



 Toyo Seikan Co.,Ltd.

# Sustainability Report

| English edition |

## 2016



Contribute to  
Advanced  
Next society

# Towards a sustainable society

Toyo Seikan was founded in 1917 as Japan's first company specializing in packaging and has been producing safe and secure containers for its customers for almost 100 years now. For the next 100 years as well, we will continue contributing to a sustainable society through the advancement of packaging technologies and functions, and under the basic corporate philosophy held since foundation of "contributing to the happiness and prosperity of mankind through packaging technology".



## The 72-Year-Old Can

Japan's superior container manufacturing technologies, and thoughts of the creators

In an old warehouse on Kagawa Prefecture's Shodoshima Island, built in the late 19th century as part of a soy sauce making facility, a wooden box was found containing 17 cans of "festive red rice" from 72 years ago. One of these cans is currently on display at Toyo Seikan Group's Museum of Package Culture. The Japan Food Research Laboratories conducted bacteriological testing of the contents of these cans and did not detect any bacteria.

Discovered on an island protected by nature, this can is proof of the high level of packaging technology at the time for protecting the contents of cans. It also has a lot in common with the founding spirit of Toyo Seikan in that it enabled safe delivery of the contents to consumers and contributed to the happiness and prosperity of mankind.

According to the label, the can was manufactured in the City of Onomichi, Hiroshima Prefecture, in 1944, during the war, for delivery to the Yokosuka naval munitions depot in Kanagawa Prefecture.

Angel Road, Shodoshima Island

## CONTENTS

- 03 Message from the President
- 05 Toyo Seikan in numbers 2015
- 06 Mid-Term Management Plan
- 07 Sound management
- 09 Safety and reliability
- 10 Together with employees
- 12 Feature 1.  
Environmental management
- 15 **Development**  
Feature 2.  
The lightweighting challenge  
Story behind the development of hit-producing Diamond-Cut Can  
Packaging weight reduction/eco-friendly products
- 21 **Procurement & Production**  
Material flow and environmental performance data  
FY2015 environmental activity report  
Environmental activities
- 31 **Consumption**  
Recycling activities  
Communicating with the community
- 35 Third party opinion

## Editorial policy

### Scope of the report

Activities of Toyo Seikan Co., Ltd. and Toyo Seikan Business Group companies, plus some activities of the Toyo Seikan Group.

### Period covered

April 1, 2015, to March 31, 2016 (also contains some information up to July 2016)

### Publication

October 2016 (English edition: December 2016)

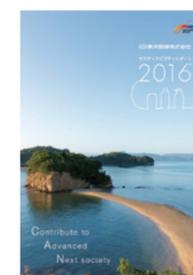
### Reference guidelines

"Environmental Reporting Guidelines 2012" (Ministry of the Environment, Government of Japan)

## Reporting content

Mainly following the Environmental Reporting Guidelines 2012, we have primarily summarized non-financial information (social and environmental information) of Toyo Seikan. We decided on the content of the report based on responses to internal and external questionnaires and internal reader feedback.

Sustainability Report  
(printed)



Sustainability Report  
(PDF file for download)



<http://www.toyo-seikan.co.jp/e/eco/report/report.html>

## Explanatory notes for the report

Organization names used throughout this report are defined below.

- | Toyo Seikan Group |  
Toyo Seikan Group Holdings, Ltd. and its subsidiaries and associates
- | Toyo Seikan Business Group |  
Toyo Seikan Co., Ltd. and its Group companies
- | Toyo Seikan |  
Toyo Seikan Co., Ltd. (non-consolidated basis)

# Returning to the Founding Spirit as we look to a future we create for ourselves

—For the benefit of the entire society, not just the company—

## Q. What are your thoughts looking back on the business environment of FY2015?

First of all, greetings. I am Ichio Otsuka, newly appointed president of Toyo Seikan Co., Ltd.

Our business environment today is one of growing uncertainty. Not only is the domestic market continually shrinking due to factors including a low birth rate and an aging population, market trends are changing dramatically. In order to make Toyo Seikan resilient, a company that can achieve stable growth despite the changes happening around us, I think we need to once again return to where we started and ask ourselves these questions. For what purpose do we do business? For what purpose do we exist? In my view, it is the Founding Spirit initiated by the founder, Tatsunosuke Takasaki, which represents our origins and the company's backbone.

## Q. Toyo Seikan has announced a new mid-term management plan covering FY2016 to FY2018. Please give an outline of the plan and explain the philosophy behind it.

The Group's basic policy under the 4th Mid-Term Management Plan calls for transformation into a "resilient company", one that is competitive and able to generate profit sustainably. To achieve this, it is important we are not obsessed with immediate gains and that we maintain a heightened perspective from which to accurately read the changes in the world. We will constantly think of ways we can contribute to society as a whole, to customers and even to the colleagues we work alongside and put them into action. And to raise competitiveness, we need to take up new challenges from standpoints we haven't held before. In 2017, the second year of the plan, Toyo Seikan will be celebrating its centenary. It is therefore crucial that we accomplish this three-year plan so we can reinvent ourselves as a "new, resilient Toyo Seikan Business Group" and stride forward with confidence into the next 100 years.

In Japan, Toyo Seikan's goals are to consolidate facilities and realize a low-cost production system; establish foundations in each business for achieving sustained growth and securing stable revenue; and make all group companies profitable and raise the value of the Group.

Overseas, we will work to establish Toyo Seikan Business Group's presence in Asia and to develop new markets and customers.

Toyo Seikan has a history spanning almost 100 years, and to be able to persist with sound corporate activities into the future as an operating company, I believe we need to keep transforming and trying new things based on a fundamental philosophy of perpetually contributing to society in keeping with the Founding Spirit. And I also view corporate profits as the outcome of service to the company, as well as an indicator of the level of our contribution to society.

## Q. Do you have a message for stakeholders?

We are committed to contributing to society by developing and providing our proprietary, value-added products and services that will exceed customer satisfaction.

We look forward to your continued support and guidance.

### Ichio Otsuka

President and Representative Director  
Toyo Seikan Co., Ltd.

#### Management philosophy of Toyo Seikan

##### Fundamental principles

1. Our objective is to bring happiness to mankind.
2. Purpose of our business is not just to gain profit. Profit is a result of our hard work and not our main aim.
3. Each of us must incorporate a sense of service in our work. Exercise this sense collaboratively and strive to ensure the prosperity of our business partners in the same way as we would for ourselves.

##### Work rules for our employees

1. Toyo Seikan is a mutual packaging factory for all customers who require packaging. Our employees must be loyal to our customers we serve.
2. Our products must be better in quality, lower in price and must be supplied more quickly than those of other companies. We should not think that we are just selling our products, but we must rather think that we are sending off our beloved children that we raised with our utmost care.
3. To be satisfied with only a small success is to take a step backwards. Our first duty must be at all times to work without losing our youthful vitality and courage.

# Toyo Seikan in numbers 2015

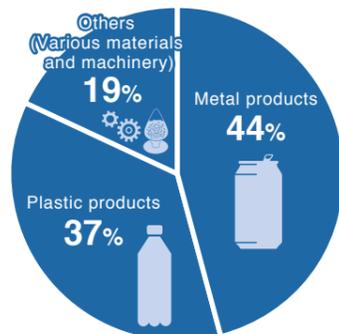


Founded in  
**1917**

Founded in 1917 as Japan's first manufacturer specializing in packaging, Toyo Seikan started manufacturing cans with automatic can-making equipment in 1919 and developed a diverse range of cans, including a beverage can (for orange juice) in 1954 and a beer can in 1958.

Production volume  
**602,000**  
tons

Production volume (by weight)



\*11 domestic companies

Production volume in FY2015 was 602,000 tons with metal and plastic products accounting for 80%.



All 3,386 employees with different personalities pursue business operations embedded in local culture.

**3,386**  
employees

including  
**67** assigned overseas

CO<sub>2</sub> emissions in manufacturing operations

**-26,000**  
tons year-on-year



Japan **684,000** tons  
Overseas **134,000** tons

By upgrading to energy-saving equipment and improving production efficiency, CO<sub>2</sub> emission in Japan has been reduced by 26,000 tons from the previous year.

ISO 14001 certificate

**57** plants/offices



Toyo Seikan Saitama Plant first acquired ISO 14001 certificate in 1999. Now a total of 57 plants/offices in Japan including group companies obtained the certificate and engages in business activities with due consideration to the environment.

Toyo Seikan preserves water resources by using them efficiently and ensuring thorough wastewater management.



Reduction of water consumption  
**-107,000**  
tons year-on-year

## Mid-Term Management Plan

# Realizing Toyo Seikan Group vision

In April 2013, Toyo Seikan Group transferred to a holding company system to strengthen group collaboration, established "Growing 2022", the Group's mid to long term vision for growth to "grow into a global company that develops peripheral businesses centered on packaging operations", and formulated and implemented Toyo Seikan Group 3rd Mid-Term Management Plan for FY2013-FY2015.

The 3rd Mid-Term Management Plan achieved its three-year mid-term profit targets and took the first steps toward growth, including improved earnings for Stolle Machinery Company, LLC and increasing overseas business bases. However, we are in the midst of profit improvement in the domestic container packaging business, the mainstay business of Toyo Seikan Group, and further restructuring is essential.

## 10-year vision for growth



## Toyo Seikan Business Group Mid-Term Management Plan (FY2016-FY2018)

Toyo Seikan has established a new three-year mid-term plan for Toyo Seikan Co., Ltd. and Group companies, to achieve Toyo Seikan Group's 4th Mid-Term Management Plan.

### Toyo Seikan Business Group: Vision for 4th Mid-Term Management Plan

Transform successfully into a "resilient company", that is competitive and able to generate profit sustainably, and taking the first steps into the next 100 years

**Taking on challenges: New ways of buying, new ways of making, new ways of selling**

#### Basic policy

Domestic businesses

Overseas businesses

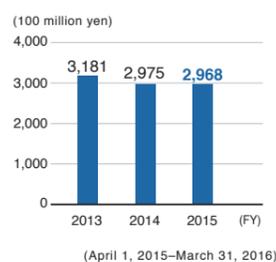
We will respond flexibly to changes in market structure and customer needs, and strive for stable earnings and enhanced competitiveness.

