

Contributing to the UN SDGs through Measures
Addressing Plastic Waste Issues:
Efforts toward a positive future for plastics
"TORIKUMI"
<Outline>

February 15, 2019

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Contributing to the UN SDGs through Measures Addressing Plastic Waste Issues: Efforts toward a positive future for plastics

February 15, 2019
Keidanren

I . Outline

1. Outline of survey

(1) Purpose and aim

Amid increasing international concerns regarding marine plastic litter issues, the Japanese Government has announced that the issue would be addressed at the G20 Summit meeting that it will host in Osaka in June and is currently considering the promotion of the “Resource Recycling Strategy for Plastics” in order to contribute to transboundary marine plastic litter issues and promote plastic resource circulation in Japan.

Japan’s declination from approving the “Ocean Plastic Charter” at the G7 Charlevoix Summit has been received by some parties as an indication of Japan’s delayed efforts for plastic resource circulation. However, as Japan has already established an advanced recycling-based society under the partnership of Government, local governments, business operators, consumers and NPOs, and is determined to continue to engage in proper waste management and the promotion of the 3Rs.

Keidanren conducted a questionnaire survey targeting member companies and organizations on efforts for plastic resource circulation and marine plastic litter issues and compiled a collection of case studies on current efforts and to undertake in the future.

(2) Survey targets: Keidanren member companies and organizations, etc.

(3) Survey coverage: Efforts contributing plastic resource circulation and marine plastic litter issues

(4) Survey periods: **First survey period:** September 12 – October 12, 2018

Second survey period: October 13 – November 30, 2018

Third survey period: December 1 – February 8, 2019

2. Features of efforts

During the one-month survey period, **300 cases** were received from **164 business operators**. These included **115 reducing efforts, 40 reusing efforts, 146 recycling efforts and 115 other efforts** (including multiple answers).

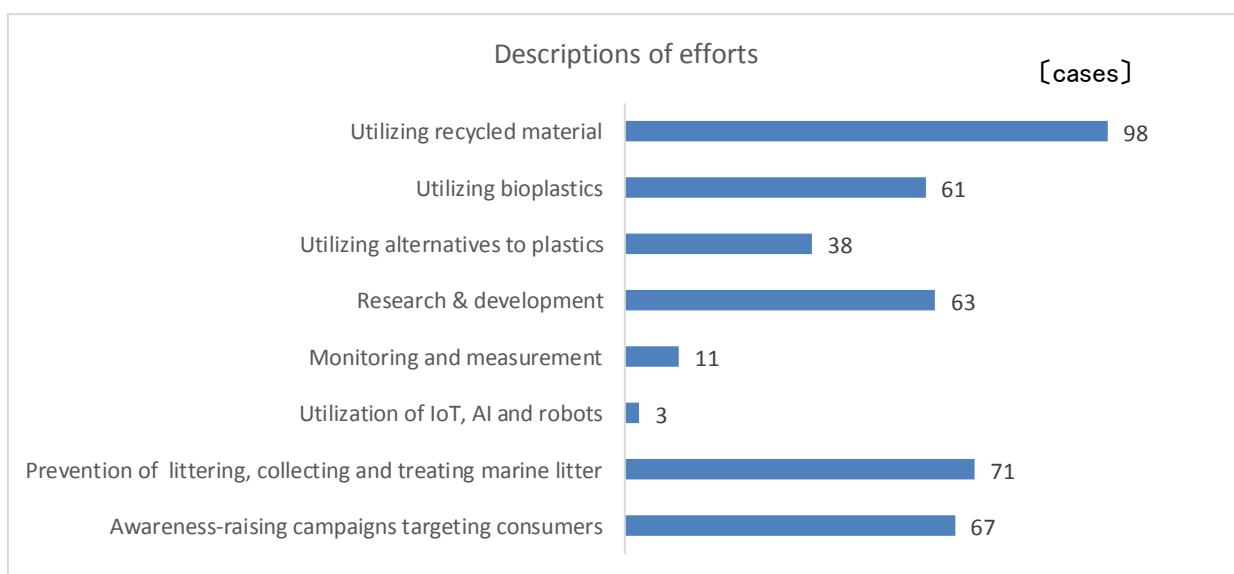
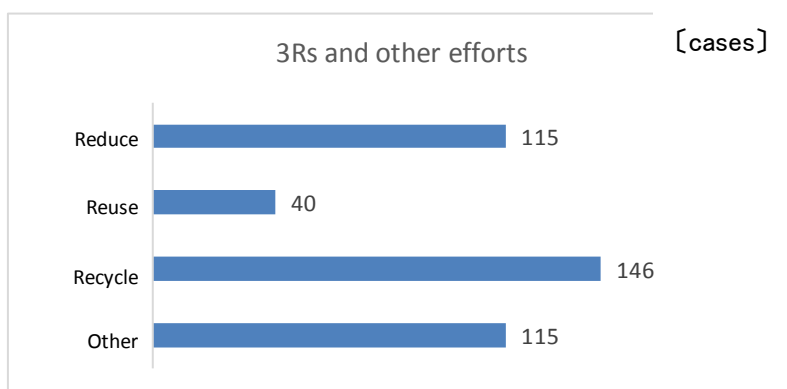
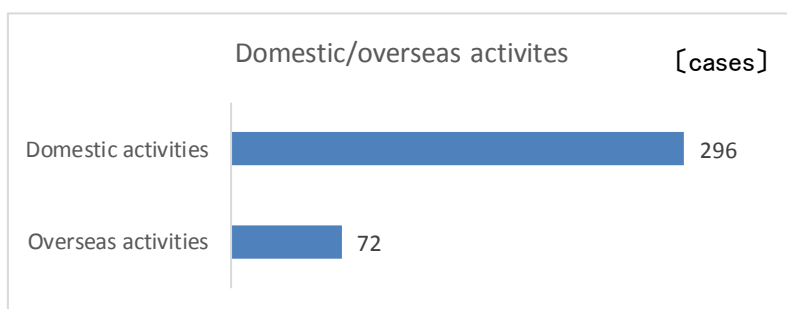
Reported efforts covered a broad range of approaches, from reducing plastic use to the furthest extent possible in products or research and development for bioplastics and alternatives to plastics to coastal cleanups, PET bottle cap collection, consumer awareness-raising campaigns.

*The details of each effort are introduced on the Keidanren website:

<http://www.keidanren.or.jp/policy/2018/099.html>

【Reference】 Number of cases for each effort type

- Having implemented the Voluntary Action Plan for Establishing a Sound Material-Cycle Society (see Appendix for background and details) since 1997 to promote voluntary approaches by the business community, Keidanren received reports of a wide range of efforts from many industries despite the short period of time offered to submit responses.
- The 300 cases reported comprised mainly efforts promoting the 3Rs, especially recycling and reducing. Future challenges include promoting the various efforts based on the 3Rs as well as other efforts not only in Japan but also overseas.



*The figures in the graphs count multiple answers.

