



# Environmental Data Book 2019

**ROHM Co.,Ltd.**

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○ Period covered by this Report

Fiscal year 2018: April 1, 2018 to March 31, 2019

○ Scope of this Report

Covering 13 domestic bases and 9 overseas bases

Although RMT was not eligible for aggregation from FY2011 to FY2016 under the influence of the flood in Thailand, it was added from FY2017.

Kionix is not eligible for aggregation currently.

ROHM Shiga is eligible for aggregation from FY2018.

○ Abbreviated names for the Overseas Affiliates

In this Report, the names of the Overseas Affiliates are abbreviated as follows:

REPI: ROHM Electronics Philippines, Inc.	(Philippines)
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

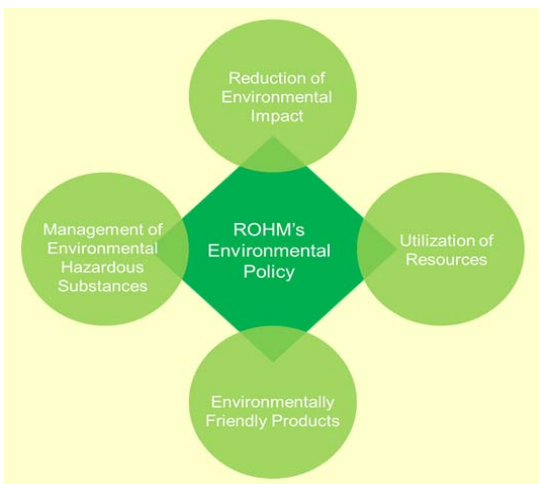
**ROHM's everlasting conscientiousness to preserve the global environment contributes to the healthy existence of humanity and to the continued prosperity of the company.**

1. Conserve energy by initiating innovative methods in all corporate activities.
2. 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 targets, 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 CO<sub>2</sub> emitted from our business operations and other greenhouse gases emitted from supply chain.

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

## Outline of ROHM's Environmental Conservation Activities

# 2020 ROHM Group Environmental Targets

### ○Response 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.

### ○Targets of Voluntary Activities

#### 1. CO<sub>2</sub> production countermeasures in each site

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

[2020 Targets] (1) Reduce CO<sub>2</sub> emission by 25% in FY2020 from the actual results of FY2005.

(2) Reduce CO<sub>2</sub> 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. CO<sub>2</sub> countermeasures through value chain

[Policy] With the scientific techniques and various kinds of calculation tools including LCA, CO<sub>2</sub> reduction activities are promoted.

By developing the eco-friendly products in alignment with 'NEXT50', contribution to the CO<sub>2</sub> reduction at the time of use is considered.

[2020 Targets] (1) Reduce CO<sub>2</sub> emission through the value chain by 10% in FY2020 from the actual results of FY2010.

(2) Increase the ratio of eco-friendly 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.

[2020 Targets] (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.

[2020 Targets] (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 per production unit by 30% 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.

[2020 Targets] Considering it as the activity which can be completed at a given single fiscal year, the targets does not set it.

## Outline of ROHM's Environmental Conservation Activities

### Targets and Results based on Environmental Policy

The ROHM Group defines targets and approaches based on the environmental policy and 2020 targets to formulate an action plan each year toward the accomplishments of the targets and approaches and promote positive activities.

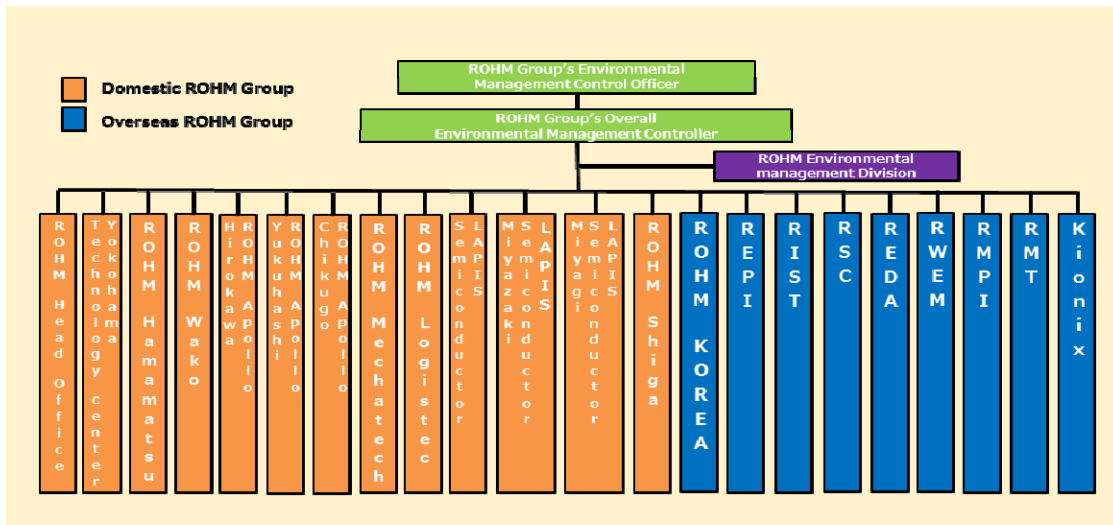
#### 【Targets and Results in Fiscal Year 2018】

Targets in Fiscal Year 2018	Results in Fiscal Year 2018	Evaluation
<b>【CO<sub>2</sub> production countermeasures in each site】</b>		
① Reduce FY2018 CO <sub>2</sub> emission by 1% from currently predicted value according to the quantity of production of FY2018.	① CO <sub>2</sub> emission was reduced by 8.0% from currently predicted value according to the quantity of production of FY2018.	☆☆
② Reduce CO <sub>2</sub> emission per production unit by 1% in FY2018 from the actual results of FY2017.	② CO <sub>2</sub> emission per production unit increased by 0.9% from the actual results of FY2017.	
③ Reduce FY2018 global greenhouse gas emission (PFC's, SF <sub>6</sub> , and etc) by 1% from currently predicted value according to the quantity of production of FY2018.	③ FY2018 global greenhouse gas emission (PFC's, SF <sub>6</sub> , and etc) was reduced by 24.6% from currently predicted value according to the quantity of production of FY2018.	
<b>【CO<sub>2</sub> countermeasures through value chain】</b>		
① Maintain CO <sub>2</sub> emission through the value chain in FY2018 as the results of FY2017 [predicted value of FY2018].	① CO <sub>2</sub> emission through the value chain per production unit increased by 0.8% from the results of FY2017.	☆☆
② Increase the ratio of eco-friendly products developments to 95% by FY2018.	② The ratio of eco-friendly products developments was 100%.	
<b>【Reduction of environmental impact】</b>		
① Maintain the amount of handling volume of PRTR substances per production unit in FY2018 as the results of FY2017.	① The amount of handling volume of PRTR substances per production unit were reduced by 3.2% from the actual results of FY2017.	☆☆☆
② Reduce VOC emission by 1% in FY2018 from currently predicted value according to the quantity of production of FY2018.	② VOC emissions was reduced by 10.8% from currently predicted value according to the quantity of production of FY2018.	
<b>【Effective use of resources】</b>		
①-1 Maintain zero emission in domestic group consolidated.	①-1 Zero emission in domestic group consolidated was maintained as the results of FY2017.	☆☆☆
①-2 Maintain waste generation per production unit in domestic group in FY2018 as the results of FY2017.	①-2 Waste generation per production unit in domestic group in FY2018 was reduced by 2.4% from the actual results of FY2017.	
② Maintain waste generation per production unit in overseas group in FY2018 as the results of FY2017.	② Waste generation per production unit in overseas group was reduced by 1.3% from the actual results of FY2017.	
③ Reduce water input volume by 1% in FY2018 from the predicted value according to the quantity of production of FY2018.	③ Water input volume was reduced by 9.2% from the predicted value according to the quantity of production of FY2018.	

