"Minebea's manufacturing activities depend on the communities in which its plants are located. Accordingly, we must strive to contribute to the communities without being a burden on them", said then-president Ogino at a meeting of the Corporate Environmental Protection Committee in June, 1993.
Today, this conviction is shared by all Minebea Group companies and serves as a guideline for environmental protection. The spirit of "contributing to the communities without being a burden on them" leads to the contribution to the global environment.

■Reduction of Energy Consumption/Contribution to Prevention of Global Warming

◎Construction of energy-saving plants (Thai Operations)

New plant for cutting and pressing process of bearings in Bang Pa-in Plant, Thailand, which started operation in June, 2008, was built with the concept of "the most energy-saving plant in the Minebea Group"
Cutting and pressing are a difficult machining process as that consumes large amount of energy. Previously, every overseas manufacturing plant performed the processes from manufacturing parts to assembly. The cutting and pressing processes are consolidated in the new plant where skilled workers trained in Thailand manufacture parts, which are supplied to plants in Thailand, Singapore and the UK to increase production efficiency and to contribute to energy saving.
Various measures to conserve energy were adopted to build the new plant and energy cost such as for electricity and water was reduced by approximately 45% than conventional Minebea plants.

[Measures to conserve energy adopted in the new plant]

1. **Thermal barrier coating on the outer wall and roof of the building**
2. **Adoption of high-efficiency water-cooled turbo freezing machine**
3. **Adoption of high-efficiency air blower**
4. **Adoption of electronic ballast for fluorescent lamps**
5. **Adoption of downlight LED for outdoor lights and interior lights**
6. **Recovery of waste heat and adoption of controlling fresh air intake using CO_2 sensor**
7. **Adoption of high-efficiency transformer**

The Bang Pa-in Plant won the "highest award for energy-saving controlled plant" in the "Energy Award in Thailand, 2008" held by the Thai Department of Energy in July, 2008.

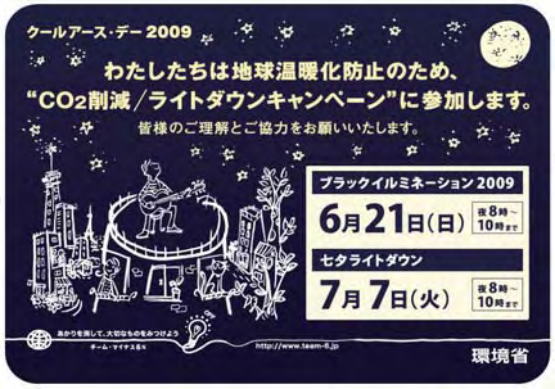
Mr.Vutichai Udomkamjananan, director, receiving the highest award for energy-saving from the Minister of Energy (at right)


Energy-saving plant built in Bang Pa-in Plant, Thailand

◎Participation in CO_2 reduction/light down campaign

The Ministry of the Environment conducts "CO_2 reduction/light down campaign" on the summer solstice and on the day of the star festival (July, 7) every year, suggesting that lights in light-up facilities and in offices be turned off to prevent global warming. The objective of this campaign is to experience darkness and realize how much light we use so that people familiar with illumination will think about global warming.
Every plant and sales offices of the Minebea Group in Japan took part in the campaign in 2009. We designated the July 7th as simultaneous going home day throughout Japan to turn off not only outdoor lamps but also lights in offices.

[How much CO_2 emission was reduced in the Minebea Group]
Participant: Tokyo headquarters, 18 sales offices,
Karuizawa Plant, Hamamatsu Plant,
Fujisawa Plant, Omori Plant
NMB Electro Precision, Inc. (Sendai City)
Yonago Office, Minebea Motor
Manufacturing Corporation
Amount of power consumption reduced: 1,442 kWh
Reduced amount of CO_2 emission: 639 kg of CO_2
(Equivalent to emission of about 42 households per day)



CO_2 reduction/Light down campaign by the Ministry of the Environment
http://coolearthday.jp/index.html

Light-up illuminations in Hamamatsu Plant with lamps turned on

◎Reduction of heavy oil fuel use (Karuizawa Plant, Fujisawa Plant)

Traditionally, boilers and cold/hot water supply machines using fuel oil "A" as heat source for air conditioning have been used in various plants. However, burning of fuel oil "A" will cause carbon dioxide blamed for global warming as well as dust and nitrogen oxide that are harmful to humans to be released into the atmosphere. There is a risk of leakage of fuel oil "A" from old fuel tank, as well. We are shifting fuel of equipment from fuel oil "A" to cleaner fuel in plants simultaneously with replacement of facility.
The boiler and cold/hot water supply machines using fuel oil "A" were changed into equipments using city gas in Karuizawa Plant as city gas pipes were laid around the plant and carbon dioxide emissions were reduced about 24% compared with old equipments. Minebea also replaced boiler using fuel oil "A" with sectional air conditioner in Fujisawa Plant.

