TAIYO NIPPON SANSO

Rising to New Challenges

2018 Integrated Report

Year Ended March 31, 2018

The Gas Professionals

We pride ourselves on our ability to act on customer feedback and to partner with a wide range of industries to help improve the quality of life. Market responsiveness and collaborative innovation are our two core values. These values are at the heart of everything we do as we shape the future through gas technologies, crafting a harmonious relationship between people, society and the planet. We are the Taiyo Nippon Sanso Group, where professionals come together.

Philosophy

"Market-driven collaborative innovation: Improving the future through gases"

Guiding Principles

Progressive, united in creativity, forward-looking

We pledge to listen to the views of stakeholders and to contribute—through both our gas technologies and collaboration with partners in other industries—to the creation of a spiritually and materially wealthy society.

TAIYO NIPPON SANSO
The Gas Professionals

Corporate Symbol

Taiyo Nippon Sanso's corporate logo represents the seamless integration of state-of-the-art technology and nature, as well as the Company's business domain, founded on its advanced technologies for controlling oxygen, nitrogen, argon and other gases. The logo also evokes the Company's resolve to achieve growth through superior quality and transparency and to ensure a future that is clean, safe and healthy.

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Purpose of Report/Editorial Policy
In line with our philosophy, "Market-driven collaborative innovation: Improving the future through gases," we strive to manage our operations in a manner that enables us to contribute—through our gas technologies and collaboration with partners in other industries—to the creation of a spiritually and materially wealthy society.

The purpose of this report is to provide financial information, including that related to corporate strategies and operating conditions, and non-financial information, such as that related to environmental protection and social contribution initiatives and to corporate governance, with the aim of giving shareholders, investors and other stakeholders an accurate overall picture of the Taiyo Nippon Sanso Group and its activities.

Scope of Reporting
In principle, this report covers the activities of Taiyo Nippon Sanso and the companies of the Taiyo Nippon Sanso Group. For certain non-financial information, however, the scope is limited to the domestic activities of the parent company alone. Accordingly, entities covered by individual graphs are specified.

Period Covered
Data in this report is for fiscal year 2018, ended March 31, 2018, although some fiscal year 2019 activities are also featured.

Guidelines Used
This report was prepared in accordance with *Environmental Reporting Guidelines (2018 Edition)*, published by Japan's Ministry of the Environment, and the *GRI Sustainability Reporting Guidelines (2013)*, published by the Global Reporting Initiative (GRI).

Milestones in Value Creation

1910–2004

Nippon Sanso Corporation

1910
Established as Nippon Sanso Ltd.

1935
Completed Japan's first air separation unit

1964
Opened first on-site plant (Shunan Plant; currently Shunan Sanso Co., Ltd.)

1964
Began full-scale imports and sales of helium gas

1910–1940s

Market needs
Acetylene, oxygen

Industries supplied
Railroad, shipbuilding, army and navy

Principal applications
Welding, cutting

1950s

Market needs
Oxygen

Industries supplied
Steel, shipbuilding

Principal applications
Blast furnaces (gases for blowing into blast furnaces)

1960s

Market needs
Nitrogen (inert gas)

Industries supplied
Petrochemicals, electronics

Principal applications
Oil refining
Inhibition of oxidation
Prevention of contamination

1946–1994

Taiyo Sanso Co., Ltd.

1946
Established as Taiyo Sanso Co., Ltd.; completed first production facility and commenced sales in 1947

1968
Established Kashima Sanso Co., Ltd., to supply industrial gases to an industrial complex in Kashima, a joint venture with Mitsubishi Petrochemical Co., Ltd. (currently Mitsubishi Chemical Corporation)

1918–1994

Toyo Sanso K.K.

1918
Established as Toyo Sanso K.K.

1953
Installed oxygen production equipment and dissolved acetylene production equipment and commenced operations at the Kawasaki Plant, a comprehensive production facility in Mizue-cho, Kawasaki

1955
Commenced operations at the Takasaki Plant, the first dedicated liquefied oxygen storage and filling facility in Japan, which featured state-of-the-art equipment

1978
Developed world's first stainless steel vacuum-insulated bottle

1980
Established Japan Oxygen, Inc., in the United States

1982
Established joint venture National Oxygen Pte. Ltd. in Singapore

1983
Acquired Matheson Gas Products, Inc., of the United States

1989
Acquired the Thermos Group, the world's largest manufacturer of vacuum-insulated bottles

1992
Acquired industrial gases manufacturer Tri-Gas, Inc., in the United States (merged with Matheson in 1999 to create Matheson Tri-Gas, Inc.)

2003
Established industrial gases manufacturing and marketing company Shanghai Nippon Sanso Gas Co., Ltd. (currently Shanghai Taiyo Nippon Sanso Gas Co., Ltd.), in China

1970s–1980s

Market needs

Oxygen, nitrogen, argon, xenon, krypton, neon, monosilane gas, others

Industries supplied

Semiconductors, nonferrous/ferrous metals, aerospace/aircraft

Principal applications

Various production processes
Inhibition of oxidation
Plasma cutting
Smelting/deoxidation
Removal of impurities from specialty steel
Emission spectrometry
Rocket fuel

1990s

Market needs

Hydrogen, nitrogen

Industries supplied

Automobiles, energy, medicine, engineering

Principal applications

Hydrogen fuel cells
New energy with low environmental impact
Medical equipment
Linear motor cars

2000s

Market needs

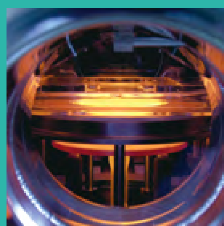
Electronics materials gases

Industries supplied

Semiconductors, liquid crystal displays (LCDs)

Principal applications

Light-emitting diodes (LEDs)



1987
Became a designated general supplier of specialty materials gases of Taiwan Semiconductor Manufacturing Company Limited (TSMC), marking the launch of full-scale overseas supplies of gases for semiconductor-related applications

1994
Merger agreement signed by Taiyo Sanso and Toyo Sanso

1995–2004

Taiyo Toyo Sanso Co., Ltd.

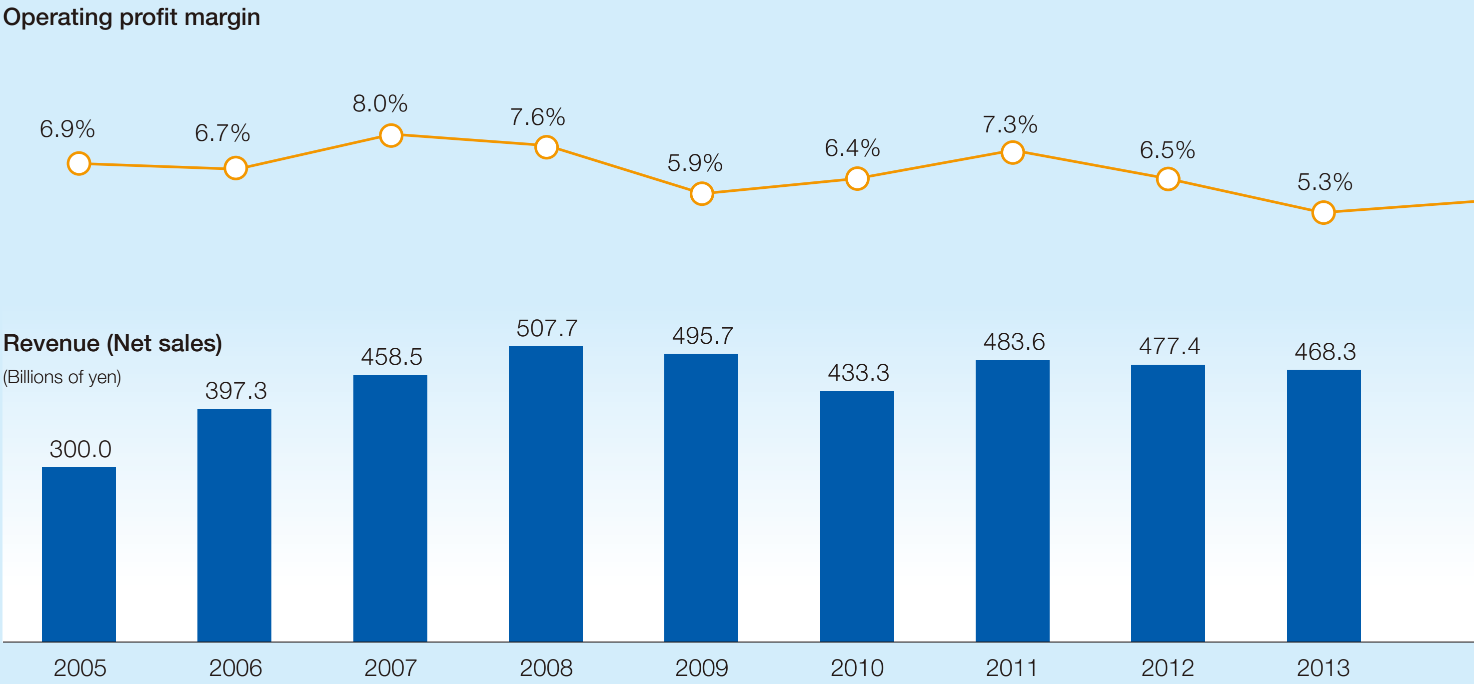
1995
Commenced operations under the Taiyo Toyo Sanso name

1996
Established Fu Yang Gas Co., Ltd., an industrial gases and semiconductor materials gases production and sales company, in Hsinchu, Taiwan

2001
Established Japan Fine Products Co., Ltd., a supplier of specialty gases for semiconductor-related applications, in a joint venture with Nippon Sanso Corporation

Taiyo Nippon Sanso's History of Achievement

Years ended/ending March 31



› 2004–present

Taiyo Nippon Sanso Corporation

Created as Taiyo Nippon Sanso through the merger of Nippon Sanso and Taiyo Toyo Sanso (October 1)

› 2004

Developed Water-^{18}O, a pharmaceutical ingredient for reagents used in PET diagnostics

› 2006

- Matheson Tri-Gas acquires Linweld Inc., an industrial gases production and marketing company in the western and central United States
- Purchased helium source contracts and other related assets of the former BOC Group plc (currently Linde AG) in the United States and Europe
- Acquired all shares in Hitachi Sanso K.K. and changed the company's name to Taiyo Nippon Sanso Higashikanto Corporation

› 2008

Established Dalian Changxing Island Taiyo Nippon Sanso Gas Co., Ltd., in China and installed air separation unit

› 2009

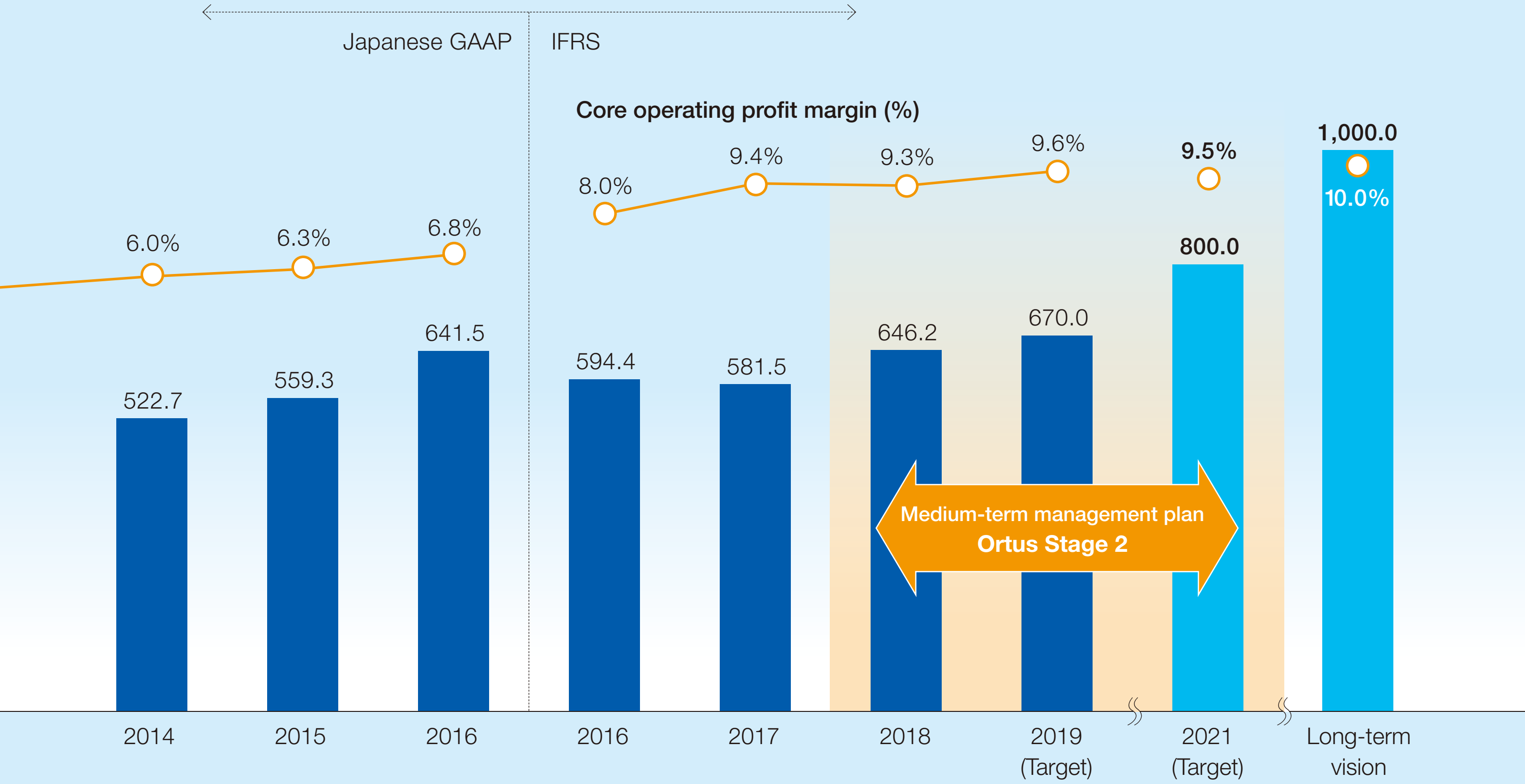
Acquired Matheson Tri-Gas acquires Valley National Gases LLC, the largest independent industrial gases distributor in the United States

› 2010

Matheson Tri-Gas acquired Western International Gas and Cylinders, Inc., a leading U.S. wholesale supplier of acetylene

› 2012

Acquired Singapore-based industrial gases and welding equipment manufacturer Leeden Limited; merged the company with National Oxygen in 2014 to create Leeden National Oxygen Ltd.



› 2013

Launched Hydro Shuttle package-type hydrogen refueling station

› 2017

Established JFE Sanso Center's Kurashiki Plant

› 2018

Established TNSC Technical Academy

› 2014

- Matheson Tri-Gas acquired U.S. carbon dioxide gas manufacturer Continental Carbonic Products, Inc.
- Became a wholly owned subsidiary of Mitsubishi Chemical Holdings Corporation

› 2015

Acquired liquefied petroleum gas (LPG) and industrial gases distributor Renegade Gas Pty Ltd in Australia

› 2016

- Matheson Tri-Gas acquired a portion of the U.S. gas business of France's Air Liquide S.A., together with related assets
- Acquired industrial gases and LPG manufacturer Supagas Holdings Pty Ltd of Australia
- Established Yahata Sanso Center in a joint venture with Nippon Steel & Sumitomo Metal Corporation

Value Creation Process

In line with our philosophy, “Market-driven collaborative innovation: Improving the future through gases,” we will continue working to apply our state-of-the-art gas technologies with the aim of addressing issues affecting society and the environment, thereby helping to create new social value and at the same time increasing our corporate value.

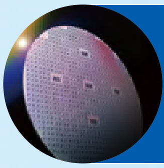
Management resources

1. Technological prowess
2. Supply base
3. Sales channels
4. Human resources
5. Financial foundation
6. Group capabilities

The Taiyo Nippon Sanso Group’s Businesses


Industrial gases


Plant and engineering


Electronics-related products


Medical

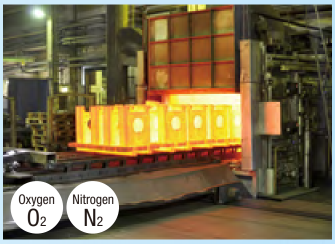

Energy


Thermos

Quality

Principal Industrial Sectors We Serve

We supply diverse industrial gases, including oxygen, nitrogen and argon, to customers in a broad range of industries, contributing to the realization of a spiritually and materially wealthy society.

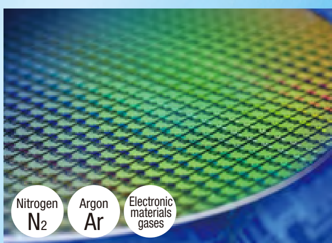


Steel

Since 1964, we have installed on-site plants (“sanso centers”) at steel production facilities to ensure stable supplies of industrial gases, thereby supporting the growth of Japan’s leading steelmakers.

Chemicals

We supply gases to chemical production sites through pipeline networks extending across large-scale industrial complexes, ensuring uninterrupted supplies of nitrogen, which are essential to the safety of such facilities.



Electronics

We construct total gas centers (TGCs), which supply nitrogen and electronics materials gases, on sites adjacent to large-scale semiconductor fabs.

Philosophy

“Market-driven collaborative innovation: Improving the future through gases”

Management strategies

Compliance

Value chain

- Development/production
- Supply
- Sale
- Use (in customer industries)

Governance

Safety

Stakeholders

Global environment

- Energy and resources
- Climate change

Society

- Health and wellness
- Medical care
- Food and agriculture
- Fulfilled life

People (companies and organizations)

- Product responsibility
- Human development and training
- Occupational health and safety
- Human rights awareness
- Information security and privacy
- Diversity and inclusion
- Contribution to communities
- Stakeholder engagement

Transportation equipment and machinery

Cutting and welding are key processes in automobile manufacturing facilities, shipyards and construction sites. In addition to gases for cutting and welding, we supply such facilities with a variety of related equipment and materials.

Food

We provide a variety of products that represent applications of nitrogen-filled packaging, freezing and other food-related gas technologies, under the brand name Bistranza.

Life sciences/medical

In 2004, we started operation of the world’s first plant for producing stable isotope Water-^{18}O, used in reagents for positron emission tomography (PET), through the application of air separation technologies. We have since established the world’s most extensive supply framework for this crucial material.

Energy

We supply environment-friendly, safe propane for use in homes, commercial premises and other premises that play a role in everyday life.

A Message to Stakeholders

In line with our philosophy, “Market-driven collaborative innovation: Improving the future through gases,” we have worked consistently to contribute to the realization of a spiritually and materially wealthy society by capitalizing on our gas technologies to work in collaboration as a vital partner to companies in a host of industries, including steel, chemicals, electronics, automobile, construction, shipbuilding, food and healthcare.

Since our founding in 1910, we have grown together with Japan’s industrial sector. We subsequently expanded into overseas markets, beginning with the creation of a representative office in Singapore and a local subsidiary in the United States in 1980. Subsequent efforts focused on broadening our operations in the United States, as well as on establishing a presence in China, Southeast Asia, India and other Asian markets. In 2015, we entered the Australian market. Today, our global network encompasses more than 80 gas production facilities in 19 countries and territories.

We are grateful for the ongoing support of our stakeholders, without whom the sustained growth we have enjoyed to date would not have been possible. To fulfill the responsibilities implied in our corporate slogan, “The Gas Professionals,” we remain committed to fulfilling our responsibility to maintain a safe and secure supply of gases to our customers around the world, as well as contributing to a society that enjoys both spiritual and material wealth by pursuing the development of innovative technologies. To this end, we will continue to be attentive to the views of customers and to advance the development of new gas technologies.

It is my hope that readers find this year’s integrated report both informative and interesting and that it contributes to a better understanding of the Taiyo Nippon Sanso Group today and its goals for the future.

September 2018

Yujiro Ichihara
Representative Director,
President CEO

Perception of the Operating Environment

Up until the 1990s, a substantial number of companies were active in the global industrial gases market, but since the beginning of this century we have seen a steady realignment of the industry, as a result of which today there are essentially five leading competitors: Air Liquide S.A. of France, Linde AG of Germany, Praxair and Air Products and Chemicals, Inc., of the United States and Taiyo Nippon Sanso. In 2016, global leader Air Liquide acquired U.S. firm Airgas, Inc., while in 2017 the Linde Group, then the world's second-largest manufacturer, signed a business combination agreement with number three Praxair, accelerating the shift toward a global market dominated by a few giants. Going forward, we recognize that to swiftly establish Taiyo Nippon Sanso as a major global player, we must take decisive steps to reinforce our competitiveness worldwide, expand the scale of our operations and rapidly execute key strategies.

Long-Term Vision

Our long-term vision, formulated in May 2014, calls for the prompt achievement of consolidated revenue of ¥1 trillion, an operating profit margin of 10%, a return on capital employed (ROCE) of 10% or above and an overseas revenue ratio of 50% or above. Through the implementation of initiatives under our current medium-term management plan, we are working decisively to sharpen our global competitive edge and secure our position as a major player.

Long-Term Vision: Projected Evolution of Performance

Striving for the Early Achievement of Our ¥1 Trillion Revenue Target

As the realignment of the global industrial gas industry progresses, we will continue working to enhance our global competitiveness with the aim of ensuring a robust market position.

Ortus Stage 2

In fiscal year 2018, ended March 31, 2018, we embarked on a new four-year medium-term management plan, Ortus Stage 2, the second phase of our drive to realize our long-term vision, formulated in May 2014. Ortus Stage 2 builds on the success of Ortus Stage 1, a three-year plan that commenced in fiscal year 2015.

The overarching goal of Ortus Stage 2, which is positioned as the second phase of our drive to realize our long-term vision, is to promote growth. The new plan carries over the four key strategies of Ortus Stage 1, the theme of which was reinforcing our operating foundation, which are summarized as “structural reform,” “innovation,” “globalization” and “M&A.” Ortus Stage 2 also sets forth five new basic new strategic policies.

Note: “Ortus” is a Latin word meaning “beginning” or “birth.”

Progress to Date

Results in Year One: Up from the Preceding Period and Above Targets

In fiscal year 2018, revenue amounted to ¥646.2 billion and core operating profit was ¥60.0 billion, as a result of which the core operating profit margin was 9.3%, while overseas revenue as a percent of total revenue reached 43.3% and ROCE came to 8.4%. In the gas business in Japan, revenue and operating profit were bolstered by an increase in the area of on-site gases, which reflected the positive impact of the October 2017 start of operations at the Kurashiki Plant of

Actual Results and Financial Targets Under Ortus Stage 2

Years ended/ending March 31

	2017 (Actual) (IFRS)	2018 (Target) (IFRS)	2018 (Actual) (IFRS)	2019 (Target) (IFRS)	2021 (Target) (IFRS)
Revenue	¥581.5	¥620.0	**¥646.2**	¥670.0	¥800.0
Core operating profit*1	54.7	56.5	**60.0**	64.0	76.0
Core operating profit margin	9.4%	9.1%	**9.3%**	9.6%	9.5%
Overseas revenue ratio	40.8%	—	**43.3%**	—	45.0%
ROCE *2	8.4%	7.9%	**8.4%**	8.5%	9.0%

*1 Core operating profit: Calculated by subtracting losses (nonoperating items) produced by nonrecurring factors from operating profit

*2 ROCE = Core operating profit / (outstanding interest-bearing debt + equity attributable to owners of parent)

JFE Sanso Center Corporation, and by robust shipments of electronics materials gases to semiconductor and liquid crystal display (LCD) manufacturers.

The gas business in the United States also reported higher revenue and operating profit. Principal contributing factors were the recognition of a full year of results for a business acquired from Air Liquide in September 2016, which had a significant positive impact on revenue, and firm sales of bulk gases and packaged gases and hard goods, underpinned by U.S. economic growth.

In the gas business in Asia and Oceania, increases in revenue and operating profit reflected a full year of contributions from Supagas Holdings Pty Ltd in Australia and brisk shipments of electronics materials gases in China, Taiwan and South Korea.

In the Thermos and other businesses segment, solid sales in Japan, centered on vacuum-insulated mugs, and the expansion of sales channels in South Korea pushed up revenue. In contrast, operating profit declined, despite steadily increasing sales volume in Japan, owing to higher expenses, primarily for advertising, and efforts to clear long-term inventories. Segment operating profit was also hampered by flagging results at equity-method affiliates, including alfi GmbH.

Basic Policies of Ortus Stage 2

The first basic policy of Ortus Stage 2 is to expand our domestic gas business.

In Japan, the key concept underlying our efforts is “Total TNSC,” by which we mean maximizing the power of the Taiyo Nippon Sanso Group by strengthening collaboration among Group companies to further cement our leading position in the Japanese market.

Another basic policy of Ortus Stage 2, carried over from Ortus Stage 1, is to promote globalization. Looking ahead, we will continue to actively expand operations in overseas markets. Ortus Stage 2 also outlines policies for fortifying safety, quality and compliance efforts to support sustainable growth, advancing an R&D strategy that will broaden our businesses’ potential, and strengthening corporate functions.

We recognize safety, quality and compliance, the focus of one of the basic policies of Ortus Stage 2, as crucial to business continuity. Accordingly, we are stepping up efforts to fortify our capabilities in these areas. Of note, we recently established the TNSC Technical Academy, a training facility designed with the purpose of improving Groupwide technological and safety capabilities and further bolstering techniques for preventing industrial gas-related accidents. We have also created a framework for promoting compliance, establishing a global compliance committee to facilitate the sharing of related information and deliberations regarding key compliance-related issues.

Five Basic Policies

Expanding domestic gas business	Safety, quality and compliance	Accelerating R&D strategy	Globalization	Strengthening corporate functions
• Expand gas-related businesses such as equipment, in addition to the gas business • Sustain growth of businesses in Japan (M&As inside Japan and changes to sales channels)	• Strengthen safety, quality and compliance efforts • Strengthen collaboration with regional holding companies in overseas markets where businesses are expanding	• Accelerate R&D with open innovation • Concentrate on prioritized development fields based on portfolio strategies • Make a larger contribution to profitability	• Increase overseas M&As and capital investments • Establish new businesses	• Implement human resource, information and finance strategies • Strengthen corporate functions to provide stronger support to TNSC and Group companies

Core Strategies of Ortus Stage 2

Under Ortus Stage 2, we continue to advance the core strategies of Ortus Stage 1. Related efforts in year one of the new plan yielded notable results.

Thanks to efforts to advance the "structural reform" strategy, the Total TNSC concept has taken hold among employees across the Group. Acknowledging the importance of rallying the Taiyo Nippon Sanso Group's resources by strengthening collaboration to provide customers with comprehensive solutions, Group companies in each region gather to actively exchange information and consider proposals. We are confident that the cumulative benefits of these efforts will help boost profitability. To integrate production and logistics management, we recently established the Production & Logistics Division, which is working to optimize gas production facility operations and rationalize logistics by implementing initiatives that are helping to reduce costs.

Under the banner of "Innovation," we have leveraged core competencies to develop and market new products in such areas as combustion (oxygen burners), materials (carbon nanotubes) and regenerative medicine. In addition, with the aim of entering the additive manufacturing (3D printing) market, we have capitalized on external resources by investing in and forming partnerships with manufacturers of 3D printers, metal powders and metal components.

Initiatives implemented in line with the "Globalization" strategy have sought to expand our business areas and enhance profitability. In Myanmar, a market we entered recently, we began operating the country's first air separation unit. In Singapore and the United States, we have built new carbon dioxide gas plants. We are currently promoting active capital investments aimed at boosting profitability, including in the expansion of electronics materials gas production facilities in China and South Korea in response to steadily expanding demand from customers in the electronics industry.

Under Ortus Stage 1, we made several major acquisitions with the goal of expanding our business territory overseas. Guided by Ortus Stage 2, the focus of our M&A strategy is to expand our business reach and reinforce our operational density. We will also continue to actively capitalize on M&A opportunities that will broaden our business areas by securing access to key related technologies that further advance our gas technologies, as well as in those existing businesses with the potential of growing into core businesses.

Four Key Strategies

1. Structural reform

Maximize Group power by augmenting collaboration

- Strengthen collaboration in sales and marketing functions
- Integrate engineering functions
- Consolidate production and logistics
- Promote shared services

Total TNSC

2. Innovation

Promote innovation by capitalizing on external resources and IoT

- Innovation in R&D
- Innovation in engineering
- Innovation in sales approaches
- Innovation in production and logistics

3. Globalization

Enhance governance

- Strengthen the functions of global operations
- Strengthen the functions of regional holding companies

Growth strategies

- Expand business areas
- "Total Electronics"

Total Electronics

4. M&A

Seek promising M&A opportunities to ensure sustainability and accelerate growth

- Expand business territory and reinforce operational density
- Acquire new products, technologies and supply chains
- Expand medical business

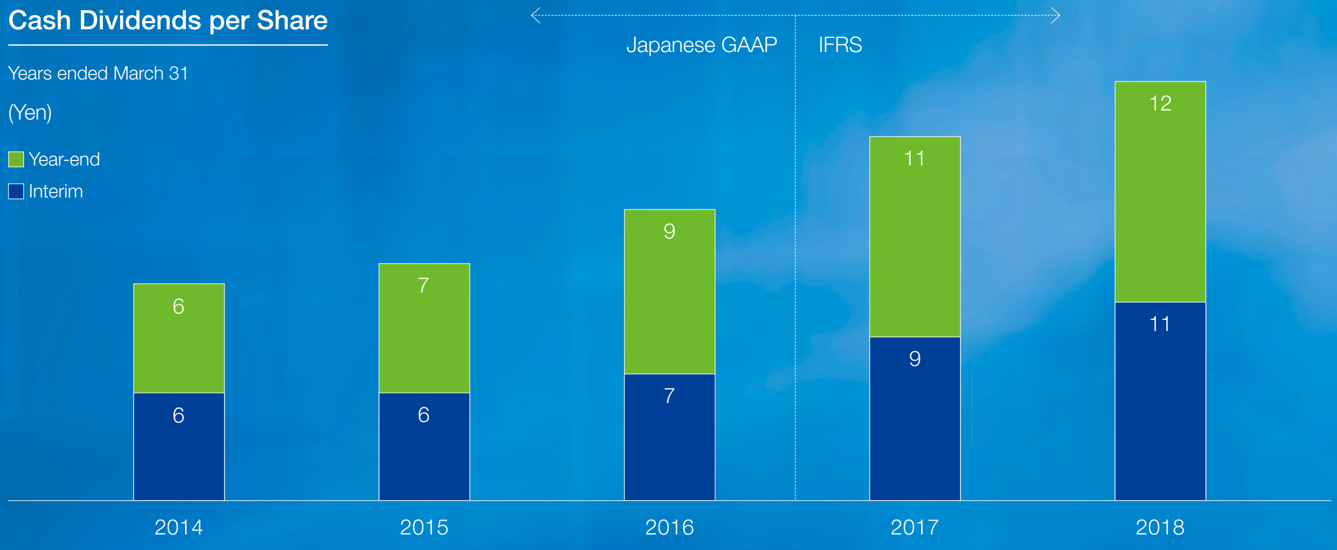
This look at Ortus Stage 2 has focused on progress to date. Going forward, we will continue to steadily implement initiatives to bolster our operating foundation in line with the basic policies of the plan, as well as promote measures to expand our operations set forth in the plan's core strategies.

