

Environmental Data Book 2017

ローム株式会社

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OPeriod covered by this Report

Fiscal year 2016: April 1, 2016 to March 31, 2017

OScope of this Report

This Report covers environmental conservation activities implemented by ROHM Head Office, ROHM Yokohama Technology Center, and 15 ROHM Group Affiliates: 8 domestic affiliates including 3 LAPIS Semiconductor Group companies and 7 overseas affiliates.

YTC and LAPIS Semiconductor Co., Ltd. have become subject to this Report since fiscal 2014.

RMT is not included in the data aggregation for the period of fiscal 2011 to fiscal 2016, due to the 2011 Thailand floods. (It will be included in the data aggregation from fiscal 2017.)

Kionix is not included in the data aggregation at present.

ROHM Shiga Co., Ltd. is not included in the data aggregation at present, but it will be included in the data aggregation from fiscal 2017.

OAbbreviated names for the Overseas Affiliates

For the purposes of this Report, the names of the Overseas Affiliates are abbreviates as follows:

YTC: ROHM Yokohama Technology Center (Japan) (Philippines) REPI: ROHM Electronics Philippines, Inc. RIST: ROHM Integrated Systems (Thailand) Co.,Ltd. (Thailand) RSC: ROHM Semiconductor (China) Co.,Ltd. (China) REDA: ROHM Electronics Dalian Co.,Ltd. (China) RWEM: ROHM-Wako Electronics (Malaysia) Sdn.Bhd. (Malaysia) RMPI: ROHM Mechatech Philippines, Inc. (Philippines) RMT: ROHM Mechatech (Thailand) Co.,Ltd. (Thailand) Kionix: Kionix, Inc. (America)

Environmental Policy

ROHM's Environmental Policy

ROHM's everlasting conscientiousness to preserve the global environment contributes to the healthy existence of humanity and to the continued prosperity of the company.

- 1. Conserve energy by initiating innovative methods in all corporate activities.
- Develop environmentally-conscious products that minimize the environmental burden by employing responsible processes throughout the life cycle of each product.
- 3. Give priority to the procurement of materials and products that have the least levels of adverse impact on the environment.
- 4. Promote effective utilization of resources and strive for the prevention of pollution and conservation of biodiversity toward the realization of a sustainable society.
- 5. Comply with international and national environmental laws and regional agreements and other customer requirements to which we have agreed.
- 6. Endeavor to train employees and encourage our constituents to actively care for their surroundings and the global environment.
- 7. Develop positive relationships with the community through contributions to the local environment and the proper disclosure of environmental data.
- 8. Continuously improve subjects by creating and carrying out the environmental objectives, and their action plans to enhance environmental performance.

ROHM established an Environmental Policy applicable to the entire ROHM Group on October 20, 1997 pursuant to the provisions in the International Environmental Standards ISO 14001. In response to the 2015 revision of ISO 14001, item No.4,5,8 were added and revised on March 3, 2017.

ROHM's Approaches toward Global Environmental Conservation



ROHM has been working on a variety of environmental conservation activities centering on the Environmental Policy.

We believe that corporate activities contributing to the environment are to manufacture environmentally friendly products and yet to reduce our own environmental impact in manufacturing them. Particularly for the prevention of global warming, we are active in a range of the reduction of ${\rm CO}_2$ and other greenhouse gases emitted from our business operations.

In addition, we will define long-term environmental targets and policy from the perspective of biodiversity, and have approaches to realize sustainable society.

Environmental Objectives

OResponse to Legal Requirements

We shall certainly comply with environmental laws and requirements relating to all business activities and voluntarily promote to reduce the environmental impacts.

OObjectives and Targets of Voluntary Activities

1. CO₂ production countermeasures in each site

[Policy] Work to help stop global warming through overall energy conservation and the reduction of global greenhouse gas emission.

[Objectives] (1) Reduce CO₂ emission by 25% in FY2020 from the actual results of FY2005.