- Restructuring to consolidate facilities and realize a low-cost production system
- Establishing foundations in each business for achieving sustained growth and securing stable revenue
- Making all Group companies profitable and raising the value of the Group

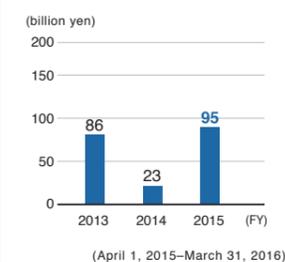
We will establish Toyo Seikan Business Group's presence in Asia and to develop new markets and customers.

Enhancing initiatives with existing customers, and actively promoting increased sales to new customers, to meet the demand for container packaging in Asia, a region expected to experience continuous growth into the future

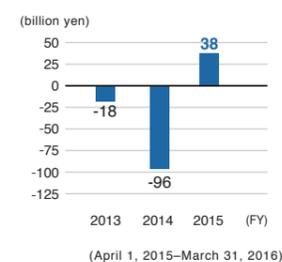
### Net sales



### Ordinary income



### Net income or net loss



### Employees



# Corporate governance

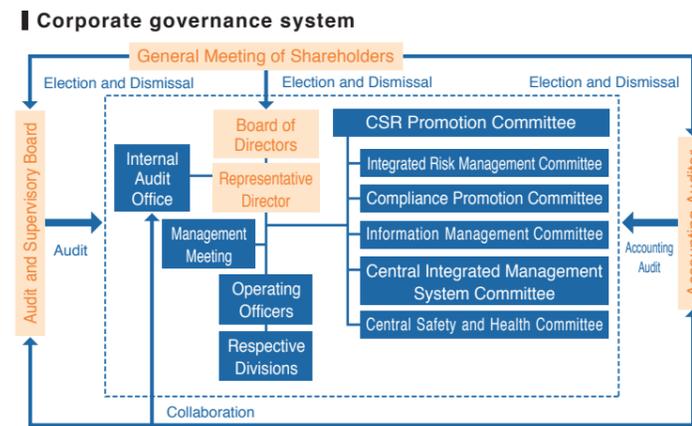
We have developed the organizational foundations at Toyo Seikan for corporate value improvement, and appropriate and quick decision-making.

## Management system | Toyo Seikan |

The Board of Directors of Toyo Seikan is comprised of five Directors. The term of office for Directors is fixed at one year to clarify the management responsibilities of Directors, and flexibly construct a structure that can respond quickly to changes in the business environment. In addition, the Company adopted the Audit and Supervisory Board system, and two Audit and Supervisory Board Members supervise the business duties executed by the Directors and oversee the Company's management.

## System for strategic planning and business execution through Management Meetings | Toyo Seikan |

The Company has implemented the Executive Officer system with the aim of clearly distinguishing the management's decision-making and supervisory functions from the business execution functions. Also, in order to make decisions on corporate strategies more quickly, we have established the "Management Meeting" comprising President, Senior Executive Officers and Executive Officers.



## Implementation of corporate governance | Toyo Seikan |

In FY2015, the Board of Directors met 15 times to discuss and make decisions on important agenda regarding statutory items and important business matters and supervised the business execution. The Company also held other meetings, including 36 Management Meetings and those of other important committees such as the CSR Promotion Committee, in an effort to ensure the sound execution of corporate governance.

# Risk management | Toyo Seikan |

We take measures against a range of risks that may adversely affect the business operations of Toyo Seikan, and conduct risk management to achieve stable management foundations.

To prevent risk and respond to emergency state, Toyo Seikan has established risk management basic provisions and crisis measures basic provisions, and set up the Integrated Risk Management Committee to engage in systematic risk management activities corresponding respectively to ordinary and emergency states.

There are seven risks related to the business execution of Toyo Seikan as below. The Company has defined the responsible division for each risk and established rules and guidelines, and built the risk management system across divisions. If a new risk other than the following is identified, we will immediately define the responsible division and rules for such risk.

- (1) Compliance risk
- (2) Quality risk
- (3) Environmental risk
- (4) Credit recovery risk
- (5) Information security risk
- (6) Risk of natural disasters and accidents
- (7) Country risk

# Compliance

Under the corporate philosophy of "contributing to the happiness and prosperity of mankind through packaging technology", we will always act modestly and properly in compliance with ethics, laws, and internal regulations in every aspect of corporate activities.

## Compliance promotion organization | Toyo Seikan |

Compliance Promotion Committee chaired by an executive officer appointed by President and comprising Head of Division or a person designated by them is established to disseminate and establish compliance awareness, prevent, early detect, identify cause and correct and prevent recurrence of violations across the organization and in a flexible manner.

In addition, the chairman will appoint one employee from each office to promote compliance.

## Compliance promotion activities | Toyo Seikan Group |

Toyo Seikan Group holds compliance training sessions for employees, managers, senior management and others as part of efforts to raise and enhance awareness.

We have established an external "Corporate Ethics Hotline" and "Sexual Harassment and Personal Relationship Hotline", as common contact points for all Group companies to enable employees and others to report and consult on non-compliance, and a system to properly address those reports and discussions.

**FY2015 Toyo Seikan compliance slogan**

**Top prize**

**When times change, so do the rules**  
**Change your mind, with correct information**

(Translated from the original Japanese)

## Compliance promotion month | Toyo Seikan |

We have designated every October since 2007 as "Compliance Promotion Month" for Toyo Seikan Group.

We conduct various compliance activities, including plant visits by the chairman of Compliance Promotion Committee, displays of compliance enhancement posters, compliance quizzes for employees and collecting compliance slogans.

## Global compliance activities | Toyo Seikan Group |

Toyo Seikan Group has been conducting Group compliance promotion activities since 2005 to disseminate and establish compliance awareness at all domestic Group companies. However, despite the fact that we now have more than 40 overseas Group companies through an active global business expansion, the compliance systems we have in place overseas have been inadequate. The importance of our overseas businesses will continue to grow into the future, so we have decided to conduct global compliance activities tailored to the potential risks of overseas business. Taking into account factors such as the number of companies and level of sales overseas, we began these activities in our Thailand Group companies. During FY2015, in addition to identifying the major risks in Thailand and looking into what risk measures were being taken, we held a number of training sessions locally for our Thai managers and Japanese staff. Our next steps will include training for local employees, establishment of rules and regulations, and implementation of a self-inspection system.



# Providing safe and reliable products and services to earn customer trust

## Delivering safety and reliability | Toyo Seikan |

Many products manufactured by Toyo Seikan are containers for food, beverage and household and other products closely tied to our daily lives. In order to deliver packaging products that are “safe and reliable”, which is what customers and society demand, we make sure never to stray from the philosophy of the company founder, Tatsunosuke Takasaki—humans need food to live and therefore people who work with food in their jobs must be sound of mind—and strive to be a manufacturer that customers can trust by routinely considering quality from their perspective.

## Ensuring appropriate quality assurance | Toyo Seikan |

Toyo Seikan has acquired ISO 9001 (quality management system) and FSSC 22000 (food safety management system) certification for its quality-related management systems and continually makes improvements.

The company’s packaging products are used in various ways in diverse situations, such as for items, like canned food, consumed after long periods of storage; beverages, like soft drinks in PET bottles, sipped directly from the container; and substances in spray cans subjected to high internal pressure. We are building quality assurance structures for performing appropriate examination of each type of packaging product, taking into account not only manufacturing processes and customer requirements, but all processes right up to use and disposal by consumers.

With regard to new products and products with revised specifications, we seek to prevent defects by establishing quality assurance systems for appropriate management involving careful prior considerations and reviews at each stage.



## Sound quality management | Toyo Seikan |

Packaging production processes and packaging products themselves undergo a variety of inspections according to criteria determined under parameters including dimensions, appearance and performance. We also incorporate a large number of inline inspection devices into production lines and look to improve accuracy through system upgrades and other methods. In this way, we continue efforts to enhance safety and reliability.

If something goes wrong, we thoroughly investigate the cause and implement temporary and permanent measures as appropriate to prevent a recurrence. Such measures are employed within other lines and other suitable action is also taken.

And since the situation at other companies—for example, the quality of purchased items like materials and half-finished products, and conditions in logistics and storage—affects the quality of our products in many cases, we work together with the relevant companies to implement improvements.

## Product safety and hygiene | Toyo Seikan |

To ensure our manufacturing operations can earn the trust of customers, we pay attention to the hygiene of products by implementing the 5Ss—seiri (tidiness), seiso (cleaning), seiton (orderliness), seiketsu (cleanliness) and shitsuke (discipline).

We will also endeavor to provide even greater peace of mind by strengthening food defense to prevent intentional contamination of packaging by suspicious persons, including through the introduction of security measures prior to entry to production plants.

### Specific examples of food defense strengthening

- Security camera installation
- Authentication system introduction

# Creating comfortable workplaces where diverse and uniquely talented people are valued

To be able to “contribute to the happiness and prosperity of mankind” in line with the fundamental principles behind Toyo Seikan’s founding, we seek people who will grow and develop through ongoing change and new challenges. Our aim is to create workplaces where diverse and unique talents—such as those who come up with innovative technologies and ideas, or who eagerly look to try new things—can play an active role, utilizing the full extent of their abilities.

## To become an ideal talent | Toyo Seikan |

Key elements in employee development are motivation and pride. The company defines the type of human resources it seeks and sets out specific guidelines for the conduct expected of people in each job rank or role. However, employees should make efforts in their daily work based on the awareness of the guidelines which lead to their further growth. Supervisors, too, evaluate employees fairly based on these guidelines and convey results of those evaluations through feedback meetings to communicate their strengths and weaknesses and what are expected from them. Having employees set their own challenges and review their own performance helps to develop human resources who can take the initiative.

## Creating a corporate culture that embraces and values diversity | Toyo Seikan Group |

In the recent rapidly changing business environment, the Company has enhanced the collective strength of the Group and advanced into new fields, such as new businesses and overseas business. We must have diverse abilities, values and ideas in order to persist in the future, and to constantly contribute to society. Toyo Seikan is expanding recruitment of mid-career and foreign workers with the aim of securing personnel who can respond flexibly to changes.