We reported growth in annual earnings every year from fiscal year 2015, the first year of our previous medium-term management plan, through fiscal year 2018, the first year of the current plan. To achieve the goals of Ortus Stage 2, as well as to realize our long-term management vision, we will continue to advance a wide variety of strategies designed to ensure sustainable growth in the years ahead and increase corporate value over the medium to long term.

Cash Dividends per Share

Years ended March 31

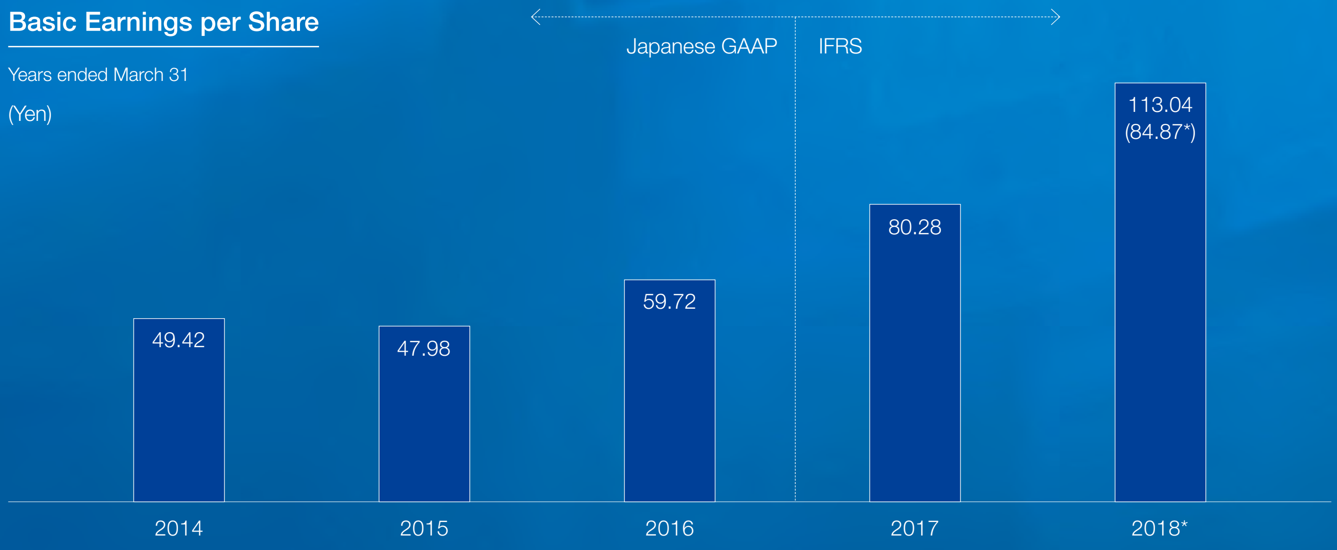
(Yen)



Basic Earnings per Share

Years ended March 31

(Yen)



* Owing to the a reduction of the federal corporate income tax rate resulting from changes to U.S. tax legislation, income taxes in fiscal year 2018 declined significantly from the previous period. Discounting the impact of this factor, basic earnings per share would have been ¥84.87.

Special Feature 1

TNSC Technical Academy: A New Training Facility Designed to Improve Group Technological and Safety Capabilities

In line with our belief that selling gases is commensurate with selling safety and peace of mind, we view ensuring the safety of our operations as a priority challenge. In June 2018, we established TNSC Technical Academy, a training facility designed with the purpose of improving Groupwide technological and safety capabilities, further bolstering techniques for preventing industrial gas-related accidents and ensuring technical skills are passed on to subsequent generations.

Enabling Employees to Experience the Technologies and Risks of Compressed Gases First-Hand

Having declared “Reinforce safety, quality and compliance” one of the basic policies of our new medium-term management plan, Ortus Stage 2, we are taking steps to fortify our safety management framework. In addition, we are working to promote employees’ acquisition of technical skills and ensure such skills are passed on.

“Although we address safety across the entire Taiyo Nippon Sanso Group on an ongoing basis, a number of major industrial accidents have occurred in recent years at Group facilities both in Japan and overseas, including one the Oita Sanso Center in 2014. This prompted us to conduct inspections of all equipment, including that not yet regulated under Japan’s High Pressure Gas Safety Act, and to review day-to-day safety practices,” says Senior Executive Officer Hiroyuki Tanizawa, Executive General Manager of the Technological Affairs Division and Chief Sustainability Officer. “However, industrial accidents do not occur solely as a result of equipment issues. The ability of employees to sense danger is critical and a decline in employee hazard awareness are also concerns,” he continues. “With increased automation, equipment breakdowns have become rare. This has reduced the frequency of equipment issues, but it has also reduced opportunities for employees to come in direct contact with equipment. As a consequence, we have seen a weakening of risk awareness and skill acquisition, both of which in the past would have been nurtured on the front lines.”

Hiroyuki Tanizawa
Senior Executive Officer
Executive General Manager,
Technological Affairs Div.
Chief Sustainability Officer

The TNSC Technical Academy, the goal of which is to foster human resources and pass skills on to new generations of employees, was established to compensate for this lack of front-line nurturing. The academy, which comprises a laboratory, a showroom and a training room, provides “TNSC Technical Seminars,” through which it focuses on instilling understanding of basic technologies and providing hands-on hazard training. In addition to equipment that make it possible to actually simulate becoming entangled or caught in machinery, stumbling or falling, becoming caught up in rotating devices, and dangers associated with electrical and other general processes, the academy’s laboratory makes partial use of virtual reality technologies. What makes the laboratory truly unique is that it also facilitates the simulation of dangers unique to working with high-pressure gases, including falling gas cylinders, high-pressure gas blowouts, liquid gas sealing, oxygen enrichment, adiabatic compression, cryogenic temperatures, oxygen deficiency, and combustion and explosion. The laboratory is thus set up to anticipate all types of accidents and problems that employees might face on the front lines.

The TNSC Technical Academy’s showroom seeks to reinforce understanding of the inner workings, operating principles and other aspects of equipment not discernable from the outside and features cutaway models of cylinders, valves, instruments, vaporizers and other equipment. The training section, which comprises one large and one small classroom and is large enough to accommodate a maximum of 54 individuals, employs state-of-the-art information and communications technologies to maximize the benefits of training.

Enhancing Technology Training Provided at the TNSC Technical Academy

Going forward, we will take steps to expand the TNSC Technical Seminars program as the foundation of technology training offered by the TNSC Technical Academy. In addition to the basic training currently provided, which focuses on skill acquisition, we plan to will add courses that emphasize, for example, discussions focused on the causes of accidents and measures for preventing their recurrence based on actual case studies, with the aim of enhancing awareness and understanding of safety across the entire Taiyo Nippon Sanso Group. We will also develop hierarchical training for each year of employment and optional training tailored to specific jobs, which will be offered in combination with hands-on hazard training. (See training framework table below.)

In June 2018, we created a three-day basic technical training and hands-on hazard training course for new recruits using a unique new curriculum developed for the facility. In August, we launched full-scale job-specific hands-on hazard training courses for Group employees in Japan. Over the next five years, we plan to create a system that will facilitate the intake of approximately 1,800 students annually. By doing so, we hope to create a framework that enables employees from Group companies worldwide to participate in training repeatedly to ensure they maintain a sharp awareness of hazards.

Fostering instructors and developing curricula will be crucial to achieving these objectives. Accordingly, from the ranks of experienced employees, we will appoint individuals who have both front-line experience and leadership skills. At the same time, we will advance the development of new level-specific curricula that eliminates duplication, ensuring that there is always something new for employees to learn no matter how many times they participate in training.

Improving Group Technological Prowess and Creating a Safety-Oriented Corporate Culture

In light our rapid global expansion, we are promoting the swift development of a training framework for overseas Group companies that matches the framework we have put in place in Japan. With the aim of promoting the understanding of and support for a safety-oriented corporate culture, we have held a safety conference in each of the past three years, which have been attended by top executives, management-level employees and safety management officers from Group companies, as a consensus-building exercise.

We are currently exploring the launch of hands-on hazard training for Group employees in 2020 with the goal of encouraging the creation of a safety-oriented corporate culture and reinforcing our framework for ensuring safety. “Making use of facilities at the TNSC Technical Academy, we will begin by taking steps to increase the risk awareness of young employees,” explains Mr. Tanizawa. “Through these efforts, we will endeavor to create such a corporate culture, as well as to promote employees’ acquisition of technical skills and ensure such skills are passed on, thereby fostering the next generation of The Gas Professionals.”

By advancing training for the employees that will be responsible for safety and product quality in the years ahead, we will continue striving to improve our technical and safety capabilities and to reinforce efforts to eliminate industrial accidents.

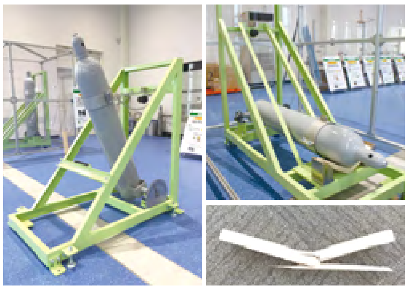
TNSC Technical Academy

Outline

Date opened: June 1, 2018

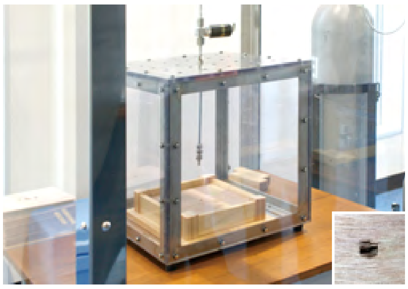
Total floor space:
960 m² (two stories)

Organization:
Laboratory (37 pieces of hazard training equipment), showroom and training section



Training equipment designed to simulate a gas cylinder falling over

This piece of equipment helps employees learn weight and difficult of supporting a gas cylinder that is about to fall over. The simulation involves the cylinder being placed on a horizontal 3 cm-thick wooden board and enables employees to experience what it is like when cylinder supports collapse and understand the power unleashed when a cylinder tips over.



Device for confirming power of high-pressure gas blowout

This device makes it possible to learn the pressure when sealed high-pressure gas blows out and scatters together with metal fragments from the cylinder by observing the latter penetrate a wooden board.

Virtual reality device that reproduces the sensation of falling

Designed to help individuals learn the risk of falling, this device uses virtual reality technology and also blows air onto the individual using it to more realistically reproduce the sensation of falling from an altitude.

Taiyo Nippon Sanso’s Training Framework

<table>
<tr><th rowspan="2"></th><th colspan="2">Level-specific training (compulsory)</th><th colspan="4">Job-specific training (optional)</th></tr>
<tr><th>Clerical positions
Technical positions</th><th>Skilled positions</th><th rowspan="5">TNSC technical seminars</th><th rowspan="5">Hands-on hazard training</th><th rowspan="5">E-learning</th><th rowspan="5">Internal certification/ others</th></tr>
<tr><td>Management/ When promoted</td><td colspan="2">Hands-on hazard training</td></tr>
<tr><td>5th year of employment</td><td colspan="2">Hands-on hazard training</td></tr>
<tr><td>2nd–4th years of employment</td><td>Basic technology seminars</td><td></td></tr>
<tr><td>New recruits</td><td colspan="2">Basic technology training and hands-on hazard training for new recruits</td></tr>
</table>

The TNSC Technical Academy will provide level-specific and job-specific training. When it opened in June 2018, the facility began providing training for new recruits.

The positive impact of hands-on hazard training was reflected in the response of participants in the facility’s first round of training for new recruits, with comments received including, “I learned not only by seeing and listening to instructors, but also by actually experiencing hazards first-hand,” “I learned the importance of remembering that hazards lurk in every situation and always keeping my antennae up” and, “Hands-on training gave me a concrete understanding of how terrifying accidents and disasters actually are.”

Special Feature 2

The Taiyo Nippon Sanso Health Management Declaration and Efforts to Create a Corporate Climate that Prioritizes Employee Health

On April 1, 2017, we announced the "Taiyo Nippon Sanso Health Management Declaration," the stated goal of which is create work environments that support and motivate employees. This declaration reiterates our belief that employee health is the driving force behind everything we do and our commitment to promoting employee wellness and work style reforms.

Earning White 500 Certification in 2018

In February 2018, we earned certification in the large enterprise category (dubbed the "White 500") of the 2018 Health & Productivity Outstanding Entities Recognition Program, which is organized by Japan's Ministry of Economy, Trade and Industry (METI) and Nippon Kenko Kaigi ("Japan Health Council"). By spotlighting outstanding companies working to promote health and productivity management, the Health & Productivity Outstanding Entities Recognition Program seeks to create an environment in which these companies gain enhanced public recognition as organizations that approach employee health and productivity from a management perspective and promote strategic health-related initiatives. With concepts such as "work style reform" and "health management" gaining enormous attention, this program has become a key yardstick for evaluating the efforts of companies in Japan. "Taiyo Nippon Sanso has traditionally looked for three key qualities in its employees: health, integrity and resourcefulness. The first of these, health, encapsulates our belief that the health of a company's employees is the driving force behind everything it does, is spelled out clearly in our health management declaration," explains Executive Officer Satoshi Wataru, Executive General Manager of the HR Division and the Corporate Planning Office and Chief Health Officer. "In addition, one goal outlined in our current medium-term management plan, Ortus Stage 2, is to reform work styles and promote diversity. I think our White 500 certification reflects steps we have taken on both the system and policy front."

Satoshi Wataru

Executive Officer
Executive General Manager, HR Division and Corporate Planning Office; Chief Health Officer

Taiyo Nippon Sanso's Health Management Declaration

Creating a work environment that supports and motivates employees

We look for three key qualities in our employees, namely, health, integrity and resourcefulness. With the aim of giving form to the first of these, health, and recognizing that employee health is the driving force behind everything we do, we hereby declare our commitment to promoting sound corporate management and helping realize a spiritually affluent society through the creation of a health-first corporate culture.

Recognizing the health and wellness of all of our employees as a crucial corporate asset, we will also strive to realize secure and pleasant workplaces.

We also understand that the health and wellness of each individual employee and of his or her family is a critical motivating factor for employees in both their professional and private lives. Accordingly, we encourage employees to be proactive in maintaining their own health and ask for their active participation in the creation of a health-first corporate culture.

April 1, 2017

Yujiro Ichihara
Representative Director, President CEO
Taiyo Nippon Sanso Corporation

In fiscal year 2018, the Mitsubishi Chemical Holdings Group has provided a full-scale definition of its *KAITEKI* Heath and Productivity Management concept, setting concrete targets and implementing initiatives. Taking such developments in to account, we are promoting measures in three categories: Healthy people, healthy workplaces, and healthy families and communities.

2018
健康経営優良法人
Health and productivity
ホワイト500

Established in 2017, the Health & Productivity Outstanding Entities Recognition Program was established with the aim of recognizing major enterprises and small and medium-sized companies with particularly excellent health and productivity management practices that are consistent with community health issues and health promotion activities undertaken by Nippon Kenko Kaigi.

Advancing Health Management that Balances Wellness Support with Work Style Reforms

Our health management program centers on employee wellness and work style reforms. To support employee wellness, we have begun distributing wearable health monitoring devices (see below), in addition to subsidizing employees using healthcare facilities and taking part in health promotion programs. By increasing the visibility of individual health-related data, we aim to encourage greater awareness of the importance of lifestyles improvements and to better inform health management initiatives. We have also collaborated with industrial physicians and health insurance associations to assign such physicians to all sites across Japan, enabling us to respond to health issues related to extreme overwork, and have expedited support for individuals taking leave for treatment of mental health issues returning to work, revised items covered in annual health checks to facilitate the early detection of cancer, and introduced subsidies for employees obtaining influenza vaccines and treatment to quit smoking.

Our efforts to advance work style reforms have included introducing flexible work arrangements and the infrastructure to ensure the feasibility thereof, and introduced a new attendance system that enhances the daily management and visibility of working hours. As well, we have adopted a return to work scheme*, an overseas leave system that allows employees to accompany spouses on overseas assignments and a system that allows employees to limit the areas to which they will accept transfers, and have revised our system of short work hours for employees seeking to balance the demands of a career with childcare and/or nursing care responsibilities. In addition, we have adopted a flextime system at a number of sites and a system that allows employees to take allotted vacation time in hourly units. Going forward, we will consider the introduction of telecommuting. "To my mind, health management is the creation of workplaces that enable individual employees to cultivate skills, expertise and humanity," says Mr. Wataru, "but most of all that make employees want to come to work. While people are responsible for managing their own health, but it's not something you can do entirely on your own. Maintaining sound communication with those around us is the real secret to a healthy mind and body. Accordingly, I look forward to fostering a corporate climate that prioritizes employee health in a manner that encourages each of us to be attentive to the heath of our colleagues." Looking ahead, we will continue working to create and maintain work environments that support and motivate employees, and in so doing to drive growth in corporate value.

* A return to work scheme facilitates the reemployment of employees who have resigned due to pregnancy, childcare or nursing care responsibilities or the transfer of a spouse. Our system also makes it possible for employees who have resigned because their spouse has been transferred to another location to be employed at that location if an appropriate opening exists.

Principle Initiatives

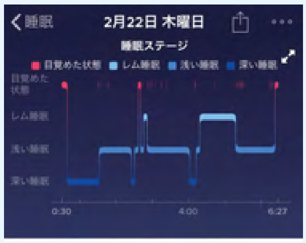
Visiting Health Improvement Programs

Under its *KAITEKI* Health and Productivity Management concept, in fiscal year 2018 Mitsubishi Chemical Holdings Group launched employee health support programs, which it also offered at Taiyo Nippon Sanso corporate headquarters and at the Keihin Factory. The programs, which emphasize both the mind and the body, include the *KAITEKI* Health Seminar, which focuses on the relationships among food, sleep and exercise and a sleep seminar that explores sleep debt and correct approaches to repayment, as well as exercises to refresh the mind and the body, function-improving stretching classes designed to prevent stiff shoulders and back pain, and ball exercises. Going forward, we plan to improve the number and variety of programs offered with the aim of further assisting efforts to help improve employees health.

Above: adidas Functional Training, a core training program designed to improve range of motion and flexibility
Right: Comprehensive diet and exercise seminar

Distribution of Wearable Health Monitoring Devices

One of our key initiatives in fiscal year 2018 was to distribute wristband-style wearable health monitoring devices that enable individuals to track activity and sleep levels, among others, on a daily basis. The trackers are currently being used by approximately 1,300 employees with the aim of increasing awareness of their own health by scrutinizing daily data. In July 2018, we inaugurated a system whereby employees can exchange steps walked for points, which can be used for various services or donated to charity. We are currently considering also offering points in exchange for going to annual health checks and visiting a clinic for health guidance, among others, with the goal of adding an element of fun that encourages employees to continue taking care of their health. We are also looking at exploring the scope of these initiatives to include Taiyo Nippon Sanso Group companies and the families of employees.



Alta-HR wristband-form wearable devices were distributed to employees. These devices enable individuals to monitor sleep quality (shown above), total daily activity (steps taken, distance covered, amount of time active, calories consumed) and other data.

Categories	Key Themes	Examples of Initiatives
Healthy people	Encourage healthy lifestyles	Provide information on lifestyle improvement; subsidize various programs
Healthy workplaces	Improve health awareness	Organize walking events; provide feedback on diagnostic data
	Reform working styles	Take steps to prevent extreme overwork; encourage employees to use annual vacation days
	Promote measures to prevent occupational accidents that consider human factors	Prevent industrial accidents involving falls by advancing efforts to increase employees' physical strength; make effective use of the TNSC Technical Academy
	Create secure, healthy workplaces	Promote efforts to prevent all types of harassment
Healthy families and communities	Bolster awareness of family health	Communicate health-related information; distribute childcare, nursing care and other handbooks

Gas Business in Japan

Outline of Business
Market Presence and Competitive Advantages

Taiyo Nippon Sanso is Japan's leading manufacturer of industrial gases, with a domestic market share of approximately 40%. Taiyo Nippon Sanso Group companies in this business include Nippon Ekitan Corporation, Japan's top supplier of carbon dioxide gas and dry ice; Nissan Tanaka Corporation, a manufacturer of cutting and other equipment; and Taiyo Nippon Sanso Gas and Welding Corporation, which provides welding materials. As a comprehensive supplier of industrial gases and peripheral products, with a product range encompassing diverse industrial gases, as well as plants and equipment, we provide a full selection of products and services to customers in diverse industries, including steel, chemicals, electronics, automobiles, shipbuilding, food and healthcare.

We use a number of delivery formats for industrial gases. The on-site format involves installing on-site plants (air separation units) on or adjacent to customers' production facilities, from which we supply separated gases directly by pipeline. Bulk gases are liquefied gases supplied in bulk form to the customer's site using tanker trucks. Packaged gases are gases that are compressed and supplied to customers in cylinders. We have established a nationwide network of production and sales locations and an official dealer system, the Taiyo Nippon Sanso Major Club, creating a robust supply chain that enables us to respond accurately and effectively to the needs of users across Japan. Our principal competitive advantage is our portfolio of basic cryogenic, high-pressure, insulating, gas control and other technologies, which we have nurtured over many years. We continue to develop new applications for these technologies with the goal of addressing increasingly diverse customer needs.

Fiscal Year 2018 in Brief

Revenue: +6.5% from fiscal year 2017

Industrial gases	Revenue increased, underpinned by the start of operations at JFE Sanso Center's Kurashiki Plant
Electronics-related products	Revenue was bolstered by robust sales of electronics materials gases
LPG	Revenue was up, as higher import prices promoted sales price increases

Segment profit: +4.4% from fiscal year 2017

Industrial gases	Profit declined as rising crude oil prices pushed up costs
Electronics-related products	Profit was bolstered by robust sales of electronics materials gases

Interview: Growth Strategies for the Gas Business

Kenji Nagata
Member of the Board,
Senior Executive Officer
Executive General Manager,
Gas Businesses Division

Q1 What is your perception of the current operating environment in Japan?

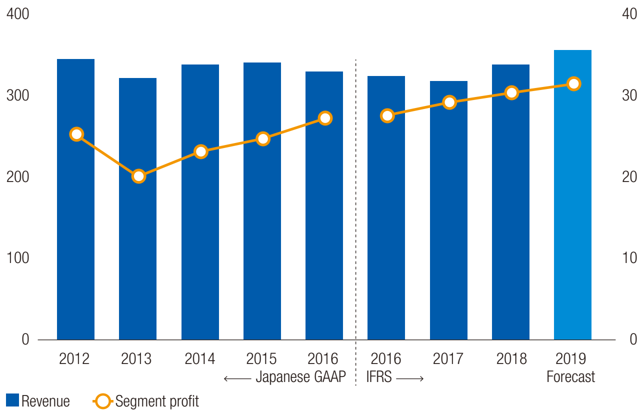
We have no choice but to acknowledge the challenges of a mature economy like Japan's. At the same time, a mature economy also presents unique opportunities, as evidenced by active investments aimed at improving efficiency and reducing labor requirements, as well as in increasing quality and promoting product differentiation, across all industries. Our principal customers—manufacturers in the steel, chemicals, transportation, food and other industries—are performing well, and thanks to such investments we look forward to stable growth in demand for industrial gases. The electronics industry is also expected to see continued growth, underpinned by technological advances, notably in artificial intelligence and the Internet of Things (IoT). Causes for concern include increases in costs for electric power and product transport, the former due to rising fuel prices and the latter to labor shortages. Accordingly, we will continue to implement initiatives aimed at reducing production and logistics costs.

Q2 Can you tell us about the principal measures you plan to pursue in fiscal year 2019?

Our basic emphasis will be on advancing the strategies set forth in Ortus Stage 2. In industrial gases, efforts will center on stepping up innovation and advancing the Total TNSC concept. To promote innovation, we will reinforce efforts to develop applications for gas technologies in areas such as food packaging, heat treatment and combustion, as well as seek to cultivate demand by not only supplying products but

Revenue and Segment Profit

Years ended/ending March 31
(Billions of yen)



Note: Effective from fiscal year 2019, other businesses currently accounted for in the Thermos and Other Business segment will be shifted to the Gas Business in Japan and the segment will be renamed the Thermos Business. Accordingly, the basis for calculating the revenue and segment profit forecast for fiscal year 2019 differs from that used for calculating revenue and segment profit reported for the years up to and including fiscal year 2018. Calculated on the same basis as the fiscal year 2019 forecast, revenue and segment profit in fiscal year 2018 would have been ¥2.5 billion and ¥0.6 billion lower, respectively, than reported results.

also fortifying our soft capabilities, which include providing safety services and assisting customers in modifying processes. In line with the Total TNSC concept, we will maximize Group synergies by working with other Group companies, combining resources with the common goal of benefitting customers, with the aim of expanding revenue and earnings not solely for industrial gases, but also for gas equipment. In the area of carbon dioxide gas, we expanded production capacity in Mizushima, Okayama Prefecture, and Chita, Aichi Prefecture, but a tight supply–demand situation persisted, pushing up production and logistics costs. We will continue working to ensure stable supplies and reduce costs, but we will likely seek to implement further sales price increases.

Our Ortus Stage 2 medium-term management plan sets forth a strategy for transforming our medical business into a new core business. To this end, we have positioned products for home healthcare, respiratory therapy and biotechnology, as well as stable isotopes, as key areas of focus and are taking decisive steps to expand operations by developing and launching innovative products and seeking advantageous M&A opportunities.

In the area of energy-related products, we will continue working to expand sales by securing demand from users switching from petroleum to liquefied petroleum gas (LPG) and liquefied natural gas (LNG). In addition, we will look for M&A opportunities that will expand our commercial rights in the area of products for consumer use.

Q3 What are the principal growth strategies for the gas business in Japan?

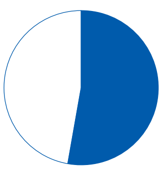
One of the basic policies of Ortus Stage 2 is to expand our domestic gas business. The business was identified as a priority under the current plan's predecessor, Ortus Stage 1, but strategies for its growth were a bit difficult to discern among strategies for furthering globalization and making forward-looking investments in growth areas. Keeping this in mind, in Ortus Stage 2 we set forth a clear policy. We have a mature economy. Significant new economic growth is unlikely. The challenge is thus to find ways of expanding this business in such an environment. To this end, we will begin implementing two key strategies in fiscal year 2019. The first is to focus on both hard and soft deliverables. To date, we have grown our domestic gas business by diversifying our range of hard products, that is, the supply of gases, installation of gas supply equipment and the provision of electronics-related products (gas-refining equipment and exhaust gas abatement systems) and products realized through the application of combustion, welding and other gas-related processing technologies. We will of course continue to expand this side of the business. In addition, we will step up efforts to incorporate soft capabilities accumulated over many years, including our safety know-how and our equipment maintenance and high-temperature/high-pressure environment simulation technologies, and position ourselves to supply both hard products and soft services, thereby responding to the needs of customers and adding depth and breadth to the business. We are confident this will support expansion going forward.

Our second strategy in this segment is to further advance the Total TNSC concept. The companies of the Taiyo Nippon Sanso Group, including Nippon Ekitan, Nissan Tanaka and Taiyo Nippon Sanso Gas and Welding, boast diverse customer bases, technologies and expertise. In a growing economy, sharpening the competitive advantages of such companies would be sufficient to drive growth. However, in a mature economy, characterized by low growth and increasingly diverse customer needs, we must strive to bring together the customer bases, technologies and expertise of Group companies with the aim of providing comprehensive solutions and expanding the scope of operations.

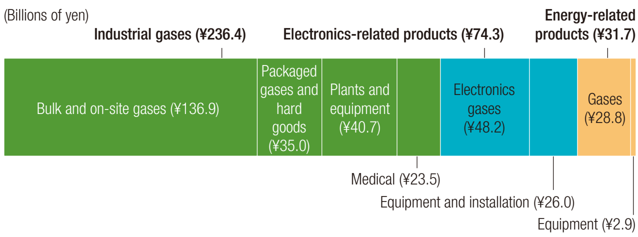
We have succeeded in increasing sales of industrial gases and peripheral products by responding effectively to changes in Japan's industrial structure, underscoring the fundamental expandability of this business. Today, our strategic approach to growing and evolving our domestic gas business is to combine hard and soft deliverables and provide comprehensive solutions.

Percentage of Revenue

(Fiscal year 2018)

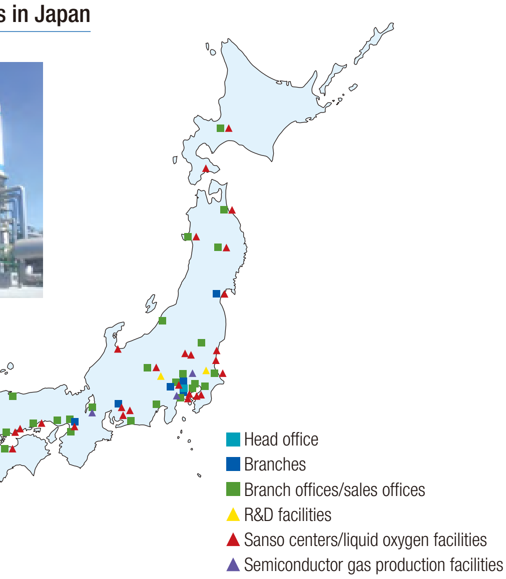


53.0%
(¥342.4 billion)



Business Sites in Japan

Air separation unit (Kurashiki Plant, JFE Sanso Center)



Gas Business in the United States

Outline of Business
Market Presence and Competitive Advantages

We first established operations in the United States in the 1980s. Initial efforts to broaden our presence, which began in 2004, focused on the southern states and emphasized reinforcing our operations through an ambitious M&A program that included multiple major and other deals and capital investments. These and later efforts facilitated the establishment of a robust operating foundation that includes California, which boasts the largest state economy, as well as Texas and Louisiana, leaders in the development and production of petroleum. In September 2016, we acquired a portion of Air Liquide's U.S. operations, a move that enabled us to build an industrial gas supply network that stretches from the southern to the eastern and Midwestern states, establishing us as a major national player.

Our U.S. operations center on supplying packaged and bulk gases. In recent years, we have secured major-site orders from customers in the steel and petrochemicals industries, as a result of which our on-site supplies have also increased. We also offer an extensive supply of original hard goods, including welding equipment, which we sell along with packaged gases, for which we are number three in terms of market share. We have also diversified our product lineup by acquiring manufacturers of acetylene and carbon dioxide gas, as a result of which we are now the largest supplier of the former and second-largest supplier of the latter in the United States.

Fiscal Year 2018 in Brief

Revenue: +17.2% from fiscal year 2017		↗
Impact of acquisition	Revenue was bolstered by the acquisition of a business from Air Liquide	↗
Industrial gases	Revenue was bolstered by robust results for bulk gases (notably an increase in shipments of carbon dioxide gas), as well as for packaged gases and hard goods	↗
Currency translation effects	The depreciation of the yen had a positive impact	↗

Segment profit: +12.3% from fiscal year 2017		↗
Impact of acquisition	The acquisition of a business from Air Liquide pushed profit up	↗
Industrial gases	Profit was bolstered by robust results for bulk gases (notably an increase in shipments of carbon dioxide gas), as well as for packaged gases and hard goods	↗
Currency translation effects	The depreciation of the yen had a positive impact	↗

Interview: Growth Strategies for the Gas Business

Tsutomu Moroishi
Executive officer
Executive General Manager, Global Operations Division

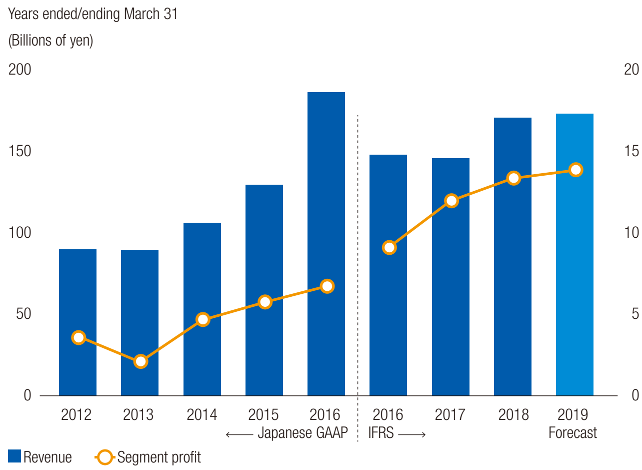
Q1 How is the U.S. gas business positioned within the Group?

