

MIE FUJITSU
SEMICONDUCTOR
Environmental
Report
2016



shaping tomorrow with you

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■ The 2016 Environmental Report of Mie Fujitsu Semiconductor Limited describes the results of activities carried out by Mie Fujitsu Semiconductor Limited based on specific approaches and efforts relating to environmental aspects of the Fujitsu Semiconductor Group, which handles the semiconductor business of the Fujitsu Group.

■ The report period covers activities in FY 2015 (April 1, 2015 to March 31, 2016). However, the report also includes some material on activities prior to April 1, 2015.

■ The only organization covered by this report is Mie Fujitsu Semiconductor. However, some data on environmental burdens includes impact data from the Mie Fab of Fujitsu Semiconductor.

President's Message



President and CEO: Michiari Kawano

Expanding IoT Society and Helping to Reduce Environmental Impact with Ultra-Low Power Consumption Technology

In recent years, there have been bewildering changes in the environment surrounding our company. There has been a slowdown of growth in the PCs, mobile phones and smartphones which have driven growth of the semiconductor market for about 20 years. On the other hand, today we are seeing networking not only of people but of all things, and by using the vast information on the network (big data), there are expanding opportunities for anyone to create innovation based on their ideas.

In the future, growth is expected in the automotive field, where the number of semiconductors installed per vehicle is expected to increase dramatically, and in IoT where all sorts of things will be connected to the network. It will be crucial to efficiently develop and manufacture a wide variety of products by building a technology platform for supplying the technologies we specialize in to our customers.

By building a platform for best-in-class ultra-low power consumption technology and non-volatile memory mixed technology using Deeply Depleted Channel (DDC) transistors, Mie Fujitsu Semiconductor Limited will improve the environmental value of our customer's products, and respond to market needs of the IoT society. In this way, we will realize better market competitiveness and dramatically improved performance of our customers' products, and contribute to development of the IoT society and reduction of environmental burdens.

Corporate Profile

MIFS works to ensure the stable supply of its semiconductor devices with superior environmental performance and to reduce environmental burden in its business activities. It pursues its environmental policy to contribute to the achievement of a prosperous low-carbon future.

- Location ● Principal Office: 2000, Mizono, Tado-cho, Kuwana Mie, Japan
 - Head Office: Shin-Yokohama Chuo Building,
2-100-45 Shin-Yokohama, Kohoku-ku,
Yokohama Kanagawa, Japan
- President and CEO: Michiari Kawano
- Date of Establishment: December 1, 2014
- Business Description: Semiconductor manufacturing
- Employees: 850
- Manufacturing hub ● Mie Fab: 2000, Mizono, Tado-cho, Kuwana Mie, Japan
- Business Office ● Shin-Yokohama TECH Office: Shin-Yokohama TECH Building 3-9-18 Shin-Yokohama,
Kohoku-Ku, Yokohama, Kanagawa, Japan
 - Kozoji Office: 2-1844-2, Kozoji-cho, Kasugai Aichi, Japan

Head Office



Mie Fab



Environmental Policy

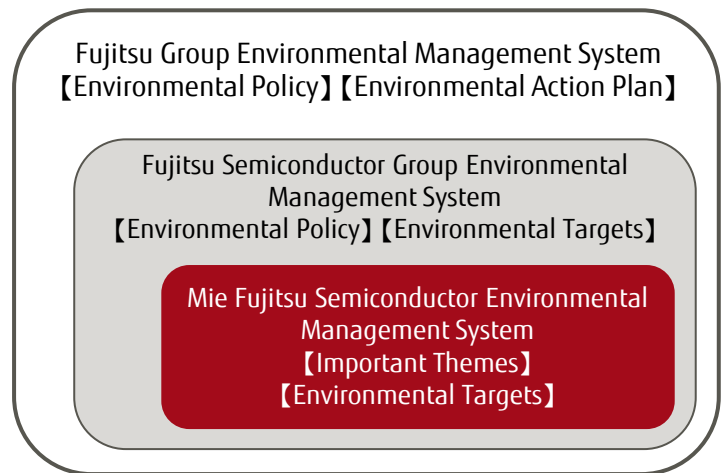
Fujitsu Group obtained global integrated certification under the ISO 14001 international standard for environmental management systems in 2005. All group companies, in Japan and abroad, conduct environmental practice based on the same management system.