- (2) Reduce CO₂ emission(per production unit) by 50% in FY2020 from the actual results of FY1990.
- (3) Reduce global greenhouse gas emission (PFC's, SF6, and etc.) by minimum 50% in FY2020 from the actual results of FY1995.
- 2. CO₂ countermeasures through value chain

[Policy] With the scientific techniques and various kinds of calculation tools including LCA, CO₂ reduction activities are promoted.

By developing the environmentally-conscious products in alignment with 'NEXT50', contribution to the CO₂ reduction at the time of use is considered.

- [Objectives] (1) Reduce CO₂ emission through the value chain by 10% in FY2020 from the actual results of FY2010.
 - (2) Increase the ratio of environmentally-conscious products developments to 100% by FY2020.
- 3. Reduction of environmental impact

[Policy] Reduce the amount of materials discharged to the air and water, and strive to preserve the Global environment.

[Objectives] (1) Reduce the amount of handling volume of PRTR substances (per production unit) by 10% in FY2020 from the actual results of FY2010.

(2) Reduce VOC emission by 40% in FY2020 from the actual results of FY2000.

4. Effective use of resources

[Policy] Strive for the effective use of valuable resources and the protection of water resources that are fundamental to environmental biodiversity.

[Objectives] (1) Maintain zero emission in domestic group consolidated and reduce waste generation(per production unit) by 40% by FY2020 from the actual results of FY2000.

- (2) Reduce waste generation(per production unit) in overseas group consolidated by 60% by FY2020 from the actual results of FY2000.
- (3) Reduce water input volume by 10% in FY2020 from the actual results of FY2009.
- 5. Promotion of original environmental activities in each site

[Policy] In consideration of the environmental impact in site, implementation of a new project, etc., set up an original target and carry out an environmental activity.

[Objectives] Considering it as the activity which can be completed at a given single fiscal year, the objectives does not set it.

Targets and Results based on Environmental Policy

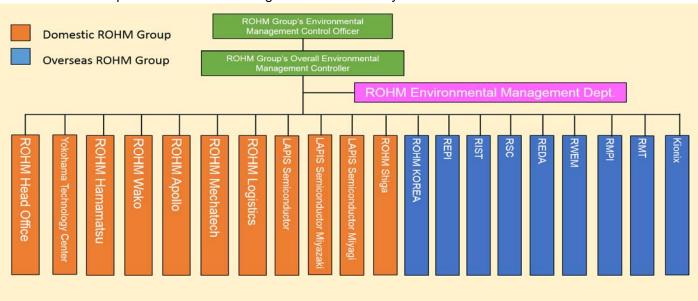
The ROHM Group defines targets and approaches based on the environmental policy and objectives to formulate an action plan each year toward the accomplishments of the targets and approaches and promote positive activities.

[Targets and Results in Fiscal Year 2016]