3. Excerpts of efforts

Reduce
<p><u><Introducing thin-walled/lightweight products and utilizing alternatives to plastics></u></p> <ul style="list-style-type: none"> • In 2013, introduced the lightest domestically manufactured PET bottles, weighing 550ml. 【Food】 • Reduced the amount of plastics used in PET bottle labels by approximately 90% (relative to conventional products) 【Food】 • Reduced the amount of plastics used in PET bottles by 29.6% (relative to conventional products) 【Food】 • Introduced smaller and thinner packaging for single cup stick coffee sachets, thus reducing plastics by 200 tons/year, or by 13%, and achieving CO₂ emission reductions of 1,200 tons/year (relative to conventional products) 【Food】 • Set up a target to reduce the use of virgin plastic by an average of 10% per product by 2020, and thus introduce recycled plastics in manufactured products as well as downsize them toward achieving the target 【Electrical appliances】 • Reconsidered the use of plastic straws and replaced them with paper straws and biodegradable plastics 【Insurance; real estate】 <p><u><Reducing the use of plastic products / using alternatives to plastics></u></p> <ul style="list-style-type: none"> • Launched the “Bring your own bag” campaign to reduce the use of plastic shopping bags. Reduced the use of plastic shopping bags by 2,735,420,000 bags in fiscal 2017. 【Retail】 • Promoted “Smart Wrapping,” encouraging consumers to choose the type packaging or wrapping that best suited their purpose. 【Retail*】
Reuse
<ul style="list-style-type: none"> • Collected used multifunctional printers from customers, disassembled and cleaned components for reuse in new multifunctional printers. 【Electrical appliances】 • Developed easy-to-refill packaging that minimizes the burden imposed upon consumers when refilling containers. The number of refillable products increased to 289 items in 2017, converting around 85% of all products to refillable products 【Chemical】
Recycle
<p><u><Material recycling></u></p> <ul style="list-style-type: none"> • Efficiently manufactured high-quality PET resin from collected used PET bottles for use in PET bottles for cosmetic products manufactured by the company. Reduced approximately 22 tons of CO₂ annually through this effort. 【Chemical】 • Installed reverse vending machines (automated drink container collection points) that can sort, crush and compress PET bottles onsite. Collected approximately 50,000 tons cumulatively since 2008. 【Wholesale】 • Installed PET collection points in group retail stores and implemented a campaign offering “environmental points” to consumers returning bottles 【Retail】 • Introduced in international flight meals, cups and salad bowls made of recycled plastics made from returned PET bottles. 【Air transport】 • Achieved a 100% recycling rate for byproducts and waste generated at 36 domestic factories and the main office building of the corporate group. Waste plastics generated at relevant business locations are recycled into recycled plastic products 【Food】 • Collected bumpers removed during automobile repairs from domestic retailers for recycling into plastic auto-parts, such as bumpers for new vehicles. Collected 61,796 bumpers in fiscal

2016 **【Transportation equipment】**

- Sorted and recovered three main types of resin from shredder residue of collected used electric home appliances using NIR separation technologies that can achieve a high-precision rate of 99%. Recycled resin is used in air conditioners, IH cooking heaters, internal components of refrigerators. **【Electrical appliances】**
- Developed technologies for the separation and recovery of high-purity plastics, improving the self-circulation (electric home appliances-to-electric home appliances) recycling rate of products **【Electrical appliances】**
- Improve the efficiency of resource (including plastics) use by 50% relative to fiscal 2010 levels by fiscal 2050. **【Electrical appliances】**
- Collaborate with partner companies that possess the recycling technologies for waste materials generated in the aircraft main wing manufacturing process, therefore extending the value chain to the stage of extracting recyclable fibers from waste material. Expected CO₂ emission reductions amount to almost 10,000 tons per year. **【Machinery】**

<Feedstock recycling>

- Recycled almost 100% of plastic containers and packaging collected from households through feedstock recycling using coke ovens at steel plants. Cumulative amount processed was 3 million tons as of November 2018. **【Iron and steel】**
- Generated ethanol from inflammable waste (including plastics) for recycling and reuse as raw material for plastic. **【Chemical】**
- Performed feedstock recycling of plastics to extract hydrogen from used plastics for the purpose of securing a stable supply of raw materials to produce ammonia **【Chemical】**

<Thermal recovery>

- Received and processed waste plastics at cement plants for highly efficient recovery and reuse of heat energy. Used 643,000 tons of waste plastics in fiscal 2017. **【Cement*】**
- Concluded a contract with a waste treatment business to recycle (manufacture RPF from) plastics contained in the waste generated at business locations. The recycling rate was 94% in fiscal 2017. **【Chemical】**
- Collected plastic cards, such as used magnetic train passes, at station entrance gates, to ground and recycle into solid fuels. **【Land transportation】**

Overseas efforts

- From 2014, reduced the number of plastic packets included in one package of spices sold in Indonesia from three to two, retaining the total amount contained in one package, therefore reducing plastic use. Reduced use by 27% relative to 2013 levels. Reducing approximately 2,000 tons/year every year. **【Food】**
- Introduced lightweight PET bottles for sales in the UK. Annual reductions in plastic use by 900 tons. **【Wholesale】**
- Global deployment of hybrid beads made from a combination of cellulose, a plant-derived biodegradable plastic, and silicon dioxide as an alternative to microplastics. **【Chemical】**

Other (Research and development, cleanup activities)

- Research and development and use of biomass plastics using plants and other recyclable organic resources. **【Chemical and other products】**
- Developed an original bioplastic with high plant-derived ingredient content for deployment in the electrical appliance bodies. **【Electrical appliances】**
- Formulated the Standardized Beautification Symbol (Recycling Symbol) in 1981 to raise awareness among consumers toward preventing the littering of drink containers, and expands efforts in line with the changing times. **【Food*】**

- Sold PET bottle caps as resources to a recycling business through a cap-collecting volunteer organization. Collected 15,883,240 caps as of June 2018. **【Securities】**
- Performs annual cleanups along rivers and beaches nationwide. In fiscal 2018, held two group-wide cleanup events with the participation of 500 corporate management and staff and their families from different workplaces and group companies **【Banking】**
- Performed cleaning and beautification activities around factories and the local communities in which they are situated. **【Chemical】**

*indicates an effort promoted by an industrial organization (Unmarked efforts have been made by individual companies.)

II. List of efforts contributing plastic resource circulation and marine plastic litter issues

	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
AEON Co., Ltd.									
Bring your own bag campaign	●	●					●		
Collection of recyclable resources at stores			●			●			
Reduced use of containers and packaging	●								
"Fururi" reupholsterable vinyl umbrellas	●	●		●			●		
PET bottle cap collection campaign			●	●		●			
Aeon Happy Yellow Receipt Campaign				●		●	●	●	●
"Clean and Green Campaign" by employees				●					●
AEON Cheers Club				●					●
Conclusion of Comprehensive Partnership Agreement and local WAON				●					●
Collection of used products			●			●			
Ajinomoto Co., Inc. (P.TAJINOMOTO INDONESIA)									
Reduced plastic packaging	●								
Ajinomoto Co., Inc. (Ajinomoto AGF, Inc.)									
Single cup stick coffee sachets: downsizing and thinner packaging	●						●		
Ajinomoto Co., Inc. (Ajinomoto Frozen Foods Co., Inc.)									
Reduced plastic use	●				●				
ANA Holdings Inc.									
Promoting the 3Rs on board, at the airport and in the office	●	●	●			●			
Asahi Kasei Corporation									
Industrial waste (including waste plastics) final disposal rate below 0.3% (against total industrial waste)			●	●					●
Recycling rate of no less than 90% (against total industrial waste)		●	●			●			
Local beautification and greening activities				●					●
Asahi Soft Drinks Co., Ltd.									
Reduced plastic use by developing lightweight containers (caps)	●				●		●		
Reduced plastic use by not using packaging (no labels)	●			●					
Utilizing plant-derived resources in containers and packaging (caps, bottles, labels)	●				●		●		
Utilizing plant-derived resources in packaging (labels)	●				●		●		
Asahi Group Holdings, Ltd.									
Maintaining a recycling rate of 100% for byproducts and waste			●						

< Category2 explanatory notes >

*R&D = Research & Development / *URM= Utilizing recycled material / *UB= Utilizing bioplastics / UAP= Utilizing alternatives to plastics / *P&CTL= Prevention of littering, collecting and treating marine litter