# Outline of ROHM's Environmental Conservation Activities

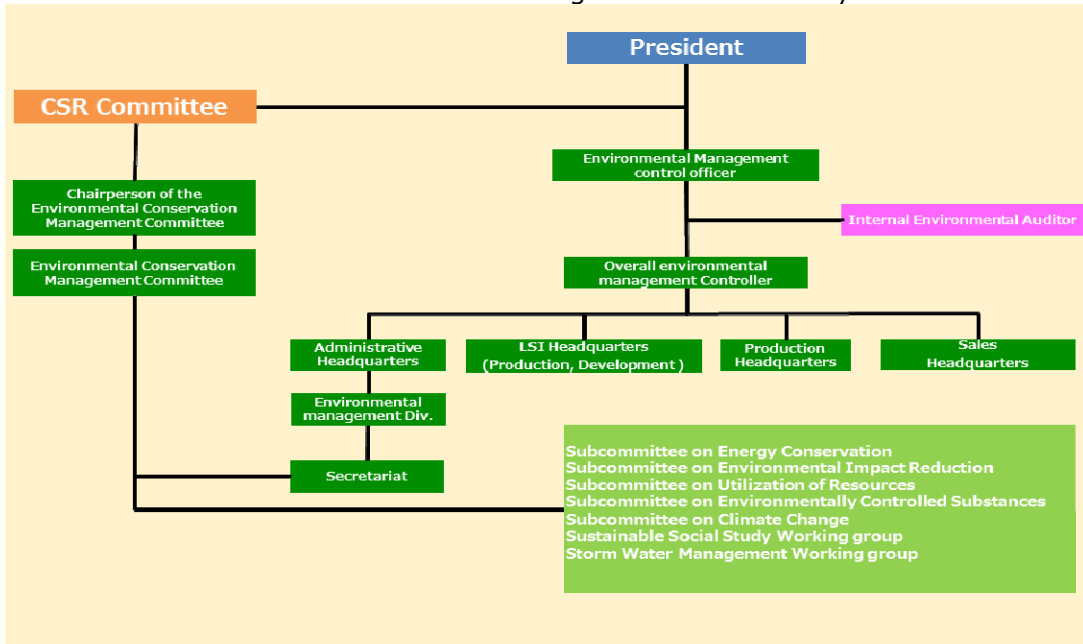
## Environmental Management System

### 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.

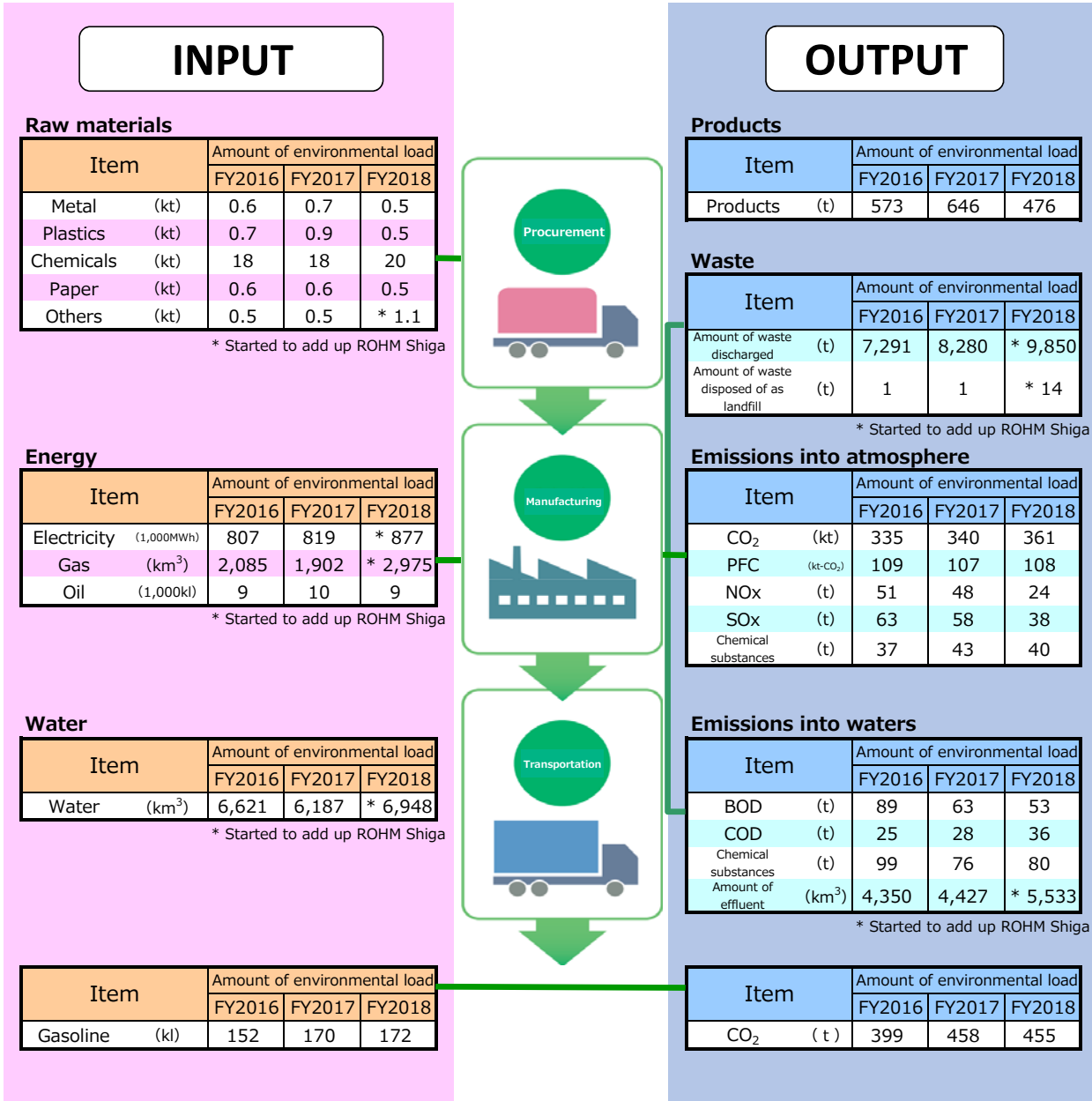
In this rebuilt promotion system, the "Environmental Conservation Management Committee" that deliberates significant policies and measures relating to the environmental activities, and five Subcommittees and two Working group that comprise the Committee are playing an important role in the promotion 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 Management Committee. The Committee, Subcommittees and Working group meetings are held regularly.

We integrated two subcommittees, LCA and CFC emission, into Subcommittee on Climate Change for active promotion of climate change, and added Sustainable Social Study Working group in order to intensify our effort regards to Environment held up by SDGs.

# Highlights of Environmental Impact

## Domestic Bases



# Overseas Bases

## INPUT

### Raw materials

Item	Amount of environmental load		
	FY2016	FY2017	FY2018
Metal (kt)	4.0	* 6.8	* 5.0
Plastics (kt)	4.2	4.8	4.3
Chemicals (kt)	3.0	3.4	3.4
Paper (kt)	2.7	3.0	2.9
Others (kt)	0.7	0.7	0.7

\* Restarted the aggregation of RMT.

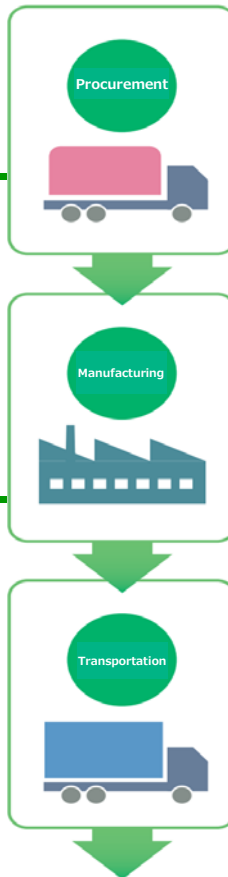
### Energy

Item	Amount of environmental load		
	FY2016	FY2017	FY2018
Electricity (1,000MWh)	595	661	656
Gas (km3)	* 1,946	* 2,145	* 2,124
Oil (1,000kl)	0	0	1

\* It is because the boiler fuel of REDA was changed from coal to town gas that the amount of the gas used increased.

### Water

Item	Amount of environmental load		
	FY2016	FY2017	FY2018
Water (km3)	3,720	4,081	4,216



## OUTPUT

### Products

Item	Amount of environmental load		
	FY2016	FY2017	FY2018
Products (t)	8,964	10,345	8,815

### Waste

Item	Amount of environmental load		
	FY2016	FY2017	FY2018
Amount of waste discharged (t)	5,496	6,044	5,690
Amount of waste disposed of as landfill (t)	529	615	457

### Emissions into atmosphere

Item	Amount of environmental load		
	FY2016	FY2017	FY2018
CO <sub>2</sub> (kt)	231	256	257
NO <sub>x</sub> (t)	3	0	* 26
SO <sub>x</sub> (t)	0	0	* 18
Chemical substances (t)	1	1	0.5

\* In REPI, private power generation is used for a part of period.