Targets in Fiscal Year 2016	Results in Fiscal Year 2016	Evaluation
[CO2 production cou	untermeasures in each site]	
① Reduce FY2016 CO ₂ emission by 1% from currently predicted value according to the quantity of production of FY2016.	① CO2 emission was reduced by 4.3% from currently predicted value according to the quantity of production of FY2016.	
② Reduce CO ₂ emission (per production unit) by 1% in FY2016 from the actual results of FY2015.	② CO ₂ emission (per production unit) was reduced by 0.7% from the actual results of FY2015.	**
③ Reduce FY2016 global greenhouse gas emission (PFC's, SF6, and etc) by 1% from currently predicted value according to the quantity of production of FY2016.	③ FY2016 global greenhouse gas emission (PFC's, SF6, and etc) was increased by 5.1% from currently predicted value according to the quantity of production of FY2016.	
[CO2 countermeas	ures through value chain]	
① Establish the operation model to calculate global greenhouse gas with equivalent to Scope3 Standard, and expand the categories officially.	① The operation model to calculate global greenhouse gas with equivalent to Scope3 Standard was established, and seven categories are disclosed.	***
② Increase the ratio of environmentally-conscious products developments to 80% by FY2016.	② The ratio of environmentally-conscious products developments was 99%.	
[Reduction of e	environmental impact]	
① Maintain the amount of handling volume of PRTR susbstances (per production unit) in FY2016 as the results of FY2015.	① The amount of handling volume of PRTR susbstances (per production unit) were increased by 6.1% from the actual results of FY2015.	
② Reduce VOC emission by 1% in FY2016 from currently predicted value according to the quantity of production of FY2016.	② VOC emmissions was reduced by 3.9% from currently predicted value according to the quantity of production of FY2016.	☆☆
[Effective	use of resources]	
① Maintain zero emission in domestic group consolidated and maintain waste generation(per production unit) in FY2016 as the results of FY2015.	① Zero emission in domestic group consolidated was maintained as the results of FY2015. Waste generation(per production unit) in FY2016 was increased by 0.7% from the actual results of FY2015.	
② Maintain waste generation(per production unit) in overseas group in FY2016 as the results of FY2015.	② Waste generation(per production unit) in overseas group was reduced by 0.2% from the actual results of FY2015.	***
③ Reduce water input volume by 1% in FY2016 from the predicted value according to the quantity of production of FY2016.	③ Water input volume was reduced by 4.1% from the predicted value according to the quantity of production of FY2016.	

Environmental Management System

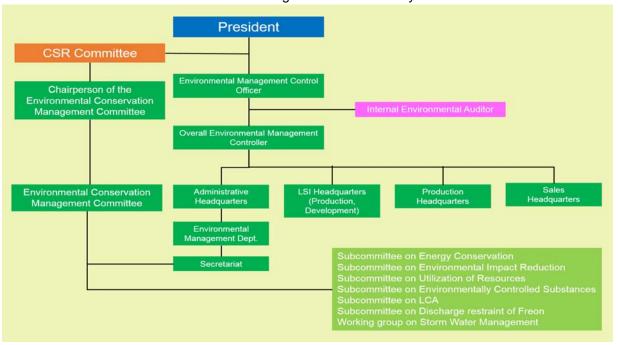
ROHM Group's Environmental Management Promotion System



ROHM has deployed across the ROHM Group an environmental management system designed to be shared among the Group on the basis of the International Environmental Standard ISO 14001 and all employees have been working on continual environment improvements.

Furthermore, the ROHM Group has been implementing constant environmental activities from a global perspective on a consolidated basis.

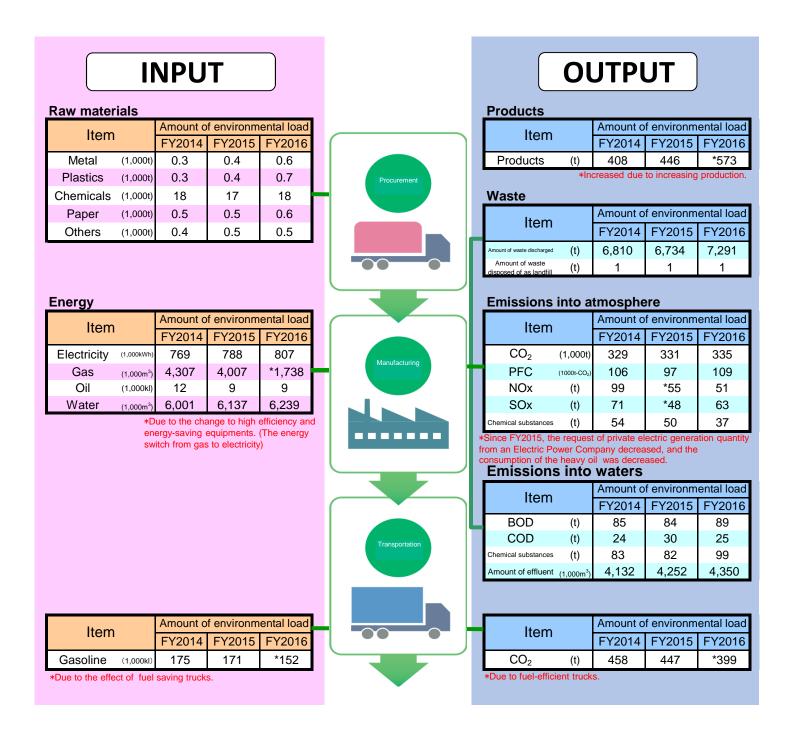
ROHM Head Office Environmental Management Promotion System