	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
Asahi Breweries, Ltd.									
Using "polylactic acid," plant-derived plastic to seal keg caps	●						●		
Benesse Corporation									
Collection and recycling of products		●	●						
Collection and recycling of learning tablets		●	●			●			
BNP Paribas Group									
Green Office Project	●	●	●				●		
Canon Inc.									
Canon Eco Technology Park, a hub for Group environmental activities		●	●	●		●			
CARS-T: Canon Automated Recycling System for Toner Cartridge			●			●			
Collection and Recycling of Ink Cartridges			●			●			
Remanufacturing of Multifunction Devices		●	●	●		●			
Nationwide promotion of environmental education on recycling			●	●					
Canon Marketing Japan Inc.									
Cartridge recycling program and contribution to society		●	●	●		●			
Coca-Cola Japan Company, Limited									
World Without Waste - "2030 Packaging Vision"	●	●	●						
Dai Nippon Printing Co., Ltd.									
Development for recyclable flexible mono-material packaging			●				●		
Sustainable packaging biomass materials are partially used	●						●		
"DNP multifunctional insulation box" that achieves both high-performance cold storage and high transport efficiency	●	●						●	
Daiwa House Industry Co., Ltd.									
D-TEC ECO+method; -ground reinforcement using recycled plastic reinforcement material			●			●			
DyDo DRINCO, INC									
Efforts to improve the self-collection rate of PET bottles and other used containers			●						●
FP Corporation									
FPCO-Method: Consumer awareness-raising campaign on recycling	●		●						
Reduced waste plastics through "tray-to-tray" recycling			●			●			
Reduced waste plastics through "bottle to tray" recycling			●			●			
Campaigns to increase consumer engagement in tray recycling			●						
Reduced waste plastics by developing light-weighted food containers	●								●

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	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
Using "bi-axially oriented PET" technologies to reduce use of PET resin resources	●				●				
Fujikura Ltd.									
Fujikura Group Long-term Vision 2050	●								
FUJITSU LIMITED									
Fujitsu Group's Approach to reducing waste plastics	●	●	●			●		●	●
FUJITSU GENERAL LIMITED									
Promotion of resource-saving design	●				●				
Using plastic in line with household appliance recycling scheme			●			●			
Furukawa Electric Co., Ltd.									
Green Trough: recycled polyimide cable troughs			●			●			
GUNZE LIMITED <Plastic Films Company>									
Reduced weight through developing hetero multi-layer thin film technologies	●				●				
Reduced weight through developing hetero multi-layer laminated film technologies	●				●				
Reduced waste plastics through developing alternative materials	●				●				
Hamamatsu Photonics K.K.									
Reducing plastic waste from packaging at the shipping stage	●						●		
Supplying products that contribute to plastic recycling			●						
Hitachi, Ltd. (Hitachi Group companies)									
Addressing plastic resource circulation along the value chain	●	●	●			●		●	
Hitachi Appliances Inc.									
Recycling plastics in household appliances			●			●			
Hitachi Zosen Corporation									
Proper incineration disposal to preventing plastic waste from spreading			●						
Isetan Mitsukoshi Holdings									
Reduced packaging through smart wrapping and shopping bag sales	●	●		●				●	
Isetan Mitsukoshi Ltd.									
Partial use of biomass plastics in plastic bags for Christmas				●			●		
Iwatani Corporation									
PET resins supporting "bottle to bottle" recycling			●			●			
J-Oil Mills, Inc.									
Development of environment-friendly products	●		●				●	●	
Japan Automobile Manufacturers Association, Inc.									
Verification of recycling potential of used automotive plastic resins			●			●			

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	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
Formulating "Guidelines for Product Design Stage Assessment for the Promotion of the 3Rs in Used Automobile			●			●			
Japan Cement Association									
Use of plastic wastes for cement production				●					
Use of Automobile Shredder Residue (ASR) on the End-of-Life Vehicle Recycling Law				●					
Use of disaster waste treatment including plastic				●					
Japan Chain Stores Association									
Establishment of a sound material-cycle society (reduction of plastic shopping bags)	●								
Japan Chemical Fibers Association									
3Rs efforts in the chemical fibers industry	●	●	●			●	●		
Addressing ocean plastic issues				●	●		●		
Japan Department Stores Association									
Smart wrapping	●								
Japan Expanded Polystyrene Association (JSP Corporation)									
Grants for installing recycling equipment in wholesale market			●			●			●
Recycling waste EPS float			●			●			●
Japan Federation of Construction Contractors									
Efforts to reduce waste plastics from construction sites	●	●	●						
Japan Federation of Printing Industries									
Efforts to implement the 3Rs in the printing industry	●	●	●				●	●	
Japan Fertilizer & Ammonia Producers Association									
The fertilizer industry to response to beaching ocean plastics				●	●		●		●
Measures to prevent outflows of coated fertilizer shells beyond crop fields				●					
Japan Gas Association									
Recycling of used polyethylene gas pipes			●			●			
JAPAN NUS Co., Ltd.									
Comprehensive approach to ocean waste issues				●	●				●
Understanding the status quo of ocean waste and pollution				●					
Consideration of a survey on collection and processing			●	●	●				
Measures to control waste generation				●					●
International partnerships, contribution to business community				●	●				
Japan Oilseeds Processors Association									
Plastic Recycling Action Declaration	●		●						

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	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
Japan Paper Association									
Achieving a recycling-based society (reducing final disposal volumes of industrial waste)	●		●						
Japan Plastics Industry Association									
Preventing plastic resin pellet spills				●					●
Declaration to resolve ocean plastic issues				●					●
Ocean plastics awareness-raising campaigns				●					●
Japan Soft Drink Association									
Soft Drink Industry's Declaration on Plastic resource circulation	●		●	●	●	●	●	●	●
Japan Soft Drink Association, Japan Tomato Processors Association, Japan Fruit Juice Association, Coca Cola Bottling Association, Japan, Japan Coffee Beverages Association, Brewers Association of Japan									
Using the standardized recycling symbol to for awareness-raising to prevent littering			●	●					●
Supporting environmental education to pass down the spirit of beautification to children			●	●			●		●
Proposing the "ADAPT Program" as a new town beautification method				●					●
JFE Holdings, Inc. (JFE Steel Corporation)									
Recycling project for plastic containers and packaging			●						
JFE Holdings, Inc. (JFE Engineering Corporation) (JFE Kankyo Corporation)									
100% recycled plastic pallet			●			●			
Domestically circulated PET bottle recycling			●			●			●
JGC Corporation									
Introducing chemical recycling technologies for gasification of waste and waste plastics			●		●		●		●
JGC Catalysts and Chemicals Ltd.									
Alternatives to microplastic beads				●			●	●	
JSP Corporation Kanuma Office Recycling Center									
Reduced manufacturing loss and reduced waste plastics by recycling leftover materials			●		●				
JSP Corporation Kanuma Office									
Thermal recycling of leftover materials from manufacturing			●						
JSP Construction and Materials Division									
Reduced generation of leftover material at construction sites by offering precutting service for thermal insulating material			●			●			
JSR Corporation									
Promotion of PP, PE and PET recycling by enhancing segregated collection			●			●			
Kao Corporation									
Developing easily refillable products	●	●					●		