We also provide work-life balance support for employees such as post-retirement employment after mandatory retirement age of 60, if they so desire, and better childcare support programs.

In response to the Japanese Act for Promoting Women’s Active Participation in the Workforce, effective from April 2016, Toyo Seikan Group has presented an activity plan, and group companies individually formulate and pursue activities in line with action plans including quantitative targets.



### Shizuoka Plant employee Tetsuaki Katsushita competes at International Abilympics

At the International Abilympics (the skills competition featuring persons with disabilities) held in Bordeaux, France in March 2016, Tetsuaki Katsushita of the Shizuoka Plant competed and performed well in the computer assembly event as part of the Japanese delegation.



## Human resource development | Toyo Seikan |

In order to promote the management centered on “people” and “technology”, the Company supports the growth of employees by providing not just class room lecture but also on-the-job training to those with enthusiasm.

**Nurturing engineers who support the next generation** | Toyo Seikan |

To facilitate steady handover of skills, we have established the Technical Education Center where training machines are installed, and through hands-on experience with the machine in addition to lectures, we are training the next generation engineers. In FY2015, 247 employees took part.

For new employees in the manufacturing division, we provide them with a program to thoroughly master the "principles" which are the basis of manufacturing, in three years of employment.

We have also started sending employees to overseas universities with packaging studies departments as part of efforts to develop human resources able to work at the frontline of our global operations.



**Training method and career-path support to meet various needs** | Toyo Seikan |

The Company offers 459 correspondence courses to motivate employees learn new knowledge and widely support their career development.

To further expand and develop businesses overseas, we support employees to acquire foreign languages to become accustomed to foreign cultures and also provide a "training before overseas assignment" to learn about the culture, religion, custom, public security of the assigned country. Language trainings are offered to new employees and "cross-cultural understanding training" to junior employees to enable them to look abroad from an early stage.

**Correspondence courses**

- Total reimbursement of program fees to those who complete courses (A total 2,390 courses were completed in FY2015)



**Official qualification acquisition incentive program**

- Payment of rewards according to the qualification acquired

**Internship program** | Toyo Seikan |

Toyo Seikan provides opportunities for experiencing employment to students who are interested in manufacturing. They get a feel for the work environment while experiencing actual operations and manufacturing equipment. Eight interns were accepted in FY2015, providing a chance for them to consider their own work values and career options.

**VOICE**

**Comments from the participants of the internship program (Excerpt)**

"I was able to create an actual prototype of a packaging product from my own idea, and could experience the joy of manufacturing."

"I was amazed to learn about the various functions and characteristics contained in packaging products closely tied to our daily lives."

**Safe, hygienic and energetic workplace** | Toyo Seikan Business Group |

We pursue safety and health activities throughout the Company so that employees can work comfortably in a safe and hygienic work environment. In the area of safety, we endeavored to lower the risk of accidents occurring by raising employee sensitivities to dangers, reviewing work methods and making improvements to facilities in relation to operations that could potentially lead to a serious occupational accident. Information about accidents is promptly shared with other plants to enable full cross-organizational implementation of measures and improvement of sensitivities through "disaster case studies", thereby preventing recurrence of similar accidents. To reduce the risk of accidents caused by younger employees or employees with limited experience, we establish on-the-job training (OJT) work manuals indicating specific dangers for use in actual on-site instruction and training and provide instruction using case studies of actual accidents caused by younger employees as training materials.

In the area of health, we view the health of employees as one of our top management priorities. We strive to prevent illness and injury and put in place structures and provide education relating to health management so that employees will take responsibility for managing their own health. Specifically, occupational health nurses play a leading role, linking up with industrial physicians, the safety and health committee and the health insurance association to advance activities at each business location. They include the provision of health guidance and support based on the results of routine health examinations; seminars encouraging self-care and care by the organization as a way to promote mental health; measurement of work environments for the purpose of preventing occupation illness; and help people quit smoking with the support of our health insurance association.

# Environmental management

Toyo Seikan Group established its environmental policies in 2002 and formulated the Toyo Seikan Group environmental vision in 2004 to give shape to environmental management activities.

In 2016, the environmental vision was revised to take into account the social setting and other factors.

## Promotion of environmental management

**Environmental philosophy**

All Toyo Seikan Group companies are keenly aware that preservation and qualitative improvement of the global environment are the top priorities facing all humanity.

We strive to ensure that all aspects of our business are environmentally friendly and sustainable, and contribute to the improvement of human life and culture.

**Environmental vision**

Toyo Seikan Group will, within the value chain represented by products, services and systems we provide, mobilize proprietary technologies and make use of other available technologies from around the world to contribute to creating a sustainable society.



## New environmental targets: Eco Action Plan 2022

Aiming to fulfil the Toyo Seikan Group environmental vision, we set out concrete targets to achieve over the mid to long term in Eco Action Plans and pursue activities accordingly.

In FY2015, we formulated the Eco Action Plan 2022, a new plan covering up to FY2022.

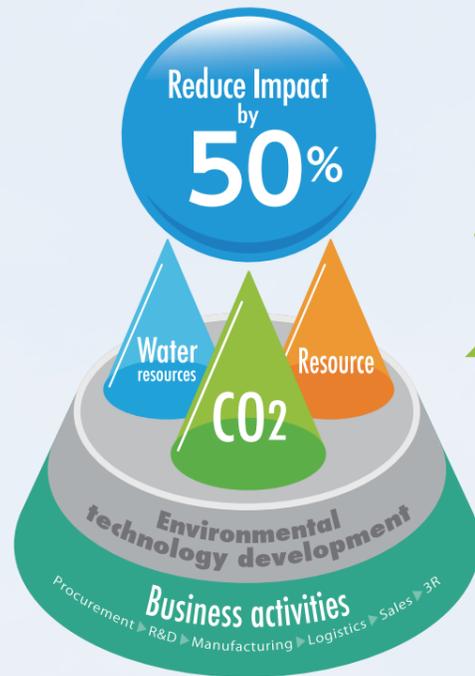
**Mid to long term targets under Eco Action Plan 2022 (3 initiatives)**

Base year: FY2013

	Low-carbon society	Resource recycling society	Harmonious coexistence with nature
Long-term targets	Aim to halve CO <sub>2</sub> emissions by FY2050.	Reduce the volume of new resource inputs as much as possible and work to switch to recycled or renewable materials	Contribute through products and services to the creation of a society where humans and all other living things on the planet can co-exist indefinitely, bearing in mind product life cycles spanning procurement, development, manufacturing, sales and customer service stages
Mid-term targets	Reduce CO <sub>2</sub> emissions by 14% by FY2022	<ul style="list-style-type: none"> <li>• Reduce material inputs by 3%</li> <li>• Promote green procurement of purchased materials</li> </ul>	<ul style="list-style-type: none"> <li>• Minimize environmental risk</li> <li>• Reduce environmental pollutants</li> <li>• Promote purchasing of certified products</li> <li>• Promote communication with outside the company</li> <li>• Promote biodiversity conservation</li> </ul>

### Toyo Seikan Green Challenge 2050

In line with the Toyo Seikan Group's vision, Toyo Seikan has formulated its own environmental vision looking ahead to 2050—Green Challenge 2050. By clarifying what Toyo Seikan must aim for in order to gain social trust and reputation and drawing the attention of outside parties to the contents and progress of plans for achieving this, we will contribute to enhance the corporate value of Toyo Seikan and Toyo Seikan Group.



# GREEN CHALLENGE 2050

Toyo Seikan aims to halve its environmental impact by 2050

### Definition of materiality

Materiality was defined by checking issues of the Company against social issues occurring internationally. Targets are set by backcasting from the fiscal year of attainment to allocate interim targets.

We asked four stakeholders for their opinion on visions and targets we arrived at through the materiality definition. We also exchanged information with officials of local authorities in communities where our plants are located.

Our task now is to formulate detailed activity targets by March 2017, drawing on the opinions of inside and outside parties, and to implement activities from FY2017.

## Management system

### Integrated management system for quality, environment and food safety

Toyo Seikan started introducing individual environmental management systems (ISO 14001) at each business location from 1999, and unified certification covering all business locations was acquired in 2007.

In order to more efficiently enforce the system, the environmental management system has since been combined with quality management (ISO 9001) and food safety management (FSSC 22000) systems as a single, integrated management system that was certified in 2013.

The integrated management system is used by Toyo Seikan and Toyo Seikan Group companies, Honshu Seikan, Nippon National Seikan and Ryukyu Seikan to efficiently deploy and implement quality, environmental and food safety measures within the organization from top management down to individual departments at each business location.

### Examination of issues

#### Approaches to social issues

- Population Trends
- Advanced & Frontier Science (Science & Technologies in New Areas)
- Control of Economics & Finance
- Knowledge & Information Management
- Global Harmonization
- Environmental Resources

#### Social issues

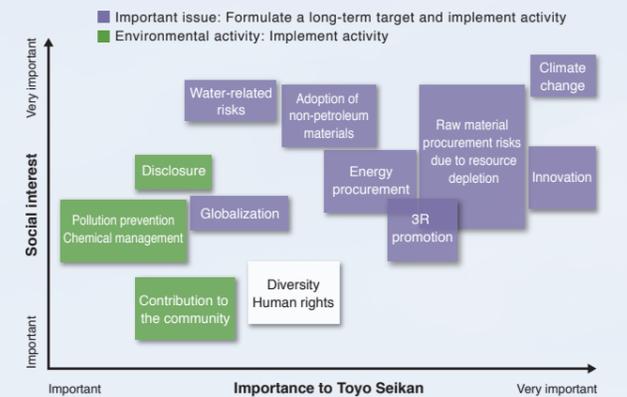
Identify a broad range of social issues not limited to environmental matters and determine the level of importance using reference materials

- Sustainable Development Goals (SDGs)
- Global Risks Report
- Global CEO Survey
- PwC megatrends, etc.