### Emissions into waters

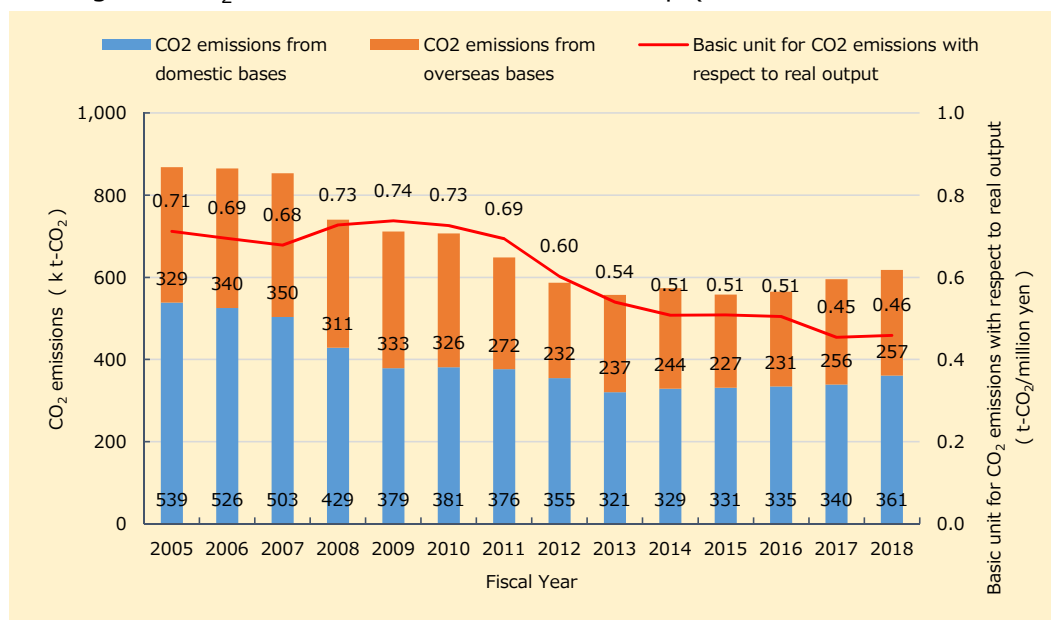
Item	Amount of environmental load		
	FY2016	FY2017	FY2018
BOD (t)	14	21	20
COD (t)	55	76	89
Chemical substances (t)	1	1	1
Amount of effluent (km3)	1,563	1,827	1,803



## Changes in Emissions of Environmentally Hazardous Substances

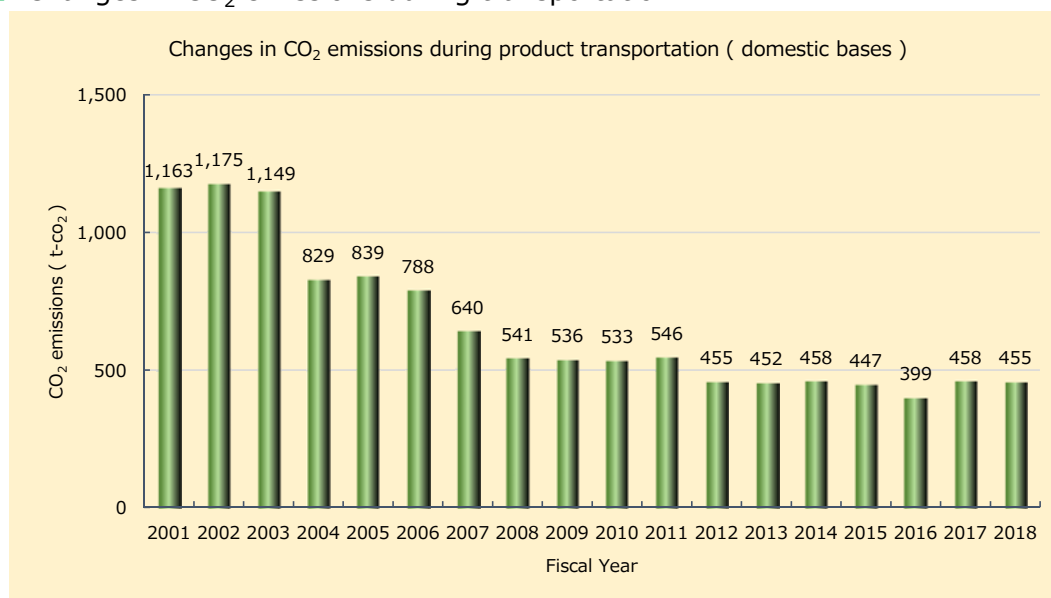
### Changes in CO<sub>2</sub> Emissions

#### Changes in CO<sub>2</sub> emissions from the ROHM Group ( domestic and overseas bases )



ROHM has been promoting the shift of post-process overseas and strengthening it due to the globalization of production bases. This resulted in the reduction of CO<sub>2</sub> emissions from domestic bases by 33% in FY2018 compared to FY2005. Furthermore, the basic unit for CO<sub>2</sub> emissions with respect to real output reduced by 61% in FY2018 compared to FY1990.

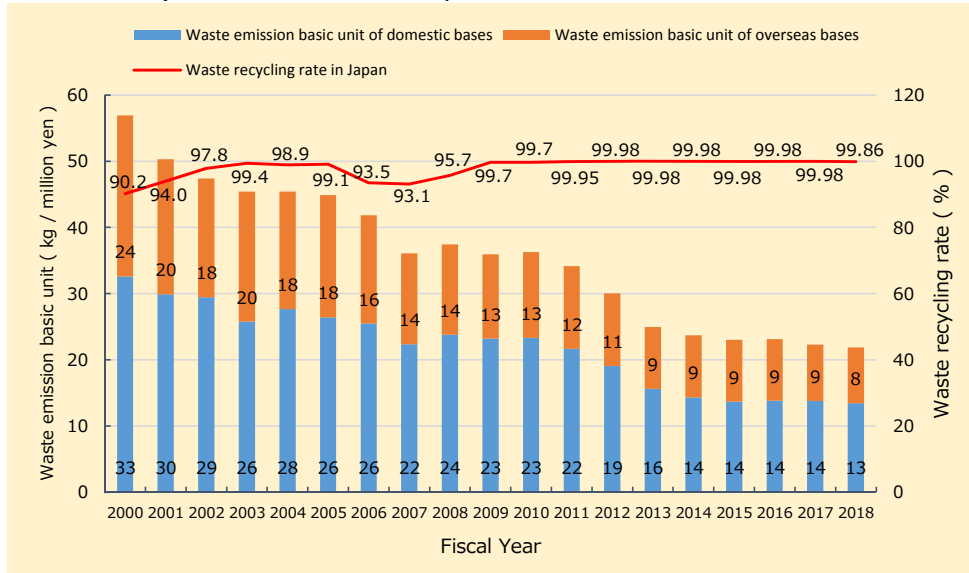
#### Changes in CO<sub>2</sub> emissions during transportation



While growing social concerns about environmental impact reduction in the logistics field, ROHM has been working on the reduction of CO<sub>2</sub> 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.

## 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.

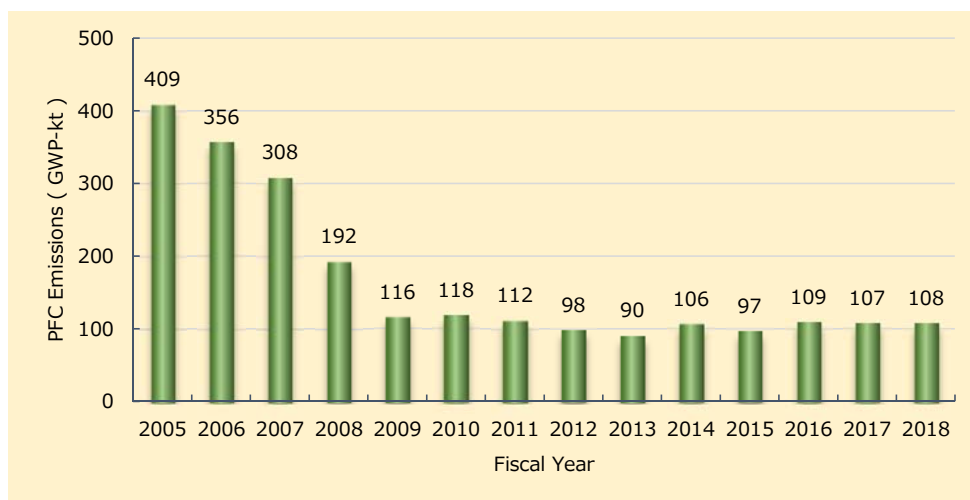
In addition, the ROHM Group has defined a waste recycling rate of at least 99% as ‘zero emissions.’ And after reaching this target at all domestic companies in fiscal year 2009, the group continues to strive towards a true 100% recycling rate.