City gas boiler in Karuizawa Plant


Indoor sectional air conditioner newly installed in Fujisawa Plant

■Prevention of water pollution and decrease of water consumption

◎Achievement of zero waste water from plant and 100% recycle

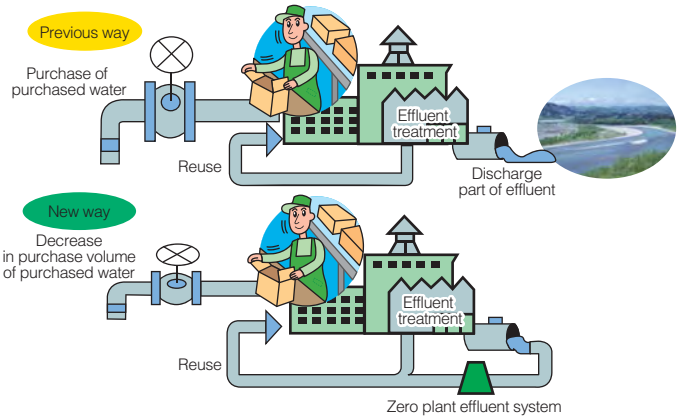
Shanghai Plant and Xicen Plant are located at the lakeside of Dianshan lake, which is an important water source for Shanghai city where there is very strict standard to release factory effluent.

The two plants reused most of water treated with general effluent treatment facilities in the past and now, newly introduced “zero plant effluent system" allows to reuse all factory effluent.

No effluent is released from Shanghai Plant and Xicen Plant now and water in the plants are recycled 100%. This reduced amount of water Shanghai Plant and Xicen Plant purchase from Shanghai city approximately 44%.

Memorial ceremony to celebrate the achievement of zero effluent in the two plants was held in Shanghai Plant on July 24, 2009.

[Outline of water treatment equipment in Shanghai Minebea]



Mr.Kokan, mayor of Seiho ward popular government (at right) and Mr.Fujisawa, general manager of Minebea China shaking hands at the ceremony for achieving “zero plant effluent and 100% recycle" in Shanghai and Xicen plants.

Building with zero plant effluent system (Shanghai Plant)

Internal equipment of zero plant effluent system

◎100% recycle of plant effluent and reuse of rainwater (Thai Operations)

Previously Bang Pa-in Plant in Thailand treated used purchased water in general effluent treatment equipment and used part of the treated water in toilet and released the rest.

Now, “effluent reclamation equipment" is installed to make plant effluent as clean as purchased water and treated water is recycled 100%. Rainwater is also collected, treated with “rainwater recycling machine" and is used as industrial water.

Such efforts enabled Bang Pa-in Plant to reduce amount of purchased water approximately 45% than before installing the two equipments. Now, no effluent is released from Bang Pa-in Plant to outside environment.

Bang Pa-in Plant and Lop Buri Plant in Thailand were selected as plants cooperating water area maintenance and protection of Chao Phraya River Protection Project and were commended by the Minister of Industry.

Rainwater treatment plant and water reservoir of Bang Pa-in Plant in Thailand

Mr.Vutichai Udomkamjananan, director, commended by the Minister of Industry (at left) for “plant cooperating protection"

■Promotion of 3R (Reduce, Reuse, Recycle)

Box for security guards, tables, chairs, bulletin boards are made of package waste such as wood box to reduce waste and effective use of resources in Ayutthaya Plant in Thailand.

Box for security guards made of package waste

Tables and chairs made of package waste

Bulletin board made of package waste

■Proper management of waste

◎Periodical audit of waste disposers (Karuizawa Plant, etc.)

Minebea periodically visits waste disposers outsourced by Minebea plants and their disposal sites for checkup. Waste should be disposed until the final disposition under the responsibility of the company that disposed it in principle. Therefore, Minebea checks not only disposal condition of waste but also various items including management condition of manifest and whether contracts, license of waste disposal or other documents are free of flaws.

Periodical audit conducted in Karuizawa Plant

■Rehabilitation of Contaminated Soil and Groundwater

◎Cleanup of contamination from organic chlorinated solvents

Since it previously used organic chlorinated solvents in its manufacturing processes, Minebea has conducted voluntarily inspections of its plants in Japan. These inspections confirmed the presence of contamination at the Karuizawa, Fujisawa and Omori plants, as well as the site of the former Ichinoseki Plant.
Minebea promptly informed local authorities and, in line with directives issued thereof, is implementing cleanup measures for soil and groundwater.