Fujitsu Semiconductor Group advances environmental management involving the entire group based on its Environmental Policy enacted under the Fujitsu Group Environmental Policy. It also developed the “Fujitsu Semiconductor Group Environmental Targets and Goals” to set clear numerical targets to achieve based on the Fujitsu Group Midterm Environmental Vision “Green Policy 2020” and “Environmental Action Plan.”

MIFS pursues environmental activities as a member of the Environmental Management Organization under the Fujitsu Semiconductor Group Environmental Policy, and also seeks improvement in a planned and consistent way toward achieving goals related to “Contribution to Society,” “Our Own Business Activities” and “Ongoing Management Targets,” as roles which MIFS ought to fulfill in the Fujitsu Semiconductor Group.

■ Environmental Policy

As a Member of the Fujitsu Semiconductor Group, MIFS identifies important themes as priority issues and actively promotes Environmental Action under the Fujitsu Semiconductor Group Environmental Policy.



Fujitsu Group Environmental Policy

■ Philosophy

The Fujitsu Group recognizes that conservation of the global environment is a vitally important business issue. By utilizing our technological expertise and creative talents in the ICT industry, we seek to contribute to the promotion of sustainable development. In addition, we not only observe all environmental regulations in our business operations, we also actively pursue environmental conservation activities on our own initiative. Through our individual and collective actions, we continuously strive to safeguard a rich natural environment for future generations.

■ Principles

- We help customers and society reduce the environmental impact of their business activities and improve environmental efficiency with advanced technologies, ICT products and solutions.
- We proactively promote environmentally conscious business activities to help the environment and economy coexist harmoniously.
- We strive to reduce the environmental impact of our ICT products and solutions throughout their entire lifecycle.
- We are committed to conserving energy and natural resources, and practice the 3Rs approach (reduce, reuse and recycle) to create best-of-breed eco-friendly products and solutions.
- We seek to reduce risks to human health and the environment from the use of chemical substances and waste.
- We disclose environment-related information on our business activities, ICT products and solutions, and we utilize the resulting feedbacks to critique ourselves in order to further improve our environmental programs.
- We encourage our employees to work on global environmental conservation such as tackling climate change and preservation of biodiversity through their business and civic activities to be role models in society.

Fujitsu Semiconductor Group's Environmental Policy

■ Philosophy

With our customers, we contribute to the conservation of a rich global environment, using state-of-the-art technology to provide semiconductor devices with superior environmental characteristics.

■ Operational Principles

By applying the following principles, we work to prevent pollution of the global environment and reduce the environmental burden of our products throughout their lifecycles, including development, procurement, manufacture, sales, usage, and disposal:

1. We develop products with outstanding environmental characteristics.
2. We promote proper management of chemical substances contained in products, packaging materials, etc.
3. We promote measures to counteract global warming, effective utilization of water and resources, and proper management of wastes.
4. We promote proper management of chemical substances to prevent pollution of the global environment.
5. We conform to environmental regulations around the world and keep our promises to customers.
6. We promote activities to make environmental and social contributions, and to preserve biodiversity.
7. We effectively and continually improve our environmental management system, and work hard to improve our environmental performance.

Mie Fujitsu Semiconductor Limited Important Themes

Mie Fujitsu Semiconductor Limited will implement the following important themes in compliance with Fujitsu Semiconductor Group's environmental policies.

- Reduction of environmental impact with the use of ultra-low power consumption technology
We will actively contribute to reducing environmental impact on our customers and the Earth by offering products manufactured to use ultra-low power consumption technology.
- Reduction of environmental impact in our foundry business
We will achieve reduction in environmental impact in the following areas by promoting energy-saving policies, improvements in production efficiency, and appropriate recycling of our waste:
 - Greenhouse gas (CO₂, PFCs) emissions
 - VOC (Volatile Organic Compound) emissions
 - Generation of waste
- Improvement of each employee's environmental consciousness
We will contribute to the community's environmental society, promote biodiversity conservation activities, and improve each employee's environmental consciousness.