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	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
RecyCreation		●	●		●	●			
New refill packaging: "Raku-raku Eco Pack"	●	●					●		
Reducing plastics by introducing ultra-concentrated liquid laundry detergents	●								
Introducing shrink film technologies to reduce use of blister packaging	●								
Reducing plastics in powdered laundry detergent containers	●	●	●	●		●		●	
Utilizing bioplastics				●				●	
Utilizing recycled resin			●			●			
Land and ocean beautification activities and clean-ups				●					●
Our Philosophy & Action on Plastic packaging				●	●	●		●	●
Kawasaki Kisen Kaisha, Ltd.									
PET bottle cap recycling campaign			●			●			
KDDI Corporation									
Promotion of mobile phone recycling			●			●			
Kirin Holdings Company, Limited. (Kirin Beverage Company, Limited)									
Introduction of R100PET bottles (100% recycled PET bottles)			●			●			
Lion Corporation									
Promoting the 3Rs in containers and packaging	●	●	●			●	●	●	
Free recycling program and reduction of plastics for toothbrushes	●		●						
Environmental beautification efforts through biodiversity conservation activities				●					●
Maeda Corporation									
Controlling plastic waste generation, segregated waste collection and utilizing recycled plastics	●		●			●		●	●
Mazda Motor Corporation									
Promotion of environmental measures in line with Mazda Global Environmental Charter				●					
Efforts for compliance with the Automobile Recycling Law	●	●	●			●			
Development of easy-to-dismantle and recyclable vehicles	●	●	●		●	●			
Collection and recycling of damaged bumpers from the marketplace			●			●			
Promotion of bioplastics use			●				●	●	
Megmilk Snow Brand Co., Ltd.									
Developing lightweight containers for yogurt drinks	●								
Recycling polystyrene sheets for molding yogurt cups			●					●	
Meiji Co., Ltd.									

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	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
Reduced PET resin consumption by using thin-wall PET bottles	●								
Misawa Homes Co., Ltd.									
Recycled material "M-Wood2"			●			●			
Mitsubishi Chemical Holdings Corporation (Mitsubishi Chemical Corporation)									
Recycled PET bottle fibers (ECORNA)			●			●			
Preventing pellet outflows from factories				●					●
Cleanups outside company				●					●
Development of biodegradable resin BioPBS™				●	●		●		
Development of bio-based film and sheet ECOLOJU®				●	●		●		
Development of Bio-based engineering plastic DURABIO™				●	●		●		
Utilizing solar energy through artificial photosynthesis using photocatalysts				●	●				
Mitsubishi Chemical Holdings Corporation (Shinryo Corporation)									
Recycling carbon fiber from waste CFRP (carbon fiber reinforced plastic)			●		●	●			
Mitsubishi Corporation									
Engagement in recycling and material circulation business	●		●	●	●	●			
Reduced use of plastics in food and beverage manufacturing company in the UK	●		●		●	●			
Mitsubishi Corporation Packaging Ltd.'s reduced use of petrochemical materials	●			●			●	●	
Mitsubishi Electric Corporation									
Household appliance-to-household appliance in-house recycling	●		●			●		●	
Mitsubishi Estate Co., Ltd.									
Marunouchi Eco-Lunch Box Project			●			●			
Mitsubishi Gas Chemical Company, Inc. Yamakita Plant									
Reusable transport packaging	●	●							
Use of recycled plastic pallets to transport products	●					●			
Mitsubishi Gas Chemical Company, Inc. Information & Advanced Materials Company									
Addressing plastic issues in research and development	●		●		●		●	●	
Mitsubishi Gas Chemical Company, Inc. Mizushima Plant									
Plastic litter collection through harbor and river clean-ups				●					●
Mitsubishi Gas Chemical Company, Inc. Hiratsuka Research Laboratory									
Clean-ups and gardening along Sagami River				●					●
Mitsubishi Gas Chemical Company, Inc. Niigata Plant									
Waterside litter collection				●					●
Mitsubishi Gas Chemical Company, Inc. Yokkaichi Plant									

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	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
Collecting litter around the plant				●					
Mitsubishi Heavy Industries, Ltd.									
Establishment of a recycling business model for composites in aircraft manufacturing			●		●	●			
Mitsubishi Motors Corporation									
Recycling-friendly design and development			●		●	●			
Verification of recycling potential of automotive plastic resin			●			●			
Promotion of used automobile recycling			●			●			
Mitsui Chemicals, Inc.									
Biodegradable polyaspartic acid detergent builder				●	●		●		
Developing a start-to-finish manufacturing process from wood biomass to various chemical raw materials				●	●		●		
Development of plastic-to-oil technologies for automotive waste plastics			●						
NAGORI™ resin, innovative plastic made from ocean minerals			●	●		●		●	
Addressing ocean debris issues (partnerships with NPOs, coastal cleanups)				●					●
Mitsui Sumitomo Insurance Co., Ltd.									
Abolishing use of plastic straws and cups at the corporate cafeteria, etc.	●							●	
Morinaga & Co., Ltd.									
Reduced used of plastic in products	●								
Using bioplastic in products				●			●		
Morinaga Milk Industry Co., Ltd.									
Operations under the Eco-package Guide	●	●	●		●				
NEC Corporation									
Development of durable bioplastics for a carbon resource recycling society				●	●		●		
NEC Platforms, Ltd.									
Proactive promotion of material-oriented business through closed-loop recycling			●			●			
NH Foods Ltd.									
Reduced containers and packaging by using lightweight packaging film and thin-wall trays	●		●						
Nichirei Corporation (Nichirei Foods Inc.)									
Reduction of waste plastics by using thin-wall containers	●								
Nippon Paper Industries Co., Ltd.									

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	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
Using paper for what can be done with paper ~SHIELDPLUS®, an environmentally friendly paper-based barrier material	●							●	
Nippon Steel & Sumitomo Metal Corporation									
Feedstock recycling of waste plastics utilizing steelmaking processes			●						
Nippon Suisan Kaisha, Ltd.									
Co-sponsoring Pirika Inc., a venture dealing with microplastic issues				●	●				●
Reducing food loss by utilizing LIMEX, an alternative material				●				●	
Environmental education on ocean plastic litter targeting employees				●					●
Reduction of plastic containers and packaging	●								
Cleanup activities			●						●
Nippon Telegraph and Telephone Corporation (Nippon Telegraph and Telephone East Corporation)									
Maintaining a recycling rate of 99.99% for waste plastics from decommissioned telecommunications equipment			●			●			
Nishimatsu Construction Co., Ltd.									
Circulating plastic resources by full separation at construction sites			●						
Nissan Chemical Corporation									
Developing crystal nucleating agent for bioplastic (polylactic acid) production	●				●		●		
Nissan Tokyo Sales Holdings Co., Ltd.									
Promotion of recycling of polypropylene bumpers	●				●		●		
Nissin Foods Holdings Co., Ltd.									
Environment-friendly product development (containers and packaging)	●							●	
Nisshin Seifun Group Inc.									
Collection of plastic waste in local environment beautification and conservation activities			●	●					●
Reduced plastic use from uniquely manufactured granulated flour and bottle containers	●	●							
Reduced plastic use in product containers and packaging	●			●	●		●	●	
Nomura Holdings, Inc.									
"Eco-cap" campaign	●	●	●			●			
NSK Ltd.									
Material recycling returnable boxes for in-house reuse	●	●	●			●			
Oji Holdings Corporation									
Developing global environment-friendly biodegradable plastics	●				●		●		