Our gas business in the United States is positioned as a key engine of global growth. Having acquired specialty gas manufacturer Matheson Gas Products, Inc, in 1983, and industrial gases firm Tri-Gas, Inc., in 1992, in 1999 we merged the two companies to create Matheson Tri-Gas, Inc. Since 1983, we have expanded our U.S. operations by acquiring industrial gas manufacturers, independent gas distributors and key business assets, promoting active capital investment to install plants and securing large-scale on-site orders. In fiscal year 2018, revenue in our U.S. gas business exceeded ¥170 billion and accounted for approximately 25% of consolidated revenue.

Q2 What is your perception of the current operating environment in the United States?

We supply industrial gases to customers in practically every industry, so our performance tends to mimic economic growth trends. The U.S. market for industrial gases is estimated at $23 billion annually, making it the world's largest, and expected to continue expanding by 3%–4% annually, in tandem with the economy, reflecting the positive impact of robust results in steel- and energy-related industries and a reduced corporate tax rate on business conditions. Prospective major customers are numerous and the environment today is conducive to the stable expansion of our operations.

Revenue and Segment Profit



Note: In fiscal year 2016, a change in accounting period by Matheson Tri-Gas, Inc., resulted in the inclusion of 15 months of results for the company.

Q3 What are your strategies for growing this business in the years ahead?

In 2016, we acquired a portion of Air Liquide's U.S. gas business, as a result of which our production, distribution and sales network now extends across continental United States. One strategic priority is to expand large-scale on-site supplies, which provide stable earnings over the medium to long term. While these efforts previously centered on the southern United States, where we have a robust backup supply configuration in place, going forward we will look to secure major on-site orders nationwide. Our carbon dioxide gas business, launched in 2014 with the acquisition of Continental Carbonic Products, Inc., continues to see steady growth, and we will step up efforts to expand our liquefied carbon dioxide and dry ice production capabilities to include areas where we do not yet have a presence.

Securing access to a stable source of helium, for which supplies are currently short and prices high worldwide, is another key strategy for us in the United States.

We will also continue to seek M&A opportunities and promote capital investment aimed at building density, as well as to expand our portfolio of high-value-added products by expanding into such areas as purification and electronics. Through such efforts, we will seek to maximize Group synergies and expand the U.S. gas business' contribution to consolidated results.

Scott Kallman

Chairman, President and CEO
Matheson Tri-Gas, Inc.

Matheson Tri-Gas continues to pursue a vertical integration strategy by developing packaged, bulk liquid, on-site and pipeline capabilities in each of the markets in which we compete. This is being achieved through ongoing acquisitions of independent packaged gas distribution channels and the execution of capital projects to install gas pipelines and expand our production capacity for liquid argon, liquid nitrogen, liquid oxygen, liquid carbon dioxide and dry ice. Sales of these core gas products are supplemented by sales of product line extensions such as specialty gases, acetylene, welding supplies and safety products. Our objective is to meet all of our customers' gas and gas-related equipment requirements through extended product offering and cross-selling efforts. Plans are also underway to improve our product applications support, which will further boost the positive impact of these efforts.

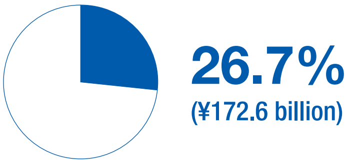
In the electronics-related products business, we are supporting increased sales volumes of key semiconductor process gases from our production facility in Tennessee and enhancing the value of our products through advanced purification technologies.

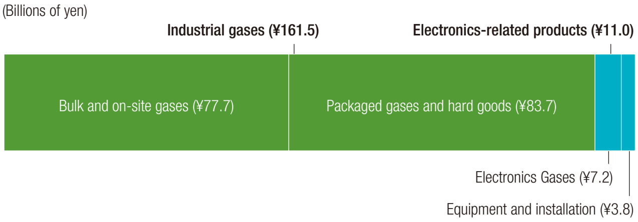
We are committed to our acquisition and capital project strategy. Emphasis is also being placed on gaining synergies from acquired packaged distribution channels and loading recently installed production capacity with new customers.

Across all businesses we continue to actively manage our pricing and reduce our costs to increase profitability.

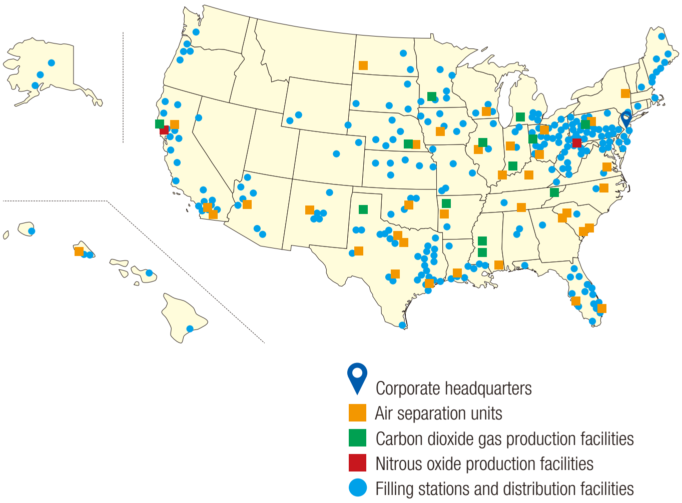
Percentage of Revenue

(Fiscal year 2018)





Business Sites in the United States



Gas Business in Asia and Oceania

Outline of Business
Market Presence and Competitive Advantages

Our operations in Asia and Oceania center on the supply of industrial gases to customers in Southeast Asia, China, India and Australia, and of electronics-related products to customers in China, Taiwan and South Korea.

We entered the Singaporean market in the early 1980s by establishing National Oxygen Pte. Ltd. and have expanded our operations there in the years since. In 2012, we acquired Leeden Limited, a leading supplier of packaged gases, hard goods and safety products with an extensive network across Southeast Asia. In 2014, we merged Leeden with National Oxygen, thereby strengthening our operations in Singapore and Malaysia.

We have also established a presence in the Philippines and Vietnam, where we are currently the top manufacturer of liquefied gases in terms of production capacity, and continue to seek promising investment opportunities in both countries that will position us to capitalize effectively on economic growth. Further expanding our geographic reach, we established bases in Indonesia—Southeast Asia's largest industrial gases market—in 2014, acquired a local distributor in Australia in 2015, and established an operating company in Myanmar in 2016.

In the area of electronics-related products, we are capitalizing on rising demand in China, Taiwan and South Korea. Guided by our Total Electronics strategy, we are taking steps to reinforce the relationships we have built with customers in these markets and to expand sales of electronics-materials gases, of which we are a leading supplier, as well as to offer exhaust gas abatement systems, high-purity gas refining equipment and installation services.

Fiscal Year 2018 in Brief

Revenue: +20.1% from fiscal year 2017	
Industrial gases	The consolidation of Supagas underpinned an increase in revenue
Electronics-related products	Revenue rose, reflecting higher sales in China, Taiwan and South Korea
Currency translation effects	The depreciation of the yen had a positive impact

Segment profit: +78.8% from fiscal year 2017	
Industrial gases	Profit advanced, owing to the consolidation of Supagas
Electronics-related products	Profit increased, reflecting higher sales in China, Taiwan and South Korea
Currency translation effects	The depreciation of the yen had a positive impact

Interview: "Total Electronics" Growth Strategies

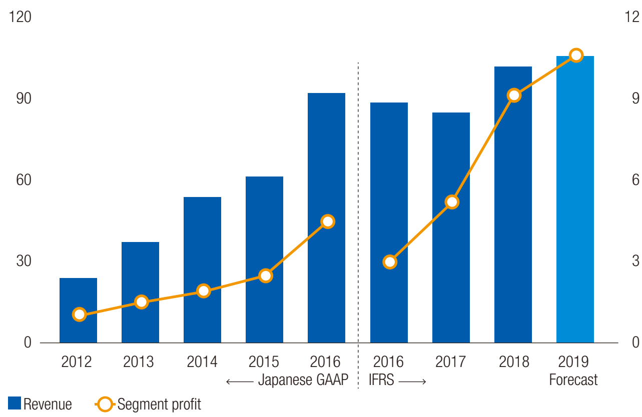
Takashi Kuroiwa
General Manager,
Total Electronics
Taiyo Nippon Sanso (China) Investment Co., Ltd.

Q1 How do you see the market environment in the semiconductor industry?

With the rapid advance of digitization in both the industrial and consumer sectors, evidenced by the use of IoT-enabled artificial intelligence, robots, automated driving, smart appliances and smart cities, among others, demand is rising for semiconductors, crucial to data sensing, storage, transmission and analysis. In 2017, the global market for semiconductors market increased by more than 20%, topping $400 billion. Growth of 15% is forecast in 2018, driven by high demand for memory products. A worldwide sales forecast of $500 million was announced at SEMICON West 2018, held in July 2018 in San Francisco. Two-thirds of worldwide sales are in Asia, specifically Japan, China, Taiwan, South Korea and Singapore. China is promoting a plan to open approximately 20 300 mm-wafer fabs by 2022, which is projected to boost the country's monthly production capacity to 2.5 times the current level. China is also expected to spend $17.3 billion on fab equipment in 2019, surpassing South Korea and Taiwan, which are forecast to spend $16.3 billion and $12.3 billion, respectively, accounting for 2/3 of such spending worldwide. Although uncertainties remain, economic friction between China and the United States arising from the U.S. imposition of trade sanctions for intellectual property theft, high growth in the global semiconductor market is generally expected to persist through 2020.

Revenue and Segment Profit

Years ended/ending March 31
(Billions of yen)



Note: In fiscal year 2016, a change in accounting period by certain subsidiaries resulted in the inclusion of 15 months of results for these companies.

Q2 Can you explain the Total Electronics concept, which was introduced in April 2017, and tell us about related initiatives since then?

For the foreseeable future, the principal objective of the Total Electronics concept is to promote collaboration among Group companies in our core electronics materials gases for semiconductors by creating a cross-organizational function that facilitates the integration of customer information and the development of a unified Groupwide strategy with a view to growing this business globally. Our previous business model was regional and self-contained in nature, meaning that individual overseas subsidiaries responded to the needs of customers scattered across their respective countries or territories. To reinforce growth, we created a Total Electronics function involving key sales and manufacturing managers and marketing managers from each local subsidiary and embarked on the process of integrating management of the customer information and business strategies of Group companies. We are also formulating plans for capital investments to establish and expand key specialty gas production facilities and for the development of sales strategies and R&D plans.

Q3 What are Taiyo Nippon Sanso's principal competitive advantages in the area of electronics-related products?

One of our principal strengths is our global presence, that is, our global network of Group companies that respond to the diverse needs of core customers in different regions, the lineup of original products and external procurement capabilities and on-site service capabilities that make this possible. Of particular note, our electronics materials gas production facilities, from which we serve the East Asian and North American markets, and on-site total gas management capabilities, enable us to respond directly to customer wishes. In addition, we have added R&D functions to our electronics materials gas production facilities, thereby creating a framework that supports swift product development. Understanding our customers' medium- to long-term strategic roadmaps makes it possible for us to optimize investments to enhance product mix, output, quality, timing and location of production.

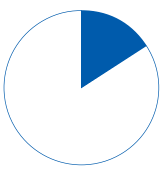
Q4 How will you proceed with application of the Total Electronics concept going forward?

Our strategies for the specialty gases business are linked to Ortus Stage 2 and we have set a goal for revenue in fiscal year 2021, the final year of the plan, of ¥60 billion. We have set a long-term target of lifting our market share to 20%, from approximately 15% at present. Accordingly, we must continue to expand our business in East Asia, notably China, Taiwan and South Korea, in line with our customers' strategic roadmaps. We are currently exploring the construction of new production facilities for diborane and fluoromethane at Matheson Gas Products Korea, Co., Ltd.'s Asan Plant, which is scheduled to start supplying customers in the fourth quarter of fiscal year 2019. In China, Yangzhou Taiyo Nippon Sanso Semiconductor Gases Co., Ltd. is currently building production facilities for diborane and fluoromethane at its plant in Yangzhou Chemical Industry Park in Jiangsu Province. In preparation for an expected increase in demand in China beginning in 2020 and in light of the government's policy of promoting production within the country, we will continue to make additional investments in China and to expand collaboration with local manufacturers. In the area of product development, we will seek to link R&D sites in Japan, South Korea and the United States in an organic manner into the Total Electronics function with the aim of expanding into the area of precursors and other liquid materials.

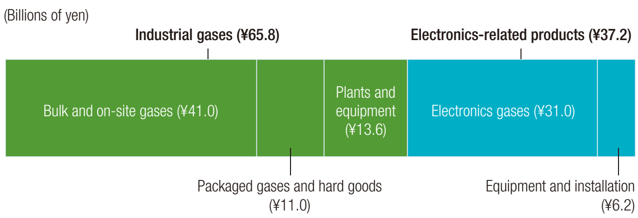
Looking ahead, we plan to utilize IoT technologies to integrate safety, quality and production control at our production facilities for electronics material gases in Japan, China, South Korea and the United States. By thus creating a business model that ensures stable supplies of competitively priced Taiyo Nippon Sanso-brand products, thereby increasing customer satisfaction, we aim to boost our share of the global market for electronics material gases to 20%.

Percentage of Revenue

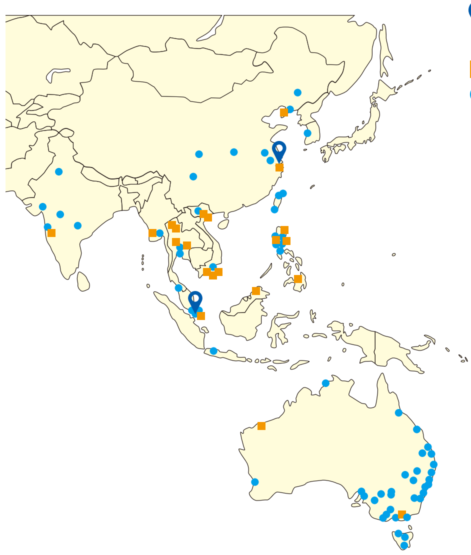
(Fiscal year 2018)



16.0%
(¥103.1 billion)



Business Sites in Asia and Oceania



Air separation unit in Yangon, Myanmar (Taiyo Nippon Sanso Myanmar Co., Ltd.)

Thermos Businesses

Outline of Business
Market Presence and Competitive Advantages

Our Thermos business dates back to 1978, when predecessor Nippon Sanso Corporation, seeking new applications for existing gas technologies, began developing vacuum-insulated bottles. In the years since, we have expanded our product lineup to include sport-use vacuum-insulated beverage bottles, portable vacuum-insulated mugs and other popular offerings. From our production facilities in Malaysia, China and the Philippines, we currently provide stable supplies of high-grade Thermos-branded products in more than 120 countries worldwide.

The Thermos Group is particularly noted for its excellent development capabilities, with approximately 30% of its annual production accounted for by newly released products, and continues working to expand its operations in a manner that effectively grasps market needs by enhancing its product lineup and business domains. Backed by rigorous quality control, the Thermos brand continues to gain acceptance in markets around the world.

THERMOS® QUALITY SINCE 1904

Fiscal Year 2018 in Brief

Revenue: +3.5% from fiscal year 2017	
Japan	Sales were firm, led by portable vacuum-insulated mugs
Overseas	Revenue was bolstered by the expansion of sales channels in South Korea

Segment profit: –16.5% from fiscal year 2017	
Japan	Profit declined, owing to higher costs (mainly for publicity and advertising)
Overseas	Results at overseas equity-method affiliates flagged

Interview: Growth Strategies for the Thermos Business

Keiichiro Chujo
President and CEO
Thermos K.K.

Q1 Can you tell us a bit about the evolution of the Thermos business?

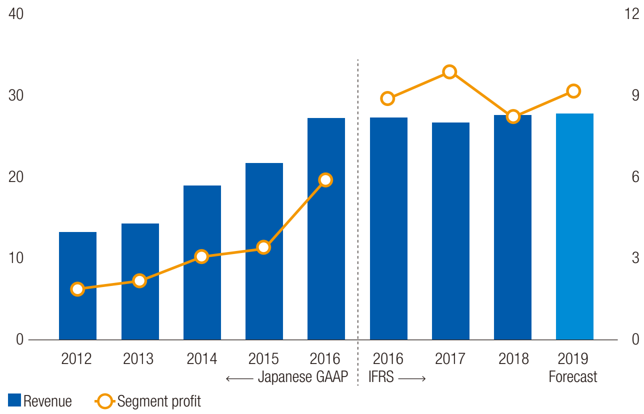
Today's Thermos business began with the 1978 development of the world's first stainless steel high vacuum-insulated bottle by one of our predecessors, Nippon Sanso. Made entirely of stainless steel, this revolutionary unbreakable bottle overcame the durability issues associated with glass-lined vacuum-insulated bottles, and its launch was a major milestone in the evolution of this industry. In 1989, Nippon Sanso acquired the Thermos business from Household International, Inc., of the United States and commenced production and sales of Thermos-brand vacuum-insulated bottles. In 2001, Nippon Sanso spun the business off as a subsidiary, Thermos K.K.

Q2 How has the operating environment changed?

In Japan, the idea of carrying around one's own beverage bottle as being ecologically sound and cool began to take hold around 2006. With the economic downturn precipitated by the collapse of Lehman Brothers Holdings Inc. in 2008, the trend was further fueled by rising frugality, further driving the popularity of portable vacuum-insulated mugs. Against a backdrop of market growth, in 2012 we released the ultra-light JNL series, which rapidly swept the domestic market thanks to their light weight—approximately 30% lower than conventional products—and to their compact size and slim profile, with a cumulative total of 15 million units sold to date. This, together with a recent increase in inbound demand attributable to rising number of overseas tourists visiting Japan, has further bolstered overall demand for vacuum-

Revenue and Segment Profit

Years ended/ending March 31
(Billions of yen)



Note: Effective from fiscal year 2019, other businesses currently accounted for in the Thermos and Other Business segment will be shifted to the Gas Business in Japan and the segment will be renamed the Thermos Business. Accordingly, the basis for calculating the revenue and segment profit forecast for fiscal year 2019 differs from that used for calculating revenue and segment profit reported for the years up to and including fiscal year 2018. Calculated on the same basis as the fiscal year 2019 forecast, revenue and segment profit in fiscal year 2018 would have been ¥2.5 billion and ¥0.6 billion lower, respectively, than reported results.

insulated bottles. Overseas, we expect demand to continue rising in South Korea, China and Southeast Asia. In Europe, we will work to stimulate demand while at the same time expanding the number of categories in which we offer products and striving to bolster awareness of the Thermos brand.

Q3 What are your growth strategies for the Thermos business?

Our principal sales strategy is to continue promoting area marketing tailored to cultural and dietary customs in different parts of the world. In Japan, we have traditionally focused on products designed for carrying about outdoors, but we intend to create an entirely new product category based on the idea of cultivating demand for use indoors, as well as to promote active publicity and advertising with the aim of bolstering the value of the Thermos brand. We have recently expanded our network of directly operated brick-and-mortar shops, organized around the theme of “lifestyles with Thermos,” opening outlets in Tokyo’s Futako–Tamagawa district in March 2017 and the Minato Mirai area of Yokohama in June 2018. Strategies overseas center on expanding our sales channels and further reinforcing the Thermos brand, as well as to expand operations in areas other than stainless steel vacuum-insulated bottles. Thermos-brand products are currently manufactured at three facilities worldwide. Going forward, we will expand our production capacity at all three locations to facilitate swift, effective responses to rising demand in global markets.

Q4 What are your hopes for the future?

As a global manufacturer of vacuum-insulated bottles, we seek to provide products that enhance lifestyles and are environment-friendly, in line with the concept “Thermos: Maintaining a tasty temperature.” Looking ahead, we intend to expand our product portfolio beyond vacuum-insulated bottles, leveraging the insulating technologies we have fostered as pioneer in this field, as well as our ability to envision unique lifestyles, to develop offerings such as high-performance speakers with dual-structure vacuum-insulated bodies and insulated drinking containers for babies, to realize products that help shape bold new lifestyles.

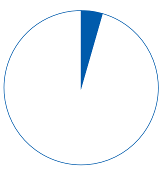
Topic

In response to soaring demand for our mainstay ultralight compact vacuum-insulated bottles, we recently established a new production facility in the Philippines, which commenced operations in 2017. The new facility, which is fitted with state-of-the-art production equipment, boasts an annual production capacity of 10 million units.

New production facility in the Philippines
(Vacuumtech Philippines Inc.)

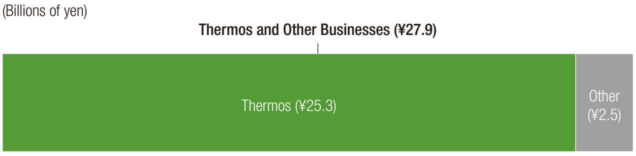
Percentage of Revenue

(Fiscal year 2018)

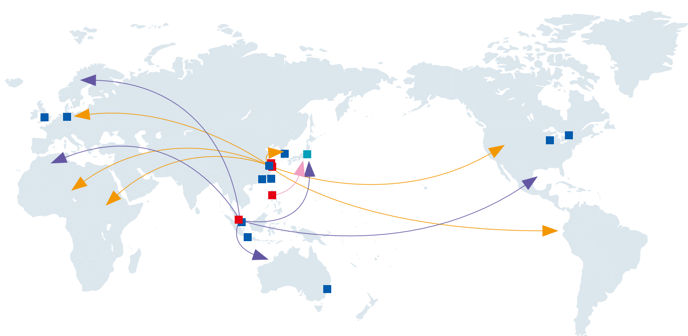


4.3%
(¥27.9 billion)

(Billions of yen)



The Thermos Group’s Global Network



Head office
Sales offices
Production facilities

Corporate Governance

Basic Philosophy

Our Board of Directors has established corporate governance principles, which serve as guidelines for corporate governance across the Taiyo Nippon Sanso Group. From the perspective of ensuring sustainable growth and increasing corporate value over the long term, and taking into account the positions of shareholders, customers, employees and local communities, we strive to guarantee the transparency and fairness of management, as well as to ensure the effective use of available management resources, while bolstering the strength of management through prompt and decisive decision making. Accordingly, we continue to promote efforts to enhance our corporate governance capabilities in line with the following five basic beliefs:

(1) We will respect shareholder rights and ensure equality.
(2) We will consider the benefits of shareholders and other stakeholders, and work appropriately in partnership with those stakeholders.
(3) We will ensure transparency by releasing appropriate corporate information at appropriate times.
(4) By separating supervisory and executive functions, we will improve effectiveness of the Board of Directors' supervisory function over the company's business executions.
(5) We will engage in constructive dialogue with shareholders in order to contribute to the sustainable growth of the group and the medium- to long-term improvement of corporate value.

Initiatives to Improve Corporate Governance

Date	Area	Initiative
June 2015	Composition of the Board of Directors	Revised Articles of Incorporation to reduce the maximum number of directors on the Board of Directors from 20 to 15 to accelerate decision making Reduced the number of directors on the Board of Directors from 16 to 11 Appointed two independent outside directors
June 2015–July 2015	Compliance	Established the position of Chief Compliance Officer (CCO) with the aim of ensuring the effectiveness of compliance Established the Corporate Audit Office to assist the efforts of the CCO
October 2015	Other	Formulated principles of corporate governance Formulated disclosure policy
June 2016	Committees	Established the Advisory Committee on Appointments and Remuneration, consisting of the chairperson of the Board of Directors, the president (CEO) and independent outside directors, to improve the transparency and objectivity of procedures for appointing and determining remuneration for directors
June 2016	Remuneration for directors	Introduced performance-linked bonuses tied to degree of achievement of medium-term management plan targets as an incentive with the goal of driving medium-term growth
July 2017	Committees	Established the Information Management Committee to create an appropriate framework for the joint management of information among pertinent departments
February 2018	Compliance	Appointed a Group CCO and six regional CCOs (North America, East Asia, Taiwan, Southeast Asia, India and Australia) to reinforce compliance Groupwide and created Group global and regional compliance frameworks and formulated global compliance management regulations that define the roles thereof Established Global Compliance Committee to facilitate the sharing of information on the status of compliance within the Group, the progress of legal proceedings and the provision of compliance training, among others, and to deliberate key related issues
June 2018	Risk management	Established the TNSC Technical Academy with the purpose of providing safety training and ensuring technical skills are passed on, crucial considerations from the perspective of technological risk management

Evaluation of the Board of Directors' Effectiveness

The process for evaluating the effectiveness of the Board of Directors centers on questionnaires distributed to individual directors, completed and submitted to the chairperson. At the meeting of the Board of Directors in March 2018, directors evaluated the current level of effectiveness of the Board, based on opinions expressed in the questionnaires, and discussed issues and remedial measures. As a result, it was determined that Board of Directors is effectively discharging its assigned duties. Based on a proposal by the chairperson, it was agreed at the meeting of the Board of Directors in May 2018 that directors will take steps going forward, including reconsidering the role of the committees comprising our internal control system, to further enhance the Boards ability to properly fulfill its responsibilities.

Management Structure

We have adopted an internal auditing system and clarified accountability on a fiscal year basis by setting the term of office for our directors at one year. In fiscal year 2018, the Board of Directors met 11 times to discuss important matters and hear reports on the status of business activities. We have also established the Advisory Committee on Appointments and Remuneration, a discretionary committee under the Board of Directors that includes the president (CEO) and is chaired by an independent outside director. The Board of Directors consults with the Advisory Committee on

Appointments and Remuneration to select candidates for the position of director, Audit & Supervisory Board member and executive officer and candidates to succeed the president (CEO), as well as regarding revisions to the internal regulations governing the Board of Directors, thereby ensuring the transparency and objectivity of decision making. In addition, we have established a Management Committee, which meets as necessary, helping to facilitate swift management decisions.

Auditing Structure

To ensure adequate monitoring capabilities, our Audit & Supervisory Board comprises four auditors, three of whom satisfy the requirements for outside auditors. Two of the outside auditors (Kazunari Higuchi, and Naoya Fujimori, currently in their second terms, attended all 11 meetings of the Board of Directors in fiscal year 2018, while the third—Akihiro Hashimoto—attended 9 of the 9 meetings held after he took office. Audit & Supervisory Board members met with the independent auditors 9 times in fiscal year 2018 and accompanied the independent accountants on their periodic site audits. This enables them to keep abreast of the status of audit implementation and to exchange opinions with the independent accountants on key aspects of the auditing process and on the assessment of internal control risks associated with auditing. Audit & Supervisory Board members are also briefed on essential aspects of audits and the assessment of risks associated with internal control by the internal auditing body. They also oversee management appropriateness and efficiency.

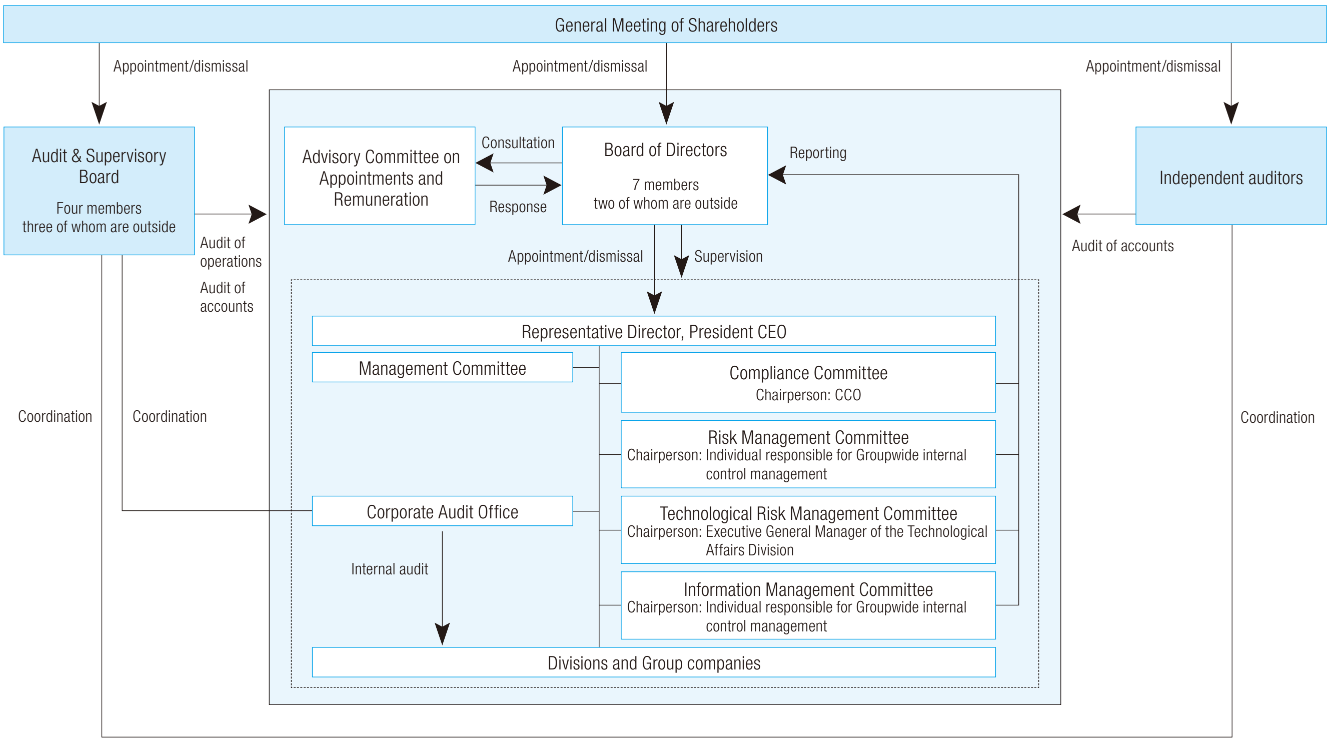
Remuneration for Directors

In fiscal year 2018, remuneration for 11 directors (including four who retired during the period) totaled ¥355 million, while that for five auditors (including one who retired during the period) totaled ¥103 million. Remuneration for directors consists of basic remuneration and performance-linked bonuses (medium- and short-term). Medium-term performance-linked bonuses are tied to degree of achievement of medium-term management plan targets, while short-term performance-linked bonuses are tied to year-on-year improvements in consolidated operating results.

Internal Control System

In line with Japan's Companies Act, we have established a system for ensuring appropriate business practices and are reinforcing internal control by clarifying decision-making authority and business processes, among others. We have also established Compliance, Risk Assessment, Technological Risk Management and Information Management committees with the aim of reinforcing compliance and ensuring the effectiveness of our internal control system.