Waste emission basic unit was reduced by 63% from the 2000 level in FY2018.

## Changes in PFC Gases

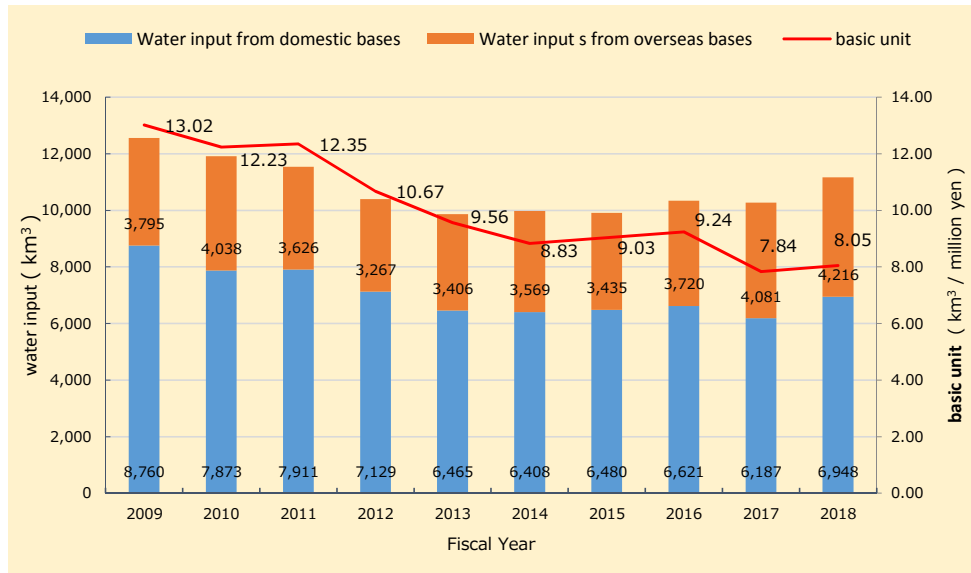
- Changes in PFC Gas Emissions

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<sub>2</sub> 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.



## Transition of Water input

### ROHM Group's transition of water input and output level



ROHM group expands the semiconductor wafer manufacturing which consumes a large amount of water in domestic and overseas.

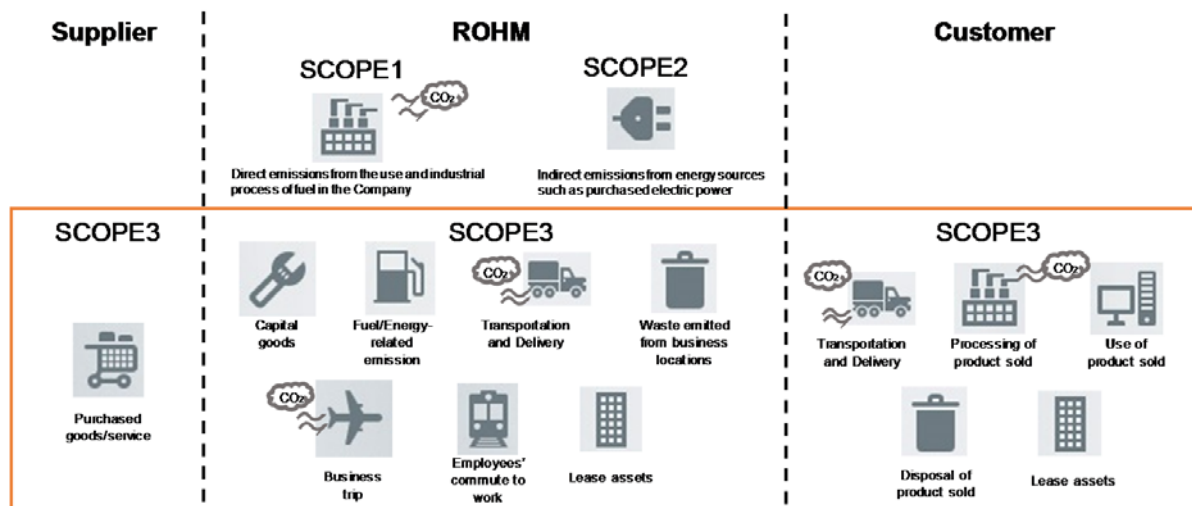
The raw water input for semiconductor manufacturing is high cost resources used after processing hyper pure water, so it is necessary to not dispose but recycle or reuse for water-saving efforts.

We consider it is obvious that reducing input of limited water is friendly to environment, and reducing risk of business continuity can be possible if water-saving measure works even if water shortage is happen by climate change.

Then, we promote the reduction activities with setting a reduction target of water input per production unit, and we reduced 34.6% of water input in FY2018 compared with FY2009.

# CO<sub>2</sub> Emissions under the Scope3 Standard

## Domestic and Overseas Bases



## CO<sub>2</sub> emissions from the ROHM Group's business operations in fiscal 2018

Category of Scope Protocol		CO <sub>2</sub> Emissions (t-CO <sub>2</sub> )	Outline of calculation
SCOPE1 ( Direct emissions )		38,362	Direct emissions from facilities in our Company's own business locations
SCOPE2 ( Indirect emissions from energy sources )		579,438	Emissions associated with the production of energy purchased by our Company's business locations
SCOPE3 ( Emissions from any sources other than Scope1 and Scope2, such as Company's supply chains )	Classification	Category	Outline of calculation
	Upstream	1 Purchased product / service	637,329 Emissions associated with the manufacture of products ( materials / parts ) purchased by our Company and Group
	Upstream	2 Capital goods	160,988 Emissions from capital goods ( equipment ) invested by our Company and Group
	Upstream	3 Fuel- and energy-related activities not included Scope1 and Scope2	0.5 Emissions associated with the procurement of fuel and energy provided from other and used in our Company and Group's business location
	Upstream	4 Transportation and Delivery ( Upstream )	38,337 Emissions associated with the distribution of product sold by our Company and Group from the Plant→Logistics base→Consumer
	Upstream	5 Waste emitted from business operations	7,747 Emissions associated with the transportation, disposal and recycle treatment of waste generated in our Company and Group's business location
	Upstream	6 Business trip	2,985 Emissions associated with the business trips of employees of our Company and Group
	Upstream	7 Employers' commute to work	10,881 Emissions associated with the movement of employees of our Company and Group when they commute to company to work
	Upstream	8 Lease assets ( Upstream )	109 Emissions associated with the operation of leasing cars lent by our Company
	Downstream	9 Transportation and Delivery ( Downstream )	- Not covered
	Downstream	10 Processing of product sold	
	Downstream	11 Use of products sold	
	Downstream	12 Disposal of product sold	734 Emissions associated with disposal of product sold by our Company and Group
	Downstream	13 Lease assets ( Downstream )	- Not covered
	Downstream	14 Franchising	- Not covered
Downstream	15 Investment	- Not covered	

## 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.

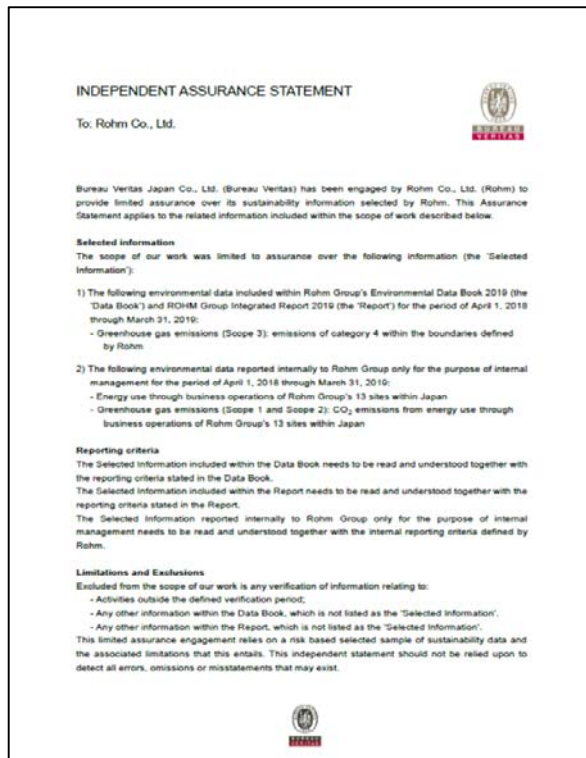
### [Scope of Verification]