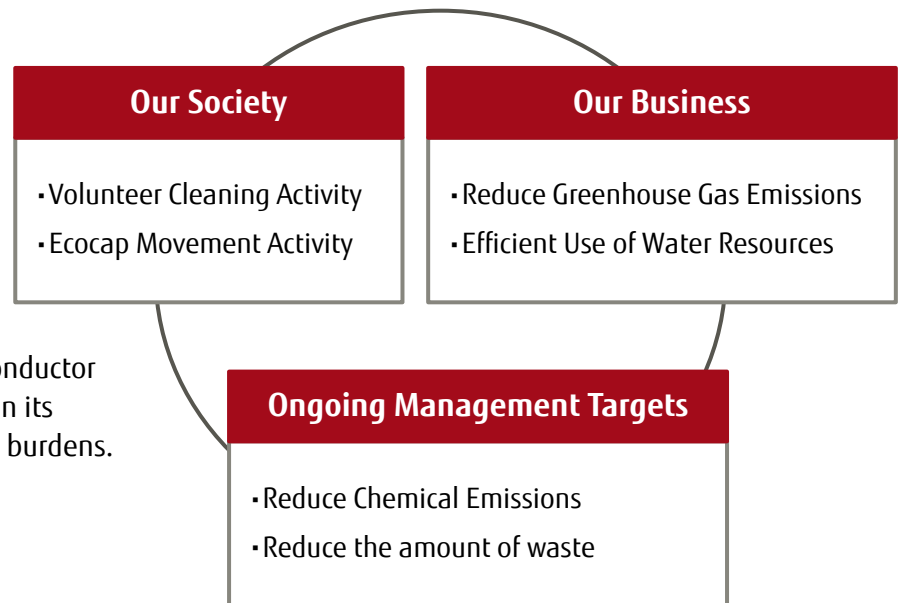
Environmental Activities (of MIE FUJITSU SEMICONDUCTOR)

Results of Activities Based on Fujitsu Group Environmental Action Plan Stage VII

The MIFS company-wide environmental management organization is led by the Mie Fab, our production base, and also includes our Head Office, Shin-Yokohama TECH Office, and the Kozoji Office.

In our environmental activities, MIFS has focused on activity goals relating to the items set forth in the Fujitsu Group Environmental Action Plan Stage VII (FY2013–2015): "Our Society," "Our Business," and "Ongoing Management Targets."

Additionally, MIFS includes "Fujitsu Semiconductor Mie Fab" in the hub organization and also in its previous numerical value as environmental burdens.



Targets and Results in FY 2015

In FY2015, measures were implemented according to plan, and we were able to achieve all of our environmental activity targets.