< Category2 explanatory notes >

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	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
Developing global environment-friendly paper products with additional functions	●				●			●	
Otsuka Packaging Ind. Co., Ltd.									
Tamper-proof boxes	●							●	
Boxes with bottle breakage-preventive structures (non-foamed styrol)	●							●	
Otsuka Pharmaceutical Co., Ltd.									
Developing lightweight PET bottles	●				●				
Developing lightweight plastic containers and packaging	●				●				
Developing products that lead not only to user convenience but waste reduction	●		●		●				
Participating in International Coastal Cleanup in partnership with local communities				●					●
"ADOPT Eco-school" activities				●					
Panasonic Corporation									
Increased use of recycled plastic resins in household appliances			●	●	●	●			
Pokka Sapporo Food & Beverage Ltd.									
Reducing PET material use by developing lightweight containers	●				●				
Reducing plastic material use by developing lightweight caps	●				●				
Reducing plastic material use in containers	●				●				
Maintaining a 100% recycling rate of factory waste	●			●					
Continuance of clean-ups in the Ebisu area				●					●
Rengo Co., Ltd.									
Using cellophane as an alternative to plastic materials				●			●	●	
Porous cellulose beads				●			●	●	
New cellulose nanofiber applying cellophane manufacturing technologies	●		●		●			●	
Development of PET bottle beverage labels using biomass materials				●			●		
Riken Corporation									
Segregation of plastic resources, collection of waste plastics at volunteer coastal cleanup activities, etc.				●					●
Saisan Co., Ltd.									
"Nadeshiko" team Eco-cap Campaign			●			●			
Sapporo Breweries Ltd.									
Recycling waste from SEPARE (beer serving machine) maintenance centers		●	●	●		●			
Recycling plastic containers		●	●			●			
Clean-ups around offices				●					●

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	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
Renewing packaging specifications to reduce plastic use	●				●				
Sapporo Breweries Ltd., Shizuoka Factory									
Joining the local community in the Hamatome Beach clean-up				●					●
Secom Co., Ltd.									
Environmental-friendly design of security devices and 3Rs campaign	●	●	●		●	●			
Sekisui Chemical Co., Ltd.									
Innovative material circulation using "waste-to-ethanol" technology			●		●		●		●
Creation of products using recycled material and market expansion	●		●			●			
Sendai Terminal Building Co., Ltd. Hotel Metropolitan Sendai, Hotel Metropolitan Sendai East									
Replacing conventional straws with biodegradable plastic straws				●			●		
Seven & i Holdings Co., Ltd. (Seven-Eleven Japan Co., Ltd., Ito-Yokado Co., Ltd., York-Benimaru Co., Ltd., York Mart Co., Ltd.)									
Circular economy utilizing PET bottle collecting machines	●		●						●
Shin-Etsu Chemical CO., Ltd.									
Policy for addressing marine plastic litter problem				●					●
Showa Denko K.K.									
Feedstock Recycling of Waste Plastics	●								
Showa Shell Sekiyu K.K.									
Participation in Tokyo - Bay PP Forum				●					●
Shiseido, Co., Ltd.									
Application of mechanically recycled PET in cosmetics bottles			●		●	●			
SOHGO SECURITY SERVICES CO.,LTD.									
Efforts to address the 3Rs (reduce, reuse, recycling)	●	●	●			●			
Sompo Japan Nipponkoa Insurance Inc.									
"Bring your own cup" campaign	●							●	
"Eco-bag" sharing campaign	●	●						●	
SAVE JAPAN Project	●								●
Sony Corporation									
Reducing Use of Virgin Plastics			●						
Incorporating Recycled Plastic				●		●		●	
SORPLAS™, Sony's Original Flame-Retardant Recycled Plastic				●		●			
External Sales of SORPLAS™ Recycled Plastic				●		●			
SUBARU CORPORATION									
Establishing automobile parts recycling scheme			●			●			

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	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
Sumitomo Bakelite Co., Ltd.									
Case study of plastic reductions in P-Plus freshness preserving film	●								
Sumitomo Chemical Co., Ltd. (Sumika Plastech Co., Ltd.)									
Utilizing bioplastics①- Environment-friendly plastic cardboard sheets using biodegradable plastics-				●			●		
Sumitomo Chemical Co., Ltd. (SanTerra Co., Ltd.)									
Utilizing bioplastics② - Deployment of biodegradable mulch films-				●	●		●		●
Sumitomo Chemical Co., Ltd. Oita Factory, Osaka Factory									
Efforts to promote recycling (plastic resources)①	●		●						●
Sumitomo Chemical Co., Ltd. Oita Factory, Okayama Plant									
Efforts to promote recycling (plastic resources)②			●	●					●
Sumitomo Chemical Co., Ltd. Ehime Factory									
Measures to prevent outflow of small plastic debris from facility ①			●	●					
Sumitomo Chemical Co., Ltd. Chiba Facotry, SanTerra Co., Ltd.									
Measures to prevent outflow of small plastic debris from facility ②			●	●					
Sumitomo Chemical Co., Ltd. Oita Factory (Utajima), Osaka Factory									
Collection of plastic waste, prevention of ocean outflow①				●					●
Sumitomo Chemical Co., Ltd Misawa Factory									
Collection of plastic waste, prevention of ocean outflow②				●					●
SUMITOMO CORPORATION (TOMRA Japan Limited)									
Efficient collection of PET bottles and contribution to domestic resource circulation			●			●			
Sumitomo Heavy Industries, Ltd.									
Reduction of waste and packaging material	●	●		●				●	
Sumitomo Mitsui Construction Co., Ltd.									
Hosting public lectures				●					●
Sumitomo Mitsui Financial Group									
Group-wide clean-up activities				●					●
Suntory Beverage & Food Limited									
“2R+B” strategy for PET bottles	●		●	●		●	●		
SWCC Showa Holdings Co., Ltd.(Showa Recycle Co., Ltd.)									
Recycling waste electric wire			●			●			
TAIHEIYO CEMENT CORPORATION									
Receipt and treatment of waste plastics				●					

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	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
Low-temperature embrittlement to use plastic waste as alternatives to fossil energy			●		●	●			●
Development of technologies to recover carbon fiber from carbon fiber reinforced plastics			●		●	●			
Takeei Co., Ltd.									
Manufacturing RPF from construction waste/technology development for quality improvements			●		●	●			
Teijin Limited									
Development of new bioplastics PLANEXT®				●	●		●		
Developing new plastic resin grades using recycled material			●		●	●			
Teijin Limited (Teijin Frontier Co., Ltd.)									
Sales of fiber product ECOPET® made from recycled PET bottles			●			●			
Sales of polyester made from waste fiber ECOPETPLUS®			●			●			
Sales of bio-polyester fiber (SOLOTEX®)				●			●		
DELTA®fleemo, an alternative to fleece fabric contributing to ocean plastic mitigation	●	●		●					●
Introducing ocean trash collection activities and recycled ocean plastic at events			●						●
Collection and recycling of PET bottles at various events			●						●
The Federation of Electric Power Companies of Japan									
Recycling of waste plastic from power distribution facilities			●			●			
The General Insurance Association of Japan Chugoku Branch									
Participation in major river cleanup in the Otagawa River system	●								●
The General Insurance Association of Japan Hokuriku Branch									
Participation in coastal environment protection activities in Ishikawa Prefecture	●								●
The General Insurance Association of Japan Shikoku Branch									
Participation in Niyodogawa River cleanup in Kochi Prefecture	●								●
The Japan Iron and Steel Federation									
Feedstock recycling of waste plastics utilizing steelmaking processes			●						
The Japan Rubber Manufacturers Association									
Efforts to reduce final disposal amounts of waste and improve recycling rates	●	●	●						
The Nisshin OilliO Group, Ltd.									
Development of containers and packaging with limited environmental burden	●		●		●				
Toda Corporation									