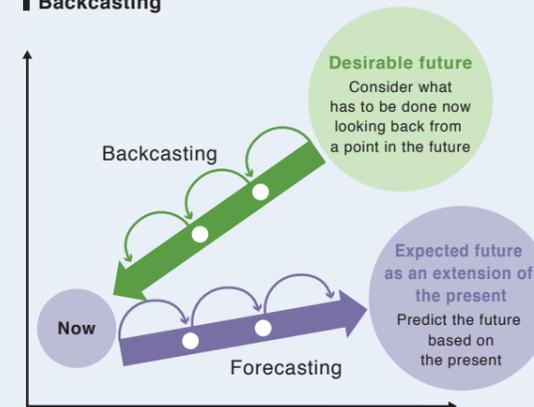
#### Issues affecting Toyo Seikan

Based on social issues, identify current and future issues Toyo Seikan should address and the level of importance.

### Areas of activity



### Backcasting



### 3 initiatives

Aim to halve CO<sub>2</sub> emissions, exhaustible resource use and water resource use by 2050

	Create a low-carbon society Halve CO <sub>2</sub> emissions (incl. the value chain)	Use sustainable resources Halve exhaustible resource usage (use recycled or bio-based materials)	Effectively use water resources Halve usage under a quantitative index reflecting the water balance
2050	Reduce CO <sub>2</sub> by 50%	Achieve more advanced resource recycling	Minimize net water loss, including within the value chain
2030	Reduce CO <sub>2</sub> by 20% *14% by 2022	Expand bioplastic packaging lineup Develop packaging made from recycled materials	Develop processes and products that do not require water
2020	Decide at time of target formulation in 2017	Fully promote eco-friendly design	Understand water-related risks within the value chain
Now 2017	<ul style="list-style-type: none"> <li>Alternative energy sources</li> <li>Energy-saving facilities</li> <li>Fuel-efficient vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Lightweighting</li> <li>Production efficiency improvements</li> <li>Extensive use of bio-based materials</li> </ul>	<ul style="list-style-type: none"> <li>Rainwater use</li> <li>TULC, aTULC, and NS System</li> </ul>

Base year: FY2013

### Stakeholders who provided opinions on the Green Challenge 2050

 <b>Norihiro Itsubo</b> Professor Faculty of Environmental Studies Tokyo City University	 <b>Minako Oishi</b> Vice President and Environment Committee Chair Nippon Association of Consumer Specialists	 <b>Akemi Ori</b> Professor Graduate School of Global Environmental Studies Sophia University	 <b>Yasushi Kaji</b> General Manager Environment and Energy Division 2 Mizuho Information & Research Institute, Inc.
--	---	---	--

### Integrated management system policy (Quality, Environment and Food Safety)

#### 1. Basic principles

Toyo Seikan Co., Ltd. delivers safety and security to meet customer's trust, attractive quality, and products, systems and services that are friendly to the environment, and contributes to happiness and prosperity of mankind.

#### 2. Basic policies

- Individuals working at Toyo Seikan will satisfy our customers, and will deliver safety and security, attractive quality, and the products, systems and services that take the environment into consideration.
- Individuals working at Toyo Seikan in all of our business activities will strive to prevent environmental pollution and reduce environmental impact.
- We will have sincere dialogue (communication) with stakeholders, and continue to pursue better systems that improve the quality, environment and food safety.
- We will keep compliance with relevant laws and contracts.



# Development

Besides developing items such as containers that are easy to use and open, cans and containers made from new materials that ensure minimum environmental input, and easily recycled materials, we develop packaging that anticipates current and future needs.



# The lightweighting challenge

–Story behind the development of hit-producing Diamond-Cut Can–

In 2001, a Chu-Hi alcoholic cocktail went on sale in a distinctive can with an uneven surface and has been a market favorite since.

The Diamond-Cut Can, developed with the aim of reducing weight, employs a unique technique known as the “Miura fold”.

Here we talk to three project members involved in the can’s development about Toyo Seikan’s efforts to reduce environmental impact and their focus on a technology that spawned a hit product.



**Ichiro Urata**

Operating Officer, Sales Division

**Ichio Otsuka**

President and Representative Director

**Mitsuhiro Aoyagi**

General Manager, Metal Engineering Department

## Developing the Diamond-Cut Can to reduce packaging weight

Steel Beaded Cans, with a series of hoops impressed into the sidewall, were designed for the purpose of reducing weight and have been around for many years. They had thinner walls but were just as strong as conventional cans. One researcher looking for a replacement for this technology took an interest in the “Miura fold”, which had been written about in a paper by aerospace engineering expert Koryo Miura.

“The Miura fold stemmed from NASA rocket and airplane durability research. It is a way of folding things to make them stronger. One of our researchers read the paper and wondered if the method could be applied to cans. Computer simulations of diamond-shaped folds indeed showed that can durability would increase. A sample was made and named the ‘Diamond-Cut Can’. The diamond-cut technique was then applied to the TULC\*, which had just been developed. That was in 1995. We managed to reduce the weight of a can by 28% compared to existing products. It was adopted for a canned coffee and was very popular for a while, attracting a lot of interest, but the product was discontinued a few years later.” (Otsuka)

“Given that the diamond cut process reduced the weight of a steel can, we decided to try it with an aluminum can to see what happened. Because aluminum is thin, you need internal pressure. So when we filled the can with a carbonated beverage, it inflated and the all-important diamond-cut pattern disappeared, which was pointless. The idea was shelved. Then one day, we were cleaning out container samples shut away in the storeroom and opened the can to dispose of the contents, when the diamond-cut pattern reappeared. Although this caught our interest, at the time we couldn’t come up with a suitable product proposal.” (Aoyagi)

## A can adopted for a new product due to its value-adding design

The Diamond-Cut Can reappeared in the spotlight in 2000 when Toyo Seikan presented it as a new product at an event hosted by a leading beverage manufacturer. It was well received by the people concerned and they decided to use it.

“I still remember the commotion in the audience when the diamond-cut pattern appeared after the can was opened. We received official word on the can’s selection around a month later. And when we heard it was to be used for Chu-Hi\*, we were really taken aback as we were expecting a beer or low-malt beer. It was a new product and a first

### ■ Miura fold



A pseudo-cylindrical concave polyhedral (PCCP) shell design consisting of a combination of trusses (three-dimensional triangular structures)

foray into the Chu-Hi business, plus sales targets were set pretty high. Our biggest concern was the delivery deadline. The time for development was so short, we hesitated a bit.” (Urata)

“Change the drink you put inside and you have to reevaluate the can. Chu-Hi comes in a wide variety of flavors and might use fruit juice, which is tough on the can, causing corrosion, for example. Compared to beer, there are so many more parameters you have to verify. Because we were processing cans for a delicate beverage, we had greater hurdles to clear.” (Otsuka)

“The clincher for the customer was that it was a can consumers would enjoy drinking from. I think they liked the transformation and dynamics when the can was opened. Although the original purpose of the diamond-cut can was to reduce weight, it ended up adding a different kind of value to the packaging.” (Aoyagi)

## Overcoming a wide range of issues to create a hit product

However, from the can’s selection for a product right up to the launch date, the team was tested time and time again by challenges that had to be dealt with by sales, development and production personnel, and at times the customer.

“A complex can design didn’t make a drop in productivity acceptable. It was our first time manufacturing an aluminum Diamond-Cut Can and so we thought a great deal about matters like the design of processing molds and the configuration of production equipment. Normally we would make the test machines before the production equipment used for manufacturing the actual containers, but the deadline was so close that we had to advance their design and development at the same time. It must have really been tough for the designers, for example having to incorporate findings from test machines into production equipment design.” (Otsuka)

“We asked the customer to set the deadline as far back as possible. Communicating closely in-house with Mr. Otsuka, the engineering contact, we came to a compromise with the customer. They were fully aware of the risks when they chose the Diamond-Cut Can and it was a project we

\*TULC: TULC is an eco-can that was developed by Toyo Seikan after revising its materials and manufacturing processes. The manufacturing process was changed to one that does not use water and generates less CO<sub>2</sub> emissions.

\*Chu-Hi: An alcoholic cocktail of shochu (a Japanese distilled spirits) and soda water, with flavors

definitely wanted to succeed.” (Urata)

“A number of things happened during that time that had me in a cold sweat. The customer filled cans with a Chu-Hi sample but when they were opened, the diamond-cut pattern didn’t reappear. We investigated why and made adjustments, but then when we tried filling cans on the actual production line, again the pattern didn’t come out properly. Molds had to be modified, but we also had a shipping schedule to stick to. We enlisted 24-hour support from the plant. Cans were manufactured in Sendai and evaluated in Yokohama. I recall traveling to and fro on the shinkansen bullet train with mold samples. We even hit a snag immediately prior to shipment, but managed to identify the problem together with the customer. And it was worth it. The defects stopped occurring. It was an overwhelming moment of team solidarity when everyone—not only people from the drink-filling plant, but also clerical workers and Toyo Seikan employees—turned out for the inspection.” (Otsuka)

### Pursuing further technological development by teaming up with customers

Launched in the summer of 2001, the canned Chu-Hi became an unprecedented bestseller, far outstripping predictions by fulfilling the annual sales target in just two months.

“The beverage manufacturer naturally would have been confident about the flavor. But as well as tasting nice, the naming was good, and the packaging had a characteristic design. All the right boxes were ticked for

the product to be hugely popular. We added many more production lines than originally planned and under the current setup we can produce the cans at three plants.” (Otsuka)

“The customer was incredibly pleased—by the third year, they were the leading brand even though it was their first foray into the Chu-Hi business. It also led to an increase in business from them for other products. It made me realize how much the project had contributed to building a relationship of trust between us.” (Urata)

In this case, lightweighting efforts resulted in the generation of new value and Toyo Seikan will persist with its endeavors to minimize environmental impact under the sustainability theme.