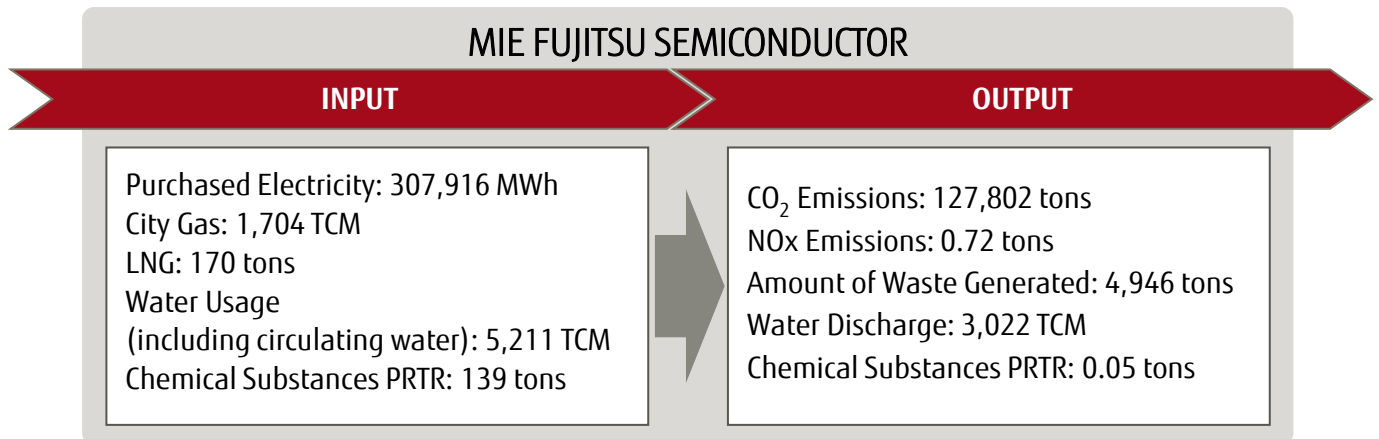
	FY 2015 Targets	FY 2015 results	Achievement Status
1	Reduce discharges of VOCs (RV:average results for FY2009–2011) to 43,530 tons or less (compared with RV, 31%)	32,776 tons (Compared with RV, 48% decrease)	Achieved
2	Reduce emissions of PFCs (RV:results for FY2011) to 19,550 t-GWP or less (compared with RV, 64% decrease)	14,895 tons-GWP (Compared with RV, 65% decrease)	Achieved
3	Reduce CO ₂ emissions from energy consumption (RV:results for FY2011) to 132,836 tons or less (compared with RV, 17% decrease)	127,801 tons (Compared with RV, 20% decrease)	Achieved
4	Implement 5 or more measures in total for efficient use of water from the beginning of FY 2013	7 measures	Achieved
5	Reduce industrial waste generation (RV: results for FY2011) to 5,978 tons or less (compared to RV, 24% increase)	4,946 tons (Compared with RV, 2% increase)	Achieved
6	Implement Regional Contribution Activities 6 or more times a year	7 times	Achieved

Note: MIFS uses data of FSL Mie Fab for reference value and achieved value.

Environmental Activities (of MIE FUJITSU SEMICONDUCTOR)

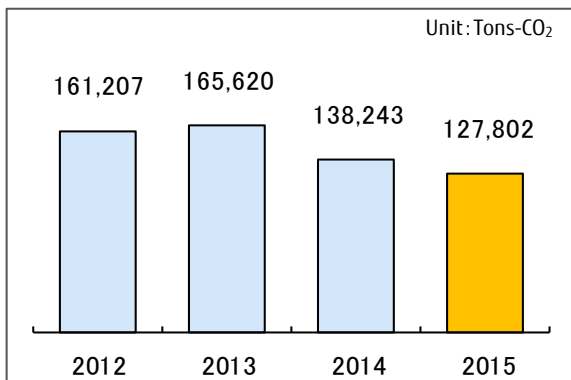
Data on Environmental Impacts of Business Activities