**Scope 1 and 2** : 13 domestic sites

**Scope 3, Category 4 Upstream Transportation and Distribution** :

Product transportation between 8 domestic manufacturing bases, 1 domestic logistics center, 6 overseas manufacturing bases, and 9 overseas sales companies and domestic and overseas

### Independent Assurance Statement



# Environmental Accounting

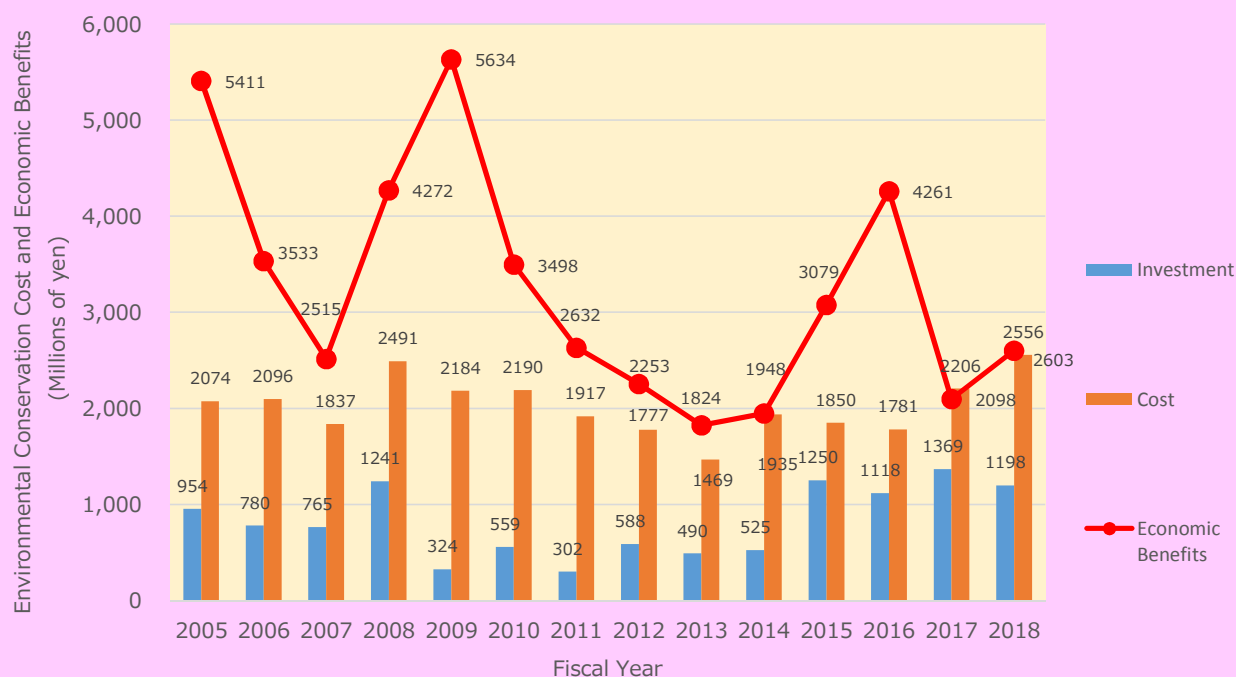
## Domestic Bases

(Unit: Million yen)

Category of cost under the Guidelines	FY 2 0 1 6			FY 2 0 1 7			FY 2 0 1 8		
	Investment	Cost	Economic Benefits	Investment	Cost	Economic Benefits	Investment	Cost	Economic Benefits
Pollution prevention cost	216	1,126	-	482	1,382	-	229	1,522	-
Global environmental conservation cost	879	111	* 3,198	876	92	694	931	191	780
Resource recycling cost	11	305	* 1,063	8	354	1,404	33	490	1,823
Administration cost	12	237	-	2	375	-	6	351	-
Social activity cost	0	2	-	0	3	-	0	2	-
Environmental remediation cost	0	0	-	0	0	-	0	0	-
Others	0	0	-	0	0	-	0	0	-
<b>Total</b>	<b>1,118</b>	<b>1,781</b>	<b>4,261</b>	<b>1,369</b>	<b>2,206</b>	<b>2,098</b>	<b>1,198</b>	<b>2,556</b>	<b>2,603</b>

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

Investment and Cost vs. Economic Benefits ( Domestic Bases )



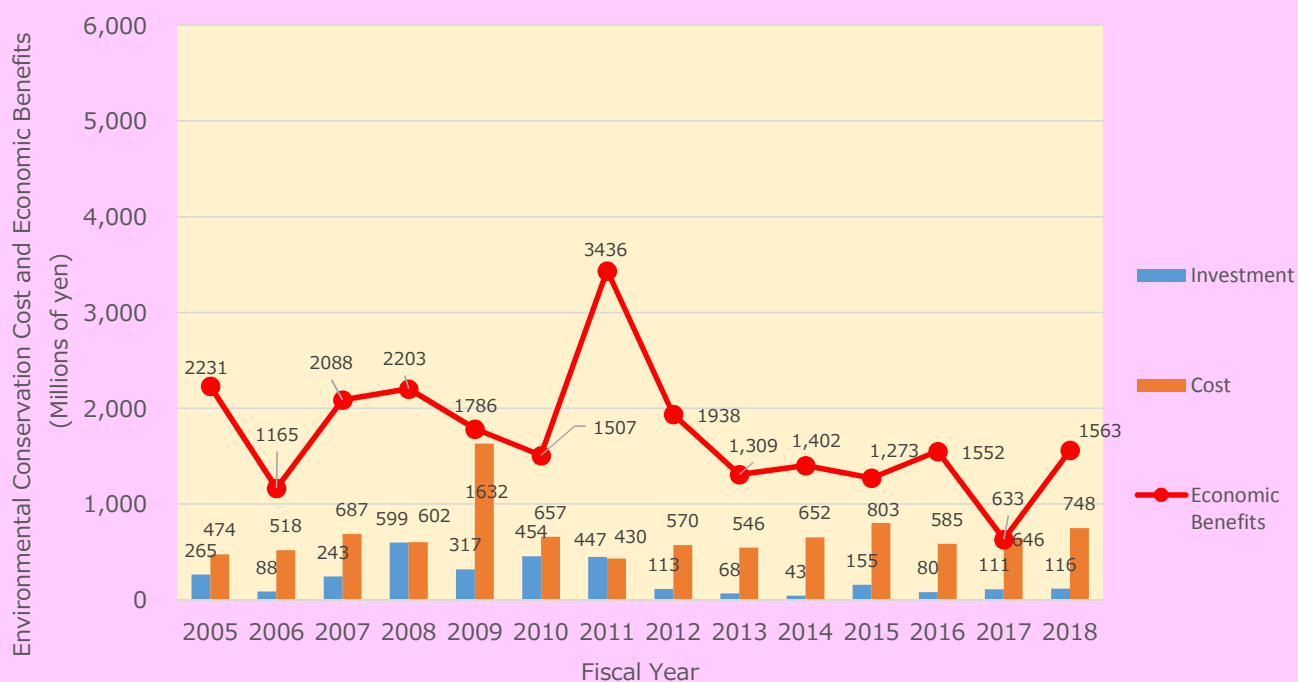
# Overseas Bases

(Unit: Million yen)

Category of cost under the Guidelines	FY 2 0 1 6			FY 2 0 1 7			FY 2 0 1 8		
	Investment	Cost	Economic Benefits	Investment	Cost	Economic Benefits	Investment	Cost	Economic Benefits
Pollution prevention cost	14	300	-	52	431	-	10	533	-
Global environmental conservation cost	63	6	1,254	42	1	499	97	1	595
Resource recycling cost	2	200	297	4	114	133	0	103	968
Administration cost	0	60	-	12	80	-	9	112	-
Social activity cost	0	1	-	0	1	-	0	0	-
Environmental remediation cost	0	0	-	0	0	-	0	0	-
Others	0	18	-	0	19	-	0	0	-
<b>Total</b>	<b>80</b>	<b>585</b>	<b>1,552</b>	<b>111</b>	<b>646</b>	<b>633</b>	<b>116</b>	<b>748</b>	<b>1,563</b>

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

## Investment and Cost vs. Economic Benefits ( Overseas Bases )



## Approaches to Environmental Communications

### Approaches in "Environmental Conservation"



ROHM APOLLO YUKUHASHI  
Cleanup Activity in Nagai beach



ROHM APOLLO CHIKUGO  
Participated in "Activity for  
protecting river and water"



ROHM SHIGA  
Participated in "Seta river  
Cleaning Activity"



KOREA  
Cleanup Activity of river



REDA  
Afforestation of cherry tree



REDA  
Cleanup Activity at South  
Coastline, Kinsyushin Ward



RIST  
Releasing turtles



REDA  
Cleanup activity of Mt.Daikoku



REPI  
Releasing fish



REPI  
Build an artificial coral reef



RIST  
Mangrove Planting



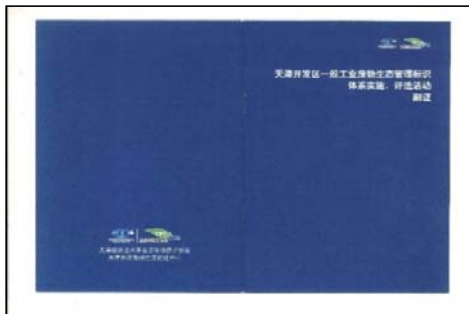
## Approaches in “Environmental Education”



The ROHM Group has provided environmental education for elementary school students in Kyoto-city since 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

### 2018 Commendation about Municipal solid waste management (RSC)



RSC, a manufacturing base of ROHM Group in Tianjin, China, was commended for municipal solid waste management as an excellent company by Tianjin City Economic and Technological Development Zone Environmental Protection Association.