Auditing and Risk Management Structure



Compliance Committee

In addition to formulating the Taiyo Nippon Sanso Group Code of Business Conduct, which sets forth standards to guide the daily conduct of all Group employees from the perspectives of compliance with laws and regulations, corporate ethics and internal regulations, we have published a related guidebook and work to promote awareness of the code. To reinforce adherence to the code, we have also established the Compliance Committee, which is chaired by the Group CCO and meets twice annually to hear reports on the status of compliance within the Group and the progress of efforts to address previously detected issues. The committee also confirms the progress of legal proceedings to which the Group is party. Overseas, we have appointed six regional CCOs (North America, East Asia, Taiwan, Southeast Asia, India and Australia) to spearhead regional compliance efforts, including the provision of training that addresses region-specific risks, and have clarified the route for reporting compliance violations. In addition, we have established the Global Compliance Committee, which is chaired by the Group CCO. The Global Compliance Committee is briefed on the status of regional compliance efforts and the progress of legal proceedings to which the Group is party by regional CCOs, with whom it shares information. Both the Compliance Committee and the Global Compliance Committee briefs the Management Committee and the Board of Directors on their activities.

Risk Assessment Committee

We have established the Risk Assessment Committee to assess and consider efforts to address persistent risks with potential to affect business execution and risks that have manifested as actual issues. The committee, which is chaired by the individual in charge of Groupwide internal control, meets once annually. In addition to assessing risks identified as likely to affect performance in terms of frequency and quantitative impact, the committee reports on accidents at production facilities, product defects and other issues that represent the manifestation of risks. Should it determine that risks remain for which management systems do not yet exist, the committee pinpoints the departments responsible and implements appropriate measures. The committee also reports on its activities to the Management Committee and the Board of Directors.

Technological Risk Management Committee

We place a high priority on the reduction of risks related to security, the environment, product quality and safety, and intellectual property, and have established the Technological Risk Management Committee to prevent such risks from manifesting into actual issues. The committee, which is chaired by the executive general manager of the Technological Affairs Division, has established dedicated teams to manage risks in different categories. The committee meets twice annually to ensure an accurate grasp of risks that have manifested as actual issues and reports on these meetings, as well as on efforts to address such risks, to the Board of Directors.

Each February, the Technological Risk Management Committee holds the Technological Risk Management Conference, chaired by the president. The conference is responsible for making decisions on the coordination of risk management for the Group as a whole, as well as for annual technological risk management policies and priority issues.

Information Management Committee

To ensure the appropriate management of personal, technological, business, accounts-related and other information, pertinent departments have cooperated to establish the Information Management Committee. The committee, which is chaired by the individual responsible for Groupwide internal control management, has created a management framework tailored to different types of information and oversees the implementation of measures to ensure the security of information systems. It also provides education and training on procedures for managing information, and determines policies for responding in the event of major incidents pertaining to information management. The committee reports on its activities to the Management Committee and the Board of Directors.

President's Basic Policy on Technological Risk Management

To fulfill the responsibilities implied in our corporate slogan, "The Gas Professionals," we recognize that we have an obligation to ensure stringent compliance with relevant laws and regulations and to prioritize the management of key technological risks, i.e., risks related to security, product quality, product safety, the environment and intellectual property. Accordingly, we have formulated the President's Basic Policy on Technological Risk Management.

We will continue taking steps to minimize such risks and to enhance customer satisfaction across all areas of our operations. These include ensuring the President's Basic Policy on Technological Risk Management is fully understood and applied by every Taiyo Nippon Sanso Group employee, as well as formulating and implementing a Groupwide technological risk management system and effective business continuity planning (BCP) to guarantee critical operations are maintained in the event of a disruption caused by an earthquake or other major disaster. At the same time, we will work to contribute to greater public safety and environmental preservation, thereby earning the trust of society at large, ensuring the sound growth of our businesses and building greater corporate value.

Safety:	Implement decisive, practical measures to ensure the safety of our operations, in line with our belief that selling gas is commensurate with selling safety and peace of mind.
Product quality:	Accurately grasp the increasingly sophisticated and diverse customer needs and social imperatives and respond by ensuring optimum product quality.
Product safety:	Minimize safety risks at all stages of the product life cycle to ensure the safety and security of the products we supply.
Environment:	Take steps to reduce the negative impact of our operations on the global environment and to prevent pollution.
Intellectual property:	Obtain and make use of intellectual property rights as necessary to preclude competition with other companies.

(As of June 27, 2014)

Messages from Outside Directors

We spoke to our two outside directors regarding their assessment of our current corporate governance system, remaining challenges and how they see their roles.

Akio Yamada
Outside Director

How do you view Taiyo Nippon Sanso's current challenges and future outlook?
The process of formulating Ortus Stage 2 began with active discussions involving divisions, the management conference and the Board of Directors. This bottom-up approach was exemplary in that it generated a sense of unity and an enthusiasm for achieving the targets of the plan among executives and employees. In the current period, we are promoting active, bold investments and initiatives in line with this plan that will underpin sustainable growth going forward. Looking ahead, we will need to advance M&A activities worldwide with the aim of driving our growth as a global organization both in name an in substance and ensuring we remain a competitive challenger. There is also an increasing need for swift management decision making, so this is another challenge requiring prompt attention.

What steps are being taken to reinforce corporate governance?
Taking into account the positions of our various stakeholders, we strive to guarantee the transparency and fairness of management. To assess the performance of the Board of Directors, we conduct surveys using questionnaires and take steps to address issues identified, including thorough deliberation and the implementation of remedial measures. In light of the introduction of a revised version of Japan's Corporate Governance Code in June 2018, the Advisory Committee on Appointments and Remuneration is expected to formulate a plan for the appointment/dismissal of, and selection of successors for the CEO, including outlining criteria and standards for the long-term fostering of human resources and management candidates, from a global perspective. Because of the unique nature of our businesses, we place an emphasis on the management of technological risks, including those related to security, quality and product safety, and report on our activities at meetings of the Board of Directors. Recognizing the management of technological risks for Group companies worldwide as particularly critical, we will continue to promote initiatives with an unyielding sense of purpose.

What can you tell us about the effectiveness of the corporate governance system?
Taiyo Nippon Sanso is a company with a Board of Corporate Auditors. Three of our full-time corporate auditors are highly experienced individuals who satisfy the requirements for outside auditors. Our auditing methods and processes are extremely robust. We exchange opinions with outside auditors, which enables us to gain useful input, and communicate these opinions to those responsible for business execution. Looking ahead, we will continue working to strengthen our internal control framework and to ensure active, swift management decisions in response to changes.

Mitsuhiro Katsumaru
Outside Director

As someone with an independent, objective perspective, what do you think is the principal challenge facing Taiyo Nippon Sanso today?
We established a presence in North America through Matheson Tri-Gas. In 2016, we acquired Supagas Holdings in Australia, which became a consolidated subsidiary. These and other decisive efforts to expand our overseas operations have transformed us into a truly global organization. As such, a certain level of corporate governance, sustainable growth and social contribution befitting a global organization is expected of us. Fostering leaders and successors with the ability to make resolute management decisions with a medium- to long-term perspective and a view to the future will thus continue to be a major focus.

What can you tell us about Taiyo Nippon Sanso's principal strengths and future potential?
Our mission is to ensure safe and stable supplies of industrial gases. Industrial gases are indispensable to the survival and growth of basic industries such as steel and chemicals, but they are also expected to play a critical role in such areas as advanced medicine and environmental conservation in the years ahead. The fact that we have a solid market is our principal strength.

What do you see as important to increasing the effectiveness of the Board of Directors?
Japan's Corporate Governance Code was launched in June 2015. In the years since, we have promoted active discussion regarding our corporate governance system, spearheaded by the Board of Directors. Outside directors are unfettered by past constraints, so we have been able to express our opinions without reservation throughout the process of reexamining our corporate culture, separating execution and supervisory functions, and promoting efficient corporate management. I think we have helped to ensure active debate at Board of Directors' Meetings. Going forward, we will continue to leverage our ability to speak freely to bring further depth to Board of Directors' discussions.

How do you see your role going forward and what challenges do you anticipate?
I would like to pay particular attention to ensuring compliance and managing risks. Scandals and accidents are a major hindrance to a growing company. I believe that remaining focused helps one avoid becoming complacent, so that's what I will endeavor to do.

Members of the Board of Directors, Members of the Audit & Supervisory Board and Executive Officers

(As of June 20, 2018)

Members of the Board of Directors

Representative Director,
President CEO
Yujiro Ichihara

Member of the Board,
Senior Managing Executive Officer,
Executive General Manager,
Engineering Div.
Masahiro Uyehara

Member of the Board,
Senior Managing Executive Officer,
Executive General Manager,
Gases Business Div.
Kenji Nagata

Member of the Board,
Managing Executive Officer,
Chief Compliance Officer
Shoji Yoshisato

Member of the Board (Outside Director)
Akio Yamada

Member of the Board (Outside Director)
Mitsuhiro Katsumaru

Member of the Board
Kenkichi Kosakai

Members of the Audit & Supervisory Board

(*Outside Auditor)

Kazunari Higuchi*

Naoya Fujimori*

Akihiro Hashimoto*

Junzo Tai

Executive Officers

Senior Executive Officer
Hiroyuki Tanizawa
Executive General Manager, Technological Affairs Div.
Chief Sustainability Officer

Senior Executive Officer
Norikazu Ishikawa
General Manager, South East Asia

Senior Executive Officer
Hirohisa Yanagida
General Manager, Kanto Regional Branch

Senior Executive Officer
Haruhiko Yasuga
General Director, Vietnam Japan Gas Joint Stock Company

Senior Executive Officer
Masahisa Kanzaki
Executive General Manager, Energy Div.

Senior Executive Officer
Nobuaki Kobayashi
Executive General Manager, Research & Development Div.

Executive Officer
Kunihiro Kobayashi
Executive General Manager, Innovation Div.

Executive Officer
Yasuhiko Kawano
General Manager, Chubu Regional Branch

Executive Officer
Yuki Endo
General Manager, Kitakanto Regional Branch

Executive Officer
Toshikazu Kurishita
General Manager, Kyushu Regional Branch

Executive Officer
Satoshi Wataru
Executive General Manager, Human Resources, Corporate Planning,
Chief Health Officer

Executive Officer
Tsutomu Moroishi
Executive General Manager, Global Operations Div.

Executive Officer
Toyoyuki Sato
Deputy Executive General Manager, Research & Development Div.

Executive Officer
Yasushi Nagaoka
Deputy Executive General Manager, Plant Engineering Center, Engineering Div.

Executive Officer
Masaharu Takagi
Deputy Executive General Manager, Gases Business Div.

Executive Officer
Toru Yanagawa
Executive General Manager, On-Site & Plant Div.

Executive Officer
Daiji Nakajima
Executive General Manager, Production & Logistics Div.

Executive Officer
Masanobu Narita
General Manager, Kansai Regional Branch

Executive Officer
Yoshifumi Koide
Executive General Manager, Corporate Administration Div.

Executive Officer
Tsuneo Tanaka
Executive General Manager, Medical Div.

Executive Officer
Takeshi Miki
Deputy Executive General Manager, Technological Affairs Div.

Executive Officer
Kouichi Take
General Manager, Chugoku Shikoku Regional Branch

Working with Stakeholders

Recognizing that our longevity and future prosperity depend on our ability to earn the trust of society as a whole, we have established a framework for fulfilling our responsibilities to stakeholders and are implementing a variety of initiatives aimed at maintaining a strong corporate culture.

Young Researchers’ Conferences Encourage Technical Exchanges and the Presentation of Research

We hold young researchers’ conferences four times annually at our Tsukuba and Yamanashi laboratories (the facilities host one conference each independently and collaborate to host the remaining two). The conferences provide an opportunity for young researchers to present their research, thereby improving their communication skills, as well as to pose questions to other researchers, which increases their comprehension. To encourage active discussion among young employees, there is a rule in place that management members do not ask questions.

The Tsukuba Laboratory began conducting young researchers’ conferences, with more than 500 individuals having presented their research to date. Researchers take participate actively in Q&A sessions and lead the exchange of opinions on individual presentations, underlining the importance of these events as a source of new ideas and responses to issues.

Conferences provide an opportunity for communication among young researchers from across the Group

Local Subsidiary Participates in the 5th Japan Vietnam Festival

In January 2018, affiliate Vietnam Japan Gas Joint Stock Company (VJG) participated in the fifth annual Japan Vietnam Festival in Ho Chi Minh City. This was the second consecutive time the company has taken part in this annual event. Organized around the theme “What does VJG do?” the company’s booth used models to introduce visitors to VJG’s operations. The company also conducted a science lab lesson for children, an undertaking that proved particularly popular in 2017. This year’s lab lesson explored ways in which industrial gases are used in food preparation. To illustrate the theme, participating children were given snacks in packages filled with nitrogen gas, a key VJG product. The event served as an opportunity to increase familiarity with industrial gases among both local and Japanese residents of Ho Chi Minh City. Looking ahead, we will continue to promote initiatives aimed at increasing communication with the communities where we operate around the world.

VJG’s booth welcomed more than 500 visitors

Communication with Shareholders and Investors

In addition to our annual general meeting of shareholders, we conduct results presentations, facility tours and other events for institutional investors and buy-side analysts. Results presentations make use of visual aids to deepen understanding of our operations, operating results and our forecasts for the future. Facility tours are designed to enhance understanding of what we do and include regularly scheduled visits to both facilities and research laboratories. In March 2018, we conducted a tour of the production facility of Group company International Carbon Dioxide Co., Ltd., in Chiba Prefecture, with the aim of introducing shareholders and investors to our carbon dioxide gas business.

We also put out a number of regular publications for shareholders and investors, including full-term and interim business reports. Effective from fiscal year 2018, we combined our annual report with our environmental and social responsibility report into a single integrated report. This document provides both financial information, such as that related to business strategies and operations, and non-financial information, including that related to environmental protection, social contribution and corporate governance, with the aim of giving readers an accurate overall picture of the Taiyo Nippon Sanso Group.

Enhancing our corporate website is another key focus of our efforts. As well as various key documents, the website provides a compact outline of our various businesses in a compact, easy-to-understand form and other content that give even first-timers a clear view of the Group and its activities.

Tour of plant for institutional investors and securities analysts

Results presentation

Taiyo Nippon Sanso Major Club Official Dealer System

In April 2005, we launched an official dealer system, dubbed the Taiyo Nippon Sanso Major Club, with the aim of responding accurately and effectively to the needs of end users across Japan. In addition to providing official dealers ("partner companies") with competitive products, we leverage our position to provide a wide range of services, including domestic and overseas sales support, technical assistance and management consultation.

The Taiyo Nippon Sanso Major Club—comprising the core Partners' Club and two functional subgroups, the LP Gas Club and the Medical Club—boasts a robust national network that is instrumental in ensuring our products are delivered safely and reliably to end users. For each constituent club, we offer seminars and training sessions on operational safety and other themes. Partner companies also promote a variety of ongoing independent skill-building initiatives aimed at enhancing customer satisfaction and improving their own performance as responsible corporate citizens. Going forward, we will continue working to reinforce customer satisfaction and enhance our reputation as an organization worthy of trust through ongoing initiatives with Taiyo Nippon Sanso Major Club partners.

Organization of the Taiyo Nippon Sanso Major Club

MAJOR CLUB

Logo

*The Partners Club is divided into seven regional blocks:
Tohoku, Kita-Kanto, Kanto, Chubu, Kansai, Chugoku–Shikoku and Kyushu.

LP Gas Club (Functional subgroup)	Partners' Club*	Medical Club (Functional subgroup)

Inaugurated: April 1, 2005

Chairperson: Representative Director, President CEO Taiyo Nippon Sanso

Number of participating dealers: 288 (as of July 2018)

Secretariat: Gases Business Division, Taiyo Nippon Sanso

The *Major Club Magazine* helps us communicate with Major Club members.

Training session

Lab Lessons Using Liquid Nitrogen

Our Taiyo Nippon Sanso Kids' Science Class lab lessons seek to encourage children to take an interest in science by giving them the chance to participate in hands-on experiments using liquid nitrogen. These lab lessons enable children to actually experience the use of liquid nitrogen by, for example, freezing a rose. In fiscal year 2018, we conducted a lab lesson as part of nearby Shinagawa Municipal Ushiroji Elementary School's annual open house, in which we participate every year. We also conducted lab lessons using liquid nitrogen at events sponsored by official dealers and customers' plants, community events and on a variety of other occasions. The lessons received high marks not only from children, but also from teachers, parents and guardians, and local residents. Looking ahead, we will continue looking to expand opportunities to offer of lab lessons to broaden understanding of the Taiyo Nippon Sanso Group.

Shinagawa Municipal Ushiroji Elementary School open house

A total of 29 fifth-year students took part in the 2017 edition of this annual lab lesson. Experiments conducted included generating white smoke using the same mechanism that results in clouds and testing roller coaster superconductivity.

Saitama Prefectural Office open house, Saitama Residents' Day

Approximately 230 individuals took part in a highly successful lab lesson conducted as part of this event.

Official dealer events

Lab lessons conducted at official dealer events were designed for participation by parents and children together and made use of liquid nitrogen, dry ice and other materials.

Environmental Protection Initiatives

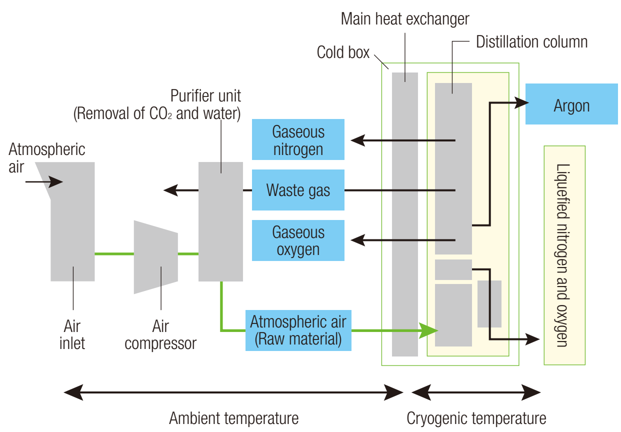
In addition to ensuring a solid grasp of the environmental impact of the Taiyo Nippon Sanso Group's business activities, we promote a broad range of initiatives aimed at helping mitigate global warming, the central theme of our environmental protection efforts. Of particular note, we are taking steps to reduce energy consumed per unit of production at gas production facilities, promoting energy-saving measures at various sites, and striving to increase the efficiency of transport by tanker truck.

Environmental impact of oxygen, nitrogen and argon production

The production of core Taiyo Nippon Sanso Group products oxygen, nitrogen and argon requires a considerable amount of electric power. Emissions of CO_2 resulting from the use of electric power used for this purpose accounts for approximately 98% of total Group emissions.

Air separation units produce oxygen, nitrogen and argon simultaneously by separating atmospheric air into its constituent gases. Air is first compressed, a process that is highly energy-intensive and thus uses a significant amount of electric power. Compressed air is cooled almost to the point where the gases liquefy, after which it is ready for the distillation column, where it is separated into its gas and liquid components using a thermal distillation process. Nitrogen, which has a low boiling point, concentrates in the gas and is withdrawn from the top of the column, while oxygen, which has a higher boiling point, concentrates in the liquid and is withdrawn from the bottom of the column. Argon, which has an intermediate boiling point, is withdrawn from the middle of the column.

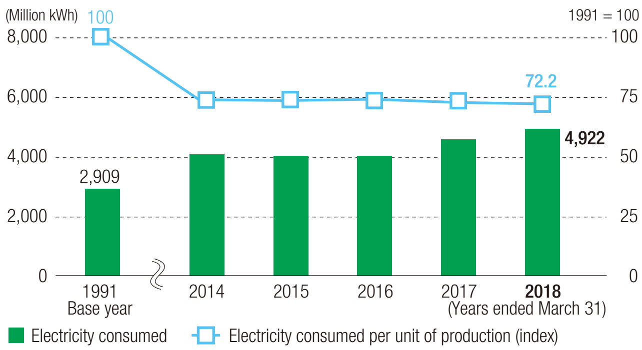
Air Separation Unit: Simplified Process Flow



Reducing Energy Consumption at Gas Production Facilities

Our efforts to contribute to the prevention of global warming center on reducing energy consumption at gas production facilities. We have established an Energy Saving Working Group as a subsection of or Environmental Management Committee to guide these efforts. In fiscal year 2018, consumption of energy per unit of production by such facilities was down 1.8% from fiscal year 2006, the base year used for this measurement. Moreover, these facilities' consumption of electric power per unit of production was down 27.8% from fiscal year 1991. Efforts by gas production facilities to reduce energy consumption included developing and installing energy-efficient air separation units, replacing air separation unit components with new high-efficiency versions, and optimizing facility operations to better reflect demand. These facilities also promote initiatives line with the Commitment to a Low-Carbon Society plan formulated by the Keidanren (Japan Business Federation) and the Japan Chemical Industry Association (JCIA)'s action plan for realizing a low-carbon society.

Consumption of Energy and Electricity per Unit of Production by Gas Production Facilities



Scope of data: Gas production facilities belonging to and gas production companies managed by Taiyo Nippon Sanso.

Note: Increases in fiscal years 2017 and 2018 reflect the expansion of the scope of data to include Yahata Sanso Center and JFE Sanso Center's Kurashiki Plant, respectively.

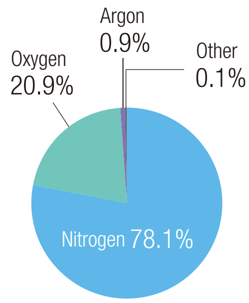
Other Initiatives

Challenges and targets	Principal initiatives	Progress as of fiscal year 2018	Relevant companies/ departments/sites
(1) Promote energy-saving measures at various sites to reduce electric power consumption	• Cut unnecessary electric power consumption by office and lighting equipment • Replace air conditioning, OA, lighting, shared and other equipment with energy-efficient new models • Implement no overtime days and Cool Biz (liberal summer dress code to reduce use of air conditioning)	Down 1.0% (from fiscal year 2017)	All Taiyo Nippon Sanso sites (excluding gas production facilities)
(2) Increase the efficiency of transport by tanker truck to reduce fuel used in the transport of products	• Optimize shipping routes • Rethink delivery intervals • Promote the weighing of cargo in the presence of the customer • Introduce new-model tanker trucks • Reinforce green driving training	Down 28.6% (from fiscal year 1991)	Group and subcontracted logistics companies
(3) Contribute to environmental protection through our products by increasing sales of environment-friendly products	Take steps to bolster sales of hydrogen refueling stations, SCOPE-JET®, MG Shield®, SF_6 Recovery Service and Thermos products.	Down 1,734,000 tonnes of CO_2	Taiyo Nippon Sanso and domestic Group companies

Note: Contributions to the reduction of greenhouse gas emissions were calculated in accordance with the Japanese Ministry of Economy, Trade and Industry's Guideline for Quantifying GHG Emission Reduction Contribution (formulated in March 2018).

Atmospheric air is the raw material used to produce industrial gases.

Raw material



Atmospheric air consists of oxygen, nitrogen, argon and other gases.

Electric power used here represented **99.8%** of total electric power consumption.

Development and production

Gas filling stations

Gas production facilities

INPUT

- **Electric power** 5,586 million kWh
- **Other energy** 1,161,000 GJ
- **Resources/materials**
- **Chemical substances** 504 tonnes
- **Water** 11.41 million m³

REUSE

We recycled and reused water and curbed resource consumption.

OUTPUT

Greenhouse gas emissions
4,217,000 tonnes CO_2

Calculated in tonnes of CO_2

Emissions due to the use of electric power	4,147,000 tonnes CO_2
Emissions due to the use of other energy	68,000 tonnes CO_2
Emissions of greenhouse gases other than CO_2	2,000 tonnes CO_2

Chemical substances discharged 30 tonnes

Water discharged 3.8 million m³ (Estimate)

Industrial waste discharged 3,538 tonnes

RECYCLE

Volume of industrial waste recycled 1,644 tonnes

Supplied in cylinders

Supplied by tanker trucks

Supplied by pipeline

Supply

INPUT

- **Diesel oil/gasoline***1 18,000 kL

OUTPUT

Greenhouse gas emissions
47,000 tonnes CO_2

Oxygen O_2 · Nitrogen N_2 · Argon Ar · Carbon dioxide CO_2 · Hydrogen H_2 · Helium He · LPG · Specialty gases

Oxygen O_2 · Nitrogen N_2 · Argon Ar

Oxygen O_2 · Nitrogen N_2 · Argon Ar

Liquefied gases are transported from production facilities by tanker truck to filling stations, where vaporized gases are compressed into cylinders.

Sales

Sites

Service vehicles

INPUT

- **Electric power***2 14 million kWh
- **Other energy** 18,000 GJ
- **Diesel oil/gasoline***3 300 kL

OUTPUT

Greenhouse gas emissions
9,000 tonnes CO_2

Calculated in tonnes of CO_2

Emissions due to the use of electric power	7,000 tonnes CO_2
Emissions due to the use of diesel oil/gasoline	1,000 tonnes CO_2
Emissions due to use of other energy	1,000 tonnes CO_2

Industrial waste discharged
954 tonnes

RECYCLE

Volume of industrial waste recycled 521 tonnes

Use

Most industrial gases return to the atmosphere after use, resulting in minimal waste.

Customers

- Steel/nonferrous metals
- Electronics
- Petroleum/chemicals
- Automobiles/machinery
- Glass/papermaking
- Healthcare
- Food
- Others

Industrial gases are used in a broad range of industries, from healthcare and food to petroleum/chemicals and electronics.

Total greenhouse gas emissions
4,273,000 tonnes CO_2

Contribution to the reduction of greenhouse gas emissions*4
1,734,000 tonnes CO_2

*1 Used by Group-designated consignors
*2 Used by Group sites
*3 Used by Taiyo Nippon Sanso service vehicles
*4 Calculated based on item 3 in the "Other initiatives" table on page 34.

Six-Year Summary

Taiyo Nippon Sanso Corporation and Consolidated Subsidiaries

(Millions of yen)

Financial indicators	IFRS	IFRS	IFRS	Japanese GAAP	Japanese GAAP	Japanese GAAP	Japanese GAAP
Years ended/as of March 31	**2018**	**2017**	**2016**	**2016**	**2015**	**2014**	**2013**
Revenue	¥646,218	¥581,586	¥594,421	¥641,516	¥559,373	¥522,746	¥468,387
Core operating profit	60,033	54,736	47,456	—	—	—	—
Operating profit	59,862	53,664	48,925	43,362	35,297	31,489	24,884
Profit (loss) attributable to owners of parent	48,919	34,740	29,030	25,845	20,764	20,194	(2,071)
Selling, general and administrative expenses/ revenue	27.7%	28.4%	27.1%	28.4%	26.7%	26.4%	26.8%
Return on equity	13.3%	10.3%	9.1%	8.2%	7.0%	8.4%	(1.0)%
Return on capital employed	8.4%	8.4%	8.1%	7.4%	6.2%	6.2%	5.5%
Capital expenditures	62,569	43,796	52,657	53,611	35,201	32,532	31,715
Investment and loans	4,556	102,034	25,507	32,941	5,710	35,749	5,672
Depreciation and amortization	43,266	40,048	39,696	44,864	35,568	33,507	29,400
Amortization of goodwill	—	—	—	7,352	4,959	3,668	2,719
Research and development expenses	3,255	3,323	3,238	3,348	3,430	3,170	3,177
Interest-bearing debt	326,959	359,528	266,215	274,424	266,276	278,063	253,424
Net interest-bearing debt	274,968	304,308	215,492	223,638	212,855	219,727	228,681
Net debt-to-equity (times)	0.71	0.87	0.67	0.71	0.67	0.80	1.12
Total equity attributable to owners of parent	386,457	351,576	320,457	337,974	341,207	298,475	224,253
Total assets	931,047	924,281	787,505	783,248	782,357	731,677	615,820
Amounts of per share of common stock:							
Profit (loss)	113.04	80.28	67.08	59.72	47.98	49.42	(5.25)
Cash dividends	23.00	20.00	16.00	16.00	13.00	12.00	12.00
Dividends payout ratio	20.3%	24.9%	23.9%	26.8%	27.1%	24.3%	—
Price earnings ratio (times)	14.25	16.22	15.92	17.88	34.16	16.43	(121.52)

Non-financial indicators							
Years ended/as of March 31	**2018**	**2017**	**2016**		**2015**	**2014**	**2013**
Number of directors	7	10	11		17	15	15
Number of outside directors	2	2	2		0	1	1
Outside directors as a percentage of total number of directors	28.6%	20.0%	18.2%		0.0%	6.7%	6.7%
Number of employees	16,746	15,860	14,107	14,127	13,142	12,955	11,468
Number of overseas employees	10,574	10,033	8,332	8,332	7,395	6,977	5,848
Overseas employees as a percentage of total number of employees	63.1%	63.3%	59.1%	59.0%	56.3%	53.9%	51.0%
CO_2 emissions (thousands of tonnes)*1	4,273	3,777	3,401		3,512	3,359	3,153
Energy consumption (thousands of GJ)*1	55,611	51,479	45,504		45,736	46,186	43,922
Composition:							
Electric power (millions of kWh)	5,600	5,209	4,607		4,611	4,630	4,400
Other energy (thousands of GJ)	1,179	901	790		963	1,234	1,193
Patent portfolio*2							
Patents owned in Japan	738	701	689		684	636	590
Patents owned overseas	356	328	295		300	293	272

*1 CO_2 emissions and energy consumption figures are for Taiyo Nippon Sanso sites and affiliated companies in Japan.
*2 Patent information for each year is for Taiyo Nippon Sanso and is as of December 31 of the previous year.

Management's Analysis of Operating Results and Financial Position

Operating Results

Consolidated revenue in fiscal year 2018, ended March 31, 2018 increased 11.1% from fiscal 2017, to ¥646,218 million. Cost of sales was up 12.5%, to ¥411,447 million, and was equivalent to 63.7% of revenue, up 0.8 percentage point. Selling, general and administrative expenses rose 8.3%, to ¥178,690 million, equivalent to 27.7% of revenue, 0.7 percentage point lower than in the previous period. As a consequence, operating profit advanced 11.5% to ¥59,862 million, and the operating profit margin edged up 0.1 percentage point, to 9.3%. Core operating profit—operating profit excluding gains or losses associated with nonrecurring factors such as withdrawals or from or the scaling down of businesses—amounted to ¥60,033 million, an increase of 9.7%, or ¥5,297 million.

Owing to these and other factors, profit attributable to owners of parent advanced 40.8%, to ¥48,919 million. Basic earnings per share rose ¥32.76, to ¥113.04, while ROCE remained level at 8.4%.

At the general meeting of shareholders held on June 20, 2018, shareholders approved a proposal to pay a year-end dividend of ¥12.00 per share, up ¥1.00, bringing cash dividends for the period, which comprised interim and year-end dividends, to ¥23.00 per share. This represented a payout ratio of 20.3%.

Capital expenditures, on a final acceptance basis, totaled ¥62,569 million, an increase of ¥18,773 million. Depreciation and amortization rose ¥3,218 million, to ¥43,266 million. Research and development expenses declined ¥68 million, to ¥3,255 million, equivalent to approximately 0.5% of revenue.

Results by Segment

Gas Business in Japan

In the area of industrial gases, revenue from core air separated gases (oxygen, nitrogen and argon) was solid, particularly to customers in the key steel and chemicals industries. Revenue from on-site gas services rose, owing to the establishment of a new on-site plant in October 2017. In contrast, revenue from equipment and plants was down from the previous period, when a large-scale air separation plant project bolstered revenue in this category. Among electronics-related products, sales of electronics materials gases were robust, underpinned by higher demand for use in LCD and semiconductor manufacturing. In the energy field, revenue from sales of LPG soared as rising import prices prompted sales prices hikes. As a consequence of these and other factors, revenue from external customers increased 6.5%, to ¥342,449 million, and segment profit advanced 4.4%, to ¥30,760 million.