■ FY2015 Key Performance

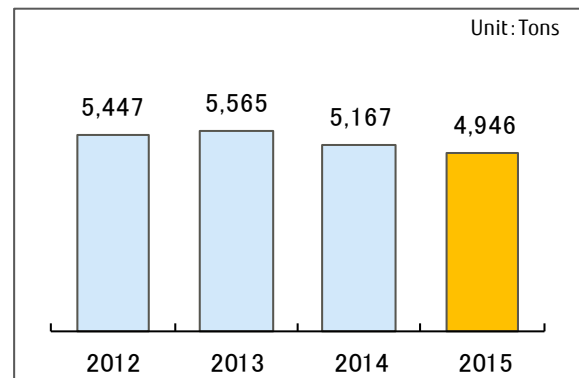


■ Change of Environmental Burdens over time

● CO₂ Emissions from energy consumption*

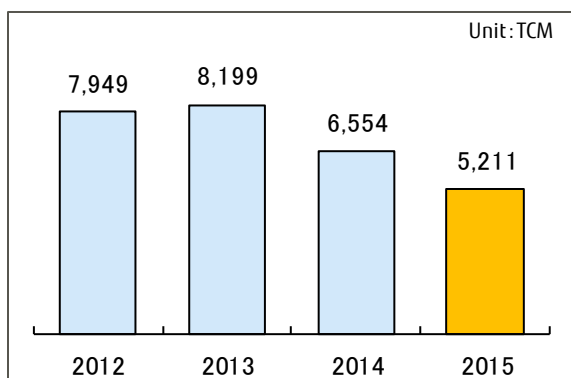


● Industrial Waste

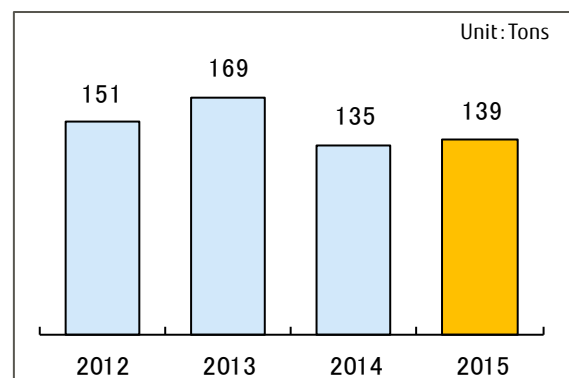


*: Power Consumption CO₂ conversion factor is maintained from that of reference year for calculation.

● Water Usage (including circulating water)



● PRTR Chemical Substances Usage



Note: Numerical data from FYs 2011 to 2013 is aggregate data of FSL Mie Fab, and the data of 2014 and beyond is combined MIFS (including FSL Mie Fab) and the Kozoji Office. As for the Head Office in Shin-Yokohama, its data is included in Fujitsu Electronics Inc., and the data for the Akiruno Office (Shin-Yokohama TECH Office) is included in FSL.

Initiatives for Environmental Targets

■ Target 1: Reduce discharges of VOCs

MIFS sets up exhaust-gas treatment equipment for emission prevention of acid and alkaline gas, takes measures to remove organic exhaust-gas (VOCs) by adsorption systems using activated charcoal, and works to reduce the effects on the environment.

■ Target 2: Reduce PFCs emissions

MIFS has made continuing effort to reduce GHG emissions other than CO₂ (PFC, HFC, NF₃, SF₆) since the days of FSL Mie Fab. On production lines, catalytic decomposition systems have been installed on all equipment producing GHG, and MIFS aggressively promotes GHG emission reduction. Moreover, MIFS implements appropriate operation management regarding systems to maintain their performance.

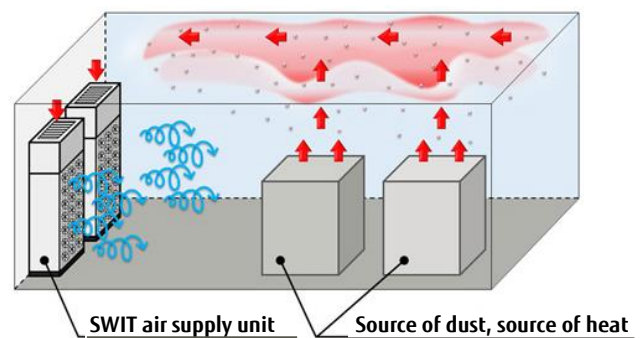
■ Target 3: Reduce CO₂ emissions from energy consumption

MIFS is continuing its efforts to make energy use more efficient.

The production lines of MIFS' energy-saving plant used the most advanced technology available when they were constructed.

When the plant was expanded in 2015, it employed a swirling induction type HVAC system (SWIT) in the wafer fabrication cleanrooms for the semiconductor process, a world first, and strong efforts are being made to realize high-quality product manufacturing with a smaller environmental footprint than conventional air-conditioning systems.

MIFS also pursues ongoing reduction measures by planning and executing efficient energy use to contribute to global warming prevention every year. Furthermore, MIFS will adopt the most advanced technology for energy efficiency, and work toward factories that even more energy efficient.