ROHM started the environmental management promotion system in its Head Office in 1990 mainly to conduct pollution prevention activities, and rebuilt it afterward to a promotion system taking environmental conservation with a view to the global environment as a principle behind its activities. In this rebuilt promotion system, the "Environmental Conservation Measures Committee" that deliberates significant policies and measures relating to the environmental activities, and six Subcommittees and one Working group that comprise the Committee are playing an important role in the promotion system. The Subcommittees are composed of experts in the relevant field, engineers, and related national qualification holders, and the chairpersons of the Subcommittee serve as members of the Environmental Conservation Measures Committee. The Management Committee and Subcommittees and Working group meetings are held regularly.

Highlights of Environmental Impact

Domestic Bases

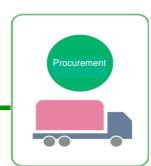


Overseas Bases

INPUT

Raw materials

11411 11141011410						
Item		Amount of environmental load				
		FY2014	FY2015	FY2016		
Metal	(1,000t)	3.9	3.5	4.0		
Plastics	(1,000t)	4.3	3.9	4.2		
Chemicals	(1,000t)	2.9	2.6	3.0		
Paper	(1,000t)	2.6	2.3	2.7		
Others	(1,000t)	0.7	0.7	0.7		



Energy

Item		Amount of environmental load				
		FY2014	FY2015	FY2016		
Electricity	(1,000kWh)	609	594	595		
Gas	(1,000m ³)	23	*1,495	*1,946		
*Oil	(1,000kl)	4	* 2	* 0		
Water	(1,000m ³)	3,818	3,686	4,030		

*It is because the boiler fuel of REDA was changed from coal to town gas that the amount of the gas used increased. It is based on use abolition of coal that the amount of the oil was decreased.

was decreased. (In China, coal energy's amount convert to heavy oil energy's amount.)





OUTPUT

Products

ltem	Amount of environmental load			
пеш	FY2014	FY2015	FY2016	
Products (t)	9,837	8,121	8,964	

Waste

Item		Amount of environmental load				
item		FY2014	FY2015	FY2016		
Amount of waste discharged	(t)	6,131	5,652	5,496		
Amount of waste disposed of as landfill	(t)	573	499	529		

Emissions into atmosphere

Item		Amount of environmental load				
пеш		FY2014	FY2015	FY2016		
CO ₂	(1,000t)	244	227	231		
NOx	(t)	4	*63	3		
SOx	(t)	9	*66	0		
Chemical substances	(t)	1	1	1		

*In FY2015, the private electric generator using heavy oil was used, due to the electric shortage in REPI.

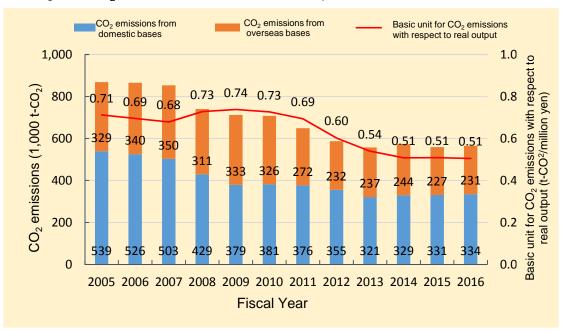
Emissions into waters

Item		Amount of environmental load				
		FY2014	FY2015	FY2016		
В	OD	(t)	16	13	14	
С	OD	(t)	56	49	55	
Chemica	l substances	(t)	1	1	1	
Amount	t of effluent	(1,000m ³)	1,440	1,372	1,563	