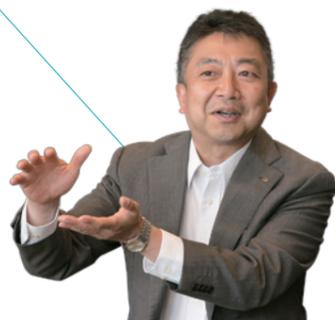
“Toyo Seikan Group Holdings Corporate R&D carries out basic research and development that will form the seeds for further activity, while at the Technical Headquarters we pursue R&D in specific areas to prepare for production. We are also working to realize weight reductions and resource savings from many different angles, including through materials, such as resin used to laminate the TULC. The approach of re-examining technologies accumulated by the company to spawn new ideas, like we did here, connects to the next phase of innovation.” (Aoyagi)

“When considering the environment, sustainability is the paramount theme. I see it as our mission to work out how we can carry on utilizing limited resources into the future. Technological innovation never ends. Toyo Seikan will continue to put forward new ideas for resource-efficient, high value-adding packaging.” (Otsuka)

“Trust built with the customer led to an increase in business for other products”

**Ichiro Urata**  
Operating Officer, Sales Division

Joined Toyo Seikan in 1986 and worked in warehousing and sales at the Shimizu Plant before his assignment to the Food Can Sales Department (now Sales Headquarters) at Head Office. He was involved in realizing new aluminum Diamond-Cut Can and aTULC applications and played the role of coordinator between Toyo Seikan engineering departments and customers’ marketing and engineering personnel for projects with a large development component. An operating officer since 2016.



“Overcoming hurdles as a team amid deadline pressures and one problem after another evoked real joy”

**Ichio Otsuka**  
President and Representative Director

Joined Toyo Seikan in 1983 and was assigned to the Production Technologies Department, Technical Headquarters, where he was involved in developing lightweight cans and other technologies, quality assurance and preparing facilities for production. Drawing on that expertise, he devoted himself to propelling overseas operations. He became an operating officer in 2013 and took up his current position after a stint with the parent company.



“New packaging value was created from an original intention to reduce weight”

**Mitsuhiro Aoyagi**  
General Manager, Metal Engineering Department, Technical Headquarters

Joined Toyo Seikan in 1988 and worked in manufacturing at the Ishioka Plant before his assignment to the Technical Headquarters Production Technologies Department. He engaged in development of packaging, namely TULC and aTULC, as well as other two-piece cans, and also development of value-added products like shaped cans. He is currently facilitator of a number of cutting-edge projects within the metal packaging domain.

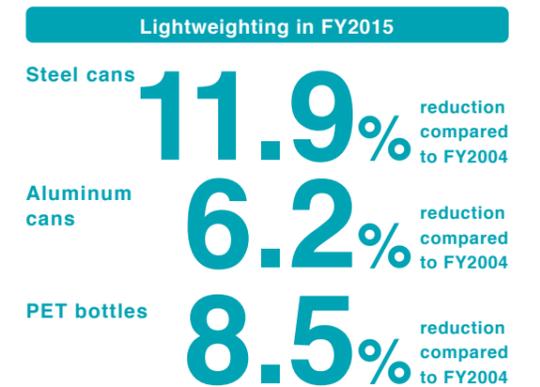


# Environmental considerations for packaging

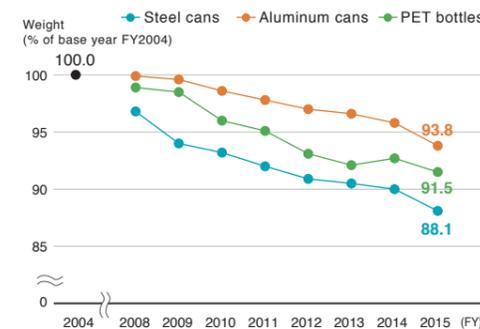
## Lightweighting of containers (Reduce) | Toyo Seikan |

As an effort to effectively use limited resources, Toyo Seikan is promoting the lightweighting of containers and packaging, which reduces consumption of resources for raw materials and energy consumption for package manufacturing.

In FY2015, we reduced the weight of steel cans by 11.9% by using the eco-friendly TULC and switching to lightweight cans made from thinner steel sheet. The weight of aluminum cans was reduced by 6.2% by using thinner aluminum sheet. PET bottle weight reductions, compared to FY2004, came to 8.5% due to an increase in use of lightweight bottles.



### Beverage packaging weight reductions



**Weight reduction example**

Making cans lighter means they can be manufactured with less metal, reducing the amount of resources required. Toyo Seikan has made progress in reducing the weight of metal cans together with customers.

For example, we have successfully reduced the weight of 200ml steel cans for beverages like coffee by 18% compared to conventional cans through switching to beaded cans and other measures. Toyo Seikan will continue weight reduction efforts using its unique eco-friendly design techniques and improvements to manufacturing methods.

## Eco-friendly products

All products of Toyo Seikan Group are considerate to the environment as they comply with environmental laws and regulations. We also recognize certain products as “Eco-friendly products”. They include products that achieve major reductions of raw materials used or energy required during manufacturing, for example, and products containing fewer substances designated by the PRTR Law. In FY2016, we established a new standard for recognizing “Excellent eco-friendly products”—eco-friendly products with particularly large environmental impact reduction benefits and employing proprietary technologies of Toyo Seikan.

Criteria for eco-friendly products are reviewed as required to ensure they are suitable for the times and we also provide assistance on environmental matters in order to increase the number and sales of products using our eco-friendly products or “Excellent eco-friendly products”.



# Procurement & Production

Packaging containers like cans and PET bottles would not exist if it were not for nature and what it provides.

To help conserve the planet's natural environment, Toyo Seikan strives to reduce the environmental impact of manufacturing operations through persistent and various activities.

# Visualizing and efficiently reducing environmental impact

| Toyo Seikan Business Group |

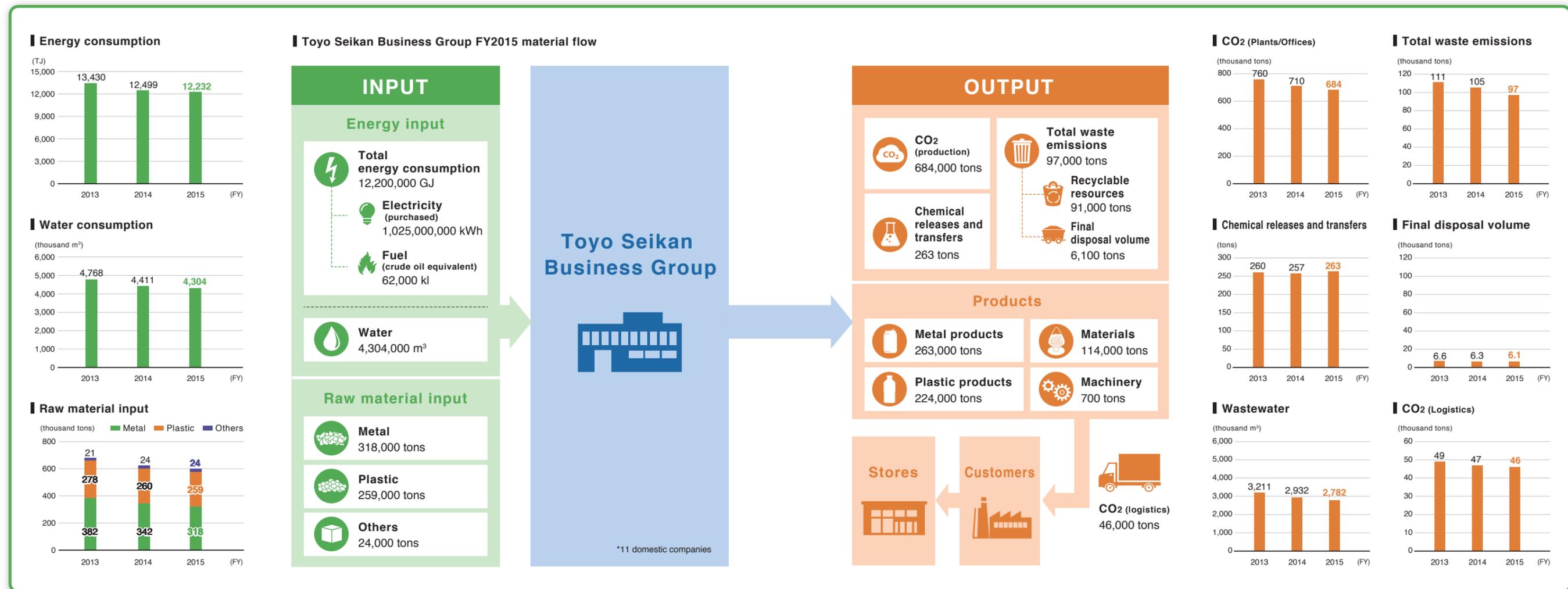
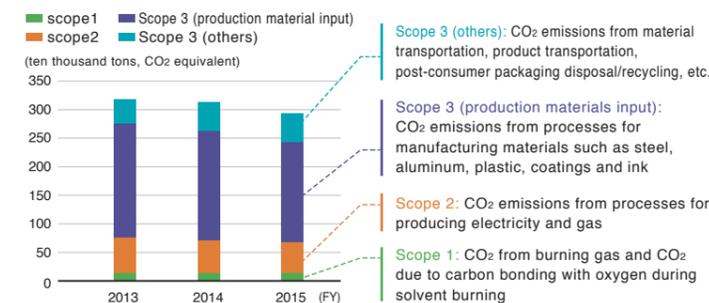
Toyo Seikan Business Group makes every effort to understand its material flow (i.e. the overall environmental impact of business activities) to enable efficient action for reducing environmental impact. We outline those flows and introduce activities undertaken at individual business locations.



## Understanding CO2 emissions across the entire value chain

Toyo Seikan Business Group calculates not only CO2 resulting from energy use, but also CO2 emissions from across the entire value chain. Because material usage and energy consumption account for a large proportion of CO2 emissions from Toyo Seikan's value chain, it is important that we carry out energy saving activities and ensure that materials are used efficiently.

### Greenhouse gas emissions from business activities of Toyo Seikan Business Group



## Restructuring of PET bottle production line

To respond to the increase of PET bottle production, Ryukyu Seikan is restructuring its production lines, taking on facilities relocated from Toyo Seikan. Energy consumption per unit is expected to fall as the production output picks up.



## Upgrading of wastewater treatment facilities

Wastewater facilities at Toyo Seikan's Hiroshima and Kiyama Plants were upgraded due to aging. This has reduced the amount of sludge generated during the treatment process, leading to a reduction of waste. In addition, the risk of environmental accidents has decreased through automation of many processes previously controlled by humans.

# Striving for environmental performance improvements

Toyo Seikan has established environmental targets from environmental management priority items and material flow, and is promoting to improve environmental performance.