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	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
Promoting material recycling of waste plastics utilizing cross-jurisdictional waste treatment permits			●						
Tokio Marine and Nichido Fire Insurance Co., Ltd.									
Analysis and removal of beaching marine litter in Iriomote Island and awareness-raising activities targeting children	●	●	●						●
Tokyo Metro Co., Ltd									
Recycling of used tickets	●		●		●				
Tomy Company, Ltd.									
Partial use of recycled material and considering long-term use of toys in PLARAIL			●	●		●			
Tomy Company, Ltd. (Tomy Group)									
Campaigns to promote original shopping bags (plastic bags)			●	●		●	●		
Tomy Company, Ltd. (T-ARTS Company, Ltd.)									
Resource saving capsule toy capsules	●			●					
Toppan Printing Co., Ltd.									
Development of environment-friendly laminated packaging material using mechanically recycled PET film			●			●			●
Cartocan, recyclable drink containers			●					●	
Development of single-material packaging material: transparent barrier film using OPP as base material			●		●				
Toray Industries, Inc.									
Biomass solutions to resource and climate challenges				●			●		
Wholly plant-based polyester fibers				●			●		
Promotion of recycling initiatives			●			●			
Toshiba Corporation									
Enhanced use of recycled plastics under the Voluntary Action Plan on the Environment	●	●	●			●	●		
Toshiba Infrastructure Systems & Solutions Corporation (Nishinohon Kaden Recycle Corporation)									
Advanced household appliance recycling using mixed waste plastic sorting technologies			●			●			
Toshiba Tec Corporation									
Vertical image processing scanner (fruits and vegetable recognizing POS) IS-910T	●								●
Tosoh Corporation									
Promotion of receiving and recycling plastic waste			●						●
Plastic waste collection through cleaning activities				●					●
Toyo Construction Co., Ltd.									
Coastal cleanups				●					●

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	Category1				Category2				
	Reduce	Reuse	Recycle	Others	R&D	URM	UB	UAP	P&CTL
Toyo Rice Co., Ltd									
Reduction of waste plastics by using ECO-packaging for rice	●				●				
Toyo Seikan Group Holdings, Ltd. (Toyo Seikan Co., Ltd.)									
NS (non-sterilant) filling system	●								
Toyo Seikan Group Holdings, Ltd. (Mebius Packaging Co., Ltd.)									
Collapsible bottles	●								
Toyo Seikan Group Holdings, Ltd. (Nippon Closures Co., Ltd.)									
Strap band cap				●					●
30 Hook aseptic B (lightweight and biomaterial cap)	●						●		
Toyo Seikan Group Holdings, Ltd. (Tokan Kogyo Co., Ltd.)									
Environment-friendly paper cups				●				●	
Tsubakimoto Chain Co. (Saitama Plant)									
Reducing cleaning shots in the plastic molding process	●								
Tsubakimoto Chain Co. (Group companies)									
Reducing plastic waste at plants and offices	●							●	
Tsubakimoto Chain Co. (Kyotanabe Plant)									
Abolishment of hand scrubs with polyethylene microbeads	●							●	
Ube Industries, Ltd.									
Receiving and treating industrial waste plastics				●					
Receiving and treating shredder residue under the Automobile Recycling Law				●					
Ube Film, Ltd. (Ube Group Companies) and Ube Industries, Ltd.									
Collecting plastic waste and controlling entrance into the ocean				●					●
Unitika, Ltd.									
XecoT, plant-derived aromatic nylon resin				●			●		
Unitika Group (Unitika, Ltd., Unitika Trading Co., Ltd.)									
TERRAMAC, biomass material				●			●		
Recycled polyester fiber "Uniecolo"			●			●			
Vinyl Environmental Council									
PVC recycling support program			●		●				
Yakult Honsha Co., Ltd.									
Adoption of biomass shrink labels for PET containers			●	●			●		
Adoption of the world's thinnest polystyrene sleeve shrink labels	●								
Yazaki Corporation									
Paper cushioning materials made of paper scraps of postcards			●			●			
Cleaning activity in the area surrounding a site				●					●

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【Appendix: Background information】
Voluntary Action Plan for Establishing a Sound Material-Cycle Society — Results of Fiscal 2017 Follow-up— <Summary>

March 12, 2018
Keidanren

1. Efforts under the Voluntary Action Plan for Establishing a Sound Material-Cycle Society

Keidanren formulated the Voluntary Action Plan for Establishing a Sound Material-Cycle Society to promote voluntary efforts on the part of Japan’s business community and implements the plan with the participation of 42 industries (refer to Page27& 28 for details on its background).

Determined not to increase the final disposal volume of industrial waste from the current level, industry as a whole “aims to reduce by fiscal 2020, the final disposal volume of appropriately treated industrial waste by 70% from the actual performance level in fiscal 2000 with consideration of the achievement of a low-carbon society” (Fourth Target, revised in March 2016) and individual industries have also set up industry-specific targets for final disposal volumes.

Furthermore, with a view to improving the quality of resource recycling and based on industry-specific characteristics and circumstances, each industry has set up individual targets, including a target recycling rate for byproducts produced during manufacturing processes and a target for reducing general waste from business activities.

The 42 industries participating in the Voluntary Action Plan for Establishing a Sound Material-Cycle Society are promoting voluntary efforts with high standards.

This Voluntary Action Plan is included in the Government’s Fundamental Plan for Establishing a Sound Material-Cycle Society (formulated in May 2013).

Keidanren not only aims to steadily achieve these goals but also conducts a follow-up survey every fiscal year to share the status of efforts with a wide audience. We have compiled the progress made in meeting the economy-wide target up to fiscal 2016, the first year of setting up the Fourth Target, the progress made in achieving industry-specific targets and detailed efforts dedicated to achieving targets.

*Industries participating in the Voluntary Action Plan for Establishing a Sound Material-Cycle Society (42 industries)

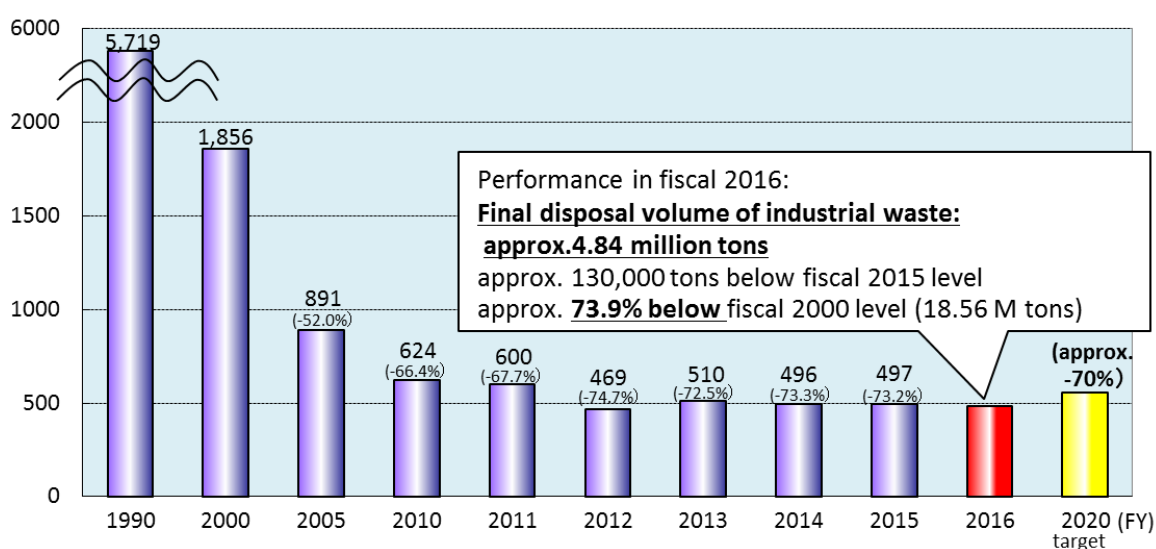
Electric power, gas, petroleum, iron and steel, non-ferrous metals, aluminum, brass, electric cable and wire, rubber, flat glass, cement, chemical, pharmaceuticals, pulp and paper, electrical and electronics, industrial machinery, bearing, automobiles, auto parts, auto-body, industrial vehicles, rolling stock, shipbuilding, flour, sugar, milk and dairy products, beverages, beer, construction, aviation, telecommunications, printing (The above 32 industries are counted when calculating the industry-wide industrial waste final disposal volume.); housing (Waste from the housing industry is included in that from the construction industry, and therefore is not separately added to avoid double-counting.), real estate, machine tools, trade, department stores, railways, maritime transport, banking, nonlife insurance, and securities.

