City, Taiwan) acquired ISO 14001 certification.
December 2000	Hong Kong Mabuchi (Hong Kong, Guangdong, China) acquired ISO 14001 certification.
December 2000	Started operation of returnable-container system in some regions.
March 2001	Vietnam Mabuchi (Bienhoa City, Vietnam) acquired ISO 14001 certification.
July 2001	Lead-free soldering for motors was approved by Sony's "Committee for Electrical Component Standardization."
December 2001	Completed arrangements for mass production using lead-free soldering.
December 2001	Posted Environmental Report 2001 on website.
April 2002	Started shipping samples of hexavalent chromium-free motors.
July 2002	Detected soil pollution from tetrachloroethylene in a section of the Head Office site and started purification and improvement.
September 2002	Started supplying motors satisfying EU Directives ELV and RoHS.
May 2003	Started construction of Mabuchi Motor's new Head Office building, which incorporates state-of-the-art technology to reduce environmental burden.
October 2003	Established an environmental accounting system with guidance from ERNEST & YOUNG SHINNIHON.
May 2004	Introduced hydrocarbon scrubbers.
June 2004	Dalian Mabuchi won award as a model company for environmental conservation by environmental protection administration in Dalian, China.
September 2004	Jiangsu Mabuchi introduced environmental accounting system.
October 2004	Construction of Mabuchi Motor Head Office building completed, using state-of-the-art technology.
June 2005	The Mabuchi Group's first poster / photo contest promoting environmental consideration was held.
December 2005	Terminated the production of products not complying with the RoHS Directive.



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