This award is commended for a company which manages and works on making municipal solid waste emitted from bases reduce, recycle and harmless more than the other companies, aiming for environmental conservation.

Although it is said that laws and regulations are underdevelopment regarding municipal solid waste except for industrial waste in China, RSC was rated in point of independent management and thoroughness.

### FY2018 "Greenhouse Gas Emission Control Company" award (Lapis Semiconductor Miyazaki)



Regarding controlling emission of greenhouse gas for business activity in Miyazaki Prefecture, Lapis Semiconductor Miyazaki is received an award as an especially excellent company becoming the model of the other companies working on it.

# Site Reports (Domestic and Overseas Bases)

※About PRTR substances, only the annual handling amount of over 1t is mentioned.

## ROHM Co.,Ltd.

21,Saiin Mizosaki-cho,Ukyo-ku,Kyoto,Japan



■ Manufacturing Items  
Electronic parts, including  
semiconductors

		2016	2017	2018
Power consumption	k Wh	80,254,000	88,746,601	86,966,669
Fuel consumption	kl	1,016	1,316	1,402
Water consumption	km <sup>3</sup>	675	688	684
Total waste emissions	t	448	458	450
Amount of waste finally disposed of as landfill	t	0.00	0.00	0.38
Waste recycling rate	%	100.00	100.00	99.92
Emissions into the atmosphere: NOx	t	3.6	3.8	3.4
Emissions into the atmosphere: SOx	t	-	-	-
Emissions into waters: BOD	t	10.6	10.6	10.3
Emissions into waters: COD	t	-	-	-

■ PRTR Unit: tons

PRTR Ordinance number	Substances covered	2016	2017	2018
		Amount handled	Amount handled	Amount handled
332	arsenic and its inorganic compounds	1.1	1.5	1.1
374	hydrogen fluoride and its water-soluble salts	15.3	15.2	14.6

## ROHM Co.,Ltd. Yokohama Technology center 2-4-8 Shin-Yokohama,Kohoku-ku,Yokohama,Japan



■ Manufacturing Items  
Design/development and sales of IC's

		2016	2017	2018
Power consumption	k Wh	2,686,155	2,485,873	2,396,368
Fuel consumption	kl	63	71	94
Water consumption	km <sup>3</sup>	15	15	15
Total waste emissions	t	12	19	18
Amount of waste finally disposed of as landfill	t	0.0	0.0	0.0
Waste recycling rate	%	100.00	100.00	100.00
Emissions into the atmosphere: NOx	t	0.1	0.1	0.1
Emissions into the atmosphere: SOx	t	0.0	0.0	0.0
Emissions into waters: BOD	t	0.0	0.0	0.0
Emissions into waters: COD	t	-	-	-

## ROHM Hamamatsu Co.,Ltd.

10 Sanwa-cho,Minami-ku,Hamamatsu,Japan



■ Manufacturing Items  
IC's, LEDs

		2016	2017	2018
Power consumption	k Wh	156,050,000	155,772,853	157,478,900
Fuel consumption	kl	700	* 143	* 17
Water consumption	km <sup>3</sup>	1,250	1,316	1,448
Total waste emissions	t	586	628	640
Amount of waste finally disposed of as landfill	t	0.12	0.13	0.15
Waste recycling rate	%	99.98	99.98	99.98
Emissions into the atmosphere: NOx	t	0.7	0.1	0.0
Emissions into the atmosphere: SOx	t	0.0	0.0	0.0
Emissions into waters: BOD	t	57.2	36.9	23.2
Emissions into waters: COD	t	0.0	0.0	0.0

\* Reduced gas consumption due to introducing turbo refrigerator

■ PRTR Unit: tons

PRTR Ordinance number	Substances covered	2016	2017	2018
		Amount handled	Amount handled	Amount handled
374	hydrogen fluoride and its water-soluble salts	58.5	64.5	60.0



■ Manufacturing Items  
ICs, Transistors, Diodes,  
Tantalum capacitors, Resistor,  
Module, Silicon wafers

Head office

		2016	2017	2018
Power consumption	k Wh	20,388,445	20,752,500	18,883,713
Fuel consumption	kl	275	244	290
Water consumption	km <sup>3</sup>	123	129	* 74
Total waste emissions	t	107	133	106
Amount of waste finally disposed of as landfill	t	0.00	0.00	0.00
Waste recycling rate	%	100.00	100.00	100.00
Emissions into the atmosphere: NOx	t	0.3	0.2	0.2
Emissions into the atmosphere: SOx	t	0.3	0.2	0.2
Emissions into waters: BOD	t	0.2	0.2	0.1
Emissions into waters: COD	t	0.2	0.3	0.1

\*Due to water reduction activity

Yukuhashi factory

		2016	2017	2018
Power consumption	k Wh	18,907,109	19,244,949	19,702,742
Fuel consumption	kl	528	505	529
Water consumption	km <sup>3</sup>	161	147	123
Total waste emissions	t	129	162	147
Amount of waste finally disposed of as landfill	t	0.30	0.32	0.22
Waste recycling rate	%	99.77	99.80	99.85
Emissions into the atmosphere: NOx	t	3.5	2.8	1.3
Emissions into the atmosphere: SOx	t	2.6	3.0	0.9
Emissions into waters: BOD	t	0.1	0.1	0.1
Emissions into waters: COD	t	0.2	0.3	0.4

■ PRTR

Unit: tons

PRTR Ordinance number	Substances covered	2016	2017	2018
		Amount handled	Amount handled	Amount handled
438	methylnaphthalene	6.4	6.1	6.4

Chikugo factory

		2016	2017	2018
Power consumption	k Wh	118,519,200	120,196,519	123,821,313
Fuel consumption	kl	1,331	1,511	1,405
Water consumption	km <sup>3</sup>	1,031	1,067	1,052
Total waste emissions	t	1,150	1,222	1,436
Amount of waste finally disposed of as landfill	t	0.00	0.00	0.00
Waste recycling rate	%	100.00	100.00	100.00
Emissions into the atmosphere: NOx	t	1.7	1.5	2.2
Emissions into the atmosphere: SOx	t	1.0	0.8	1.5
Emissions into waters: BOD	t	19.8	14.5	11.7
Emissions into waters: COD	t	8.5	11.7	12.5

■ PRTR

Unit: tons

PRTR Ordinance number	Substances covered	2016	2017	2018
		Amount handled	Amount handled	Amount handled
53	ethylbenzene	2.7	3.0	1.4
80	xylene	2.4	2.7	3.7
341	piperazine	1.9	1.9	1.7
374	hydrogen fluoride and its water-soluble salts	27.9	29.9	31.7
438	methylnaphthalene	16.3	18.6	17.2

**ROHM Wako Co.,Ltd.**

100 Tomioka,Kasaoka,Okayama,Japan



■ Manufacturing Items  
ICs, Diodes, LEDs, Laser diodes

		2016	2017	2018
Power consumption	kWh	93,304,234	94,963,626	91,097,225
Fuel consumption	kl	545	612	662
Water consumption	km <sup>3</sup>	593	593	593
Total waste emissions	t	1,302	1,496	1,539
Amount of waste finally disposed of as landfill	t	0.37	0.43	0.49
Waste recycling rate	%	99.97	99.97	99.97
Emissions into the atmosphere: NOx	t	0.7	1.2	1.6
Emissions into the atmosphere: SOx	t	0.3	0.3	0.6
Emissions into waters: BOD	t	4.0	4.2	1.8
Emissions into waters: COD	t	-	-	-