Gas Business in the United States

The consolidation of a business acquired from Air Liquide in September 2016 contributed significantly to revenue in the area of industrial gases. Among existing businesses, revenue from bulk gases was up, owing partly to higher shipments of carbon dioxide gases. Shipments of packaged gases and hard goods were firm, underscored by economic recovery. For reasons such as these, revenue from external customers advanced 17.2%, to ¥172,646 million, and segment profit rose 12.3%, to ¥13,559 million.

Gas Business in Asia and Oceania

The December 2016 consolidation of Supagas Holdings in Australia had a positive impact on results in the area of industrial gases, as did increased revenue in China and Thailand. In electronics-related products, revenue from electronics materials gases soared, reflecting demand gains in China, South Korea and Taiwan. Thanks to these and other factors, revenue from external customers climbed 20.1%, to ¥103,166 million, while segment operating profit soared 78.8%, to ¥9,236 million.

Thermos and Other Businesses

Revenue rose steadily, bolstered by firm sales of portable vacuum–insulated mugs in Japan. As a consequence, revenue from external customers for the period advanced 3.5%, to ¥27,956 million. Nonetheless, segment profit decreased 16.5%, to ¥8,366 million.

Financial Position

Total assets as of March 31, 2018, amounted to ¥931,047 million, up 0.7%, or ¥6,765 million. The appreciation of the yen, which was ¥5.95 higher against the U.S. dollar at fiscal year-end than it was a year earlier, had a negative impact of approximately ¥21,400 million. Total current assets rose 3.8%, or ¥10,170 million, to ¥278,302 million, bolstered by increases in operating receivables and cash and cash equivalents. Non-current assets edged down 0.5%, or ¥3,404 million, to ¥652,744 million, owing to declines in goodwill and intangible assets.

Current liabilities rose 3.5%, or ¥7,485 million, to ¥221,087 million, thanks to higher trade payables and income taxes payable. Non-current liabilities declined 10.8%, or ¥35,929 million, to ¥297,887 million, reflecting a decrease in bonds and borrowings and deferred tax liabilities. The current ratio, at 126%, was up 0.3 percentage points. Interest-bearing debt as of March 31, 2018, declined 9.1%, or ¥32,569 million, to ¥326,959 million.

Total equity advanced 9.3%, or ¥35,209 million, to ¥412,072 million. This was attributable to an increase in profit attributable to owners of parent and a decline in retained earnings paid as dividends. As a consequence, total equity attributable to owners of parent as a percentage of total liabilities and net assets rose 3.5 percentage points, to 41.5%. Total equity attributable to owners of parent per share was ¥893.01, up ¥80.6. The interest-bearing debt ratio was 0.79 times, compared with 0.95 times at the end of fiscal year 2017.

Cash Flows

Net cash provided by operating activities amounted to ¥83,199 million, up ¥8,603 million from fiscal year 2017. Principal factors behind this result included higher profit before income taxes and deprecation and amortization and an increase in trade receivables.

Net cash used in investing activities, at ¥52,088 million, was down ¥94,994 million. This was attributable largely to purchase of property, plant and equipment and sales and proceeds from sales and redemption of investments.

Net cash used in financing activities came to ¥39,859 million, compared with ¥80,777 million provided by such activities in the previous fiscal year. Contributing factors included repayments of long-term borrowings, proceeds from long-term borrowings and redemption of bonds.

As a result of the Company's operating, investing and financing activities, the balance of cash and cash equivalents at end of fiscal year, after accounting for the effects of exchange rates, was ¥47,809 million, down ¥5,048 million from the previous fiscal year. Free cash flow was ¥31,111 million, compared with ¥103,597 million in fiscal year 2017.

Business Risks

Management Policy- and Business-Related Risks

Capital Investment

The Company maintains large-scale gas supply facilities for major customers and needs to spend heavily to build, maintain and upgrade these facilities. Accordingly, interest rate trends could have a material impact on the Company's business performance.

Manufacturing Costs

Electricity is the major component of the cost of manufacturing such core products as oxygen, nitrogen and argon. Accordingly, a sharp increase in the price of crude oil could result in substantially higher electricity charges, which the Company may be unable to reflect in the pricing of its products.

Overseas Factors

The Company maintains operations overseas, particularly in the United States and Asia. Political and economic changes in countries where the Company has operations may have an adverse impact on its business performance.

Legal Issues

Unanticipated changes to existing laws and the introduction of new laws—particularly in countries overseas where the Company maintains operations—may adversely affect the Company's business performance. Revisions to environmental laws that result in a tightening of restrictions may lead to an increase in costs to ensure compliance, which may also adversely affect the Company's business performance. Because the Company does business both in Japan and overseas, there is a risk that it may become involved in legal disputes or be the subject of investigations and/or legal action by relevant authorities in the markets in which it operates. Such legal and regulatory action may adversely affect the Company's operations, business performance, financial condition, reputation and reliability.

Technological and Safety Factors

Technological Development

With the aim of realizing distinctive, market-leading technologies that will ensure its position as a leading global player, the Company promotes technological development activities aimed at facilitating future business expansion. However, the creation of new products and technologies entails various risks.

Intellectual Property

The Company's business depends on proprietary technological development. The Company endeavors to obtain intellectual property rights as necessary for its proprietary technologies. However, there are no guarantees that its technologies are completely protected.

Product Safety and Security

The Company sells high-pressure gases and related equipment, including toxic and flammable gases for electronics-related applications. While the Company strives to ensure the effective management of related risks, it cannot guarantee the safety and security of all of its products.

Financial Risks and Other Factors

Foreign Exchange Risk

The Company exports products for sale outside of Japan. The Company strives to hedge foreign exchange risks by entering into forward exchange contracts and other derivative transactions. However, the Company may not be able to respond to sudden fluctuations in currency rates, which therefore may have an adverse impact on its business performance.

Retirement Benefit Liabilities

A sudden deterioration in retirement plan returns resulting in an increase in retirement benefit costs may have an adverse impact on the Company's business performance.

Natural Disasters and Contingencies

The occurrence of earthquakes or other natural disasters in areas where the Company has manufacturing facilities may damage those facilities. In particular, damage to the Company's large-scale manufacturing facilities may lead to a significant decline in production capacity and incur major recovery costs. Such factors may adversely affect the Company's business performance. Major accidents occurring as a result of contingencies, including those attributable to human factors, may also adversely affect the Company's business performance.

Medium-Term Management Plan

The Company's ability to meet the targets of its medium-term management plan may be adversely affected by a number of factors, including changes in the operating environment.

Capital Alliance with Mitsubishi Chemical Holdings

Mitsubishi Chemical Holdings Corporation owns a 50.59% stake in the Company. With the aim of further strengthening the capital alliance between the two companies, established on May 13, 2014, and enhancing corporate value, the two companies have agreed that Mitsubishi Chemical Holdings will maintain its stake in the Company at the current level. Accordingly, the Company does not at present anticipate any increase or decrease in the percentage of its shares held by Mitsubishi Chemical Holdings. However, there is still a chance that the capital alliance will change. Any such change has the potential to significantly affect the Company's financial condition and business performance.

Consolidated Financial Statements

Taiyo Nippon Sanso Corporation and Consolidated Subsidiaries

Consolidated Statements of Financial Position

(Millions of Yen)

	Notes	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Assets			
Current assets			
Cash and cash equivalents	6	¥ 47,809	¥ 52,857
Trade receivables	7	164,247	149,979
Inventories	8	51,481	51,935
Other financial assets	13	6,412	5,533
Other current assets	14	8,351	7,826
Total current assets		278,302	268,132
Non-current assets			
Property, plant and equipment	9	391,930	379,553
Goodwill	10	119,221	123,602
Intangible assets	10	44,932	51,305
Investments accounted for using the equity method	12	28,148	22,958
Other financial assets	13	60,836	65,178
Retirement benefit asset	19	2,338	8,443
Other non-current assets	14	704	709
Deferred tax assets	28	4,632	4,399
Total non-current assets		652,744	656,149
Total assets		¥931,047	¥924,281

See notes to consolidated financial statements.

(Millions of Yen)

	Notes	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Liabilities and equity			
Liabilities			
Current liabilities			
Trade payables	15	¥ 79,483	¥ 73,046
Bonds and borrowings	16	87,372	88,720
Income taxes payable		9,342	6,289
Other financial liabilities	17	31,693	30,152
Provisions	20	754	534
Other current liabilities	21	12,441	14,858
Total current liabilities		221,087	213,602
Non-current liabilities			
Bonds and borrowings	16	233,694	263,833
Other financial liabilities	17	4,923	5,622
Retirement benefit liability	19	4,511	4,216
Provisions	20	5,742	5,859
Other non-current liabilities	21	14,937	13,783
Deferred tax liabilities	28	34,077	40,501
Total non-current liabilities		297,887	333,816
Total liabilities		518,975	547,419
Equity			
Share capital	22	37,344	37,344
Capital surplus	22	53,072	52,988
Treasury shares	22	(256)	(250)
Retained earnings	22	305,400	261,717
Other components of equity	22	(9,105)	(224)
Total equity attributable to owners of parent		386,457	351,576
Non-controlling interests		25,614	25,286
Total equity		412,072	376,862
Total liabilities and equity		¥931,047	¥924,281

Consolidated Statements of Profit or Loss

(Millions of Yen)

	Notes	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Revenue	4	¥ 646,218	¥ 581,586
Cost of sales		(411,447)	(365,578)
Gross profit		234,770	216,007
Selling, general and administrative expenses		(178,690)	(165,071)
Other operating income	26	4,069	2,571
Other operating expenses	26	(3,123)	(2,241)
Share of profit of investments accounted for using the equity method	12	2,836	2,397
Operating profit		59,862	53,664
Financial income	27	1,299	1,429
Financial costs	27	(5,264)	(4,918)
Profit before income taxes		55,897	50,176
Income taxes	28	(5,143)	(13,963)
Profit		¥ 50,754	¥ 36,212
Profit attributable to:			
Owners of parent		¥ 48,919	¥ 34,740
Non-controlling interests		1,834	1,472
Earnings per share			
Basic earnings per share (Yen)	29	¥ 113.04	¥ 80.28

See notes to consolidated financial statements.

Consolidated Statements of Comprehensive Income

(Millions of Yen)

	Notes	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Profit		¥ 50,754	¥36,212
Other comprehensive income			
Items that will not be reclassified to profit or loss			
Financial assets measured at fair value through other comprehensive income	24	1,644	5,534
Remeasurements of defined benefit plans	24	819	1,563
Share of other comprehensive income of investments accounted for using the equity method	24	21	12
Total of items that will not be reclassified to profit or loss		2,485	7,109
Items that may be reclassified subsequently to profit or loss			
Exchange differences on translation of foreign operations	24	(10,099)	(787)
Effective portion of net change in fair value of cash flow hedges	24	26	268
Share of other comprehensive income of investments accounted for using the equity method	24	429	(995)
Total of items that may be reclassified subsequently to profit or loss		(9,643)	(1,514)
Total other comprehensive income		(7,157)	5,594
Comprehensive income		¥ 43,596	¥41,807
Comprehensive income attributable to:			
Owners of parent		¥ 41,871	¥40,733
Non-controlling interests		1,725	1,074

See notes to consolidated financial statements.

Consolidated Statements of Changes in Equity

(Millions of Yen)

		FYE2018 (From April 1, 2017 to March 31, 2018)			
	Notes	Share capital	Capital surplus	Treasury shares	Retained earnings
Balance at April 1, 2017		¥37,344	¥52,988	¥(250)	¥261,717
Profit		—	—	—	48,919
Other comprehensive income	24	—	—	—	—
Comprehensive income		—	—	—	48,919
Purchase of treasury shares	22	—	—	(6)	—
Disposal of treasury shares	22	—	0	0	—
Dividends	23	—	—	—	(9,524)
Changes in ownership interest in subsidiaries		—	84	—	—
Transfer from other components of equity to retained earnings		—	—	—	1,832
Change in scope of consolidation		—	—	—	2,455
Other changes		—	—	—	—
Total transactions with owners		—	84	(6)	(5,236)
Balance at March 31, 2018		¥37,344	¥53,072	¥(256)	¥305,400

		Other components of equity							
	Notes	Exchange differences on translation of foreign operations	Effective portion of net change in fair value of cash flow hedges	Financial assets measured at fair value through other comprehensive income	Remeasurements of defined benefit plans	Total	Total equity attributable to owners of parent	Non-controlling interests	Total equity
Balance at April 1, 2017		¥(16,135)	¥(64)	¥15,975	¥ —	¥ (224)	¥351,576	¥25,286	¥376,862
Profit		—	—	—	—	—	48,919	1,834	50,754
Other comprehensive income	24	(9,563)	26	1,675	814	(7,048)	(7,048)	(108)	(7,157)
Comprehensive income		(9,563)	26	1,675	814	(7,048)	41,871	1,725	43,596
Purchase of treasury shares	22	—	—	—	—	—	(6)	—	(6)
Disposal of treasury shares	22	—	—	—	—	—	0	—	0
Dividends	23	—	—	—	—	—	(9,524)	(814)	(10,338)
Changes in ownership interest in subsidiaries		—	—	—	—	—	84	(1,161)	(1,077)
Transfer from other components of equity to retained earnings		—	—	(1,018)	(814)	(1,832)	—	—	—
Change in scope of consolidation		—	—	—	—	—	2,455	552	3,008
Other changes		—	—	—	—	—	—	26	26
Total transactions with owners		—	—	(1,018)	(814)	(1,832)	(6,990)	(1,396)	(8,387)
Balance at March 31, 2018		¥(25,699)	¥(38)	¥16,632	¥ —	¥(9,105)	¥386,457	¥25,614	¥412,072

(Millions of Yen)

		FYE2017 (From April 1, 2016 to March 31, 2017)			
	Notes	Share capital	Capital surplus	Treasury shares	Retained earnings
Balance at April 1, 2016		¥37,344	¥55,545	¥(244)	¥232,877
Profit		—	—	—	34,740
Other comprehensive income	24	—	—	—	—
Comprehensive income		—	—	—	34,740
Purchase of treasury shares	22	—	—	(6)	—
Disposal of treasury shares	22	—	(0)	0	—
Dividends	23	—	—	—	(7,792)
Changes in ownership interest in subsidiaries		—	(2,557)	—	—
Transfer from other components of equity to retained earnings		—	—	—	1,150
Change in scope of consolidation		—	—	—	741
Other changes		—	—	—	—
Total transactions with owners		—	(2,557)	(5)	(5,900)
Balance at March 31, 2017		¥37,344	¥52,988	¥(250)	¥261,717

		Other components of equity							
	Notes	Exchange differences on translation of foreign operations	Effective portion of net change in fair value of cash flow hedges	Financial assets measured at fair value through other comprehensive income	Remeasurements of defined benefit plans	Total	Total equity attributable to owners of parent	Non-controlling interests	Total equity
Balance at April 1, 2016		¥(14,840)	¥(332)	¥10,107	¥ —	¥(5,066)	¥320,457	¥24,409	¥344,866
Profit		—	—	—	—	—	34,740	1,472	36,212
Other comprehensive income	24	(1,294)	268	5,479	1,539	5,992	5,992	(397)	5,594
Comprehensive income		(1,294)	268	5,479	1,539	5,992	40,733	1,074	41,807
Purchase of treasury shares	22	—	—	—	—	—	(6)	—	(6)
Disposal of treasury shares	22	—	—	—	—	—	0	—	0
Dividends	23	—	—	—	—	—	(7,792)	(963)	(8,755)
Changes in ownership interest in subsidiaries		—	—	—	—	—	(2,557)	262	(2,294)
Transfer from other components of equity to retained earnings		—	—	389	(1,539)	(1,150)	—	—	—
Change in scope of consolidation		—	—	—	—	—	741	606	1,347
Other changes		—	—	—	—	—	—	(102)	(102)
Total transactions with owners		—	—	389	(1,539)	(1,150)	(9,614)	(197)	(9,811)
Balance at March 31, 2017		¥(16,135)	¥ (64)	¥15,975	¥ —	¥ (224)	¥351,576	¥25,286	¥376,862

See notes to consolidated financial statements.

Consolidated Statements of Cash Flows

(Millions of Yen)

	Notes	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Cash flows from operating activities			
Profit before income taxes		¥ 55,897	¥ 50,176
Depreciation and amortization		43,266	40,048
Impairment losses		163	231
Interest and dividend income		(1,299)	(1,271)
Interest expenses		5,005	4,484
Share of (profit) loss of investments accounted for using the equity method		(2,836)	(2,397)
Loss (gain) on sale and retirement of property, plant and equipment, and intangible assets		(949)	(727)
(Increase) decrease in trade receivables		(13,857)	(2,818)
(Increase) decrease in inventories		1,061	232
Increase (decrease) in trade payables		5,871	(770)
(Increase) decrease in retirement benefit asset		(209)	112
Increase (decrease) in retirement benefit liability		144	1,855
Other		(722)	2,335
Subtotal		91,535	91,490
Interest received		226	273
Dividends received		2,687	2,650
Interest paid		(4,994)	(4,493)
Income taxes refund (paid)		(6,256)	(15,325)
Net cash provided by operating activities		83,199	74,596
Cash flows from investing activities			
Purchase of property, plant and equipment		(58,266)	(41,442)
Proceeds from sales of property, plant and equipment		2,387	2,459
Purchase of investments		(787)	(2,944)
Proceeds from sales and redemption of investments		7,543	4,630
Payments for acquisition of subsidiaries		—	(20,020)
Payments for acquisition of business		(343)	(77,775)
Other	5	(2,621)	(11,989)
Net cash used in investing activities		(52,088)	(147,082)
Cash flows from financing activities			
Net increase (decrease) in short-term borrowings		1,619	434
Proceeds from long-term borrowings		29,780	122,212
Repayments of long-term borrowings		(45,275)	(48,839)
Proceeds from issuance of bonds		—	30,000
Redemption of bonds		(10,000)	(10,000)
Purchases of investments in subsidiaries not resulting in change in scope of consolidation		(3,044)	(1,279)
Dividends paid	23	(9,524)	(7,792)
Dividends paid to non-controlling interests		(814)	(963)
Other		(2,600)	(2,994)
Net cash provided by (used in) financing activities		(39,859)	80,777
Effect of exchange rate changes on cash and cash equivalents		1,841	(5,404)
Net increase (decrease) in cash and cash equivalents		(6,907)	2,886
Balance of cash and cash equivalents at beginning of fiscal year		52,857	49,216
Increase (decrease) in cash and cash equivalents resulting from change of scope of consolidation		1,640	727
Increase in cash and cash equivalents resulting from merger		218	27
Balance of cash and cash equivalents at end of fiscal year	6	¥ 47,809	¥ 52,857

See notes to consolidated financial statements.

Notes to Consolidated Financial Statements

Taiyo Nippon Sanso Corporation and Consolidated Subsidiaries

1. Reporting Entity

Taiyo Nippon Sanso Corporation (the "Company") is a company located in Japan and is listed on the First Section of the Tokyo Stock Exchange. The registered address of the Company's head office is disclosed on its website (http://www.tn-sanso.co.jp/en). The consolidated financial statements of the Company and its subsidiaries (collectively, the "TNSC Group") comprise interests in the TNSC Group, its associates and joint arrangements, with March 31 as the end of the fiscal year. The TNSC Group conducts gas businesses in Japan and overseas, mainly for customers in the steel, chemical, and electronics industries. In addition, the TNSC Group manufactures and sells housewares such as stainless steel vacuum bottles, and conducts real-estate rental and other businesses. Details are described in Note "4. Segment Information."

The Company's parent is Mitsubishi Chemical Holdings Corporation.

2. Basis of Preparation

(1) Conformity with IFRS

The consolidated financial statements of the TNSC Group have been prepared in compliance with International Financial Reporting Standards (IFRS) published by the International Accounting Standards Board. Since the Company meets the requirements of a "Specified Company Applying Designated IFRS" prescribed under Article 1-2 of the Japanese Ordinance on Terminology, Forms, and Preparation Methods of Consolidated Financial Statements, the Company has adopted the provisions of Article 93 of said ordinance.

(2) Approval of financial statements

The TNSC Group's consolidated financial statements were approved by Yujiro Ichihara, President and CEO of the Company, on June 20, 2018.

(3) Basis of measurement

The TNSC Group's consolidated financial statements were prepared on a historical cost basis, except for certain assets and liabilities including financial instruments measured at fair value as described in Note "3. Significant Accounting Policies."

(4) Presentation currency

The TNSC Group's consolidated financial statements are presented in Japanese yen, which is the functional currency of the Company, and amounts are rounded down to the nearest million yen.

(5) Use of judgments, estimates, and assumptions

In preparing the TNSC Group's consolidated financial statements in accordance with IFRS, management is required to make judgments, estimates and assumptions that affect the application of accounting policies and reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. The impacts of changes in accounting estimates are recognized in the accounting period in which the estimates are changed and in future accounting periods affected.

Major information on accounting judgments, estimates, and assumptions that may have significant impacts on the TNSC Group's consolidated financial statements is as follows:

- Impairment of non-financial assets ("11. Impairment Losses")
- Recoverability of deferred tax assets ("28. Income Taxes")
- Measurement of defined benefit obligations ("19. Post-employment Benefits")
- Fair value of financial instruments ("31. Financial Instruments")
- Contingent liabilities ("35. Contingent Liabilities")

(6) New accounting standard applied from the fiscal year.

The major accounting standard applied by the TNSC Group from the fiscal year ended March 31, 2018 is as follows:

Accounting standard		Outline of newly established/revised standard
IAS 7	Statement of Cash Flows	This standard revised the disclosure of changes in liabilities arising from financing activities.

As a result of the application of the above, "Changes in liabilities arising from financing activities" in "30. Cash Flow Information" are disclosed.

(7) Early adoption of new accounting standards

The TNSC Group has early adopted IFRS 9 "Financial Instruments" from April 1, 2016.

(8) New accounting standards and interpretations that are not yet applied

Regarding the major accounting standards and interpretations issued before the approval date of the consolidated financial statements, the accounting standards and interpretations that are not yet applied as of March 31, 2018 because the application is not mandatory are as follows.

The impact of the application of IFRS 15 on the TNSC Group's consolidated financial statements has been estimated to be minimal. As a transitional measure in applying the accounting standard, the TNSC Group adopts a method to retrospectively recognize cumulative effects at the date of initial application (modified retrospective method). The impact of the application of IFRS 16 is under evaluation and cannot be estimated at present.

Accounting standards and interpretations		Timing of mandatory application (Effective fiscal year beginning on or after)	Effective fiscal year of the TNSC Group	Outline of newly established/revised standards and interpretations
IFRS 15	Revenue from Contracts with Customers	January 1, 2018	Fiscal year ending March 31, 2019	This standard revised the existing accounting treatments and disclosure requirements on revenue recognition. Specifically, the standard requires entities to recognize revenue to depict the transfer of goods or services to customers in an amount that reflects the compensation to which the entities expect to be entitled in exchange for such goods and services.
IFRS 16	Leases	January 1, 2019	Fiscal year ending March 31, 2020	This standard revised the existing accounting standard and disclosure requirements on lease transactions. Specifically, the standard introduces a single model, and for all leases with a term of more than 12 months, the standard in principle requires a lessee to reflect the right-of-use of its assets and an obligation to make lease payments on the financial statements.

3. Significant Accounting Policies

(1) Basis of consolidation

1) Subsidiaries

Subsidiaries refer to companies controlled by the TNSC Group. The TNSC Group judges that it controls a company if the TNSC Group has the exposure or rights to variable returns arising from its involvement in the investee and has the ability to influence such returns due to power over the investee.

In preparing the consolidated financial statements, the financial statements of each Group company prepared at the same closing date based on the unified accounting policies of the TNSC Group are used. If accounting policies applied by a subsidiary are different from the accounting policies applied by the TNSC Group, adjustments are made to the financial statements of such subsidiary as necessary.

Consolidation of subsidiaries begins on the date when the TNSC Group acquires control over the subsidiaries until the date when the control over the subsidiaries is lost.

Transactions between consolidated companies, as well as the balance of receivables and payables and unrealized gains and losses arising from such transactions, are eliminated in preparing the consolidated financial statements.

If there is a change in interests in consolidated subsidiaries without involving a loss of control, it is accounted for as an equity transaction. The difference between the adjustment amount of the non-controlling interest and the fair value of the consideration is recognized directly in equity as equity attributable to owners of parent.

In the event of a loss of control, the TNSC Group measures and recognizes the remaining investment at fair value on the date when the control has been lost. Gains and losses arising from the loss of control are recognized in profit or loss.

Non-controlling interests in consolidated subsidiaries' net assets are identified separately from the TNSC Group's interests. Comprehensive income of consolidated subsidiaries is attributable to owners of parent and non-controlling interests, even if this results in the non-controlling interests having a deficit balance.

2) Associates

Associates refer to companies over which the TNSC Group has a significant influence on their financial and operating policies but does not have control or joint control.

The TNSC Group accounts for investments in associates using the equity method.

Investments in associates under the equity method are recognized at cost at the time of acquisition and recorded in the consolidated statements of financial position after adjusting the TNSC Group's interests in changes in net assets of the associates after acquisition.

The consolidated statement of profit or loss reflect the TNSC Group's interests in the performance of associates. If there is a change in the amount recognized in other comprehensive income of associates, the TNSC Group's interests in such change are recognized in other comprehensive income.

Adjustments are made to consolidated financial statements in order to eliminate the TNSC Group's interests in unrealized gains and losses arising from transactions between the TNSC Group and associates.

Financial statements of associates are prepared for the same reporting period as the TNSC Group. Adjustments are made to make accounting policies of the associates consistent with the TNSC Group's accounting policies.

In the event of loss of significant influence over associates, the TNSC Group measures and recognizes the remaining investment at fair value on the date when significant influence is lost. Gains and losses arising from the loss of significant influence are recognized in profit or loss.

3) Joint arrangements

Joint arrangements refer to arrangements that require the unanimous consent of the parties sharing control over decision-making on relevant activities.

A joint venture (jointly controlled entity) refers to a joint agreement where parties with joint control over the arrangement have the right to the net assets of such arrangement.

If the TNSC Group has a share in a joint venture, the TNSC Group accounts for such share using the equity method.

A joint operation (jointly controlled business) refers to a business in which parties with joint control substantially have the right to assets and the obligation to liabilities related to joint arrangements.

If the TNSC Group has a share in a joint operation, the TNSC Group recognizes the investment concerning such joint operation only at the equivalent amount of the TNSC Group's interests in the assets, liabilities, income, and expenses arising from jointly-controlled operating activities. Transactions between the TNSC Group companies, as well as the balance of receivables and payables and unrealized gains and losses arising from such transactions are eliminated.

The TNSC Group has more than 50% of voting rights of Sakai Gas Center, Inc. The TNSC Group judges that said company qualifies as a joint operation.

(2) Business combinations

Business combinations are accounted for using the acquisition method.

If the initial accounting for business combinations has not been completed by the end of the period in which the business combinations occurred, they are accounted for at a provisional amount for the items for which the accounting is incomplete. The provisional amount is adjusted during the measurement period, which is within one year from the acquisition date.

The consideration transferred in a business combination is calculated as the sum of acquisition-date fair values of assets transferred by the acquirer, liabilities incurred by the acquirer to former owners of the acquiree, and equity interests issued by the acquirer.

Non-controlling interests in the acquiree are measured for each business combination either at fair value or at the amount equivalent to the non-controlling interest in proportion to the fair value of identifiable net assets of the acquiree.

Acquisition-related costs incurred in connection with business combinations are recognized as expenses for the period in which such costs were incurred.

When the TNSC Group acquires a business, it classifies and designates assets to be acquired and liabilities to be assumed based on contract terms, economic conditions and related conditions at the acquisition date. In addition, identifiable assets acquired and liabilities assumed are in principle measured at fair value on the acquisition date.

If a business combination is achieved in stages, the interest held before acquiring the control of the acquiree is revalued at fair value at the acquisition date, and the difference is recognized in profit or loss. The amount of the interest in the acquiree that was recorded in other comprehensive income before the acquisition date is accounted for in the same manner as in the case where the acquirer disposed of its interests.

Goodwill is measured as the amount of the aggregate amount of the consideration transferred and the amount recognized as non-controlling interests exceeding the net of identifiable assets acquired and liabilities assumed.

If the aggregate amount recognized as the consideration transferred and non-controlling interests is less than the net of identifiable assets acquired and liabilities assumed, the difference is recognized in profit or loss.

After initial recognition, goodwill acquired through a business combination is not amortized but is recorded at the amount initially recognized less the accumulated impairment loss. In addition, impairment tests are performed each year and whenever there is an indication of impairment.

(3) Foreign currency translation

The consolidated financial statements of the TNSC Group are presented in Japanese yen, the functional currency of the Company. In addition, each company within the TNSC Group designates its own functional currency, and transactions of each company are measured in its functional currency.

Transactions denominated in a foreign currency are translated into functional currencies at the spot exchange rate at the transaction date or at a rate similar thereto.

Monetary assets and liabilities denominated in a foreign currency are translated into functional currencies at the spot exchange rate at the end of the reporting period. Translation differences arising from such translation and settlement are recognized in profit or loss. However, financial assets measured through other comprehensive income and translation differences arising from cash flow hedges are recognized in other comprehensive income.

The assets and liabilities of foreign operations are translated into Japanese yen at the spot exchange rate at the end of the reporting period, and the income and expenses of foreign operations are translated into Japanese yen at the spot exchange rate at the transaction date or at a rate similar thereto. The translation differences are recognized in other comprehensive income.

If a foreign operation is disposed of, the cumulative translation differences related to such operation are recognized in profit or loss for the period in which the disposal occurs.

(4) Financial instruments

1) Financial assets (excluding derivatives)

(i) Initial recognition and measurement

The TNSC Group initially recognizes trade receivables at the date when they are incurred. All other financial assets are initially recognized at the transaction date when the TNSC Group becomes a contractual party to such financial assets.

The TNSC Group classifies its financial assets into (a) financial assets measured at amortized cost and (b) financial assets measured at fair value through other comprehensive income. The classification is determined at the time of initial recognition of the financial assets.

(a) Financial assets measured at amortized cost

Debt financial assets are classified as financial assets measured at amortized cost if both of the following criteria are met:

- Financial assets are held based on a business model with an objective of holding financial assets to recover contractual cash flows.
- Contractual terms of financial assets give rise to cash flows that are solely payments of principal and interest on the principal amount outstanding on a specified date.

Financial assets measured at amortized cost are measured at fair value plus transaction costs directly attributable to the acquisition of such financial assets.

(b) Financial assets measured at fair value through other comprehensive income

Debt financial assets are classified as financial assets measured at fair value through other comprehensive income if both of the following criteria are met:

- Financial assets are held based on a business model with an objective of collecting contractual cash flows and selling financial assets.
- Contractual terms of financial assets give rise to cash flows that are solely payments of principal and interest on the principal amount outstanding on a specified date.

Equity financial assets are designated as financial assets measured at fair value through other comprehensive income, and such designation is applied on an ongoing basis.

Financial assets measured at fair value through other comprehensive income are measured at fair value plus transaction costs directly attributable to the acquisition of such financial assets.