Changes in Emissions of Environmentally Hazardous Substances

Changes in CO₂ Emissions

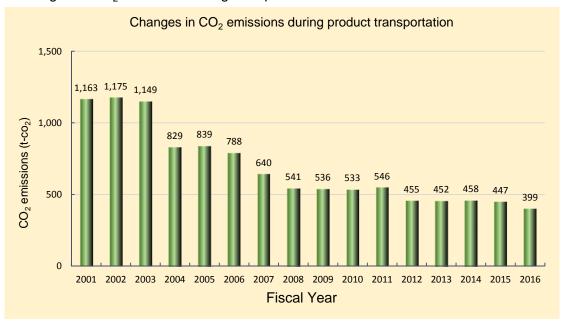
Changes in CO₂ emissions from the ROHM Group



ROHM has been pushing ahead with and boosting the shift of downstream process overseas due to the globalization of production bases. This resulted in the reduction of CO_2 emissions from domestic bases by 38% in fiscal year 2016 compared to fiscal year 2005.

Furthermore, the basic unit for CO_2 emissions with respect to real output reduced by 57% in fiscal year 2016 compared to fiscal year 1995.

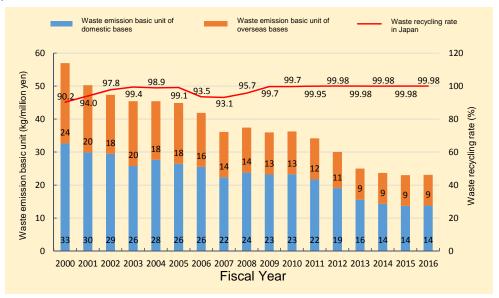
Changes in CO₂ emissions during transportation



Amid growing social concerns about environmental impact reduction in the logistics field, ROHM has been working on the reduction of CO_2 emissions caused by fuel consumption through transportation by road since fiscal year 2004 with measures taken for the transportation of products from production bases, including improvement in loading efficiency and the optimization of delivery frequency by the use of cross-docking. In FY 2016, it decreased due to the change to fuel-efficient trucks.

Changes in Emissions of Waste

Waste emission basic unit (domestic and overseas bases) and recycling rate (domestic bases) of the ROHM Group



Regarding measures to reduce the volume of waste, ROHM Group companies optimize the amount of incoming and secondary materials and strive to increase yield as well as thoroughly separate unneeded materials generated to obtain valuable resources.

In addition, the ROHM Group has defined a waste recycling rate of at least 99% as 'zero emissions.' And after reaching this target at all domestic companies in fiscal year 2009, the group continues to strive towards a true 100% recycling rate (99.98% in fiscal year 2016).

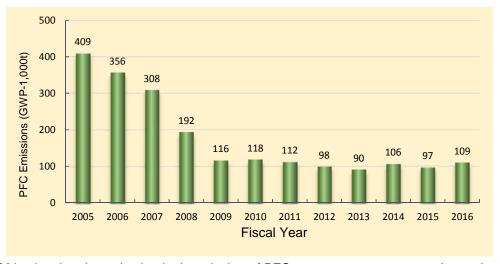
Waste emission basic unit were reduced by 60% from the 2000 level.

Changes in PFC Gases

Changes in PFC Gas Emissions

What is PFC gas (Perfluorocarbon gas)?