Assessment: (vs. FY2015 target) ★★★ = Achieved, ★★ = Nearly achieved, ★ = Not sufficiently addressed

## ▶ Production activities

Category	Items	Results and targets	Assessment	Details and future policies
Production activities	Reduce energy consumption (primary unit per production)		★★	Energy consumption decreased in FY2015 due to a drop in production volume, but the per-unit target was slightly missed. Aim for a 10% reduction from the FY2009 level in FY2018 through consolidation of production lines.
	Reduce CO <sub>2</sub> emissions	<p>CO<sub>2</sub> emissions from production</p> <p>CO<sub>2</sub> emissions from logistics</p>	★★★	CO <sub>2</sub> emissions had been higher than the base year due to a higher emission factor for electric power, but in FY2015 were reduced to the base year level. Aim for further reductions through consolidation of production lines. *Calculated using the power CO <sub>2</sub> emission factor of FY2013
	Reduce primary unit of material usage (primary unit per production)		★★	Unit material usage decreased compared to FY2014 with progress in reducing packaging weight and raising production efficiency, but the target was just missed. Continue efforts to reduce packaging weight and use materials efficiently.
	Reduce total waste discharge		★★	The target was just missed again in FY2015 due to dewatered sludge at facilities treating wastewater from PET bottle filling equipment added in FY2014. Continue efforts to use materials efficiently and turn waste into valuable resources.
	Reduce the amount of PRTRs released and transferred		★★★	FY2015 target was achieved, but the level was still higher than the base year, FY2010, due to more production of products requiring printing. Continue efforts such as switching to alternative substances. *For materials with annual transaction volume of 10kg or more
	Reduce VOC emissions		★★	The target was just missed again in FY2015 due to more production of products requiring adhesion and printing. Although products requiring adhesion and printing is expected to further increase, advance efforts such as switching to solvent-free adhesives and introducing solvent recovery systems.

## ▶ “Product development and Sales”, “Environmental management” and “Environmental communications”

Category	Items	FY2015	Evaluation	FY2016 Target
Product development and sales	Develop eco-friendly products	<p>Target</p> <ul style="list-style-type: none"> <li>Use LCA in product development</li> <li>Develop products taking into account materials, manufacturing processes and recyclability</li> </ul> <p>Activities</p> <ul style="list-style-type: none"> <li>Used LCA in products under development</li> <li>Reduced weight of aluminum cans, reviewed can coating baking conditions, etc.</li> </ul>	★★★	<ul style="list-style-type: none"> <li>Use LCA data in product development</li> <li>Develop products taking into account materials, manufacturing processes and recyclability while maintaining packaging functions</li> </ul>
	Promote sales of eco-friendly products	<p>Target</p> <ul style="list-style-type: none"> <li>Further conversion to lightweight packages</li> </ul> <p>Activities</p> <ul style="list-style-type: none"> <li>Switched to lightweight packages</li> </ul>	★★★	<ul style="list-style-type: none"> <li>Make progress on switching to lightweight packages</li> <li>Raise in-house awareness of eco-friendly products</li> </ul>
Environmental management	Promote container recycling activities	<p>Target</p> <ul style="list-style-type: none"> <li>Support activities of various packaging recycling organizations</li> </ul> <p>Activities</p> <ul style="list-style-type: none"> <li>Provided active support such as participating in committee activities, public relations and awareness-raising activities, and survey activities</li> </ul>	★★★	<ul style="list-style-type: none"> <li>Support activities of packaging recycling organizations</li> </ul>
	Promote environment risk management	<p>Target</p> <ul style="list-style-type: none"> <li>Thoroughly implement measures against environmental accidents</li> <li>Assess environmental risks</li> </ul> <p>Activities</p> <ul style="list-style-type: none"> <li>No serious environmental accidents involving outflows from company premises occurred, but there were eight minor accidents, including chemical spills</li> <li>Implemented and reviewed accident countermeasures</li> <li>Audit and assess environmental risks</li> </ul>	★★	<ul style="list-style-type: none"> <li>Reduce the number of chemical spill accidents</li> <li>Assess environmental risks</li> </ul>
	Promote chemical substance management	<p>Target</p> <ul style="list-style-type: none"> <li>Ascertain the extent of use of substances prohibited under the Green Procurement Guidelines and devise an approach</li> <li>Formulate a policy for management of chemical substances contained in outsourced and purchased items</li> </ul> <p>Activities</p> <ul style="list-style-type: none"> <li>Examining the use of substances prohibited under the Green Procurement Guidelines</li> </ul>	★	<ul style="list-style-type: none"> <li>Look into integrated implementation of chemical substance management related to occupational safety and chemical substance management related to other legislation</li> </ul>
	Utilize LCA	<p>Target</p> <ul style="list-style-type: none"> <li>Disclose environmental superiority data and raise awareness of products with LCA.</li> <li>Look into eco-efficient methods using LCA and create guidelines</li> </ul> <p>Activities</p> <ul style="list-style-type: none"> <li>Promoted LCA data utilization at sales and development departments</li> <li>A report (guidelines) on findings by the packaging eco-efficiency working group of the LCA Society of Japan was issued and a conference presentation given</li> </ul>	★★★	<ul style="list-style-type: none"> <li>Disclose environmental superiority data and disseminate products with LCA.</li> <li>Establish eco-efficiency assessment methods</li> </ul>
	Promote biodiversity activities	<p>Target</p> <ul style="list-style-type: none"> <li>Ascertain the impact of business locations on the surrounding environment from a biodiversity perspective</li> </ul> <p>Activities</p> <ul style="list-style-type: none"> <li>Surveyed ecosystems on Shiga Plant premises and recommended management methods</li> </ul>	★★★	<ul style="list-style-type: none"> <li>Gather information on biodiversity</li> </ul>
	Support environmental activities of business group companies	<p>Target</p> <ul style="list-style-type: none"> <li>Provide support primarily through environmental risk management</li> </ul> <p>Activities</p> <ul style="list-style-type: none"> <li>Inspected four companies and assessed environmental risks</li> </ul>	★★★	<ul style="list-style-type: none"> <li>Share information on environmental matters with business group companies and provide support primarily through environmental risk management</li> </ul>
	Promote environmental communications	<p>Target</p> <ul style="list-style-type: none"> <li>Disclose environmental information in an environmental report</li> <li>Create environmental lecture programs for classrooms</li> <li>Highlight activities at environment-related events and raise awareness of activities among outside parties</li> </ul> <p>Activities</p> <ul style="list-style-type: none"> <li>Published a sustainability report</li> <li>Drafted an environmental lecture program for classrooms</li> <li>Exhibited at environment-related events and ran environmentally themed advertisements</li> </ul>	★★★	<ul style="list-style-type: none"> <li>Disclose environmental information</li> <li>Create environmental lecture programs for classrooms</li> <li>Highlight activities at environment-related events and raise awareness of activities among outside parties</li> <li>Implement in-house education</li> </ul>



# Contributing to realize a low-carbon society by dramatically reducing CO<sub>2</sub> emissions

## Procurement framework | Toyo Seikan Group |

Toyo Seikan Group has established the Toyo Seikan Group Basic Materials Purchasing Policy and the Toyo Seikan Group Materials Purchasing Action Policy, and makes sure to remain humble and engage at all times in proper transactions with suppliers as important partners who help sustain our business activities.

Toyo Seikan carries out procurement in line with these policies and in accordance with its own Materials Purchasing Management Regulations.

## Green procurement of materials | Toyo Seikan |

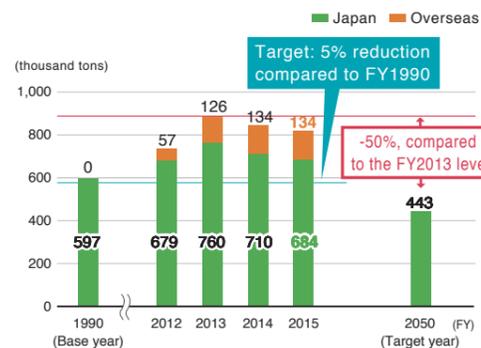
Toyo Seikan carries out chemical substance management to aid procurement of production materials with minimum environmental impact. In regard to chemical substances contained in production materials, we have put in place the Toyo Seikan Green Procurement Guidelines (for Chemical Substances), which specify substances that must not be used in production materials (prohibited substances), substances that need to be replaced or reduced (substances for reduction) and substances that require monitoring of the amount used (controlled substances) taking into account environment, health, hygiene and safety, waste disposal and other considerations.

The guidelines are reviewed regularly to align them with law changes both in Japan and overseas. For the 2014 review, we conducted a survey of suppliers to ascertain the substance content in supplied items.

As well as communicating our guidelines to suppliers, we check with them about substances contained in their products and, where necessary, urge them to switch to alternative substances so that we are able to deliver safer products that users can rely on.

The Materials Purchasing Management Regulations cover procurement controls relating to chemical substances, including implementation of the above Green Procurement Guidelines and product safety data sheet (SDS) management.

## CO<sub>2</sub> emissions from Toyo Seikan Business Group



CO<sub>2</sub> emissions in FY2015

**-3%** compared to FY2014 level

## Aiming to realize a low-carbon society

| Toyo Seikan Business Group |

Toyo Seikan Business Group has made efforts to raise the efficiency of its energy use through such measures as upgrading to energy-saving facilities and power-saving initiatives.

CO<sub>2</sub> emissions from domestic operations in FY2015 came to 684,000 tons, a 4% reduction from the previous year due, for example, to upgrading to energy-saving facilities. We failed to meet our target, however, as emissions were 15% higher than the base year, the main reason being a large increase in the CO<sub>2</sub> emission factor for electric power.

Under the Green Challenge 2050, Toyo Seikan Business Group has set a target of halving its environmental impact by 2050 compared to the FY2013 level. In FY2015, we managed an 8% reduction compared to FY2013, but in order to achieve the "50% reduction by 2050" target, Toyo Seikan Business Group will continue concerted efforts both in Japan and overseas to reduce CO<sub>2</sub> emissions.