(ii) Subsequent measurement

After initial recognition, financial assets are measured according to their classification as follows:

(a) Financial assets measured at amortized cost

Financial assets measured at amortized cost are measured at amortized cost using the effective interest method.

(b) Financial assets measured at fair value through other comprehensive income

Financial assets other than financial assets measured at amortized cost are measured at fair value.

For financial assets measured at fair value through other comprehensive income, changes in fair value are recognized in other comprehensive income. If they are derecognized or their fair value significantly declines, they are transferred to retained earnings.

(iii) Derecognition

The TNSC Group derecognizes financial assets only if contractual rights to cash flows arising from the financial assets cease to exist, or if the financial assets are transferred and substantially all the risks and rewards have been transferred.

If the TNSC Group does not transfer or retain substantially all the risks or rewards but continues to control the financial assets transferred, recognition of such financial assets is continued to the extent to which the TNSC Group has a continuing involvement, and in that case, related liabilities are also recognized.

(iv) Impairment

The TNSC Group recognizes impairment of financial assets based on whether there is a significant increase in credit risk from the time of initial recognition in financial assets or financial asset groups measured at amortized cost at the end of each reporting period.

For financial assets or financial asset groups measured at amortized cost, expected credit losses for 12 months are recognized as allowance for doubtful accounts, if credit risk has not significantly increased from the time of initial recognition. However, for trade receivables, expected credit losses over the remaining period are recognized.

If there is a significant increase in credit risk from the time of initial recognition, expected credit losses over the remaining period are recognized as allowance for doubtful accounts.

Whether or not the credit risk has significantly increased is judged based on a change in the default risk. In judging whether there is any change in the default risk, overdue (past-due information) is mostly considered.

In addition, expected credit losses are measured based on the discounted present value of the difference between the amount receivable on a contract basis and the amount expected to be received based on past credit losses, etc.

2) Financial liabilities (excluding derivatives)

(i) Initial recognition and measurement

The TNSC Group classifies its financial liabilities into (a) financial liabilities measured at amortized cost and (b) financial liabilities measured at fair value through profit or loss. The classification is determined at initial recognition of the financial liabilities. All financial liabilities are initially measured at fair value. However, financial liabilities measured at amortized cost are measured at fair value less transaction costs directly attributable to such financial liabilities.

(ii) Subsequent measurement

After initial recognition, financial liabilities are measured according to their classification as follows:

(a) Financial liabilities measured at amortized cost

Financial liabilities measured at amortized cost are measured at amortized cost using the effective interest method after initial recognition. Amortization by the effective interest method and gains and losses from derecognition are recognized in profit or loss.

(b) Financial liabilities measured at fair value through profit or loss

For financial liabilities measured at fair value through profit or loss, the portion related to changes in the TNSC Group's credit risk from changes in fair value and interest expenses is recognized in other comprehensive income after initial recognition, and the remaining amount is recognized in profit or loss.

(iii) Derecognition

The TNSC Group derecognizes financial liabilities in cases of the performance, exemption or expiration of the obligation of financial liabilities, the exchange occurs under substantially different terms, or when there has been a substantial modification of the terms.

3) Offset of financial instruments

Financial assets and financial liabilities are offset only if there is a current enforceable legal right to offset the recognized amounts, and if there is an intention to settle at a net amount or realize the assets and settle the liabilities simultaneously. They are then recorded at a net amount in the consolidated statements of financial position.

4) Derivatives and hedge accounting

The TNSC Group uses derivatives such as forward exchange contracts, interest rate swap contracts and currency swap contracts to hedge currency risks and interest rate risks. These derivatives are initially measured at fair value at the time when the contracts were entered and remeasured at fair value thereafter.

Fair value changes of derivatives are recognized in profit or loss. However, the effective portion of cash flow hedges is recognized in other comprehensive income.

At inception of the hedge, the TNSC Group formally designates and documents the hedging relationships to which hedge accounting is applied and the risk management objective and strategy for undertaking the hedge. Such documentation includes specific hedging instruments, hedged items or transactions, the nature of the risk being hedged, and how the TNSC Group will assess effectiveness of the hedging instruments in fair value changes when offsetting the exposure to changes in fair value or cash flows of the hedged items attributable to the hedged risks. The TNSC Group evaluates whether or not derivatives used for hedging transactions are effective for offsetting changes in fair value or cash flows of the hedged items at inception of the hedge and on an ongoing basis. Specifically, the TNSC Group determined that a hedge is effective in the case where the economic relationship between the hedged item and the hedging instruments results in an offset.

Hedges that meet strict criteria for hedge accounting are classified and accounted for under IFRS 9 as follows.

(i) Fair value hedges

Fair value changes in derivatives are recognized in profit or loss. For fair value changes in the hedged items attributable to the risks to be hedged, the carrying amount of the hedged items is adjusted and recognized as profit or loss.

(ii) Cash flow hedges

The effective portion of gain or loss on the hedging instruments is recognized as other comprehensive income, and the ineffective portion is immediately recognized in profit or loss.

The amount related to the hedging instruments recorded in other comprehensive income is transferred to profit or loss when hedged transactions affect profit or loss. If the hedged item results in the recognition of non-financial assets or non-financial liabilities, the amount recognized in other comprehensive income is treated as an adjustment of the initial carrying amount of the non-financial assets or non-financial liabilities.

If forecasted transactions are no longer expected to occur, the cumulative gain or loss previously recognized as equity through other comprehensive income is transferred to profit or loss.

If the hedging instrument is terminated or exercised without expiration, sale or exchange or renewal to another hedging instrument, or if it no longer qualifies for hedge accounting due to events such as a change in risk management objective, the cumulative gain or loss previously recognized in equity through other comprehensive income is continuously recorded in equity until the forecasted transaction occurs, or is no longer expected to occur.

5) Fair value of financial instruments

The fair value of financial instruments traded in active financial markets as of the end of the reporting period refers to quoted prices in markets or dealer prices.

The fair value of financial instruments for which active markets do not exist is calculated by referring to appropriate valuation techniques or prices provided by counterparty financial institutions.

(5) Cash and cash equivalents

Cash and cash equivalents consist of cash on hand, deposits that can be withdrawn at any time, and short-term investments with a maturity of three months or less from the acquisition date that are readily convertible into cash and subject to an insignificant risk of changes in value.

(6) Inventories

The cost of inventories includes costs of purchase, costs of conversion, and all other costs incurred in bringing the inventories to their present location and condition.

Inventories are measured at the lower of cost and net realizable value. The weighted average method is principally used to calculate the cost. In addition, the net realizable value is calculated at the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale.

(7) Property, plant and equipment

The TNSC Group adopts the cost model for measurement of property, plant and equipment.

Property, plant and equipment are presented at cost less accumulated depreciation and accumulated impairment losses.

The cost includes the costs directly attributable to the acquisition of the assets, the costs of their dismantlement, removal or restoration, and the borrowing costs that meet the recognition criteria.

All property, plant and equipment other than land are depreciated so that the depreciable amount, which is cost less the residual value at the end of the fiscal year, is allocated on a systematic basis using the straight-line method.

Estimated useful lives of major property, plant and equipment are as follows:

Buildings and structures:	3 to 50 years
Machinery and vehicles:	3 to 20 years
Tools, furniture and fixtures:	2 to 25 years

(8) Intangible assets

The TNSC Group adopts the cost model for measurement of intangible assets.

Intangible assets are presented at cost less accumulated amortization and accumulated impairment losses.

Intangible assets acquired separately are initially measured at cost. The cost of intangible assets acquired through business combinations is measured at fair value as of the acquisition date. For internally generated intangible assets, except for development costs that qualify for capitalization, all expenditures are recognized as expenses for the periods when they are incurred.

Intangible assets with finite useful lives are amortized over their estimated useful lives using the straight-line method. Impairment tests are performed whenever there is an indication of impairment. Estimated useful lives and method of amortization of intangible assets with finite useful lives are reviewed at the end of each reporting period, and if there is any change, it is applied prospectively as a change in accounting estimates.

Estimated useful lives of major intangible assets are as follows:

Customer-related intangible assets:	5 to 20 years

Intangible assets with indefinite useful lives and intangible assets not available for use are not amortized. Impairment tests are performed separately or by a cash-generating unit whenever there is an indication of impairment.

(9) Leases

Lease contracts are classified as finance leases if the risks and rewards incidental to ownership of the lease assets are substantially transferred to the TNSC Group. Otherwise, they are classified as operating leases.

For finance lease transactions, lease assets and lease liabilities are recorded in the consolidated statements of financial position at the lower of the fair value of the leased property and the present value of the minimum lease payment calculated at the inception date of the lease. In addition, lease payments are allocated to financial expenses and repayment of lease liabilities under the interest method, and such financial expenses are recognized in profit or loss. Lease assets are depreciated using the straight-line method over the shorter of their estimated useful lives or the lease term.

For operating lease transactions, lease payments are recognized as expenses using the straight-line method over the lease term. In addition, variable lease payments are recognized as expenses for the period when they are incurred.

Whether or not a contract is a lease or whether or not a lease is included in a contract is determined according to the substance of the contract, even if it is not in the legal form of a lease.

(10) Impairment of assets

1) Impairment of non-financial assets

The TNSC Group assesses at the end of each reporting period whether there is any indication that an asset may be impaired. If any such indication exists, and if assets need to be annually tested for impairment, the TNSC Group estimates the recoverable amount of the asset. The recoverable amount of the asset is the higher of an asset's fair value less costs of disposal and its value in use. If the recoverable amount of each asset cannot be estimated, the recoverable amount of a cash-generating unit or a group of cash-generating units to which the asset belongs is estimated. If the carrying amount of a cash-generating unit or a group of cash-generating units exceeds the recoverable amount, impairment loss of the asset is recognized and write-downs of the asset are recorded up to the recoverable amount. In measuring the value in use, the discounted present value of expected future cash flows is calculated using the pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. The business plan used to estimate future cash flows is in principle limited to five years. Future cash flows beyond the projected period of the business plan are calculated based on the long-term average growth rate according to individual circumstances.

In calculating fair value less costs of disposal, an appropriate valuation model is used supported by indices of fair value available.

Goodwill is allocated to individual cash-generating units, or groups of cash-generating units, that are expected to benefit from the synergies of a business combination after the acquisition date.

Goodwill or intangible assets with indefinite useful lives, and intangible assets not available for use are tested for impairment annually or whenever there is an indication of impairment.

2) Reversal of an impairment loss

For assets other than goodwill, impairment losses recognized in the previous fiscal years are assessed at the end of the reporting period as to whether or not there is any indication of possibility of a decrease or extinguishment of loss, due to factors such as a change in the assumption used in calculating the recoverable amount. If such indication exists, the recoverable amount of such assets, cash-generating units or groups of cash-generating units is estimated. If such recoverable amount exceeds the carrying amount of such assets, cash-generating units or groups of cash-generating units, the impairment loss is reversed up to the lower of the recoverable amount calculated and the carrying amount less the accumulated depreciation if the impairment loss was not recognized in previous fiscal years. The reversal of impairment loss is recognized in profit or loss.

For goodwill, impairment loss is not reversed.

(11) Assets held for sale and discontinued operations

Non-current assets (or disposal groups) are classified as "assets held for sale" if their carrying amount is expected to be recovered principally through a sale transaction rather than through continuing use. The above requirements only apply if the sale is highly probable within one year and such assets (or disposal groups) are available for immediate sale in their present condition. Non-current assets (or disposal groups) classified as assets held for sale are measured at the lower of their carrying amount and fair value less costs to sell.

Property, plant and equipment and intangible assets classified as assets held for sale are not depreciated or amortized.

Discontinued operations include a component of an entity that has already been disposed of or classified as assets held for sale, and they are recognized if they constitute one operation of the TNSC Group and if there is a plan to dispose of one of the operations.

(12) Borrowing costs

For assets that necessarily take a substantial period of time to prepare for intended use or sale, borrowing costs directly attributable to acquisition, construction or production of such assets are capitalized as part of the cost of such assets. Other borrowing costs are recognized as an expense for the period when they are incurred.

(13) Retirement benefits

The TNSC Group provides defined benefit plans and defined contribution plans as retirement benefit plans for employees.

The TNSC Group separately calculates the present value of the defined benefit obligations, related current service costs and past service costs for each plan using the projected unit credit method.

The discount rate is calculated based on market yields at the end of the reporting period on high quality corporate bonds.

Liabilities or assets related to the defined benefit plans are calculated by deducting the fair value of plan assets from the present value of defined benefit obligations.

Remeasurements of liabilities or assets relating to the defined benefit plans are all recognized in other comprehensive income for the period when they are incurred, and immediately reflected in retained earnings. In addition, past service costs are expensed for the period when they are incurred.

Expenses related to defined contribution plans are recognized as expenses for the period when they are incurred.

(14) Provisions

A provision is recognized when the TNSC Group has a present obligation (legal or constructive) as a result of a past event, when it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation, and when a reliable estimate can be made of the amount of the obligation.

The TNSC Group measures the provisions at the present value of expenditures expected to be required to settle the obligation, when the effect of the time value of money is material. In calculating the present value, the TNSC Group uses a pre-tax discount rate that reflects current market assessments of the time value of money and those risks specific to the liability.

(15) Equity

1) Ordinary shares

The issue price of ordinary shares is recorded in share capital and capital surplus.

2) Treasury shares

When the TNSC Group purchases treasury shares, the consideration paid is recognized as a deduction from equity.

When the TNSC Group disposes of treasury shares, the difference between the carrying amount and the consideration at the time of disposal is recognized in capital surplus.

(16) Revenue

1) Revenue recognition

Revenue is recognized to the extent that it is probable that economic benefits will flow to the TNSC Group and the amounts can be measured reliably. In addition, revenue is measured at the fair value of consideration received after deducting trade discounts, rebates, value added taxes, etc. or consideration receivable.

2) Sale of goods

Revenue arising from the sale of goods is recognized when the TNSC Group has transferred to the buyer the significant risks and rewards of ownership, when the TNSC Group retains neither effective control over the goods sold nor continuing managerial involvement to the degree usually associated with ownership, when the amount of revenue can be measured reliably, when it is probable that the economic benefits associated with the transaction will flow to the TNSC Group, and when the costs incurred or to be incurred in respect of the transaction can be measured reliably.

3) Construction contracts

If the outcome of construction contracts can be reliably estimated, the revenue related to the construction contracts is recognized in proportion to the stage of completion of construction contracts at the end of the reporting period. If the outcome of construction contracts cannot be reliably estimated, the revenue related to construction contracts is recognized only to the extent that contract costs incurred are expected to be recoverable. If the total contract cost is likely to exceed the total revenue related to construction contracts, such excess is immediately recognized as an expense.

4) Rendering of services

For rendering of services, revenue is recognized by reference to the stage of completion of the transaction, in principle when the estimate of the outcome can be measured reliably. If the estimate cannot be made, the costs incurred are recognized as expenses for the period when they are incurred, and the revenue is recognized only to the extent that the costs incurred are expected to be recoverable.

5) Dividends

For dividends, income is recognized when shareholders' rights to receive payment are established.

(17) Government grants

A government grant is recognized at fair value when there is reasonable assurance that the TNSC Group will comply with any conditions attached to the grant and the grant will be received.

Government grants are recognized in profit or loss on a systematic basis over the periods in which the TNSC Group recognizes expenses for the related costs for which the grants are intended to compensate.

Government grants related to assets are recorded by deducting the amount of such grants from the cost of the assets.

(18) Income taxes

Current taxes for the current and prior periods are calculated at the amount expected to be paid to (recovered from) taxation authorities. The rates and laws used to calculate the tax amount are those that have been enacted or substantively enacted at the end of the reporting period.

Deferred taxes are recorded as the difference between the tax bases and the carrying amounts of assets and liabilities at the end of the reporting period (temporary difference) using the asset and liability method.

Deferred tax liabilities are in principle recognized for all taxable temporary differences. Deferred tax assets are recognized for deductible temporary differences, unused tax losses and unused tax credits to the extent that it is probable that taxable profit will be available against which the deductible temporary differences can be utilized.

However, there are exceptions in which deferred tax assets and liabilities are not recorded for the following temporary differences:

- Arising from initial recognition of goodwill
- Arising from initial recognition of an asset or liability in a transaction other than a business combination which does not affect either the accounting income or the taxable profit (or loss) at the time of the transaction
- For deductible temporary differences associated with investments in subsidiaries and associates, and interests in joint arrangements, when it is probable that the reversal will not occur in the foreseeable future, or it is less probable that taxable profit will be available against which the deductible temporary differences can be utilized
- For taxable temporary differences associated with investments in subsidiaries and associates, and interests in joint arrangements, when the TNSC Group is able to control the timing of the reversal of the temporary differences and it is probable that the reversal will not occur in the foreseeable future

The carrying amount of deferred tax assets and liabilities (including unrecognized deferred tax assets) is reviewed at the end of each reporting period. Deferred tax assets and liabilities are calculated at the tax rates that are expected to apply to the period when the assets are realized or liabilities are settled, based on tax rates that have been enacted or substantively enacted at the end of the reporting period.

(19) Earnings per share

The amount of basic earnings per share is calculated by dividing profit attributable to ordinary shareholders of the Company by the weighted average number of ordinary shares outstanding after adjusting for treasury shares during the period. The amount of diluted earnings per share is calculated by adjusting the effects of all dilutive potential ordinary shares with dilutive effects.

4. Segment Information

(1) Overview of reportable segments

The reportable segments of the TNSC Group are those for which discrete financial information is available and whose operating results are regularly reviewed by the Board of Directors to make decisions about resource allocation and to assess performance.

The TNSC Group conducts gas businesses in Japan and overseas, mainly for customers in the steel, chemical, and electronics industries, and has built production and sales structures for its main products in Japan, the United States, and Asia and Oceania. In addition, the TNSC Group manufactures and sells housewares such as stainless steel vacuum bottles, and conducts real-estate rental and other businesses. Therefore, the Company has established the following four reportable segments: Gas Business in Japan, Gas Business in the United States, Gas Business in Asia and Oceania, and Thermos and Other Businesses.

The principal products and services included in the four segments are shown in the table below.

Reportable segments	Major products and services
Gas Business in Japan Gas Business in the United States Gas Business in Asia and Oceania	Oxygen, nitrogen, argon, carbon dioxide, helium, hydrogen, acetylene, gas-related equipment, specialty gases (electronic materials gases, pure gases, etc.), electronics-related equipment and installation, semiconductor manufacturing equipment, cutting and welding equipment, welding materials, plants and machinery, liquid petroleum gas (LPG) and related equipment, medical-use gases (oxygen, nitrous oxide, etc.), medical equipment, stable isotopes
Thermos and Other Businesses	Housewares, real-estate rental

The accounting methods adopted for the reported operating segments are the same as the TNSC Group's accounting policies described in "3. Significant Accounting Policies."

Revenue from intersegment transactions and transfers is based primarily on prevailing market prices.

(2) Revenue and profit (loss) amounts by reportable segment

FYE2018 (From April 1, 2017 to March 31, 2018)

(Millions of Yen)

	Gas Business in Japan	Gas Business in the United States	Gas Business in Asia and Oceania	Thermos and Other Businesses	Total	Reconciling items (Note 1)	Amounts on the Consolidated Statements of Profit or Loss
Revenue							
Revenues from external customers	¥342,449	¥172,646	¥103,166	¥27,956	¥646,218	¥ —	¥646,218
Intersegment revenues and transfers	10,788	11,430	2,132	1,424	25,775	(25,775)	—
Total	353,237	184,076	105,299	29,380	671,993	(25,775)	646,218
Segment profit (Note 2)	30,760	13,559	9,236	8,366	61,922	(1,888)	60,033
Other items							
Depreciation and amortization	16,118	19,319	6,603	1,219	43,261	5	43,266
Impairment losses	0	—	—	—	0	—	0
Share of profit (loss) of investments accounted for using the equity method	279	(121)	(28)	3,357	3,487	0	3,488

Notes: 1. The ¥1,888 million negative reconciling item for segment profit is comprised of ¥309 million of intersegment eliminations and companywide expenses of ¥1,578 million that were not allocated to any particular reportable segment. These companywide expenses related principally to basic research expenses that were not allocated to a particular reportable segment.
2. Segment profit represents core operating profit, which is calculated as operating profit excluding certain gains or losses attributable to non-recurring factors (losses incurred by business withdrawals, streamlining, and others).

FYE2017 (From April 1, 2016 to March 31, 2017)

(Millions of Yen)

	Gas Business in Japan	Gas Business in the United States	Gas Business in Asia and Oceania	Thermos and Other Businesses	Total	Reconciling items (Note 1)	Amounts on the Consolidated Statements of Profit or Loss
Revenue							
Revenues from external customers	¥321,416	¥147,274	¥85,875	¥27,018	¥581,586	¥ —	¥581,586
Intersegment revenues and transfers	8,160	8,473	1,081	1,349	19,065	(19,065)	—
Total	329,576	155,748	86,957	28,368	600,651	(19,065)	581,586
Segment profit (Note 2)	29,450	12,074	5,165	10,017	56,707	(1,970)	54,736
Other items							
Depreciation and amortization	15,627	17,557	5,964	942	40,091	(43)	40,048
Impairment losses	4	—	85	—	89	—	89
Share of profit (loss) of investments accounted for using the equity method	104	(178)	4	4,412	4,341	(0)	4,341

Notes: 1. The ¥1,970 million negative reconciling item for segment profit is comprised of ¥357 million of intersegment eliminations and companywide expenses of ¥1,613 million that were not allocated to any particular reportable segment. These companywide expenses related principally to basic research expenses that were not allocated to a particular reportable segment.
2. Segment profit represents core operating profit, which is calculated as operating profit excluding certain gains or losses attributable to non-recurring factors (losses incurred by business withdrawals, streamlining, and others).

Reconciliation of segment profit with profit before income taxes is as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Segment profit	¥60,033	¥54,736
Gain on sales of fixed assets	1,209	1,012
Share of profit (loss) of investments accounted for using the equity method	(651)	(1,943)
Impairment losses	(162)	(141)
Other	(565)	—
Operating profit	59,862	53,664
Financial income	1,299	1,429
Financial costs	(5,264)	(4,918)
Profit before income taxes	¥55,897	¥50,176

(3) Information about geographical area

A breakdown of revenues from external customers and non-current assets by geographical area are as follows:

Revenues from external customers

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Japan	¥360,108	¥338,239
The United States	165,739	141,009
Asia, Oceania and others	120,370	102,336
Total	¥646,218	¥581,586

Note: Revenue is classified by country or region based on the customers' location.

Non-current assets

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Japan	¥155,759	¥146,740
The United States	292,821	304,824
Asia, Oceania and others	108,207	103,604
Total	¥556,788	¥555,169

Note: Non-current assets are classified by their location, and they do not include financial assets, deferred tax assets or retirement benefit asset.

(4) Information about major customers

Information about major customers is not disclosed since there is no single external customer that accounts for 10% or more of revenue.

5. Business Combinations

FYE2018 (From April 1, 2017 to March 31, 2018)

There were no significant business combinations.

FYE2017 (From April 1, 2016 to March 31, 2017)

Acquisition of Industrial Gas Operations

(1) Overview of business combination

1) Name and business description of acquirees

Names of acquirees: Air Liquide Industrial U.S. LP and Airgas, Inc.

Business description: Gas separation, carbon dioxide, packaged gases and nitrous oxide businesses

2) Acquisition date

September 8, 2016

3) Main reason for business combination

The objective was to become a national supplier by expanding gas separation business network of Matheson Tri-Gas, Inc. in the East and Midwest of the United States, solidifying its position as a manufacturer, improving its supply stability and customer trust nationwide, reinforcing production capacity for its carbon dioxide business, and entering the packaged gas business in Alaska and the nitrous oxide business, thereby expanding into new domains and solidifying foundations and profitability of Matheson Tri-Gas, Inc. through expansion in the United States, the world's largest industrial gas market.

4) Method for gaining control of acquirees

A wholly owned subsidiary Matheson Tri-Gas, Inc. acquired part of the American industrial gas operations and related business assets of Air Liquide Industrial U.S. LP and Airgas, Inc.

(2) Fair value of consideration transferred

(Millions of Yen)

	Acquisition date (September 8, 2016)
Cash	¥77,402
Total of consideration transferred	¥77,402

(3) Goodwill, assets acquired and liabilities assumed

(Millions of Yen)

	Acquisition date (September 8, 2016)
Current assets:	
Inventories	¥ 406
Other	369
Non-current assets:	
Property, plant and equipment (Note 2)	28,911
Intangible assets (Note 2)	24,502
Assets acquired	54,188
Current liabilities	43
Non-current liabilities	3,744
Liabilities assumed	3,787
Net assets acquired and liabilities assumed	50,401
Goodwill (Note 3)	¥27,001

Notes: 1. Adjustment of provisional amounts
The consideration transferred is allocated to assets acquired and liabilities assumed on the acquisition date based on fair value. The provisional amounts were adjusted as the allocation of the consideration transferred was completed in the second quarter of the fiscal year ended March 31, 2018. The impact of this adjustment is insignificant.
2. Details of property, plant and equipment and intangible assets
Property, plant and equipment are mainly machinery and vehicles of ¥23,346 million. Intangible assets are customer-related intangible assets of ¥24,502 million.
3. Goodwill
Goodwill mainly comprises anticipated synergies and excess earnings capabilities arising from acquisition that do not match specific recognition criteria. Goodwill is deductible for a certain period under full taxation.

(4) Acquisition-related costs

Acquisition-related costs were ¥421 million, and are included in "Selling, general and administrative expenses" in the consolidated statements of profit or loss.

(5) Impact on the TNSC Group's results

The TNSC Group's consolidated statements of profit or loss include revenue and profit generated by the acquirees subsequent to the acquisition date of ¥14,742 million and ¥1,162 million, respectively.

The revenue and profit (pro forma information) assuming that the business combination was undertaken on April 1, 2016, the beginning of the fiscal year, are ¥593,123 million and ¥37,302 million, respectively. The pro forma information has not been audited.

Acquisition of Supagas Holdings Pty Ltd

(1) Overview of business combination

1) Name and business description of acquired company

Name of acquired company: Supagas Holdings Pty Ltd and related land

Business description: Sells LPG, industrial gases (including oxygen, nitrogen, argon, and carbon dioxide), and related equipment

2) Acquisition date

December 16, 2016

3) Main reason for business combination

The Company acquired Renegade Gas Pty Ltd in July 2015 to fully enter the Australian industrial gas market. Renegade Gas Pty Ltd operates principally in New South Wales, Queensland, and elsewhere on Australia's east coast. The Company planned to further expand its operations in Australia. In acquiring Supagas Holdings Pty Ltd, the Company augmented existing operations, including in Victoria and Western Australia, to complete a nationwide sales network. It was thereby able to reinforce its national account efforts and its user supply structure. In leveraging a nationwide sales network, the Company is positioned to capitalize on infrastructural demand, which should continue to expand solidly, while cultivating new resources and energy-related demand. The Company should also materialize synergies with Renegade Gas Pty Ltd to boost earnings and undertake activities to further expand its Australian business.

4) Percentage of voting rights acquired

100.0%

5) Method for gaining control of acquired company

Consolidated subsidiary, TNSC (Australia) Pty Ltd acquired all of the shares and related land of Supagas Holdings Pty Ltd by purchasing shares for cash and exchanging shares.

(2) Fair value of consideration transferred

(Millions of Yen)

	Acquisition date (December 16, 2016)	
Cash	¥20,737	(Note 1)
TNSC (Australia) Pty Ltd shares	841	
Total of consideration transferred	¥21,578	

Note: 1. In addition, the TNSC Group also made a cash loan of ¥7,686 million to the acquired company. This loan, which is repayable by the acquired company, is classified in the consolidated statements of cash flows within "Cash flows from investing activities" as "Other." The acquired company is using this loan to fund debt repayment.

(3) Number of shares transferred and method for measuring fair value thereof

A total of 9,158,348 ordinary shares were transferred to the former owners of Supagas Holdings Pty Ltd and the fair value, based on the financial position, results, and other numbers for TNSC (Australia) Pty Ltd, was agreed between the parties.

(4) Goodwill, assets acquired and liabilities assumed

(Millions of Yen)

	Acquisition date (December 16, 2016)
Current assets:	
Cash and cash equivalents	¥ 717
Trade receivables	1,566
Inventories	334
Other	112
Non-current assets:	
Property, plant and equipment	10,229
Intangible assets	4,577
Other	125
Assets acquired	17,660
Current liabilities	1,189
Non-current liabilities	8,536
Liabilities assumed	9,725
Net assets acquired and liabilities assumed	7,935
Goodwill (Note 2)	¥13,643

Notes: 1. Adjustment of provisional amounts
The consideration transferred is allocated to assets acquired and liabilities assumed on the acquisition date based on fair value. The provisional amounts were adjusted as the allocation of the consideration transferred was completed in the third quarter of the fiscal year ended March 31, 2018. The impact of this adjustment is insignificant.
2. Goodwill
Goodwill mainly comprises anticipated synergies and excess earnings capabilities arising from acquisition that do not match specific recognition criteria. Goodwill is not tax-deductible.

(5) Acquisition-related costs

Acquisition-related costs were ¥542 million, and are included in "Selling, general and administrative expenses" in the consolidated statement of profit or loss.

(6) Impact on the TNSC Group's results

The TNSC Group's consolidated statement of profit or loss includes revenue and profit generated by the acquired company subsequent to the acquisition date of ¥2,073 million and ¥70 million, respectively.

The revenue and profit (pro forma information) assuming that the business combination was undertaken on April 1, 2016, the beginning of the fiscal year, are ¥588,072 million and ¥36,771 million, respectively. The pro forma information has not been audited.

6. Cash and Cash Equivalents

A breakdown of cash and cash equivalents is as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Cash and deposits	¥47,809	¥52,857
Total	¥47,809	¥52,857

7. Trade Receivables

A breakdown of trade receivables is as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Notes and accounts receivable—trade	¥166,578	¥151,965
Allowance for doubtful accounts	(2,330)	(1,985)
Total	¥164,247	¥149,979

Trade receivables are classified as financial assets measured at amortized cost.

8. Inventories

A breakdown of inventories is as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Merchandise and finished goods	¥33,604	¥32,493
Work in process	9,153	10,837
Raw materials and supplies	8,723	8,604
Total	¥51,481	¥51,935

Amounts of inventories measured based on net realizable value at March 31, 2018 and March 31, 2017 were ¥3,362 million and ¥6,641 million, respectively.

Amounts of write-downs of inventories recognized as expenses for FYE2018 and FYE2017 were ¥262 million and ¥195 million, respectively.