Conceptual illustration of SWIT system

■ Target 4: Implement measures for efficient use of water

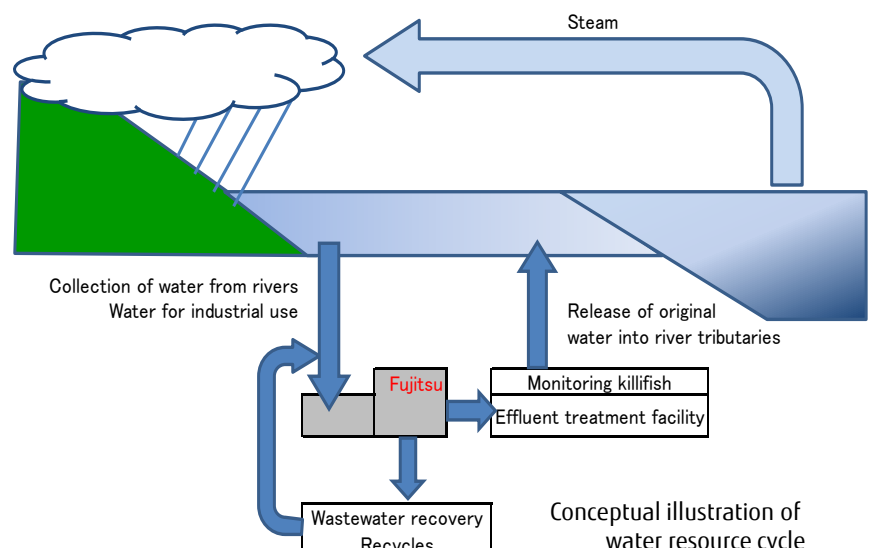
MIFS has been actively working to plan and implement water efficiency measures since FY2013.

On production lines, MIFS works to conserve water resources by recovering process effluent after pure water use, and recycling effluent into pure water again. Acid-alkaline and hydrofluoric acid effluent are collected, recycled, and reused to replenish circulating water in exhaust-gas treatment equipment, as washing water, and so on.

Overall water recycling efficiency is about 40%.

MIFS is working to realize a water resource cycle by returning clean water, properly treated with water treatment systems based on the latest technology, to the tributaries of rivers from which industrial water is drawn.

Going forward MIFS will actively strive to improve its water recycling rate, and achieve even more effective use of water resources.



Environmental Activities (of MIE FUJITSU SEMICONDUCTOR)

■ Target 5: Reduce industrial waste generation

To reduce environmental burden, MIFS actively implements 3R (Reduce, Reuse, and Recycle). MIFS has also installed stirred type crystallizers developed for high concentration fluorine-containing effluent treatment and formed particulate fluorite from recovered high concentration hydrofluoric acid effluent. Through installation of such equipment and sales to chemical manufacturing companies, the company has achieved a mechanism for sourcing recycled hydrofluoric acid.

■ Target 6: Implement Regional Contribution activities

MIFS works to improve the individual environmental consciousness of our employees, to help them become good environmental citizens, promote the biodiversity conservation, and make environmental and social contributions in their local communities.

■ Kuwana City Adopt Program

Initiatives for Environmental Targets MIFS carries out clean-up activities in the area surrounding the plant, including the neighborhood park, four times every year.

(FY 2015 Total Number of Participants: 165)

Note: The Adopt Program provides cleaning and beautification activities for roads, parks, and other public spaces by specifying locations for volunteer citizens and businesses.



ADOPT PROGRAM

■ Clean-up Volunteer Activity

MIFS participates in a "River and Sea Cleanup Campaign" every October, an external event sponsored by Ministry of Land, Infrastructure, Transport and Tourism, (MLIT) at Ibigawa, a river relevant to the Mie Fab.

MIFS calls on employees and their families to participate as volunteers in the event and actively joins in.



River and Sea Cleanup Campaign

■ Ecocap Movement Activity

MIFS sympathizes with the Ecocap Movement, which collects and recycles caps from plastic bottles as resources and uses the proceeds to purchase vaccines for children around the world. MIFS collects and donates caps to the Ecocap Movement organization.

■ On-Site Environmental Classes

MIFS has been teaching elementary school students the importance of the environment by opening on-site environmental classes at nearby schools as part of its regional contribution activities every year.