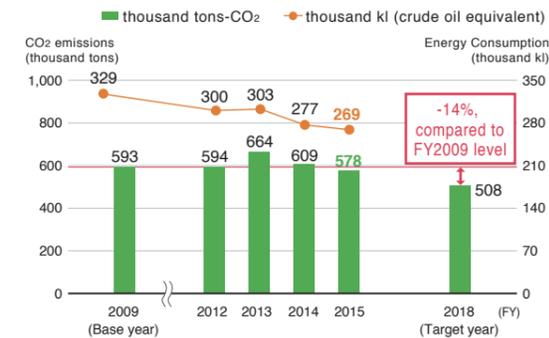
## Efforts to reduce CO<sub>2</sub> emissions | Toyo Seikan |

More than 70% of CO<sub>2</sub> emissions from Toyo Seikan Business Group is generated by Toyo Seikan. For that reason, Toyo Seikan is working to reduce CO<sub>2</sub> emissions through facilities, production efficiency and logistics.

### CO<sub>2</sub> emissions from business activities (FY2015)

**-5%** compared to FY2014 level

#### Toyo Seikan CO<sub>2</sub> emissions and energy consumption

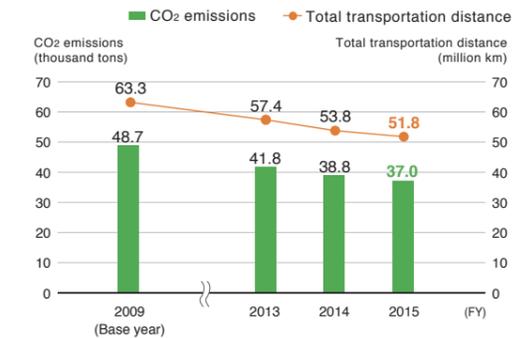


\*Calculated using FY2014 CO<sub>2</sub> emission factor for electric power

### CO<sub>2</sub> emissions from logistics (FY2015)

**-4%** compared to FY2014 level

#### CO<sub>2</sub> emissions from logistics



Toyo Seikan has managed to reduce energy consumption by advancing a range of energy conservation activities, but CO<sub>2</sub> emissions had remained higher than the FY2009 level since FY2012 due to an increase in the CO<sub>2</sub> emission factor for electric power. In FY2015, CO<sub>2</sub> emissions fell below the FY2009 level and we are now pursuing activities toward achieving a 14% reduction compared to FY2009 by FY2018.

## Energy-saving activities related to production facilities (Eco Project)

| Toyo Seikan |

We will introduce systems allowing suspension of low-pressure compressor operation by reusing surplus air from high-pressure compressors used in PET bottle production as low-pressure air. The systems have generated benefits at plants where they are already installed and are therefore being deployed across the organization in other plants, too. CO<sub>2</sub> emissions reduction of around 2,100 tons is expected.

## Transportation using rail containers | Toyo Seikan |

Toyo Seikan started exploring the option of rail freight transport in FY2016. We have barely used rail as a means of transportation so far, but we are currently considering use of two exclusive rail containers making a round trip each day between Kanto and Kansai regions to transport can ends. Reasons for exploring the rail option include:

- A 31-foot container compatible with trucks has been developed;
- Truck drivers are in very short supply right now; and
- There are precedents at affiliated companies.

CO<sub>2</sub> emissions from rail transport are around one ninth the emissions from truck transport.





# Contributing to realize a recycling-based society by utilizing limited resources effectively

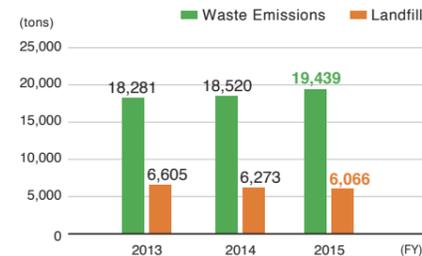
## Reduction of total waste emissions

Toyo Seikan Business Group

Toyo Seikan Business Group strives to reduce and recycle the waste it generates.

Waste emissions increased 5% from the previous fiscal year. The total amount of waste has been rising in the last few years due to factors including an increase in dewatered sludge generated by new lines since FY2013.

### Waste emissions and landfill



Inspection of a contractor's operations

### Inspection of waste contractors

To ensure that waste is properly processed, we regularly inspect waste contractor operations. In 2015, we sought to make inspections and evaluation more efficient by determining the frequency of inspections based on the previous inspection results and clarifying business locations responsible for carrying out inspections in the case of multi-site contracts or contractors in remote areas. Carrying out contractor selection and evaluation from a uniform companywide standpoint, we verify as a waste emitter whether waste is properly processed.



# Contributing to realize a society coexisting with nature so we can keep benefiting from nature's blessings

## Waste water management in plants

Toyo Seikan Business Group strives to preserve water resources by making every effort to ensure efficient use of water resources and processing of wastewater. We manage wastewater prior to discharge into rivers, streams or sewerage using our own wastewater standards, which are stricter than the regulated criteria.

Our water usage dropped dramatically in the two years to FY2015 (10% reduction compared to FY2013). Upgrading to the latest high-efficiency refrigerating machines, cooling towers and other equipment was influential in achieving the reduction in water usage. We undertook renewal of wastewater treatment facilities at Hiroshima and Kiyama Plants, which was completed at the end of FY2015. Using the latest methods to improve processing efficiency, we aim for even further reductions of water usage.

### Water usage



## Minimizing environmental risks

Toyo Seikan Business Group works to minimize environmental risks with a focus on preventing environmental accidents before they occur and carries out regular drills, envisaging emergency situations, to contain the effects of an accident should one occur.

There were no environmental accidents with serious consequences in FY2015. The number of minor accidents fell from the previous fiscal year, but chemical, coating and other chemical-related spills accounted for a large proportion. Quick action prevented outflows from company premises, but we will work to prevent a recurrence, for example through corrective action and a review of its effectiveness and implementing additional measures as required.

### Change in number of accidents



### Risk management in FY2015

Inspections and risk evaluations implemented at

4 group companies

Inspections and risk evaluations implemented at

4 Toyo Seikan locations

## Minimizing risk

As an environmental accident prevention activity, Toyo Seikan Business Group is in the process of evaluating risks at business locations to identify factors that could potentially cause an environmental accident. In FY2015, inspections and risk evaluations were carried out from an environmental risk standpoint at Toyo Seikan locations where accidents had occurred and at four business group companies.

## Proper management of PCB-containing equipment

Business operators in possession of equipment containing polychlorinated biphenyls (PCBs) are obligated to appropriately store and manage the equipment and properly treat the equipment within a certain time frame under the Japanese Act on Special Measures Concerning Promotion of Proper Treatment of PCB Wastes.

Toyo Seikan Business Group treats equipment in accordance with the schedule and policy stipulated by the authorities. To prevent leaks of stored PCBs, they are stored and managed in a secured facility where regular inspections and reporting are performed.



Removal of high-voltage capacitors with highly concentrated PCB

### Biodiversity in FY2015

Impact ascertained at

1 business location

## Conservation of biodiversity

Biodiversity policy of Toyo Seikan Group was established in 2012. In accordance with this policy, we will grasp the impact of our business activities on biodiversity and promote initiatives for the conservation of biodiversity in the areas surrounding our plants and offices.

We are also participating in the Japan Business Initiative for Biodiversity, working to obtain the latest information, exchange ideas with other companies and cooperate on activities.





# Consumption

Products shipped from Toyo Seikan are filled with beverages or other contents and then delivered to stores and consumers.

To contribute to a recycling-based society, in which used packaging is returned into resources, we are promoting our 3R activities.

# Consumer issues

## 3Rs of packaging | Toyo Seikan |

Toyo Seikan aims to reduce the environmental impact of packaging products over their entire life cycle. Our first priority is to deliver to consumers packaging products that protect their contents and are easy to use and safe. But while maintaining the functions of packaging, we also make an effort to incorporate environmental considerations into design to reduce the impact on the environment. We actively promote the 3Rs (reduce, reuse and recycle) to effectively use limited resources.



Commendations

### House Foods "Tokusen Honkaori" series



2016 DuPont Awards  
for Packaging Innovation  
Silver Award



Japan Packaging Contest 2015  
Accessible Design  
Packaging Award



40th Kinoshita Prize  
Packaging Technology  
Award

(The above awards were all won jointly by House Foods Group Inc., Toppan Printing Co., Ltd., and Toyo Seikan)



The tubes have won three awards for such features as the ease of dispensing contents, the easy-to-remove lid seal and the improved ease of cap opening and closing. We will continue efforts to improve packaging in response to customer needs.

- Japan Packaging Contest: Sponsored by the Japan Packaging Institute. With aims to promote the development and spread of superior packaging and related technology, the competition is Japan's biggest in the packaging field.
- Kinoshita Prize: Sponsored by the Japan Packaging Institute. Awards are presented for notable achievements in packaging-related R&D, improvements and rationalization, and creation of new domains.
- 2016 DuPont Awards for Packaging Innovation: Presented by US company DuPont to recognize development of innovative packaging products, usage improvements, development of manufacturing technologies and other aspects of superior packaging from around the world enjoying strong sales in the marketplace.

## Recycling | Toyo Seikan |

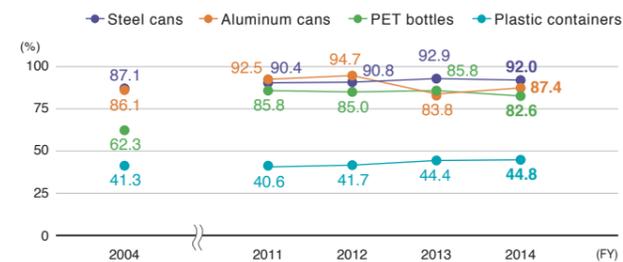
Besides developing packaging products that are easy to recycle, we regularly hold meetings to exchange opinions with citizens and local authorities several times a year, in an effort to strengthen links to consumers and government. Here, through packaging recycling organizations, we engage in activities to promote better understanding of packaging, and create and provide promotional tools for raising awareness of recycling.



## Lectures in classrooms | Toyo Seikan |

Toyo Seikan implements lectures in classrooms and other activities to teach children about environmental issues through packaging. The aim is to support education of children, who represent future generations. Toyo Seikan commenced lectures in classrooms in 2011. In FY2015, we held lectures on the packaging 3Rs at three schools. We create programs incorporating the requirements of each school by meeting with teachers prior to the lectures.