■ PRTR

Unit: tons

PRTR Ordinance number	Substances covered	2016	2017	2018
		Amount handled	Amount handled	Amount handled
53	ethylbenzene	6.2	7.4	6.8
58	ethylene glycol monomethyl ether	3.9	4.3	4.5
80	xylene	19.2	22.9	21.5
82	silver and its water-soluble compounds	1.8	2.2	2.0
302	naphthalene	10.5	12.1	10.6
308	nickel	-	1.2	-
343	pyrocatechol	1.1	1.4	1.3
374	hydrogen fluoride and its water-soluble salts	34.2	38.0	38.8
438	methylnaphthalene	17.5	19.6	18.2

**ROHM Shiga Co.,Ltd.**

2-8-1 Seiran,Otsu,Shiga,Japan



■ Manufacturing Items  
Discrete semiconductors

		2016	2017	2018
Power consumption	kWh	-	41,899,039	53,386,966
Fuel consumption	kl	-	342	1,151
Water consumption	km <sup>3</sup>	-	608	713
Total waste emissions	t	-	1,039	1,487
Amount of waste finally disposed of as landfill	t	-	1.20	* 12.53
Waste recycling rate	%	-	99.88	99.16
Emissions into the atmosphere: NOx	t	-	0.00	0.0
Emissions into the atmosphere: SOx	t	-	-	-
Emissions into waters: BOD	t	-	0.20	0.5
Emissions into waters: COD	t	-	1.00	1.3

\* Due to temporal disposal

■ PRTR

Unit: tons

PRTR Ordinance number	Substances covered	2016	2017	2018
		Amount handled	Amount handled	Amount handled
20	2-aminoethanol	-	-	1.3
374	hydrogen fluoride and its water-soluble salts	-	35.0	49.0

**ROHM Mechatech Co.,Ltd.** 3-6-1 Tsutta,Oi-cho,Kameoka-shi,Kyoto,Japan



■ Manufacturing Items  
Dies, Lead Frames

		2016	2017	2018
Power consumption	kWh	2,668,000	2,788,000	2,503,000
Fuel consumption	kl	0	0	0
Water consumption	km <sup>3</sup>	4	3	3
Total waste emissions	t	14	16	21
Amount of waste finally disposed of as landfill	t	0.00	0.00	0.00
Waste recycling rate	%	100.00	100.00	100.00
Emissions into the atmosphere: NOx	t	0.0	0.0	0.0
Emissions into the atmosphere: SOx	t	0.0	0.0	0.0
Emissions into waters: BOD	t	-	-	-
Emissions into waters: COD	t	0.0	0.0	0.0

**LAPIS Semiconductor Co.,Ltd.** 2-4-8 Shin-Yokohama,Kohoku-ku,Yokohama,Japan



■ Work content  
Design / Development and sales  
of LSI's

		2016	2017	2018
Power consumption	kWh	3,485,113	3,564,398	3,548,730
Fuel consumption	kl	68	63	69
Water consumption	km <sup>3</sup>	19	19	18
Total waste emissions	t	6	4	4
Amount of waste finally disposed of as landfill	t	0.00	0.00	0.00
Waste recycling rate	%	100.00	100.00	100.00
Emissions into the atmosphere: NOx	t	0.0	0.0	0.0
Emissions into the atmosphere: SOx	t	0.0	0.0	0.0
Emissions into waters: BOD	t	-	-	-
Emissions into waters: COD	t	-	-	-

**LAPIS Semiconductor Miyagi Co.,Ltd.** 1 Okinodaira,Ohira-Mura,Kurokawa-gun,Miyazaki,Japan



■ Manufacturing Items  
ICs

		2016	2017	2018
Power consumption	kWh	131,889,200	132,047,800	136,832,000
Fuel consumption	kl	3,730	3,760	3,661
Water consumption	km <sup>3</sup>	1,252	1,234	1,227
Total waste emissions	t	1,721	2,070	1,862
Amount of waste finally disposed of as landfill	t	0.30	0.42	0.40
Waste recycling rate	%	99.98	99.98	99.98
Emissions into the atmosphere: NOx	t	11.5	10.8	8.7
Emissions into the atmosphere: SOx	t	4.3	5.9	4.1
Emissions into waters: BOD	t	4.4	5.0	2.3
Emissions into waters: COD	t	14.4	13.4	19.3

■ PRTR

Unit: tons

PRTR Ordinance number	Substances covered	2016	2017	2018
		Amount handled	Amount handled	Amount handled
278	triethylenetetramine	2.2	2.2	2.6
343	pyrocatechol	1.1	1.1	1.3
374	hydrogen fluoride and its water-soluble salts	48.0	49.7	51.6
438	methylnaphthalene	42.0	42.3	41.2

**LAPIS Semiconductor Miyazaki Co.,Ltd.** 727 Kihara,Kivotake-cho,Miyazaki-shi,Miyazaki,Japan



■ Manufacturing Items  
ICs,SiC

		2016	2017	2018
Power consumption	kWh	177,753,875	176,839,644	178,790,477
Fuel consumption	kl	3,254	3,450	* 2,616
Water consumption	km <sup>3</sup>	970	975	997
Total waste emissions	t	1,801	2,058	2,125
Amount of waste finally disposed of as landfill	t	0.00	0.00	0.00
Waste recycling rate	%	100.00	100.00	100.00
Emissions into the atmosphere: NOx	t	29.0	31.5	* 6.0
Emissions into the atmosphere: SOx	t	54.3	47.6	* 30.7
Emissions into waters: BOD	t	2.6	2.1	2.8
Emissions into waters: COD	t	1.8	1.9	2.6

\*stopped using power generator

■ PRTR

Unit:tons

PRTR Ordinance number	Substances covered	2016	2017	2018
		Amount handled	Amount handled	Amount handled
20	2-aminoethanol	8.5	10.7	11.5
58	ethylene glycol monomethyl ether	2.4	1.8	3.4
343	pyrocatechol	-	1.1	1.2
374	hydrogen fluoride and its water-soluble salts	31.0	29.9	35.6
438	methylnaphthalene	38.6	40.7	30.8

**ROHM Logistec Co.,Ltd.** 75 Masusaka,Kamogata-cho,Asakuchi-shi,Okayama,Japan



■ Business Line  
Logistecs management pf the  
ROHM Group's products

		2016	2017	2018
Power consumption	kWh	1,252,956	1,271,058	1,261,434
Fuel consumption	kl	0	0	1
Water consumption	km <sup>3</sup>	2	2	2
Total waste emissions	t	14	14	14
Amount of waste finally disposed of as landfill	t	0.02	0.03	0.03
Waste recycling rate	%	99.88	99.80	99.78
Emissions into the atmosphere: NOx	t	-	-	0.0
Emissions into the atmosphere: SOx	t	-	-	0.0
Emissions into waters: BOD	t	0.0	0.0	0.0
Emissions into waters: COD	t	-	-	0.0

**ROHM Korea Corporation**

40, MUNPYEONGSEO-RO 17 BEONAN-GIL, DAEDEOK-GU, DAEJEON, KOREA



■ Manufacturing Items  
ICs, Transistors, Diodes,  
LED Displays

		2016	2017	2018
Power consumption	kWh	38,426,344	39,956,251	37,999,659
Fuel consumption	kl	48	-	-
Water consumption	km <sup>3</sup>	105	116	109
Total waste emissions	t	430	431	366
Amount of waste finally disposed of as landfill	t	0.11	0.00	0.00
Waste recycling rate	%	99.97	100.00	100.00
Emissions into the atmosphere: NOx	t	0.0	0.0	0.0
Emissions into the atmosphere: SOx	t	0.0	0.0	0.0
Emissions into waters: BOD	t	0.1	0.2	0.2
Emissions into waters: COD	t	0.7	0.9	0.9

■ PRTR

Unit: tons

PRTR Ordinance number	Substances covered	2016	2017	2018
		Amount handled	Amount handled	Amount handled
31	antimony and its compounds	5.9	5.2	3.9
304	lead	1.6	2.1	2.0

**ROHM Electronics Philippines, Inc.** People's Technology Complex Special Economic Zone, Carmona, Cavite 4116 Philippines



■ Manufacturing Items  
Monolithic ICs, Diodes

		2016	2017	2018
Power consumption	kWh	200,066,988	210,690,235	208,386,749
Fuel consumption	kl	224	187	* 1,173
Water consumption	km <sup>3</sup>	1,306	1,360	1,322
Total waste emissions	t	1,081	1,193	1,249
Amount of waste finally disposed of as landfill	t	0.00	0.00	0.00
Waste recycling rate	%	100.00	100.00	100.00
Emissions into the atmosphere: NOx	t	3.4	0.2	* 26.1
Emissions into the atmosphere: SOx	t	0.1	0.0	* 17.5
Emissions into waters: BOD	t	0.7	1.1	0.8
Emissions into waters: COD	t	2.0	4.4	3.4

\* Increased by using heavy oil for restarting private power generation for BCP.