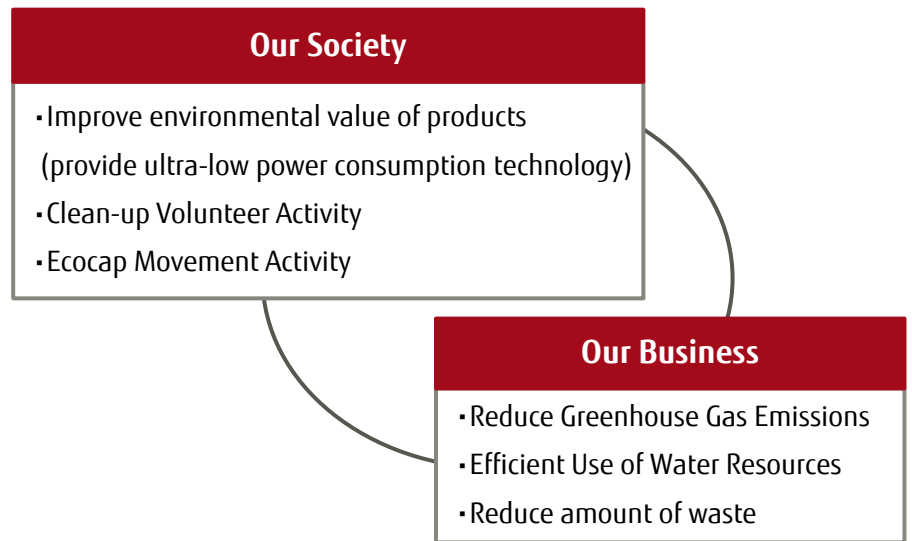
On-Site Environmental Classes

Environmental Activities (of MIE FUJITSU SEMICONDUCTOR)

Activity Plan Based on Fujitsu Group Environmental Action Plan Stage VIII

In our environmental activities starting from fiscal 2016, we will be working to achieve activity targets for "Our Society" and "Our Business" in Fujitsu Group Environmental Action Plan Stage VIII.

In the Fujitsu Group Environmental Action Plan Stage VIII, efforts will be made in specific activities with even deeper commitment to the "Contribution to Society" and "Our Own Business Activities" elements of Stage VII and we will aim to contribute to reduction of the environmental impact of society by providing our customers with the ultra-low power consumption technology that is our specialty.



Activity target in MIE FUJITSU SEMICONDUCTOR FY2016

Environmental target item	Target FY2016
1 Reduce CO ₂ emissions from energy consumption (RV: results for FY2013)	208,578 tons (Compared with RV, 9% decrease)
2 Take measures to reduce water use	Take measures to reduce by 11,610m ³
3 Reduce amount of waste generated (RV: Average results for FY2012-2014)	6,720 tons (Compared with RV, 25% increase)
4 Implement Regional Contribution activities	7 times
5 Promote development of ultra-low power consumption technology	Implement 2 promotion activities

Note) Starting from Stage VIII, the method of calculating CO₂ emissions from energy consumption has been changed so as to use the coefficients designated in guidelines for calculating emissions in the Act on the Promotion of Global Warming Countermeasures.

Providing ultra-low power consumption technology

In order to achieve the ultra-low power consumption that is necessary for mobile and wearable devices, MIFS developed technology for transistors that can operate at ultra-low voltage and ultra-low leak transistors. As its result, MIFS achieves a reduction in power consumption of approximately 50% at the same operating speed when compared to conventional products. Through the use of this technology, MIFS provides low power solutions that meet the various needs of our customers. MIFS is the first in the world to manufacture such ultra-low voltage and ultra-low leak transistors, and is the only foundry mass-producing such products.

Efforts to Enhance Safety and Security in Plant

Since the days of FSL Mie Fab, MIFS has been making ongoing efforts to reduce impacts on aquatic environments, such as contamination of effluent quality with hazardous substances, COD, nitrogen, or phosphorus, through appropriate operation management including adoption of a water-treatment system using the latest technologies. As for monitoring of effluent quality, MIFS continuously monitors killifish and their breeding in discharged water for biodiversity conservation. The Killifish have bred repeatedly since FY 2012, the year after launch. MIFS set up a new aquarium for monitoring killifish in June 2013, and donates bred killifish for educational purposes to local elementary schools as a part of its regional contribution activities.