### Recycling rate by packaging type

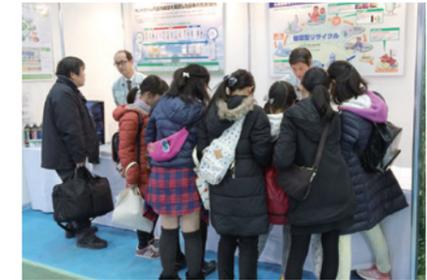


(Source: Second Voluntary Action Plan for the Promotion of 3R in Containers and Packaging 2015 Follow-up Report, Liaison Committee of Associations Promoting 3R)

# Placing value on communication to coexist in harmony with the community

## Participation in exhibitions (PET Refine Technology)

PET Refine Technology, which carries out chemical recycling to turn used PET bottles back into PET bottle raw materials (of equal quality to virgin materials), exhibited at the Kawasaki International Eco-Tech Fair 2016 held February 18 to 19, 2016. Its technologies were introduced to the public by an introductory DVD of the company, a display of recycling procedures and PET bottle quizzes.





Plant topics

### Effective use of treated industrial water (Toyo Seikan Kawasaki Plant)



Left: Takeshi Okutani, head of the Kawasaki Port & Harbor Bureau  
Right: Yukihiko Okawa, Plant Manager, Toyo Seikan Kawasaki Plant



Water sprinkling at the Ukishima landfill site

On August 24, 2015, Toyo Seikan Kawasaki Plant and Kawasaki Port & Harbor Bureau signed a pact relating to dust from landfill operations in the Ukishima zone. Under the pact, the Plant annually supplies 7,200 tons of treated industrial water at no cost.

A sprinkler truck contracted by Kawasaki Port & Harbor Bureau collects treated industrial water from the Kawasaki Plant and sprays it over the Ukishima landfill site, helping to prevent the scattering of dust across the site. The activity is also expected to have annual CO<sub>2</sub> reduction effects of around 400kg and, in the first year, save the city around 10 million yen in spending (compared to when using the public water supply). Kawasaki City has highly commended these efforts as an innovative public-private initiative.

**VOICE**

The Kawasaki Port & Harbor Bureau was looking for corporate partners who could supply industrial water discharge as a solution to the pressing issue of securing water for sprinkling and had approached a dozen or so companies without being able to reach an agreement. This was the first pact of its kind we had entered and we would like to thank the General Affairs Section and everyone else involved at the Toyo Seikan Kawasaki Plant for their commitment.

We think the partnership has been highly commended not only because of the CO<sub>2</sub> reductions and expenditure savings, but also for the relationship of trust formed between public and private sector elements. By actively communicating information about our methods, we hope to help the spread of public-private cooperation.



**Nobuo Nishi**  
Kawasaki Port & Harbor Bureau  
Landfill and Infrastructure  
Manager



**Nanako Ueda**  
Kawasaki Port & Harbor Bureau  
Port of Kawasaki Administration Center  
Facilities Section

# Third party comments

on Toyo Seikan Sustainability Report 2016

**Junko Edahiro**

Professor, Faculty of Environmental Studies, Tokyo City University  
President, Institute for Studies in Happiness, Economy, and Society



Overall, Toyo Seikan Sustainability Report 2016 is easy to read.

In the context of a world that is moving toward decarbonization, I am especially impressed with the fact that Toyo Seikan mapped out its Green Challenge 2050, which is aimed at halving the company's environmental impacts by the year 2050. Japanese companies, in some cases, tend to just declare a "committed vision", in which they commit to do nothing more than they know they are able to do. But today we need a dramatic shift toward sustainable society, so an "aspirational vision" is important, even if it comes with goals that are far from the current situation. The process of working out the truly important goals, turning them into the power to bring together both internal and external initiatives, and then promoting bold actions, can strengthen an organization, motivate employees, and gain the trust of society.

Reducing the weight of containers, along with promoting reuse and recycling, is very important for lowering environmental impacts. The report section featuring the development of "diamond cut" cans (using pseudo-cylindrical concave polyhedral packaging technology) for this purpose is very interesting, and contributed to making the report friendlier and easier to read. Everybody uses containers every day and they are like behind-the-scenes supporters of society, so the concrete initiatives of a packaging company to reduce environmental impacts should be of great interest to readers.

The following points are some of my comments for future improvements of Toyo Seikan's environmental and CSR management and reporting.

First, I would suggest that before mentioning the company's business environment, the Message from the President should make some observations about the state of the world, the planet, and the trends of the year, and articulate the President's thoughts about them. I believe a Sustainability Report should cover not only the company's sustainability but also the sustainability of Japan, the world and the planet.

In particular, the past year saw developments that may have significant impacts on the world and business, such as the adoption of the Sustainable Development Goals (SDGs) at the United Nations and the Paris

Agreement on climate change. Shareholders, experts and interested citizens will want to know how corporate top management sees these developments in terms of business management. I am concerned that even though this is the first report issued since the SDGs and Paris Agreement were adopted, no reference was made to these points.

Second, as Toyo Seikan presents this as its Sustainability Report, not an environmental report, one would also expect it to include good coverage of social and economic aspects. I have an impression, however, that this report is biased toward environmental issues. I look forward to future reports that will include not only the human resources development of employees, but also efforts to create a workplace for diverse employees, in terms of gender, disability, and age, as well as human rights initiatives. As for work-life-balance initiatives, I hope that future reports will refer not only to the existence of systems, but also what they are and how they are used, the implications and challenges, and how the company can address them.

As for social aspects outside the company, I hope that the following three points can be included in future reporting: What is the situation with social aspects such as labor practices of Toyo Seikan's supply chains? How does the company see and address current social issues in Japan, including poverty and the expanding gap between rich and poor? And besides sending visiting lecturers to speak and taking part in several exhibitions, how does the company interact with local communities and local economies around the plant sites?

Lastly, perhaps the environmental performance reporting pages could be better designed, because they carry important content, such as crucial data and the company's policies for the future. The page shows the results and outcomes of Toyo Seikan's initiatives, so readers are looking for a narrative on what the company aimed for, what actions were taken, what the outcomes were, how the status is monitored, and what the company will do next.

I look forward to seeing in the future how Toyo Seikan enhances its initiatives and reporting on social aspects, while further promoting its excellent initiatives in the area of the environment.

# Toyo Seikan—Always Close By

Our purpose in business is to develop packaging technologies that enable safe delivery of contents to consumers.

We are creating new value through further evolution of packaging technologies for the next 100 years.

In this way, we will meet the product and service requirements of people throughout the world as we contribute to the happiness of mankind.

Toyo Seikan Co., Ltd. is a leading packaging company, since its foundation until today, dedicated to making packaging containers with an emphasis on the importance of "wrapping", and has continuously supplied products that meet the needs of time.

State-of-the-art technologies accumulated across our group companies support the packaging industry.

## Toyo Seikan Co., Ltd.

**Established:** June 25, 2012 (Founded:1917)

**President:** Ichio Otsuka

**Capital:** 1,000 million yen

**Head Office:** Osaki Forest Bldg., 2-18-1

Higashi-Gotanda, Shinagawa-ku,

Tokyo 141-8640, Japan

**Business outline:** Designing, developing, manufacturing and sales of packaging containers made of metals, plastics, and composite materials  
Sales of machinery for food packaging and packaging systems, and technical services

**Sites:** Head Office, Technical Headquarters, Chitose Plant, Sendai Plant, Ishioka Plant, Kuki Plant, Saitama Plant, Kawasaki Plant, Yokohama Plant, Shizuoka Plant, Toyohashi Plant, Shiga Plant, Ibaraki Plant, Osaka Plant, Hiroshima Plant, Kiyama Plant

## ▶ Toyo Seikan Business Group (34 Group Companies of Toyo Seikan)

(as of June 30, 2016)



### Packaging Container Business

Toyo Seikan Co., Ltd.  
Honshu Seikan Co., Ltd.  
Japan National Seikan Co., Ltd.  
Ryukyuu Seikan Kaisha, Ltd.  
PET Refine Technology Co., Ltd.  
Toyo Seihan Co., Ltd.  
Fukuoka Packing Co., Ltd.  
TM Pack Co., Ltd.  
Japan Bottled Water Co., Ltd.

T&T Enertechno Co., Ltd.  
Bangkok Can Manufacturing Co., Ltd. (Thailand)  
Next Can Innovation Co., Ltd. (Thailand)  
Toyo Seikan (Thailand) Co., Ltd.  
Global Eco-can Stock (Thailand) Co., Ltd.  
Toyo Seikan Guangzhou Co., Ltd. (China)  
Toyo Pack (Changshu) Co., Ltd. (China)  
Asia Packaging Industries (Vietnam) Co., Ltd.  
Asia Packaging Industries (Vietnam) Trading Co., Ltd.



### Machinery & Equipment Business

Toyo Seikan Group Engineering Co., Ltd.  
Kanagata (Thailand) Co., Ltd.  
Stolle Tokan Machinery (Shanghai) Co., Ltd. (China)  
Stolle Machinery (Shanghai) Co., Ltd. (China)  
Can Machinery Holdings, Inc. (US)  
Stolle Holdings, Inc. (US)  
Stolle Machinery Company, LLC (US)

Stolle Europe Ltd. (UK)  
Stolle EMS Group Ltd. (UK)  
Stolle European Manufacturing Solutions Ltd. (UK)  
Stolle EMS Precision Ltd. (UK)  
Energo-Metal System Polska Sp. z o.o. (Poland)  
Stolle Machinery do Brasil Industria e Comercio Equipamentos Ltda. (Brazil)  
Stolle Asia Pacific Co., Ltd. (Vietnam)



### Logistics Business

Toyo Mebius Co., Ltd.  
Toyo Mebius Logistics (Thailand) Co., Ltd.



**Environment Department, Environment and Quality Assurance Division  
Toyo Seikan Co., Ltd.**

Osaki Forest Bldg., 2-18-1 Higashi-Gotanda, Shinagawa-ku, Tokyo  
141-8640, Japan  
Tel: +81-3-4514-2026 Fax: +81-3-3280-8125

**<http://www.toyo-seikan.co.jp/e/>**

Published: December 2016