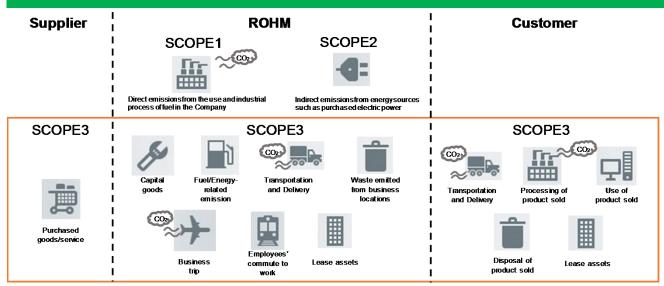
PFC gas is a material essential for fine processing of semiconductors, especially ICs. This PFC gas will turn to a greenhouse gas that produces greenhouse effect 6,500 times as high as CO_2 when it is released into the atmosphere. The semiconductor industry has determined a target for reduction in the PFC gas emissions and promoted the installation of PFC gas treatment systems used to dissolve PFC gases and eliminate the greenhouse effect.



ROHM is planning the reduction by introducing of PFC gas treatment systems, due to the increase in PFC gas emissions in FY2016.

CO₂ Emissions under the Scope3 Standard

Domestic and Overseas Bases



CO₂ emissions from the ROHM Group's business operations in fiscal 2016

	Cate	gory of S	cope Protocol	CO ₂ Emissions (t-CO ₂)	Outline of Calculation
SCOPE1 (Direct er	missions)			35,080	Direct emissions from facilities in our Company's own business locations
SCOPE2 (Indirect	emissions from	energy so	urces)	530,081	Emissions associated with the production of energy purchased by our Company's business locations
	Classification	Category		CO ₂ Emissions (t-CO ₂)	Outline of Calculation
	Upstream	1	Purchased product / service		
	Upstream	2	Capital goods	118,531	Emissions from capital goods (equipments) invested by our Company
	Upstream	3	Fuel- and energy-related activities not included in Scope1 and Scope2	49,643	Emissions associated with the procurement of fuel and energy used in our Company's business locations
	Upstream	4	Transportation and Delivery (Upstream)	37,369	Emissions associated with the distribution of sold product from the Plant→Logistics base→Consumer
	Upstream	5	Waste emitted from business operations	322	Emissions associated with the transportation and treatment of waste generated in our Company's business locations
SCOPE3	Upstream	6	Business trip	1,934	Emissions associated with the business trips of employees
(Emissions from any sources other than Scope1 and Scope2, such as	Upstream	7	Employers' commute to work	705	Emissions associated with the movement of employees when they commute to our Company to work
Company's supply chains)	Upstream	8	Lease assets (Upstream)	126	Emissions associated with the operation of leasing cars lent by our Company
	Downstream	9	Transportation and Delivery (Downstream)		
	Downstream	10	Processing of product sold		
	Downstream	11	Use of products sold		
	Downstream	12	Disposal of product sold		
	Downstream	13	Lease assets (Downstream)		Not covered
	Downstream	14	Franchising	-	Not covered
	Downstream	15	Investment		

Independent Verification of Environmental Data

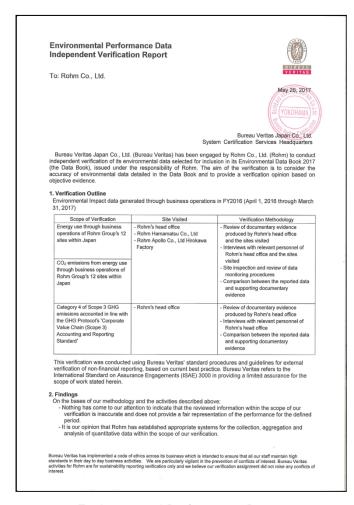
The ROHM Group received an independent verification of its environmental impact data by Bureau Veritas Japan Co., Ltd. in order to disclose information to society with higher transparency and reliability.