■ PRTR

Unit: tons

PRTR Ordinance number	Substances covered	2016	2017	2018
		Amount handled	Amount handled	Amount handled
31	antimony and its compounds	5.9	6.3	5.8
82	silver and its water-soluble compound	8.7	9.0	8.5
308	nickel	16.5	16.2	19.0
309	nickel compounds	4.6	4.7	5.1

**ROHM Integrated Systems (Thailand)** 101 / 94 . 102 Navanakorn Industrial Zone. Moo 20. Phaholyothin Road. Tambol Khlong-Nueng. Amphur Khlong-Luong. Pathumthani 12120 Thailand



■ Manufacturing Items  
Monolithic ICs, Transistors,  
Diodes, Resistor, Capacitors

		2016	2017	2018
Power consumption	kWh	176,457,161	184,842,687	189,776,288
Fuel consumption	kl	265	284	254
Water consumption	km <sup>3</sup>	1,250	1,295	1,185
Total waste emissions	t	981	1,139	1,133
Amount of waste finally disposed of as landfill	t	0.00	0.00	0.00
Waste recycling rate	%	100.00	100.00	100.00
Emissions into the atmosphere: NOx	t	0.0	0.0	0.0
Emissions into the atmosphere: SOx	t	0.0	0.0	0.0
Emissions into waters: BOD	t	6.0	8.0	7.8
Emissions into waters: COD	t	28.4	28.7	42.2

■ PRTR

Unit: tons

PRTR Ordinance number	Substances covered	2016	2017	2018
		Amount handled	Amount handled	Amount handled
31	antimony and its compounds	5.4	5.3	5.4
82	silver and its water-soluble compound	4.5	4.5	4.7
304	lead	1.5	1.6	1.9
308	nickel	13.2	14.5	16.1
309	nickel compounds	3.9	3.3	4.8

**ROHM Semiconductor (China) Co.,Ltd.**

No.7 Weisan Road, Micro-electronics Industrial park,  
Jingang Highway Xicing District, Tianjin 300385 China



■ Manufacturing Items  
Diodes, LEDs, Laser Diodes  
LED Displays, Sensors

		2016	2017	2018
Power consumption	kWh	68,967,460	70,398,081	63,839,818
Fuel consumption	kl	1	1	1
Water consumption	km <sup>3</sup>	297	312	301
Total waste emissions	t	959	1,112	946
Amount of waste finally disposed of as landfill	t	428.50	509.45	373.06
Waste recycling rate	%	55.30	54.18	60.54
Emissions into the atmosphere: NOx	t	-	-	-
Emissions into the atmosphere: SOx	t	-	-	-
Emissions into waters: BOD	t	5.3	4.7	4.3
Emissions into waters: COD	t	11.9	12.7	12.6

■ PRTR

Unit: tons

PRTR Ordinance number	Substances covered	2016	2017	2018
		Amount handled	Amount handled	Amount handled
31	antimony and its compounds	1.2	1.3	-
82	silver and its water-soluble compounds	1.3	1.3	-
265	tetrahydromethylphthalic anhydride	1.9	5.1	2.3
291	1,3,5-tris(2,3-epoxypropyl)	10.9	12.1	9.3
304	lead	4.9	5.2	4.7
392	n-hexane	3.2	3.5	2.9

**ROHM Electronics Dalian Co.,Ltd.**

No.20 Four Street East & North, Dalian Economic & Technical Development Zone, Dalian 116600 China



■ Manufacturing Items  
Power modules, Thermal print heads, Contact image sensor heads, Photolink modules, Optical sensors

		2016	2017	2018
Power consumption	kWh	58,164,846	56,222,737	55,357,377
Fuel consumption	kl	2,068	1,957	1,907
Water consumption	km <sup>3</sup>	265	277	269
Total waste emissions	t	177	188	177
Amount of waste finally disposed of as landfill	t	16.79	19.46	15.14
Waste recycling rate	%	90.51	89.65	91.44
Emissions into the atmosphere: NOx	t	-	-	-
Emissions into the atmosphere: SOx	t	-	-	-
Emissions into waters: BOD	t	0.6	1.8	1.4
Emissions into waters: COD	t	7.3	9.0	9.0

■ PRTR

Unit: tons

PRTR Ordinance number	Substances covered	2016	2017	2018
		Amount handled	Amount handled	Amount handled
82	silver and its water-soluble compounds	1.2	1.2	1.1



**ROHM-Wako Electronics (Malaysia) Sdn.**

Lo1 1320 Kawasan Penndustrian, Peogkalan Chepa II ,  
Padang Tmenbak, 16100 Kota Bharu, Kelantan, Malaysia



■ Manufacturing Items  
Diodes, LEDs

		2016	2017	2018
Power consumption	kWh	60,686,683	* 80,291,750	82,541,315
Fuel consumption	kl	43	* 68	75
Water consumption	km <sup>3</sup>	465	* 631	780
Total waste emissions	t	1,080	1,187	1,073
Amount of waste finally disposed of as landfill	t	83.06	85.84	68.50
Waste recycling rate	%	92.31	92.77	93.61
Emissions into the atmosphere: NOx	t	0.0	0.0	0.0
Emissions into the atmosphere: SOx	t	0.0	0.0	0.0
Emissions into waters: BOD	t	1.1	2.9	3.0
Emissions into waters: COD	t	4.5	12.9	14.7

\* Due to an establishment of a new building and an operation of clean rooms in FY2017.

■ PRTR

Unit:tons

PRTR Ordinance number	Substances covered	2016 Amount handled	2017 Amount handled	2018 Amount handled
20	2-aminoethanol	1.1	1.1	1.0
297	1,3,5-trimethylbenzene	-	1.0	-
305	lead compounds	7.2	5.0	3.1

**ROHM Mechatech Philippines, Inc.**

People's Technology Complex Special Economic Zone, Carmona,  
Cavite 4116 Philippines



■ Manufacturing Items  
Lead Frames,  
Precision tooling and related  
parts

		2016	2017	2018
Power consumption	kWh	9,487,175	9,817,465	9,169,742
Fuel consumption	kl	58	94	111
Water consumption	km <sup>3</sup>	31	37	41
Total waste emissions	t	787	743	681
Amount of waste finally disposed of as landfill	t	0.00	0.00	0.00
Waste recycling rate	%	100.00	100.00	100.00
Emissions into the atmosphere: NOx	t	0.0	0.0	0.0
Emissions into the atmosphere: SOx	t	0.0	0.0	0.0
Emissions into waters: BOD	t	0.0	0.0	0.0
Emissions into waters: COD	t	0.0	0.0	0.0

■ PRTR

Unit:tons

PRTR Ordinance number	Substances covered	2016 Amount handled	2017 Amount handled	2018 Amount handled
82	silver and its water-soluble compounds	1.2	-	-
144	inorganic cyanide compounds (except complex salts and cyanates)	1.0	1.3	1.2

**ROHM Mechatech (Thailand) Co., Ltd.**

188 Moo7, Hemaraj Saraburi Industrial Land, Nongplamor.  
\* Subdistrict, Nongkhae District, Saraburi Province 18140 Thailand



■ Manufacturing Items  
Lead Frames,  
Modification and repair of Mould  
sets as their parts,  
Laser diodes

\* Eligible for aggregation from FY2017.

		2016	2017	2018
Power consumption	kWh	-	9,224,160	9,163,200
Fuel consumption	kl	-	184	178
Water consumption	km <sup>3</sup>	-	54	48
Total waste emissions	t	-	51	65
Amount of waste finally disposed of as landfill	t	-	0.07	0.12
Waste recycling rate	%	-	99.87	99.82
Emissions into the atmosphere: NOx	t	-	-	0.1
Emissions into the atmosphere: SOx	t	-	-	0.0
Emissions into waters: BOD	t	-	2.73	2.1
Emissions into waters: COD	t	-	7.63	5.8

■ PRTR

Unit:tons

PRTR Ordinance number	Substances covered	2016 Amount handled	2017 Amount handled	2018 Amount handled
144	inorganic cyanide compounds (except complex salts and cyanates)	-	3.9	4.1