9. Property, Plant and Equipment

(1) Table of changes

Changes in costs, accumulated depreciation and accumulated impairment losses, and carrying amounts of property, plant and equipment are as follows:

FYE2018 (From April 1, 2017 to March 31, 2018)

Costs

(Millions of Yen)

	Machinery and vehicles	Buildings and structures	Land	Construction in progress	Tools, furniture and fixtures	Total
Balance at April 1, 2017	¥608,772	¥131,784	¥46,873	¥36,358	¥114,870	¥938,659
Individual acquisition	37,071	4,776	609	11,097	8,468	62,023
Acquisition through business combination, etc.	1,510	2,619	1,214	—	216	5,560
Sale and disposal	(11,695)	(1,387)	(1,392)	(296)	(2,598)	(17,370)
Transfer	(1,064)	(0)	(96)	(235)	(29)	(1,426)
Exchange differences on translation of foreign operations, etc.	(7,857)	(436)	153	(5,626)	(4,618)	(18,386)
Balance at March 31, 2018	¥626,736	¥137,356	¥47,361	¥41,297	¥116,308	¥969,061

Accumulated depreciation and accumulated impairment losses

(Millions of Yen)

	Machinery and vehicles	Buildings and structures	Land	Construction in progress	Tools, furniture and fixtures	Total
Balance at April 1, 2017	¥(406,839)	¥(78,371)	¥(3,135)	¥—	¥(70,759)	¥(559,106)
Depreciation	(27,961)	(4,380)	—	—	(6,589)	(38,930)
Impairment losses	—	(162)	(0)	—	(0)	(163)
Acquisition through business combination, etc.	(1,163)	(541)	—	—	(124)	(1,828)
Sale and disposal	10,690	1,093	323	—	2,178	14,285
Transfer	599	0	(0)	—	12	612
Exchange differences on translation of foreign operations, etc.	4,862	511	(10)	—	2,635	7,999
Balance at March 31, 2018	¥(419,810)	¥(81,850)	¥(2,822)	¥—	¥(72,647)	¥(577,130)

Carrying amounts

(Millions of Yen)

	Machinery and vehicles	Buildings and structures	Land	Construction in progress	Tools, furniture and fixtures	Total
Balance at April 1, 2017	¥201,933	¥53,413	¥43,737	¥36,358	¥44,111	¥379,553
Balance at March 31, 2018	¥206,925	¥55,506	¥44,538	¥41,297	¥43,661	¥391,930

FYE2017 (From April 1, 2016 to March 31, 2017)

Costs

(Millions of Yen)

	Machinery and vehicles	Buildings and structures	Land	Construction in progress	Tools, furniture and fixtures	Total
Balance at April 1, 2016	¥548,336	¥127,978	¥43,871	¥34,279	¥104,145	¥858,612
Individual acquisition	31,104	2,205	850	2,004	6,513	42,678
Acquisition through business combination, etc.	32,747	2,085	2,360	282	9,470	46,946
Sale and disposal	(6,807)	(722)	(164)	(122)	(2,462)	(10,279)
Transfer	2,898	91	(131)	(109)	(2,634)	114
Exchange differences on translation of foreign operations, etc.	493	144	86	24	(162)	586
Balance at March 31, 2017	¥608,772	¥131,784	¥46,873	¥36,358	¥114,870	¥938,659

Accumulated depreciation and accumulated impairment losses

(Millions of Yen)

	Machinery and vehicles	Buildings and structures	Land	Construction in progress	Tools, furniture and fixtures	Total
Balance at April 1, 2016	¥(384,252)	¥(74,660)	¥(3,115)	¥—	¥(64,678)	¥(526,706)
Depreciation	(25,642)	(4,505)	—	—	(6,372)	(36,519)
Impairment losses	(0)	(4)	(114)	—	(0)	(118)
Acquisition through business combination, etc.	(3,450)	(2)	—	—	(2,252)	(5,705)
Sale and disposal	5,633	604	101	—	2,206	8,546
Transfer	389	17	—	—	180	587
Exchange differences on translation of foreign operations, etc.	483	179	(8)	—	156	811
Balance at March 31, 2017	¥(406,839)	¥(78,371)	¥(3,135)	¥—	¥(70,759)	¥(559,106)

Carrying amounts

(Millions of Yen)

	Machinery and vehicles	Buildings and structures	Land	Construction in progress	Tools, furniture and fixtures	Total
Balance at April 1, 2016	¥164,084	¥53,318	¥40,756	¥34,279	¥39,467	¥331,906
Balance at March 31, 2017	¥201,933	¥53,413	¥43,737	¥36,358	¥44,111	¥379,553

Depreciation of property, plant and equipment is included in “Cost of sales” and “Selling, general and administrative expenses” in the consolidated statement of profit or loss.

(2) Leased assets

Carrying amounts of leased assets under finance leases included in property, plant and equipment are as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Machinery and vehicles	¥2,248	¥2,387
Other	1,838	1,732
Total	¥4,087	¥4,119

10. Goodwill and Intangible Assets

(1) Table of changes

Changes in costs, accumulated amortization and accumulated impairment losses, and the carrying amounts of goodwill and intangible assets are as follows:

FYE2018 (From April 1, 2017 to March 31, 2018)

Costs

(Millions of Yen)

		Intangible assets		
	Goodwill	Customer-related intangible assets	Other	Total
Balance at April 1, 2017	¥125,238	¥59,648	¥16,252	¥75,900
Individual acquisition	264	—	478	478
Acquisition through business combination, etc.	1,046	—	9	9
Sale and disposal	—	—	(145)	(145)
Exchange differences on translation of foreign operations, etc.	(5,776)	(3,157)	(535)	(3,693)
Balance at March 31, 2018	¥120,773	¥56,490	¥16,059	¥72,549

Accumulated amortization and accumulated impairment losses

(Millions of Yen)

		Intangible assets		
	Goodwill	Customer-related intangible assets	Other	Total
Balance at April 1, 2017	¥(1,636)	¥(14,235)	¥(10,359)	¥(24,594)
Amortization	—	(3,416)	(977)	(4,394)
Sale and disposal	—	—	142	142
Exchange differences on translation of foreign operations, etc.	84	873	355	1,229
Balance at March 31, 2018	¥(1,551)	¥(16,778)	¥(10,838)	¥(27,617)

Carrying amounts

(Millions of Yen)

		Intangible assets		
	Goodwill	Customer-related intangible assets	Other	Total
Balance at April 1, 2017	¥123,602	¥45,412	¥5,892	¥51,305
Balance at March 31, 2018	¥119,221	¥39,711	¥5,220	¥44,932

FYE2017 (From April 1, 2016 to March 31, 2017)

Costs

(Millions of Yen)

		Intangible assets		
	Goodwill	Customer-related intangible assets	Other	Total
Balance at April 1, 2016	¥ 82,797	¥29,244	¥14,593	¥43,837
Individual acquisition	208	—	715	715
Acquisition through business combination, etc.	40,855	27,935	1,196	29,131
Sale and disposal	—	—	(118)	(118)
Exchange differences on translation of foreign operations, etc.	1,376	2,468	(135)	2,333
Balance at March 31, 2017	¥125,238	¥59,648	¥16,252	¥75,900

Accumulated amortization and accumulated impairment losses

(Millions of Yen)

		Intangible assets		
	Goodwill	Customer-related intangible assets	Other	Total
Balance at April 1, 2016	¥(1,617)	¥(11,534)	¥ (9,476)	¥(21,010)
Amortization	—	(2,645)	(924)	(3,569)
Impairment losses	(27)	(38)	(46)	(85)
Sale and disposal	—	—	87	87
Exchange differences on translation of foreign operations, etc.	8	(17)	(0)	(17)
Balance at March 31, 2017	¥(1,636)	¥(14,235)	¥(10,359)	¥(24,594)

Carrying amounts

(Millions of Yen)

		Intangible assets		
	Goodwill	Customer-related intangible assets	Other	Total
Balance at April 1, 2016	¥ 81,179	¥17,710	¥5,117	¥22,827
Balance at March 31, 2017	¥123,602	¥45,412	¥5,892	¥51,305

There were no significant internally generated intangible assets for FYE2018 or FYE2017.

Amortization of intangible assets is included in "Cost of sales" and "Selling, general and administrative expenses" in the consolidated statement of profit or loss.

Research and development costs recognized as expenses for FYE2018 and FYE2017 were ¥3,255 million and ¥3,323 million, respectively.

The carrying amount of assets with indefinite useful lives in the intangible assets above was ¥1,110 million at March 31, 2018. Principally, the assets were trademarks acquired at the time of a business combination, and the TNSC Group determined that their useful lives cannot be estimated because the assets will exist for as long as the business continues.

(2) Significant intangible assets

Significant intangible assets recorded in the consolidated statement of financial position were customer-related intangible assets held by Matheson Tri-Gas, Inc., a consolidated subsidiary. Their carrying amounts at March 31, 2018 and March 31, 2017 were ¥35,912 million and ¥41,131 million, respectively. The remaining period of amortization is principally 18 years.

11. Impairment Losses

The TNSC Group groups assets into the smallest cash-generating units that generate cash flows largely independently. For idle assets, recognition of impairment loss is determined by individual assets.

Impairment losses for FYE2018 and FYE2017 were ¥163 million and ¥231 million, respectively. Impairment losses were included in "Other operating expenses" in the consolidated statement of profit or loss.

There were no individually significant impairment losses incurred for FYE2018 or FYE2017.

Carrying amounts of goodwill and intangible assets with indefinite useful lives allocated to a cash-generating unit (group of cash-generating units) are as follows:

(Millions of Yen)

Cash-generating unit (group of cash-generating units)	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Matheson Tri-Gas, Inc.	¥ 87,540	¥ 92,403
Renegade Gas Pty Ltd	9,314	9,492
Supagas Holdings Pty Ltd	14,377	15,207
Other	9,100	7,673
Total	¥120,332	¥124,776

The carrying amounts of intangible assets with indefinite useful lives at March 31, 2018 and March 31, 2017 were ¥1,110 million and ¥1,174 million respectively, and were included in Supagas Holdings Pty Ltd.

The recoverable amount of a cash-generating unit (group of cash-generating units) is measured by value in use.

Value in use is calculated reflecting past experiences and external information based on business plans within five years approved by the management. Cash flows exceeding the period of a business plan are determined by reference to the long-term average growth rate of a market or a country that the cash-generating unit belongs to.

Growth rates and discount rates used in the measurement of the value in use are as follows:

Cash-generating unit (group of cash-generating units)	FYE2018 (March 31, 2018)		FYE2017 (March 31, 2017)	
	Growth rate	Discount rate	Growth rate	Discount rate
Matheson Tri-Gas, Inc.	3.8%	9.7%	4.0%	8.8%
Renegade Gas Pty Ltd	3.0%	8.5%	4.4%	11.0%
Supagas Holdings Pty Ltd	3.0%	8.5%	4.4%	11.0%

The TNSC Group determined that it is less probable to incur significant impairment even if the major assumptions used in the impairment test fluctuate to a reasonably predictable extent.

12. Investments Accounted for Using the Equity Method

The carrying amount of investments in joint ventures accounted for using the equity method that are individually insignificant is as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Carrying amount of investments in joint ventures	¥914	¥1,302

Share of comprehensive income of joint ventures accounted for using the equity method is as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Share of profit (Note)	¥(1,048)	¥(2,112)
Share of other comprehensive income	30	(49)
Total share of comprehensive income	¥(1,017)	¥(2,162)

Note: For FYE2017, impairment losses of ¥1,943 million were recognized since the recoverable amount was less than the carrying amount of investments in certain joint ventures.

The carrying amount of investments in associates accounted for using the equity method that are insignificant is as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Carrying amount of investments in associates	¥27,234	¥21,656

Share of comprehensive income of associates accounted for using the equity method is as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Share of profit	¥3,884	¥4,510
Share of other comprehensive income	420	(934)
Total share of comprehensive income	¥4,305	¥3,576

13. Other Financial Assets

A breakdown of other financial assets is as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Equity securities and investments in capital	¥48,675	¥51,767
Other	19,424	19,453
Allowance for doubtful accounts	(850)	(509)
Total	¥67,248	¥70,711
Current assets	¥ 6,412	¥ 5,533
Non-current assets	60,836	65,178
Total	¥67,248	¥70,711

Equity securities and investments are classified as equity financial assets measured at fair value through other comprehensive income. Other is classified mainly as financial assets measured at amortized cost.

Equity securities are designated as equity financial assets measured at fair value through other comprehensive income because they are held mainly for the purpose of maintaining and strengthening business and collaborative relationships and financial transaction relationships, etc. Names of issuers and fair value of principal equity financial assets measured at fair value through other comprehensive income are as follows:

FYE2018 (March 31, 2018)

(Millions of Yen)

Name	Amount
JFE Holdings, Inc.	¥5,515
Tosoh Corporation	4,649
Azbil Corporation	3,468
Koatsu Gas Kogyo Co., Ltd.	2,957
IBIDEN CO., LTD.	2,096

FYE2017 (March 31, 2017)

(Millions of Yen)

Name	Amount
JFE Holdings, Inc.	¥4,661
Tosoh Corporation	4,353
Azbil Corporation	3,141
Koatsu Gas Kogyo Co., Ltd.	2,382
IBIDEN CO., LTD.	2,296

In order to improve the efficiency and effective utilization of assets held, the TNSC Group conducts sales (derecognition) of equity financial assets measured at fair value through other comprehensive income. The fair value at the time of sales and cumulative gains or losses on sales are as follows. Cumulative gains or losses (after tax) recognized in other comprehensive income in equity were transferred to retained earnings at the time of sales.

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Fair value	¥7,503	¥4,627
Cumulative gains or losses	1,507	(561)

For equity financial assets measured at fair value through other comprehensive income, dividends received were recognized as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Financial assets that were derecognized	¥ 72	¥ 63
Financial assets held at the end of the fiscal year	994	935

14. Other Assets

A breakdown of other assets is as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Prepaid expenses	¥3,796	¥5,663
Other	5,260	2,871
Total	¥9,056	¥8,535
Current assets	¥8,351	¥7,826
Non-current assets	704	709
Total	¥9,056	¥8,535

15. Trade Payables

A breakdown of trade payables is as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Notes and accounts payable—trade	¥79,483	¥73,046
Total	¥79,483	¥73,046

Trade payables are classified as financial liabilities measured at amortized cost.

16. Bonds and Borrowings

A breakdown of bonds and borrowings is as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Short-term borrowings	¥ 35,403	¥ 34,973
Current portion of long-term borrowings	36,969	43,747
Current portion of bonds	15,000	10,000
Long-term borrowings	193,694	208,833
Bonds	40,000	55,000
Total	¥321,067	¥352,553
Current liabilities	¥ 87,372	¥ 88,720
Non-current liabilities	233,694	263,833
Total	¥321,067	¥352,553

Bonds and borrowings are classified as financial liabilities measured at amortized cost.

Average interest rates applicable to short-term borrowings and long-term borrowings at March 31, 2018 were 2.22% and 1.52%, respectively. Average interest rates applicable to short-term borrowings and long-term borrowings at March 31, 2017 were 1.61% and 1.50%, respectively. The repayment term of long-term borrowings at March 31, 2018 is from 2018 to 2035.

A breakdown of bonds is as follows:

(Millions of Yen)

Company name	Name	Issuance date	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)	Interest rate (%)	Collateral	Maturity date
*1	The 10th Domestic Unsecured Straight Corporate Bonds	June 14, 2012	¥ —	¥10,000	0.44	None	June 14, 2017
*1	The 11th Domestic Unsecured Straight Corporate Bonds	February 27, 2014	15,000	15,000	0.32	None	February 27, 2019
*1	The 12th Domestic Unsecured Straight Corporate Bonds	February 27, 2014	10,000	10,000	0.56	None	February 26, 2021
*1	The 13th Domestic Unsecured Straight Corporate Bonds	December 15, 2016	15,000	15,000	0.14	None	December 15, 2021
*1	The 14th Domestic Unsecured Straight Corporate Bonds	December 15, 2016	15,000	15,000	0.39	None	December 15, 2026
	Total		¥55,000	¥65,000			

*1 The bonds were issued by the Company.

Assets pledged as collateral and secured obligations are as follows:

Assets pledged as collateral

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Property, plant and equipment	¥1,540	¥1,468
Total	¥1,540	¥1,468

Secured obligations

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Bonds and borrowings	¥826	¥906
Other financial liabilities (current)	137	73
Total	¥963	¥980

17. Other Financial Liabilities

A breakdown of other financial liabilities is as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Lease liabilities	¥ 5,892	¥ 6,975
Accrued expenses	21,680	21,169
Accounts payable—other	7,002	3,699
Other	2,041	3,931
Total	¥36,617	¥35,775
Current liabilities	¥31,693	¥30,152
Non-current liabilities	4,923	5,622
Total	¥36,617	¥35,775

Other financial liabilities are mainly classified as financial liabilities measured at amortized cost.

18. Lease Transactions

(1) Finance leases

Minimum lease payments and their present value are as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)			FYE2017 (March 31, 2017)		
	Minimum lease payments	Future finance charges	Present value	Minimum lease payments	Future finance charges	Present value
One year or less	¥2,016	¥ (24)	¥1,992	¥2,500	¥(125)	¥2,374
More than one year but within five years	3,375	(72)	3,303	4,071	(152)	3,919
More than five years	615	(18)	597	707	(26)	681
Total	¥6,008	¥(115)	¥5,892	¥7,279	¥(304)	¥6,975

(2) Operating leases

Future minimum lease payments under non-cancellable operating lease contracts are as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
One year or less	¥ 3,159	¥ 3,193
More than one year but within five years	7,161	7,082
More than five years	3,897	2,845
Total	¥14,219	¥13,120

Lease payments recognized as expenses for FYE2018 and FYE2017 were ¥6,745 million and ¥4,415 million, respectively.

19. Post-employment Benefits

The Company and certain consolidated subsidiaries have funded and unfunded retirement defined benefit plans and defined contribution plans for employees' retirement benefits, and the plans cover substantially all the employees.

(1) Defined benefit plans

Major defined benefit plans of the Company's consolidated subsidiaries are cash balance plans. Amounts of benefits under the cash balance plans are set based on various conditions such as years of service, points based on achievements during the service period, etc. The investment yield is determined taking into consideration the yield on government bonds.

In accordance with laws and regulations, the pension plans are managed by the Company's consolidated subsidiaries or a pension fund that is legally separate from the Company's consolidated subsidiaries. The Company's consolidated subsidiaries, or the Board of Directors of the pension fund and the trustees of pension fund management are required by laws and regulations to act in the best interest of policyholders, and responsible for operating plan assets based on the prescribed policies.

Amounts of defined benefit plans in the consolidated statements of financial position are as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Present value of defined benefit obligations	¥ 32,929	¥ 32,694
Fair value of plan assets	(30,756)	(36,921)
Net amount of defined benefit obligations and assets	¥ 2,173	¥ (4,226)
Retirement benefit liability	¥ 4,511	¥ 4,216
Retirement benefit asset	(2,338)	(8,443)
Net amount of defined benefit obligations and assets	¥ 2,173	¥ (4,226)

For defined benefit plans, amounts recognized as expenses in the consolidated statements of profit or loss are as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Current service cost	¥1,294	¥1,398
Interest expenses	198	174
Interest income	(178)	(141)
Total	¥1,314	¥1,432

Changes related to the present value of defined benefit obligations are as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Balance at beginning of the fiscal year	¥32,694	¥33,942
Current service cost	1,294	1,398
Interest expenses	198	174
Remeasurements		
Actuarial gains and losses arising from changes in financial assumptions	132	(594)
Retirement benefits paid	(1,645)	(2,097)
Other	255	(129)
Balance at end of the fiscal year	¥32,929	¥32,694

Changes related to the fair value of plan assets are as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Balance at beginning of the fiscal year	¥36,921	¥35,926
Interest income	178	141
Remeasurements		
Return on plan assets	1,343	1,538
Contributions from companies	918	981
Retirement benefits paid	(1,403)	(1,847)
Other (Note)	(7,201)	180
Balance at end of the fiscal year	¥30,756	¥36,921

Note: Plan assets decreased by ¥7,185 million, due to the cancellation of the retirement benefit trust during the fiscal year ended March 31, 2018.

Major actuarial assumptions used to calculate the present value of defined benefit obligations are as follows:

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Discount rate	0.57%	0.66%

If discount rates, the major actuarial assumptions, fluctuate, the present values of defined benefit obligations at March 31, 2018 and March 31, 2017 change as follows. This sensitivity analysis is based on the assumption that all actuarial assumptions other than actuarial assumptions subject to analysis remain constant.

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Increase by 0.5%	¥(1,522)	¥(1,563)
Decrease by 0.5%	1,659	1,705

Fair values of plan assets at March 31, 2018 are as follows:

(Millions of Yen)

	Plan assets for which there are quoted market prices in an active market	Plan assets for which there are no quoted market prices in an active market	Total
Cash and cash equivalents	¥1,618	¥ —	¥ 1,618
Equity financial instruments			
Jointly managed trusts	—	4,494	4,494
Total equity financial instruments	—	4,494	4,494
Debt financial instruments			
Jointly managed trusts	—	12,856	12,856
Total debt financial instruments	—	12,856	12,856
Life insurance general accounts	—	11,767	11,767
Other	—	19	19
Total	¥1,618	¥29,137	¥30,756

Fair values of plan assets at March 31, 2017 are as follows:

(Millions of Yen)

	Plan assets for which there are quoted market prices in an active market	Plan assets for which there are no quoted market prices in an active market	Total
Cash and cash equivalents	¥4,236	¥ —	¥ 4,236
Equity financial instruments			
Domestic equity securities	5,153	—	5,153
Jointly managed trusts	—	5,872	5,872
Total equity financial instruments	5,153	5,872	11,025
Debt financial instruments			
Jointly managed trusts	—	9,718	9,718
Total debt financial instruments	—	9,718	9,718
Life insurance general accounts	—	11,886	11,886
Other	—	53	53
Total	¥9,390	¥27,530	¥36,921

Under the TNSC Group's plan asset management policy, the purpose of management is to secure the required combined returns over the medium and long term to the extent of allowable risks in order to ensure payments of the benefits of the defined benefit obligations in the future.

For plan assets, the TNSC Group seeks to reduce risks by diversifying investments widely in domestic and foreign equity securities, debt securities and life insurance general accounts based on asset allocation objectives of a policy asset mix formulated to achieve management objectives.

For asset allocation, the TNSC Group sets the allocation to be maintained for the medium and long term, based on the correlation between expectations of risks and returns for the medium and long term and actual management results of each asset. The TNSC Group reviews asset allocation according to the situation as necessary, such as when there is a significant change in the market environment.

For FYE2019, the TNSC Group plans to contribute ¥999 million to plan assets.

The weighted average durations of the defined benefit obligation at March 31, 2018 and March 31, 2017 were 12.0 years and 12.2 years, respectively.

(2) Defined contribution plans and public pension systems

Amounts recognized as expenses under defined contribution plans and public pension systems are as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Expenses under defined contribution plans	¥1,867	¥1,641
Expenses under public pension systems	4,079	3,870

20. Provisions

A breakdown of changes in provisions is as follows:

FYE2018 (From April 1, 2017 to March 31, 2018)

(Millions of Yen)

	Provision for construction warranties	Asset retirement obligations	Other provisions	Total
Balance at April 1, 2017	¥ 471	¥5,859	¥ 63	¥6,394
Increase during the fiscal year	410	67	80	557
Decrease during the fiscal year (intended use)	(172)	(102)	(48)	(323)
Decrease during the fiscal year (reversal)	(34)	—	(14)	(49)
Other	—	(81)	—	(81)
Balance at March 31, 2018	¥ 674	¥5,742	¥ 80	¥6,496
Current liabilities	¥ 674	¥ —	¥ 80	¥ 754
Non-current liabilities	—	5,742	—	5,742
Total	¥ 674	¥5,742	¥ 80	¥6,496

FYE2017 (From April 1, 2016 to March 31, 2017)

(Millions of Yen)

	Provision for construction warranties	Asset retirement obligations	Other provisions	Total
Balance at April 1, 2016	¥ 616	¥ 594	¥102	¥1,313
Increase during the fiscal year	170	4,999	22	5,191
Decrease during the fiscal year (intended use)	(226)	(73)	(60)	(360)
Decrease during the fiscal year (reversal)	(88)	—	(0)	(89)
Other	—	338	—	338
Balance at March 31, 2017	¥ 471	¥5,859	¥ 63	¥6,394
Current liabilities	¥ 471	¥ —	¥ 63	¥ 534
Non-current liabilities	—	5,859	—	5,859
Total	¥ 471	¥5,859	¥ 63	¥6,394

Provision for construction warranties

In order to prepare for construction-related compensation expenses for machinery and device products, provision for construction warranties is recorded based on the latest estimated amount of compensation based on shipment amounts of machinery and device products in the previous fiscal year. Of these, amounts expected to be paid within one year are recorded. However, there is uncertainty in the occurrence of construction-related compensation expenses.

Asset retirement obligations

If the TNSC Group has legal obligations required by laws and regulations or contracts concerning retirement of fixed assets that are used for the ordinary course of business, such as obligations to restore the original condition accompanying lease contracts of factory facilities and properties used by the TNSC Group, asset retirement obligations are recognized based on the estimated amount of future expenditures calculated based on historical results, etc.

Although these expenses are expected to be paid mainly after one year or more, they will be affected by future business plans, etc.

21. Other Liabilities

A breakdown of other liabilities is as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Advances received	¥ 2,499	¥ 4,840
Deferred income	4,233	4,716
Employees' bonuses	3,908	3,483
Employees' paid absence	2,193	2,310
Other	14,543	13,290
Total	¥27,378	¥28,641
Current liabilities	¥12,441	¥14,858
Non-current liabilities	14,937	13,783
Total	¥27,378	¥28,641

22. Equity

(1) Share capital and treasury shares

Numbers of shares authorized and shares issued are as follows:

(Thousand shares)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Number of shares authorized	1,600,000	1,600,000
Number of shares issued		
Beginning of the fiscal year	433,092	433,092
Changes during the fiscal year	—	—
End of the fiscal year	433,092	433,092

All shares are ordinary shares with no par value. Shares issued are fully paid.

Changes in the number of treasury shares during the fiscal year are as follows:

(Thousand shares)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Beginning of the fiscal year	328	323
Increase	4	4
Decrease	(0)	(0)
End of the fiscal year	332	328

Major factors of changes during the fiscal year were due to the purchase or requests for sales of shares less than one unit.

(2) Capital surplus and retained earnings

Capital surplus consists of amounts not included in share capital as part of the amounts arising from capital transactions, and the main component is capital reserve. Retained earnings consist of legal retained earnings and other reserves.

The Companies Act of Japan stipulates that more than one-half of payments or delivery in relation to the issuance of shares shall be included in share capital, and the remaining shall be included in capital reserve. Capital reserve may be incorporated into share capital by resolutions of the shareholders' meeting.

In addition, the Act stipulates that one-tenth of the amount to be paid as cash dividends from surplus shall be appropriated as capital reserve or legal retained earnings until the total amount of capital reserve and legal retained earnings equals one-fourth of share capital.

The accumulated legal retained earnings may be used to eliminate or reduce a deficit, and the legal retained earnings may be reversed by resolution of the shareholders' meeting.

(3) Other components of equity

Other components of equity are as follows:

(Exchange differences on translation of foreign operations)

Exchange differences on translation of foreign operations are translation differences arising when consolidating the financial statements of foreign operations prepared in foreign currencies.

(Effective portion of net change in fair value of cash flow hedges)

The effective portion of net change in fair value of cash flow hedges is the cumulative amount of the effective portion of hedges as part of gains or losses arising from changes in fair value of the hedging instrument related to cash flow hedges.

(Financial assets measured at fair value through other comprehensive income)

Other components of equity include valuation differences in fair value of financial assets measured at fair value through other comprehensive income.

(Remeasurements of defined benefit plans)

Remeasurements of defined benefit plans are the effect of differences between actuarial assumptions at the beginning of the fiscal year and the actual results and the effect of changes in actuarial assumptions. These are recognized in other comprehensive income when incurred, and immediately transferred from other components of equity to retained earnings.

23. Dividends

Payments of dividends are as follows:

FYE2018 (From April 1, 2017 to March 31, 2018)

Resolution	Type of stock	Total cash dividends (Millions of Yen)	Dividends per share (Yen)	Record date	Effective date
Ordinary General Meeting of Shareholders held on June 20, 2017	Ordinary shares	¥4,762	¥11	March 31, 2017	June 21, 2017
Board of Directors' meeting held on November 1, 2017	Ordinary shares	4,762	11	September 30, 2017	December 1, 2017

FYE2017 (From April 1, 2016 to March 31, 2017)

Resolution	Type of stock	Total cash dividends (Millions of Yen)	Dividends per share (Yen)	Record date	Effective date
Ordinary General Meeting of Shareholders held on June 21, 2016	Ordinary shares	¥3,896	¥9	March 31, 2016	June 22, 2016
Board of Directors' meeting held on November 2, 2016	Ordinary shares	3,896	9	September 30, 2016	December 1, 2016

The dividends of whose effective date falls in the next fiscal year are as follows:

FYE2018 (From April 1, 2017 to March 31, 2018)

Resolution	Type of stock	Total cash dividends (Millions of Yen)	Dividends per share (Yen)	Record date	Effective date
Ordinary General Meeting of Shareholders held on June 20, 2018	Ordinary shares	¥5,194	¥12	March 31, 2018	June 21, 2018

FYE2017 (From April 1, 2016 to March 31, 2017)

Resolution	Type of stock	Total cash dividends (Millions of Yen)	Dividends per share (Yen)	Record date	Effective date
Ordinary General Meeting of Shareholders held on June 20, 2017	Ordinary shares	¥4,762	¥11	March 31, 2017	June 21, 2017

24. Other Comprehensive Income

Changes in each item in other comprehensive income during the year are as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Financial assets measured at fair value through other comprehensive income		
Amount arising during the fiscal year	¥ 2,434	¥ 7,952
Tax effects	(789)	(2,418)
Net amount	1,644	5,534
Remeasurements of defined benefit plans		
Amount arising during the fiscal year	1,210	2,132
Tax effects	(391)	(569)
Net amount	819	1,563
Exchange differences on translation of foreign operations		
Amount arising during the fiscal year	(10,099)	(787)
Net amount	(10,099)	(787)
Effective portion of net change in fair value of cash flow hedges		
Amount arising during the fiscal year	(15)	36
Reclassification adjustments	52	350
Tax effects	(11)	(119)
Net amount	26	268
Share of other comprehensive income of investments accounted for using the equity method		
Amount arising during the fiscal year	451	(983)
Net amount	451	(983)
Total other comprehensive income	¥ (7,157)	¥ 5,594

25. Employee Benefit Expenses

Employee benefit expenses other than post-employment benefits are as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Wages and salaries	¥91,537	¥86,426
Social security contributions	7,312	7,180
Total	¥98,849	¥93,607

26. Other Operating Income and Other Operating Expenses

A breakdown of other operating income is as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Grant income	¥ 714	¥ 90
Gain on sales of property, plant and equipment	1,518	1,142
Other	1,836	1,338
Total	¥4,069	¥2,571

A breakdown of other operating expenses is as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Impairment losses	¥ 163	¥ 231
Loss on retirement and sales of property, plant and equipment	569	420
Loss on reduction of property, plant and equipment	714	89
Other	1,677	1,501
Total	¥3,123	¥2,241

27. Finance Income and Finance Costs

A breakdown of finance income is as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Interest income		
Financial assets measured at amortized cost	¥ 232	¥ 273
Dividend income		
Financial assets measured at fair value through other comprehensive income	1,066	998
Other	—	158
Total	¥1,299	¥1,429

A breakdown of finance costs is as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Interest expenses		
Financial liabilities measured at amortized cost	¥5,005	¥4,484
Foreign exchange losses	189	255
Other	69	178
Total	¥5,264	¥4,918

28. Income Taxes

(1) Deferred tax assets and deferred tax liabilities

Major factors giving rise to deferred tax assets and deferred tax liabilities and their changes are as follows:

FYE2018 (From April 1, 2017 to March 31, 2018)

(Millions of Yen)

	April 1, 2017	Recognized in profit or loss	Recognized in other comprehensive income	Other (Note)	March 31, 2018
Deferred tax assets					
Employees' bonuses	¥ 2,266	¥ 134	¥ —	¥ —	¥ 2,400
Accrued expenses	4,489	(1,316)	—	—	3,172
Property, plant and equipment (excess depreciation, etc.)	2,204	(40)	—	—	2,164
Unrealized gains (inventories and property, plant and equipment)	2,117	(186)	—	—	1,931
Other	5,684	44	(49)	—	5,679
Total	16,762	(1,364)	(49)	—	15,347
Deferred tax liabilities					
Securities and other investments	(7,186)	—	(752)	—	(7,938)
Property, plant and equipment (excess depreciation, etc.)	(35,164)	9,520	—	—	(25,644)
Retained earnings of overseas consolidated subsidiaries, etc.	(4,235)	(105)	—	—	(4,341)
Other	(6,277)	(881)	(390)	681	(6,868)
Total	(52,864)	8,533	(1,142)	681	(44,793)
Net deferred tax liabilities	¥(36,102)	¥ 7,168	¥(1,192)	¥681	¥(29,445)

FYE2017 (From April 1, 2016 to March 31, 2017)

(Millions of Yen)

	April 1, 2016	Recognized in profit or loss	Recognized in other comprehensive income	Other (Note)	March 31, 2017
Deferred tax assets					
Employees' bonuses	¥ 2,203	¥ 62	¥ —	¥ —	¥ 2,266
Accrued expenses	4,201	287	—	—	4,489
Property, plant and equipment (excess depreciation, etc.)	2,144	60	—	—	2,204
Unrealized gains (inventories and property, plant and equipment)	2,189	(72)	—	—	2,117
Other	4,579	1,190	(86)	1	5,684
Total	15,319	1,527	(86)	1	16,762
Deferred tax liabilities					
Securities and other investments	(4,603)	—	(2,582)	—	(7,186)
Property, plant and equipment (excess depreciation, etc.)	(32,093)	(3,071)	—	—	(35,164)
Retained earnings of overseas consolidated subsidiaries, etc.	(3,749)	(485)	—	—	(4,235)
Other	(6,062)	(537)	(437)	759	(6,277)
Total	(46,509)	(4,094)	(3,020)	759	(52,864)
Net deferred tax liabilities	¥(31,190)	¥(2,566)	¥(3,106)	¥760	¥(36,102)

Note: Other includes exchange differences on translation of foreign operations.