[Scope of Verification]

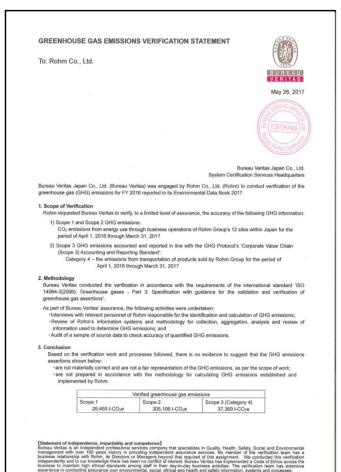
Scope 1 and 2 12 domestic sites

Scope 3, Category 4: Upstream Transportation and Distribution:

Product transportation between 8 domestic manufacturing sites, 1 domestic logistics center, 6 overseas manufacturing plants, and 9 overseas sales companies and domestic and overseas customers.



Environmental Performance Data Independent Verification Report



Greenhouse Gas Emissions Verification Report

[Comment of Verifier]

Through the verification of the states of tabulating data in the 12 domestic sites and Head Office, It was confirmed that the mechanism of reporting to Head Office numerical values calculated according to the procedure functioned with certainty in all the foregoing sites and tabulated data with high reliability through automatic calculations.

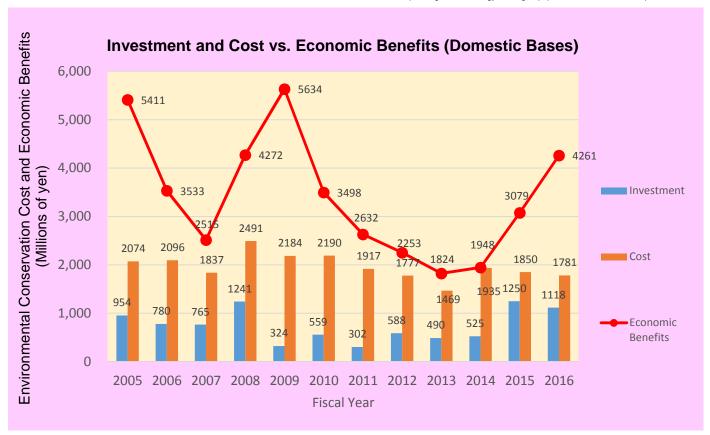
Environmental Accounting

Domestic Bases

(Unit: Millions of yen)

		FY2014			FY2015			FY2016	
Category of cost under the Guidelines	Investment	Cost	Economic Benefits	Investment	Cost	Economic Benefits	Investment	Cost	Economic Benefits
Pollution prevention cost	135	1,074	-	172	1,034	-	216	1,126	-
Global environmental conservation cost	374	225	926	1,057	238	1,932	879	111	* 3,198
Resource recycling cost	1	324	1,023	1	258	1,147	11	305	* 1,063
Administration cost	14	309	-	21	316	-	12	237	-
Social activity cost	0	4	-	0	4	-	0	2	_
Environmental remediation cost	0	0	-	0	0	-	0	0	-
Others	0	0	-	0	0	-	0	0	-
Total	525	1,935	1,948	1,250	1,850	3,079	1,118	1,781	4,261

*Updating to the energy-saving equipment in each site was promoted.

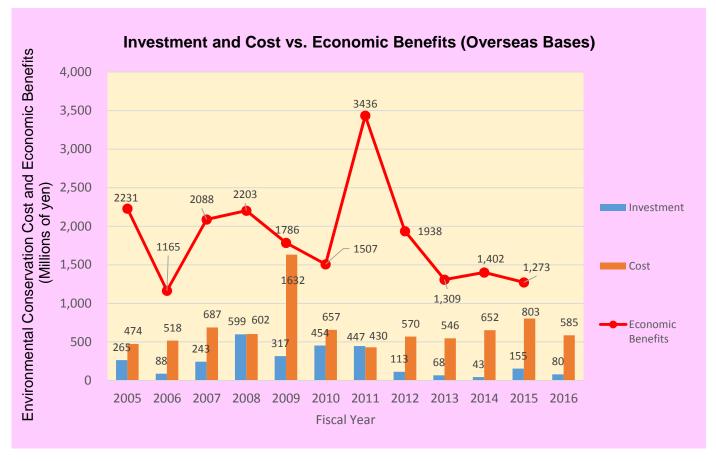


Overseas Bases

(Unit: Millions of yen)