2. Results of efforts in fiscal 2016

(1) Final disposal volume of industrial waste

In fiscal 2016, the final disposal volume of industrial waste (32 industries) was approximately 4.84 million tons, marking a reduction of approximately 0.13 million tons (approximately 2.6%) from the fiscal 2015 level. This was approximately 73.9% below the fiscal 2000 level (approximately 18.56 million tons), which is the baseline year level (and approximately 91.5% below the fiscal 1990 level). Hence, the Plan's target was overachieved in fiscal 2016. (cf. Figure 1: Final disposal volume of industrial waste generated by the entire business community).

Figure 1: Final disposal volume of industrial waste generated by the business community (in 10000 tons)



*1: The rate (%) of reduction from final disposal volume of industrial waste in fiscal 2000 (baseline year) is provided in round brackets.

*2: Total final disposal volume of industrial waste in 32 industries out of the 42 industries participating in the Plan. The sum has been recalculated for the fiscal years before 2016 to accommodate changes made in the figures reported by some industries.

*3: The sum for fiscal 1990 does not include figures for the cement, bearing, shipbuilding, aviation and printing industries. Performance provided for fiscal 2000 does not include figures for the cement and printing industries, and includes figures from past reports for the rubber industry. The five industries mentioned above collectively account for approximately 0.5% of total final disposal volume of industrial waste in fiscal 2016.

*4: The final disposal volume of industrial waste recorded in fiscal 2015 amounted to approximately 4.97 million tons, accounting for around 49% of total nation-wide final disposal volume of industrial waste, which was approximately 10.09 million tons (according to Ministry of the Environment survey). Industrial waste from organizations and companies that are not included in the Keidanren survey include for example, industrial waste (mainly sludge) from the water and sewage works, mining, and ceramics industries and industrial waste (animal and plant residue and animal feces).

(2) Industry-specific efforts with a view to improving the quality of resource recycling

Industries set up individual targets accommodating industrial-specific characteristics and circumstances. The targets and performance in fiscal 2016 for each industry are presented in Table 1 [List of industry-specific targets]. Some industries have yet to decide on a quantitative target. We will continue to encourage industries to set up industry-specific targets that will contribute to improving resource recycling.

The Liaison Committee of Associations Promoting 3R, comprising eight containers and packaging recycling organizations, formulated the “Voluntary Action Plan for Promoting the 3Rs in Containers in Packaging” under which it has set up targets for each type of container or packaging and conducts annual follow-up surveys. In December 2017, the Committee announced the Fiscal 2017 Follow-Up Results (performance in fiscal 2016), according to which PET bottles have become 23% lighter per bottle compared to fiscal 2004 levels (reduce), and the recycling and recovery rates of steel cans, aluminum cans and cardboard boxes have remained above 90%. Therefore, industrial efforts have been achieving steady success.

*Refer to the Liaison Committee of Associations Promoting 3R website for details: <http://www.3r-suishin.jp>

Table 1: List of industry-specific target

○: Quantitative targets with a view to improving the quality of resource recycling

□: Qualitative targets for improving the quality of resource recycling

※: Targets are for industrial waste unless otherwise indicated.

[*] : Overachieved targets

Electric power	○ Make efforts to achieve recycling rate of 95% in fiscal 2020. ➤ Performance in fiscal 2016: 97% [*]
Gas	○ Maintain volume of industrial waste generated at city gas manufacturing plants at levels not exceeding 1,000 tons through fiscal 2020 (79% below fiscal 2000 level). ➤ Performance in fiscal 2016: 1,000 tons [*] ○ Reduce drilling mud from city gas conduit construction by no less than 17%, using an integrated indicator that combines drilling mud reduction and recycling. ➤ Performance in fiscal 2016: 17.3%
Petroleum	○ Maintain and continue zero emission (final disposal rate of no more than 1%) through fiscal 2020. ➤ Performance in fiscal: 0.1% [*]
Iron and steel	○ Achieve steel can recycling rate of at least 90% ➤ Performance in fiscal 2016: 93.9% [*] ○ Make efforts towards using 1 million tons of waste plastic annually, assuming that the establishment of a sound material-oriented society will be further promoted through laws and government-led pickup systems. ➤ Performance in fiscal 2016: 0.45 million tons
Aluminum	○ Maintain aluminum dross recycling rate of no less than 99% in fiscal 2020. ➤ Performance in fiscal 2016: 99.9% [*]
Brass	○ Maintain recycling rate of no less than 90% in fiscal 2020. ➤ Performance in fiscal 2016: 96% [*]
Rubber	○ Achieve recycling rate of no less than 70% in fiscal 2020. ➤ Performance in fiscal 2016: 79.6% [*]
Flat Glass	○ Achieve recycling rate ([recycled volume] / [volume of waste generated]) of no less than 95%. ➤ Performance in fiscal 2016: 99.7% [*]
Chemicals	○ Achieve recycling rate of no less than 65% in fiscal 2020. ➤ Performance in fiscal 2016: 67% [*]
Pharmaceuticals	○ Achieve recycling rate of no less than 55% in fiscal 2020. ➤ Performance in fiscal 2016: 58.2% [*] ○ Improve waste generation intensity in fiscal 2020 to 50% of the fiscal 2000 level. (Achieve a level of no more than 2.2 tons/0.1 billion yen.) ➤ Performance in fiscal 2016: 2.1 tons/0.1 billion yen [*]
Pulp and paper	○ Make efforts to maintain current level (97%) of effective utilization (([volume of waste generated] – [final disposal volume]) / [volume of waste generated]). ➤ Performance in fiscal 2016: 97.5% [*]
Electrical and electronics	○ Reduce the final disposal rate to no more than 1.8% in fiscal 2020. ➤ Performance in fiscal 2016: 1.2% [*]
Industrial machinery	○ Make efforts to achieve recycling rate of no less than 90%. ➤ Performance in fiscal 2016: 93% [*]
Bearing	○ Make efforts to achieve recycling rate of no less than 96% in fiscal 2020. ➤ Performance in fiscal 2016: 97.6% [*]

Automobile	<ul style="list-style-type: none"> ○ Maintain recycling rate of no less than 99% in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 99.9% [*]
Auto parts	<ul style="list-style-type: none"> ○ Achieve recycling rate of no less than 85% in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 93.7% [*]
Auto-body	<ul style="list-style-type: none"> ○ Achieve industry participation rate of no less than 95% in terms of sales (ratio of companies of the industry participating in the Voluntary Action Plan). <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 98.3%
Industrial vehicles	<ul style="list-style-type: none"> ○ Make efforts to maintain recycling rate of no less than 90% for industrial waste generated during the manufacturing process. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 90% [*]
Rolling stock	<ul style="list-style-type: none"> ○ Achieve recycling rate of no less than 99% in fiscal 2020 and make efforts to come as close to 100% as possible. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 99.7% [*]
Shipbuilding	<ul style="list-style-type: none"> ○ Make efforts to achieve recycling rate of around 86% at the manufacturing phase of shipbuilding in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 83.2%
Flour	<ul style="list-style-type: none"> ○ Achieve recycling rate of no less than 90% in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 96.3% [*]
Sugar	<ul style="list-style-type: none"> ○ Achieve recycling rate of no less than 98% in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 97.9%
Milk and dairy products	<ul style="list-style-type: none"> ○ Achieve a recycling rate of no less than 97% in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 96.08%
Beverages	<ul style="list-style-type: none"> ○ Achieve a recycling rate of no less than 99% in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 99.2% [*]
Beer	<ul style="list-style-type: none"> ○ Maintain 100% recycling rate. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 100% [*]
Construction	<ul style="list-style-type: none"> ○ Achieve construction sludge recycling rate of no less than 90% in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 85% ○ Achieve a mixed construction waste recycling rate of no less than 60% in 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 58.2%
Aviation	<ul style="list-style-type: none"> ○ Aim to achieve final disposal rate of no less than 2.4% in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 3.8%
Telecommunications	<ul style="list-style-type: none"> ○ Achieve zero emissions (final disposal rate of no more than 1%) for waste from telecommunications facilities. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 0.08% [*]
Printing	<ul style="list-style-type: none"> ○ Achieve recycling rate of no more than 95% in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 95% [*]
Real estate	<ul style="list-style-type: none"> ○ Aim to achieve paper recycling rate of no less than 85%. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 84.3% ○ Make efforts to maintain recycling rate of 100% for glass bottles, cans and PET bottles. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: glass bottles 99.8%; cans 99.3%; PET bottles 98.8% <input type="checkbox"/> Improve purchasing rate of recycled paper. <input type="checkbox"/> Improve green procurement rate.
Machine tools	<ul style="list-style-type: none"> ○ Achieve recycling rate of no less than 90% in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 91.4% [*]