For recognition of deferred tax assets, the TNSC Group considers the possibility that some or all deductible temporary differences will be available for future taxable income. For the assessment of the recoverability of deferred tax assets, the TNSC Group considers the planned reversal of deferred tax liabilities, projected future taxable income and tax planning. For deferred tax assets recognized, the TNSC Group believes that it is probable the tax benefits will be realized based on historical taxable income levels and the projection of future taxable income during periods when deferred tax assets may be deducted.

Deductible temporary differences for which deferred tax assets have not been recognized at March 31, 2018 and March 31, 2017 were ¥14,799 million and ¥14,217 million, respectively.

(2) Income taxes

A breakdown of income taxes is as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Current income taxes	¥12,311	¥11,396
Deferred income taxes	(7,168)	2,566
Total	¥ 5,143	¥13,963

In the United States, the Tax Cuts and Jobs Act was enacted on December 22, 2017, and the federal corporate income tax rate has been reduced effective January 1, 2018. Accordingly, deferred tax assets and deferred tax liabilities as of the end of the third quarter of the fiscal year ended March 31, 2018 and thereafter are calculated using an effective tax rate based on the revised tax rate corresponding to the fiscal year in which the temporary differences, etc. are expected to reverse.

As a result, income taxes decreased by ¥12,193 million for the fiscal year ended March 31, 2018.

(3) Table of reconciliation of effective tax rates

The Company is mainly subject to corporate income tax, inhabitant tax and enterprise tax. The statutory tax rate based on these taxes for FYE2018 and FYE2017 was 30.86%. Overseas subsidiaries are subject to the corporate income tax, etc. of their location.

A breakdown of major items that caused differences between the statutory tax rate and the effective tax rate is as follows:

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Statutory tax rate	30.86%	30.86%
Permanently non-deductible or non-taxable items	0.27	0.41
Unrecognized deferred tax assets	0.13	0.10
Differences in tax rates for overseas consolidated subsidiaries	(1.17)	0.30
Retained earnings of overseas consolidated subsidiaries, etc.	0.19	0.97
Share of profit of investments accounted for using the equity method	(1.57)	(1.60)
Reversal of deferred tax liabilities of overseas consolidated subsidiaries	—	(2.24)
Impact of reduction in U.S. federal corporate income tax rate	(21.81)	—
Other	2.30	(0.97)
Effective tax rates	9.20%	27.83%

29. Earnings Per Share

Basic earnings per share and the basis of calculation are as follows:

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Profit attributable to owners of parent (Millions of Yen)	¥48,919	¥34,740
Average number of shares during the fiscal year (Thousand shares)	432,762	432,766
Basic earnings per share (Yen)	¥113.04	¥80.28

Note: Diluted earnings per share are not presented as there are no dilutive potential shares.

30. Cash Flow Information

Changes in liabilities arising from financing activities

Changes in liabilities arising from financing activities are as follows:

FYE2018 (From April 1, 2017 to March 31, 2018)

(Millions of Yen)

	Balance at April 1, 2017	Changes from cash flows	Non-cash changes: Changes from business combinations, etc.	Non-cash changes: Exchange differences on translation of foreign operations, etc.	Balance at March 31, 2018
Short-term borrowings	¥ 34,973	¥ 1,619	¥ —	¥(1,190)	¥ 35,403
Long-term borrowings (Note)	252,580	(15,495)	54	(6,475)	230,664
Bonds (Note)	65,000	(10,000)	—	—	55,000
Total	¥352,553	¥(23,875)	¥54	¥(7,665)	¥321,067

Note: Balances include the current portion of long-term borrowings and bonds.

31. Financial Instruments

(1) Equity management

The TNSC Group manages equity aiming at maximizing corporate value through sustainable growth. The major indices used by the Company in equity management are return on capital employed (ROCE) and net D/E ratio.

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Return on capital employed (ROCE) (Note 1)	8.4%	8.4%
Net D/E ratio (Note 2)	0.71	0.87

Note 1: Core operating profit / invested capital (average of the beginning and the end of the fiscal year)
Invested capital refers to total of interest-bearing liabilities and equity attributable to owners of parent.
Note 2: Net interest-bearing liabilities / equity attributable to owners of parent
Net interest-bearing liabilities refer to interest-bearing liabilities less cash and cash equivalents.

(2) Matters related to risk management

The TNSC Group is exposed to financial risks in the course of conducting business activities in various countries and regions throughout a wide range of fields. In order to reduce or avoid such risks, the TNSC Group manages risks based on certain policies, etc.

In addition, derivative transactions are used to hedge currency fluctuation risk or interest rate fluctuation risk. In principle, derivative transactions are only conducted based on actual demand and not used for speculative purposes.

(3) Credit risk

Trade receivables, etc., which are receivables arising from the TNSC Group's business activities, are exposed to the credit risk of customers. In addition, derivative transactions that the TNSC Group uses to hedge financial risks are exposed to the credit risk of financial institutions that are counterparties to the transactions.

In accordance with internal policies of each Group company, such as credit management regulations, the TNSC Group monitors due dates and outstanding balances of individual customers and establishes a system to periodically assess credit status. The TNSC Group thereby aims to early identify and alleviate collection concerns due to a deteriorating financial situation. In addition, derivative transactions are limited to financial institutions with high creditworthiness in order to minimize counterparties' credit risk related to contract default.

The TNSC Group records allowance for doubtful accounts at an unrecoverable amount for individually significant financial assets, and at an amount based on historical experience, etc. for individually insignificant financial assets, at the end of each fiscal year. Allowance for doubtful accounts related to such financial assets is included in "Trade receivables" and "Other financial assets" in the consolidated statements of financial position.

Allowance for doubtful accounts is as follows. Since the amount of expected credit losses for 12 months is not material, it is added to the expected credit losses for the entire period.

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Balance at beginning of the fiscal year	¥2,495	¥2,470
Increase during the fiscal year	1,253	992
Decrease during the fiscal year (intended use)	(249)	(538)
Decrease during the fiscal year (reversal)	(255)	(421)
Other	(62)	(8)
Balance at end of the fiscal year	¥3,180	¥2,495

The maximum exposure to credit risk of financial assets is the carrying amount after impairment that is presented in the consolidated financial statements.

(4) Liquidity risk

The TNSC Group's trade payables and borrowings, etc. are exposed to liquidity risk. The TNSC Group manages the risk by preparing cash management plans and secures liquidity by establishing commitment lines with several financial institutions.

Balances of financial liabilities (including derivative instruments) by due date are as follows:

FYE2018 (March 31, 2018)

(Millions of Yen)

	Carrying amount	Undiscounted contractual cash flows	One year or less	More than one year but within two years	More than two years but within three years	More than three years but within four years	More than four years but within five years	More than five years
Non-derivative financial liabilities								
Trade payables	¥ 79,483	¥ 79,483	¥79,483	¥ —	¥ —	¥ —	¥ —	¥ —
Accounts payable—other	7,002	7,002	7,002	—	—	—	—	—
Short-term borrowings	35,403	35,403	35,403	—	—	—	—	—
Long-term borrowings	230,664	230,664	36,969	56,712	56,335	39,794	15,835	25,017
Bonds	55,000	55,000	15,000	—	10,000	15,000	—	15,000
Lease liabilities	5,892	5,981	2,016	1,896	798	463	190	615
Accrued expenses	21,680	21,680	21,680	—	—	—	—	—
Other	1,829	1,829	856	277	1	1	1	690
Derivative liabilities								
Forward exchange contracts	97	97	97	—	—	—	—	—
Currency swaps	24	24	4	4	4	4	2	4
Interest rate swaps	90	99	56	30	5	—	—	6

FYE2017 (March 31, 2017)

(Millions of Yen)

	Carrying amount	Undiscounted contractual cash flows	One year or less	More than one year but within two years	More than two years but within three years	More than three years but within four years	More than four years but within five years	More than five years
Non-derivative financial liabilities								
Trade payables	¥ 73,046	¥ 73,046	¥73,046	¥ —	¥ —	¥ —	¥ —	¥ —
Accounts payable—other	3,699	3,699	3,699	—	—	—	—	—
Short-term borrowings	34,973	34,973	34,973	—	—	—	—	—
Long-term borrowings	252,580	252,580	43,747	39,112	57,989	53,792	35,140	22,798
Bonds	65,000	65,000	10,000	15,000	—	10,000	15,000	15,000
Lease liabilities	6,975	7,279	2,500	1,789	1,596	453	231	707
Accrued expenses	21,169	21,169	21,169	—	—	—	—	—
Other	3,676	3,676	2,728	1	228	1	14	700
Derivative liabilities								
Forward exchange contracts	86	86	86	—	—	—	—	—
Currency swaps	2	2	0	0	0	0	0	0
Interest rate swaps	166	171	70	69	25	5	0	0

Unused overdraft agreements and loan commitment lines are as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Unused overdraft agreements and loan commitment lines	¥69,409	¥60,728

(5) Currency risk

Receivables and payables denominated in foreign currencies arising from the TNSC Group's global business development are exposed to the risk of exchange rate fluctuations. The TNSC Group hedges trade receivables and payables denominated in foreign currencies, borrowings, and loans by using forward exchange contracts and currency swaps as necessary.

Currency sensitivity analysis

The following is the impact on profit before income taxes on the consolidated statements of profit or loss from the foreign currency financial instruments held by the TNSC Group at the end of the fiscal year, if the yen appreciates by 1% against the U.S. dollar and Euro, respectively, at the end of the fiscal year.

This analysis is calculated by multiplying each exposure of currency risk by 1%. It is assumed that there is no impact of the fluctuation of each exchange rate on other variables (foreign exchange rates of other currencies, interest rates, etc.).

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
U.S. dollar (1% appreciation of the yen)	¥(21)	¥(1)
Euro (1% appreciation of the yen)	(4)	(0)

(6) Interest rate risk

The TNSC Group's interest rate risk arises from interest-bearing liabilities, net of cash equivalents, etc. Borrowings and corporate bonds that are based on floating interest rates are exposed to interest rate fluctuation risk.

The TNSC Group hedges such risks by using derivative transactions (interest rate swaps) as necessary.

Interest rate sensitivity analysis

The following is the impact on profit before income taxes on the consolidated statements of profit or loss if the interest rate rises by 1% for financial instruments held by the TNSC Group at the end of the fiscal year.

This analysis is intended for financial instruments impacted by fluctuations in interest rates, and it is assumed that other factors, such as the impact of exchange rate fluctuations, remain constant.

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Profit before income taxes	¥(674)	¥(760)

(7) Risk of market price fluctuations

Securities, etc. held by the TNSC Group are exposed to the risk of market price fluctuations.

The TNSC Group periodically evaluates the fair value and the financial status of issuers (business partners) for securities, etc., and each supervising department reviews the holding status taking into consideration the relationship with the business partners on an ongoing basis.

(8) Fair value of financial instruments

For fair value hierarchy of financial instruments, Level 1 to Level 3 is categorized as follows:

Level 1: Fair value measured by the unadjusted quoted prices in active markets of identical assets or liabilities
Level 2: Fair value calculated using an observable prices directly or indirectly, other than Level 1
Level 3: Fair value calculated by valuation techniques including inputs not based on significant observable market data

Transfers between levels of financial instruments are determined at the end of each reporting period. There were no financial instruments with significant transfers between levels for FYE2018 or FYE2017.

1) Financial instruments measured at fair value on a recurring basis

Financial instruments measured at fair value are as follows:

FYE2018 (March 31, 2018)

(Millions of Yen)

	Level 1	Level 2	Level 3	Total
Assets				
Equity securities and investments in capital	¥38,272	¥ —	¥10,403	¥48,675
Derivative assets	—	192	—	192
Total	¥38,272	¥192	¥10,403	¥48,867
Liabilities				
Derivative liabilities	¥ —	¥212	¥ —	¥ 212
Total	¥ —	¥212	¥ —	¥ 212

FYE2017 (March 31, 2017)

(Millions of Yen)

	Level 1	Level 2	Level 3	Total
Assets				
Equity securities and investments in capital	¥35,218	¥ —	¥16,548	¥51,767
Derivative assets	—	214	—	214
Total	¥35,218	¥214	¥16,548	¥51,982
Liabilities				
Derivative liabilities	¥ —	¥255	¥ —	¥ 255
Total	¥ —	¥255	¥ —	¥ 255

Equity securities and investments in capital

The fair value of marketable equity securities categorized as Level 1 is based on unadjusted quoted prices in active markets of identical assets or liabilities.

The fair value of unlisted stocks categorized as Level 3, for which quoted prices are not available in active markets, is calculated using the similar company comparison method or other appropriate valuation techniques based on reasonably available inputs. In addition, certain illiquidity discounts, etc. are added as necessary.

Derivative assets and liabilities

The fair value of derivative assets and derivative liabilities categorized as Level 2 is calculated based on observable inputs such as prices provided by counterparty financial institutions or exchange rates and interest rates.

For financial instruments categorized as Level 3, the evaluator determines the valuation techniques to measure each financial instrument covered in accordance with valuation policies and procedures including valuation techniques to measure fair value approved by the appropriate authorized person, and the fair value is calculated. The results are reviewed and approved by the appropriate authorized person.

Changes in financial instruments classified as Level 3 are as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Balance at beginning of the fiscal year	¥16,548	¥16,366
Other comprehensive income (Note)	(2,200)	(1,044)
Purchase	752	2,620
Sale	(71)	(572)
Change in the scope of consolidation	(4,104)	(1,383)
Other changes	(521)	561
Balance at end of the fiscal year	¥10,403	¥16,548

Note: This is included in “Financial assets measured at fair value through other comprehensive income” in the consolidated statements of comprehensive income.

2) Financial instruments measured at amortized cost

The carrying amount and fair value of financial instruments measured at amortized cost are as follows:

FYE2018 (March 31, 2018)

(Millions of Yen)

					Fair value
	Carrying amount	Level 1	Level 2	Level 3	Total
Liabilities					
Long-term borrowings	¥230,664	¥—	¥229,382	¥—	¥229,382
Bonds	55,000	—	55,127	—	55,127
Total	¥285,664	¥—	¥284,509	¥—	¥284,509

FYE2017 (March 31, 2017)

(Millions of Yen)

					Fair value
	Carrying amount	Level 1	Level 2	Level 3	Total
Liabilities					
Long-term borrowings	¥252,580	¥—	¥252,020	¥—	¥252,020
Bonds	65,000	—	65,171	—	65,171
Total	¥317,580	¥—	¥317,192	¥—	¥317,192

For financial instruments measured at amortized cost other than long-term borrowings and bonds, their fair value reasonably approximates the carrying amount.

Long-term borrowings

The fair value of long-term borrowings is calculated based on the present value calculated by discounting the total amount of principal and interest by the interest rate assumed when similar borrowings are newly made.

Bonds

The fair value of bonds is calculated based on market price.

(9) Transfer of financial assets

At March 31, 2018 and March 31, 2017, for trade receivables transferred without meeting the requirements for derecognition of financial assets, ¥2,101 million and ¥2,176 million were included in "Trade receivables," respectively, and the amounts received due to the transfer of ¥1,520 million and ¥1,565 million were included in "Bonds and borrowings," respectively. Of these Trade receivables, it is determined that the TNSC Group holds almost all of the risks and rewards related to ownership of the transferred assets, because it will assume the payment obligations if the issuer of the notes or the debtor fails to make payment.

(10) Derivative transactions

1) Derivative transactions for which hedge accounting is applied

Analysis of contract amounts, etc. of the hedging instruments by due date is as follows:

FYE2018 (March 31, 2018)

(Millions of Yen)

	Contract amounts, etc.	One year or less	More than one year but within two years	More than two years but within three years	More than three years but within four years	More than four years but within five years	More than five years
Cash flow hedges							
Currency risk							
Forward exchange contracts	¥ 6,673	¥6,634	¥ 39	¥ —	¥ —	¥ —	¥ —
Interest rate risk							
Interest rate swaps	19,820	1,064	15,451	1,271	271	271	1,489

FYE2017 (March 31, 2017)

(Millions of Yen)

	Contract amounts, etc.	One year or less	More than one year but within two years	More than two years but within three years	More than three years but within four years	More than four years but within five years	More than five years
Cash flow hedges							
Currency risk							
Forward exchange contracts	¥ 6,714	¥ 6,714	¥ —	¥ —	¥ —	¥ —	¥ —
Interest rate risk							
Interest rate swaps	29,267	10,149	1,076	15,465	1,286	286	1,003

Major forward rates of foreign exchange contracts and major interest rates of interest rate swaps are as follows:

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Cash flow hedges		
Currency risk		
Forward exchange contracts		
U.S. dollar	¥103.36–¥111.91	¥101.02–¥114.65
Euro	¥130.41–¥132.96	¥112.94–¥127.35
Interest rate risk		
Interest rate swaps		
Fixed payables and floating receivables	0.34%–0.70%	0.34%–0.74%

Amounts related to items designated as hedging instruments are as follows:

FYE2018 (March 31, 2018)

(Millions of Yen)

	Contract amounts, etc.	Carrying amount		Items on the consolidated statements of financial position	Changes in fair value used to calculate ineffective portion of hedges for the fiscal year
		Assets	Liabilities		
Cash flow hedges					
Currency risk					
Forward exchange contracts	¥ 6,673	¥115	¥97	Other financial assets Other financial liabilities	¥ 27
Interest rate risk					
Interest rate swaps	19,820	47	90	Other financial assets Other financial liabilities	121

FYE2017 (March 31, 2017)

(Millions of Yen)

	Contract amounts, etc.	Carrying amount: Assets	Carrying amount: Liabilities	Items on the consolidated statements of financial position	Changes in fair value used to calculate ineffective portion of hedges for the fiscal year
Cash flow hedges					
Currency risk					
Forward exchange contracts	¥ 6,714	¥77	¥ 86	Other financial assets Other financial liabilities	¥143
Interest rate risk					
Interest rate swaps	10,149	1	166	Other financial assets Other financial liabilities	248

Amounts related to items designated as hedged items are as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)		FYE2017 (March 31, 2017)	
	Changes in fair value used to calculate ineffective portion of hedges for the fiscal year	Cash flow hedge reserves	Changes in fair value used to calculate ineffective portion of hedges for the fiscal year	Cash flow hedge reserves
Cash flow hedges				
Currency risk				
Planned purchase	¥ 27	¥ 17	¥ 96	¥ 34
Interest rate risk				
Interest on borrowings	121	(56)	171	(98)

Details of cash flow hedges are as follows:

FYE2018 (From April 1, 2017 to March 31, 2018)

(Millions of Yen)

	Changes in fair value of hedging instruments recognized in other comprehensive income	Ineffective portion of hedges recognized in profit or loss	Items on the consolidated statements of profit or loss that include ineffective portion of gain or loss on hedges	Reclassification adjustments from cash flow hedge reserves to profit or loss	Items on the consolidated statements of profit or loss that include gain or loss due to reclassification adjustments
Cash flow hedges					
Currency risk					
Forward exchange contracts	¥ 27	¥—	¥—	¥(14)	Finance costs
Interest rate risk					
Interest rate swaps	121	—	—	51	Finance costs

FYE2017 (From April 1, 2016 to March 31, 2017)

(Millions of Yen)

	Changes in fair value of hedging instruments recognized in other comprehensive income	Ineffective portion of hedges recognized in profit or loss	Items on the consolidated statements of profit or loss that include ineffective portion of gain or loss on hedges	Reclassification adjustments from cash flow hedge reserves to profit or loss	Items on the consolidated statements of profit or loss that include gain or loss due to reclassification adjustments
Cash flow hedges					
Currency risk					
Forward exchange contracts	¥ 96	¥—	¥—	¥164	Finance costs
Interest rate risk					
Interest rate swaps	171	—	—	78	Finance costs

2) Derivative transactions for which hedge accounting is not applied
Amounts related to items not designated as hedging instruments are as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)			FYE2017 (March 31, 2017)		
	Contract amount, etc.	More than one year	Fair value	Contract amount, etc.	More than one year	Fair value
Currency swaps	¥793	¥171	¥5	¥863	¥726	¥133

32. Subsidiaries

For FYE2018 or FYE2017, there were no individually significant subsidiaries with non-controlling interests.

33. Related Parties

Remuneration for major executives

Remuneration for the TNSC Group's major executives is as follows:

(Millions of Yen)

	FYE2018 (From April 1, 2017 to March 31, 2018)	FYE2017 (From April 1, 2016 to March 31, 2017)
Remuneration and bonuses	¥458	¥583
Total	¥458	¥583

34. Commitments

Commitments on acquisition of property, plant and equipment and intangible assets are as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Acquisition of property, plant and equipment and intangible assets	¥12,057	¥16,712

35. Contingent Liabilities

Guaranteed obligations

Guarantees and quasi-guarantees for borrowings from financial institutions are as follows:

(Millions of Yen)

	FYE2018 (March 31, 2018)	FYE2017 (March 31, 2017)
Joint ventures	¥ 77	¥ —
Associates	343	363
Other (Note)	1,333	1,728
Total	¥1,754	¥2,092

Note: Other mainly consists of guarantees for employees' bank loans based on the employees' house ownership support system.

36. Subsequent Events

Not applicable.

(2) Other

Quarterly information for FYE2018 (From April 1, 2017 to March 31, 2018)

(Cumulative period)	First quarter of FYE2018	First half of FYE2018	First three quarters of FYE2018	FYE2018
Revenue (Millions of Yen)	¥150,861	¥305,714	¥471,460	¥646,218
Profit before income taxes (Millions of Yen)	13,624	27,681	43,653	55,897
Profit attributable to owners of parent (Millions of Yen)	7,611	17,671	39,977	48,919
Basic earnings per share (Yen)	17.59	40.83	92.38	113.04

(Quarterly period)	First quarter	Second quarter	Third quarter	Fourth quarter
Basic earnings per share (Yen)	17.59	23.25	51.54	20.66

Report of Independent Auditors

EY
Building a better working world

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Independent Auditor's Report

The Board of Directors
TAIYO NIPPON SANSO CORPORATION

We have audited the accompanying consolidated financial statements of TAIYO NIPPON SANSO CORPORATION and its consolidated subsidiaries, which comprise the consolidated statement of financial position as at March 31, 2018, and the consolidated statements of profit or loss, comprehensive income, changes in equity, and cash flows for the year then ended and notes to consolidated financial statements, all expressed in Japanese yen.

Management's Responsibility for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with International Financial Reporting Standards, and for designing and operating such internal control as management determines is necessary to enable the preparation and fair presentation of the consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in Japan. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. The purpose of an audit of the consolidated financial statements is not to express an opinion on the effectiveness of the entity's internal control, but in making these risk assessments the auditor considers internal controls relevant to the entity's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of TAIYO NIPPON SANSO CORPORATION and its consolidated subsidiaries as at March 31, 2018, and their consolidated financial performance and cash flows for the year then ended in conformity with International Financial Reporting Standards.

Ernst & Young ShinNihon LLC

June 20, 2018

A member firm of Ernst & Young Global Limited

Investor Information

(At March 31, 2018)

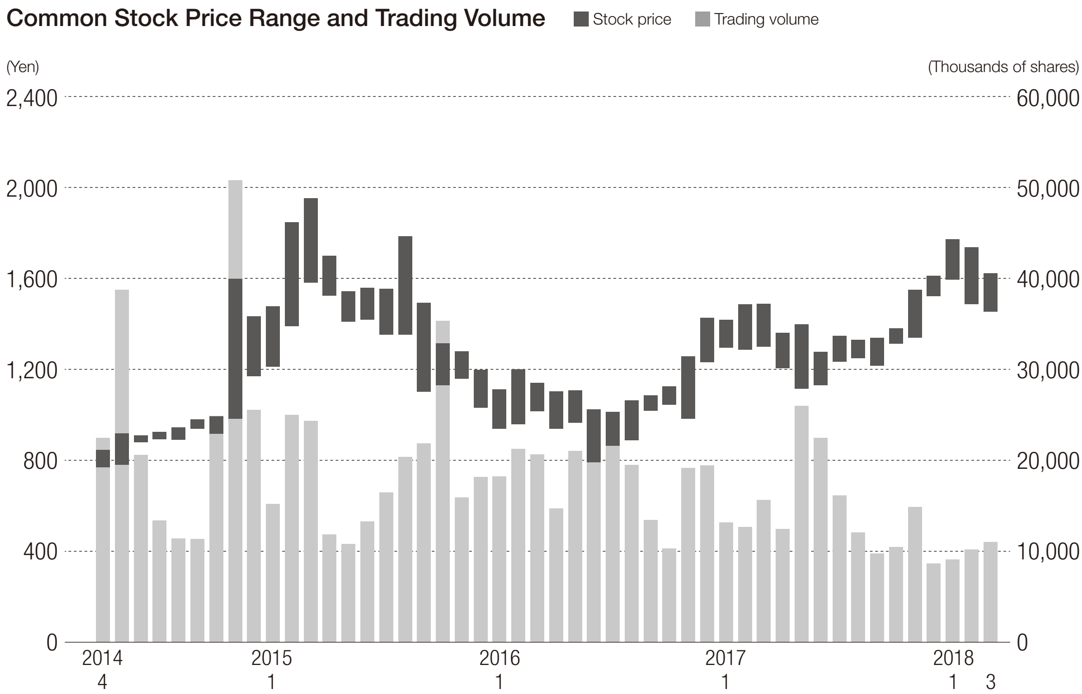
Number of shares authorized:	1,600,000,000
Number of shares issued:	433,092,837
Number of shareholders:	15,721

Major Shareholders:

	Thousands of shares owned	Percentage of total
Mitsubishi Chemical Holdings Corporation	218,996	50.59
Taiyo Nippon Sanso Client Shareholding Society	18,931	4.37
Mizuho Bank, Ltd.	16,365	3.78
JFE Steel Corporation	12,627	2.92
Meiji Yasuda Life Insurance Company	10,007	2.31
Japan Trustee Services Bank, Ltd. (Trust Account)	9,752	2.25
The Master Trust Bank of Japan, Ltd. (Trust Account)	9,751	2.25
The Norinchukin Bank	7,000	1.62
Japan Trustee Services Bank, Ltd. (Trust Account 9)	4,917	1.14
Employee Shareholding Association	3,586	0.83

Notes: 1. The Company holds 178,000 treasury shares.
2. Percentage of total is calculated excluding treasury shares.

Common Stock Price Range and Trading Volume

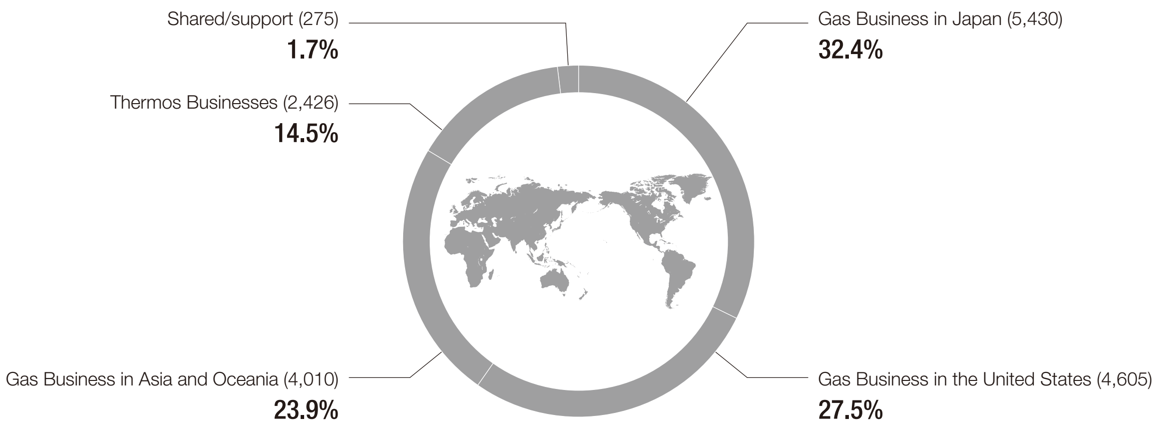


Corporate Data

(At March 31, 2018)

Company name:	Taiyo Nippon Sanso Corporation (Stock code: 4091)
Date founded:	October 30, 1910
Paid-in capital:	¥37,344 million
Head office:	1-3-26 Koyama, Shinagawa-ku, Tokyo 142-8558, Japan Tel: +81-3-5788-8000
Number of employees:	16,746
Independent public accountants:	Ernst & Young ShinNihon LLC
Stock exchange listing:	Tokyo
Transfer agent:	Mizuho Trust & Banking Co., Ltd. 2-8-4 Izumi, Suginami-ku, Tokyo 168-8507, Japan Tel (toll free in Japan): 0120-288-324
Contact:	Corporate Communications Department, Taiyo Nippon Sanso Corporation

Number of Employees and Percentage of Total Labor Force by Reportable Segment



Disclaimer Regarding Forward-Looking Statements

This integrated report contains forward-looking statements, including operating results forecasts, which reflect management's assumptions and beliefs based on information available at the time of publication. These statements are inherently subject to risks and uncertainties and are not intended as a guarantee or promise regarding the achievement of these results. Investors are cautioned to refrain from relying solely on these forward-looking statements in making investment decisions. Please note that various factors may cause actual results to differ materially from these statements.

KAITEKI Value for Tomorrow
Mitsubishi Chemical Holdings Group

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