	FY2014			FY2015			FY2016		
Category of cost under the Guidelines	Investment	Cost	Economic Benefits	Investment	Cost	Economic Benefits	Investment	Cost	Economic Benefits
Pollution prevention cost	3	424	-	3	470	-	14	300	
Global environmental conservation cost	38	39	338	143	6	580	63	6	
Resource recycling cost	0	112	1,064	2	238	848	2	200	
Administration cost	2	59	-	7	69	-	0	60	
Social activity cost	0	2	-	0	1	-	0	1	
Environmental remediation cost	0	0	-	0	0	-	0	0	
Others	0	16	-	0	19	-	0	18	
Total	43	652	1,402	155	803	1,428	80	585	

*Updating to the energy-saving equipment in each site was promoted.



Approaches to Environmental Communications

Approaches in "Environmental Conservation"



ROHM HAMAMATSU Welcome Clean Project (The Enshu Nada Open Sea cleaning)



ROHM WAKO
Cleanup Campaign around the site



ROHM LOGISTICS

AMAKUSA Park Cleanup Campaign



ROHM APOLLO IKUHASHI Stocking of carp



LAPIS SEMICONDUCTOR Cleanup Campaign in the surrounding area



ROHM KOREA
River Cleanup Campaign



REPI Carmona River Cleanup Campaign



REPI Lecture about environmental consciousness for employees' family



RMPI Energy saving of the lightning system

Approaches in "Environmental Education"



The ROHM Group has provided environmental education for elementary school students in Kyoto-city from FY2010. In the education program, we give the opportunities for them to experience the energy-saving effects such as comparing the energy-consumption of LED and miniature bulbs by using a human powered generator besides the lecture about global-warming's mechanism, and energy-saving tips that can be performed at home or school. The ROHM Group will continuously develop these kinds of activities that help children understand the value of global environment.

Environmental Awards

Selected to the CDP Water Program "A LIST"



Selected CDP Water Program A LIST

ROHM was selected to "A LIST" in FY2015 and "A LIST" in FY2016 as a leading company that takes action to improve water security and manage water resources. A LIST, the highest rank, emphasizes companies that make a great effort and progress to manage water resources in a sustainable way. Those companies in A LIST are selected and announced by a non-governmental organization, CDP that has the largest amount of corporate self-reported environmental data including water resource in the world while representing institutional investors in world-wide. Water resource is an essential for the production of semiconductors. ROHM works on the management of water consumption as well as the reduction of industrial wastewater globally. Also, we have established a Business Continuity Management system that can respond to a variety of risks including floods. Considering these water-related initiatives, we received such high evaluation.

Received Award for Excellence at Environmental Communication Awards



Award for Excellence

On February 22, 2017, "ROHM Group Innovation Report 2016" received an award for excellence at "Environmental Communication Awards" sponsored by the Global Environmental Forum. This annual awarding system works to recognize outstanding environmental reports that promote the environmental communication and improve the quality of environmental information at companies. The award is given to companies that progressively work on the environmental initiatives related to "sustainability," "global-warming," and "biodiversity" and new information disclosure system. ROHM provide information disclosure in a more transparent and reliable manner by receiving third-party verification on its environmental impact data. Considering these initiatives, we could receive the award this time.

RSC received the Environmental Excellence Company Award



State of the award ceremony

On June 5, 2016, RSC received the "Environmental Excellence Company Award" in Tianjin Economic-Technological Development Area, China. The Environmental Excellence Company Award is given to companies that achieved excellent activities for environmental impact reduction. RSC has won this Award for eight consecutive years since 2010.