Trade	<ul style="list-style-type: none"> ○ Reduce disposal volume of general waste from business activities by 80% from fiscal 2000 level in fiscal 2010. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 82.3% [*] ○ Achieve recycling rate of no less than 86% for general waste from business activities in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 85.3% ○ Reduce volume of general waste from business activities to no more than 4,000 tons in fiscal 2020 (reduce by 55% from fiscal 2000). <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 4,300 tons
Department stores	<ul style="list-style-type: none"> ○ Aim to reduce final disposal volume of waste generated in stores by 50% from year 2000 level (per 1m²) in 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 42% reduction ○ Reduce intensity (volume used per unit sales) of paper containers and packaging (wrapping paper, carrier bags, paper bags, paper boxes) use by 45% relative to year 2000 levels in 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 43% reduction <input type="checkbox"/> Make efforts to reduce use of plastic containers and packaging to the largest extent possible.
Railroad	<ul style="list-style-type: none"> ○ Achieve recycling rate of 94% for waste from stations and railcars. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 93% ○ Achieve recycling rate of 96% for waste generated at General Rolling Stock Centers, etc. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 95% ○ Achieve recycling rate of 96% for waste generated in facility construction. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 92%
Maritime transport	<ul style="list-style-type: none"> <input type="checkbox"/> Appropriately manage waste in accordance with international standards. <input type="checkbox"/> Make efforts to control waste generation.
Banking	<ul style="list-style-type: none"> ○ Achieve paper recycling rate of no less than 90% in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 90.1% [*] ○ Increase purchasing rate of recycled paper and environment-friendly paper to no less than 75% in fiscal 2020. <ul style="list-style-type: none"> ➤ Performance in fiscal 2016: 77.3% [*]
Non-life insurance	<ul style="list-style-type: none"> <input type="checkbox"/> At individual insurance companies, <ol style="list-style-type: none"> 1. Establish a corporate waste management scheme to promote reductions in general waste from business activities generated at offices and collaborate with waste collection companies to ensure segregated collection and improve recycling rate. 2. Make efforts to purchase office supplies that contribute to increasing the utilization rate of environment-friendly products. 3. Reduce OA paper use through efforts made toward achieving corporate targets including the active utilization of two-sided copying, 2in1 copying, tablet devices, etc. <input type="checkbox"/> Reach out to society through automobile insurance (promote use of recycled auto parts).
Securities	<ul style="list-style-type: none"> <input type="checkbox"/> Make efforts to reduce paper use by utilizing two-sided copying and 2in1 copying and promoting paperless operations by digitalizing documents. <input type="checkbox"/> Make efforts to reduce environmental burden and reuse resources by promoting the use of paper produced in processes reducing environmental-burden and ensuring segregated waste collection.

Background of the Voluntary Action Plan for Establishing a Sound Material-Cycle Society

Companies of industries participating in the Voluntary Action Plan for Establishing a Sound Material-Cycle Society have promoted voluntary approaches with high standards, endeavoring to achieve self-determined targets since 1997 when the Voluntary Action Plan on the Environment for waste disposal measures was first formulated.

1. Formulating the Voluntary Action Plan on the Environment (Section on Waste Disposal Measures) and setting up an economy-wide target (first target).

In April 1991, Keidanren compiled the Keidanren Global Environment Charter in which it declared that it would promote voluntary and active efforts for environmental conservation. Based on this Charter, in 1997, Keidanren formulated the Voluntary Action Plan on the Environment to address waste disposal issues with the participation of 35 industries and incorporated industry-specific quantitative targets and concrete measures for the achievement of targets. Keidanren has followed up on the progress achieved in each industry every fiscal year thenceforth.

In December 1999, it set up a target covering the entire business community to enhance voluntary industrial efforts: 75% below the fiscal 1990 performance level of final disposal volume of industrial waste in fiscal 2010 (First Target)

2. Upgrading to “Section on the Establishment of a Sound Material-Cycle Society” and renewing the economy-wide target (March 2007)

The business community continued to achieve its economy-wide fiscal 2010 target set up in 1999 for four consecutive years from fiscal 2002 to fiscal 2005 prior to the target year. Therefore in March 2007, Keidanren revised the Voluntary Action Plan on the Environment (Section on Waste Disposal Measures) to the Voluntary Action Plan on the Environment (Section on the Establishment of a Sound Material-Cycle Society), which aimed to promote a wide range of efforts reaching beyond waste disposal measures toward a sound material-cycle society. This was accompanied by a renewal of targets:

(1) Reviewing the economy-wide target (reduction target for final disposal volume of industrial waste)

The economy-wide target was renewed to: 86% below the fiscal 1990 performance level of final disposal volume of industrial waste in fiscal 2010 (Second Target). Keidanren decided to continue to call for reductions in the final disposal volume of industrial waste in each industry, setting up the abovementioned target for the entire business community and engage in efforts to further promote the 3Rs.

(2) Setting up industry-specific targets

Each industry newly set up individual targets using indicators other than the final disposal volume of industrial waste, further enhancing voluntary approaches to the establishment of a sound material-cycle society. Industry-specific targets include improved recycling rates, reduced waste generation and increased use of waste from other industrial processes.

3. Formulating the post-fiscal 2010 Voluntary Action Plan on the Environment (Section on the Establishment of a Sound Material-Cycle Society) (December 2010)

The second target for reducing final disposal volumes of industrial waste had established fiscal 2010 as its “target fiscal year.” In December 2010, for the continued voluntary and active promotion of the 3Rs beyond fiscal 2010, Keidanren formulated a renewed Plan embracing the two following pillars and scheduled follow-up surveys: 1) setting up the Third Target for reductions in the final disposal volume of industrial waste across the entire business community with fiscal 2015 as the target year: 65% below the fiscal 2000 performance level of final disposal volume of industrial waste in fiscal 2015 (third target); and 2) establishing industry-specific targets accommodating industrial features.

4. Formulating the post-fiscal 2015 Voluntary Action Plan for Establishing a Sound Material-Cycle Society (March 2016)

Welcoming the “target fiscal year” for the Third Target in March 2016, with a view to continuing voluntary and active promotion of the 3Rs, Keidanren formulated a new post-fiscal 2015 Plan, which would be subject to annual follow-up surveys. The new targets are provided below:

(1) Fourth target for economy-wide reductions in final disposal volume of industrial waste

Aim to reduce by fiscal 2020, the final disposal volume of industrial waste appropriately treated with consideration of the achievement of a low-carbon society by around 70% from the actual performance level in fiscal 2000.

(2) Enhancing industry-specific targets to improve quality of resource recycling