As other efforts to enhance safety and security in the plant, MIFS conducts environmental analyses and confirms compliance with environmental regulations. As part of its environment safety risk management, MIFS also conducts reviews of environmental analyses associated with changes in laws and regulations, and holds safety promotion liaison conferences with partner companies every year. MIFS continuously cooperates with partner companies and meets customer's expectations as a safe and secure factory.



Aquarium for monitoring
killifish Breeding



killifish



Regular environmental
analyses



Safety promotion liaison
conference with partner
companies

Efforts to Control Chemical Substances

MIFS is working to respond appropriately to regulations of each country on chemical substances contained in products, and in response to customer requests has developed a system for issuing non-use certificates for applicable chemical substances.

Additionally, Fujitsu Semiconductor Group achieved the objective of total elimination of chemicals containing PFOS, suspected of damaging ecosystems, at all Group factories by FY 2009.

As for PFOA, an alternative to PFOS, it is also suspected of damaging ecosystems, so we are evaluating other alternatives.

Compliance with Environmental Laws and Regulations

■ Legal Compliance

MIFS maintains the management condition of legal compliance through established quarterly survey and confirmation procedures. MIFS also works to take action at early stages by gathering the latest information regarding amendments of laws and trends in new regulation.

【Compliance】

- MIFS reaffirmed compliance through an internal audit based on its environmental management system and verified that there were no problems.
- There was no occurrence of accidents or exceeding of regulatory value according to the results of environment analyses related to wastewater and exhaust gas in FY 2015.
- MIFS verified that there were no problems related to procedures for the establishment of the company, such as applications for approval, reporting, notification, etc.
- Regarding environmental issues of soil contamination annual reported to Mie Prefecture and Kuwana City in May 2008, MIFS monitors the surrounding environment and operating procedures by pumping up contaminated water on an ongoing basis, and submitted results in December.
- MIFS confirmed that there were no problems related to other regulations or requirements.

Environmental Audit

■ Environmental Audit

MIFS, as a member of Fujitsu Semiconductor Group, conducts environmental audits under the Fujitsu Group Integrated Environmental Management System. To make audits effective, auditor education programs are implemented each year to help improve the competency of its internal auditors. MIFS also enhances its auditing system through audits for company-wide legal compliance by auditors with external credentials.

Regarding the matters pointed out in the fiscal 2015 internal audit, corrective action was taken, including measures to prevent any recurrence, and this information is being effectively used for continuous system improvement.

Also, in order to maintain integrated ISO 14001 certification of the Fujitsu Group, we undergo ISO 14001 audits by the Japan Audit and Certification Organization for Environment and Quality (JACO) in Japan, and DNV GL Business Assurance Japan k.k. overseas.

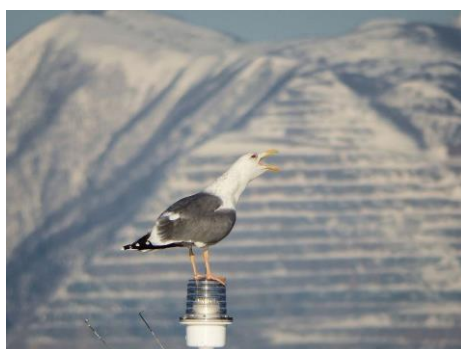
Environmental Education and Enlightenment Activities

■ Environment Exhibition

MIFS has continued effort to enlighten employees by raising environmental consciousness around the time of National Environment Month every June through environmental events. MIFS also holds Environment Exhibitions every year and works to raise consciousness of issues such as global warming, biodiversity conservation, and so on.

■ Environmental Photo Contest

As an opportunity for raising awareness of biodiversity, every year MIFS asks employees to submit photos relating to biodiversity, and a biodiversity photo exhibition is held to display the most outstanding works.



First Prize



Prize for Excellence in Quality



Some Entries in the FY 2015 Environmental Photo Contest



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