KAITEKI Value for Tomorrow
Mitsubishi Chemical Holdings Group

NIPPON SANSO HOLDINGS

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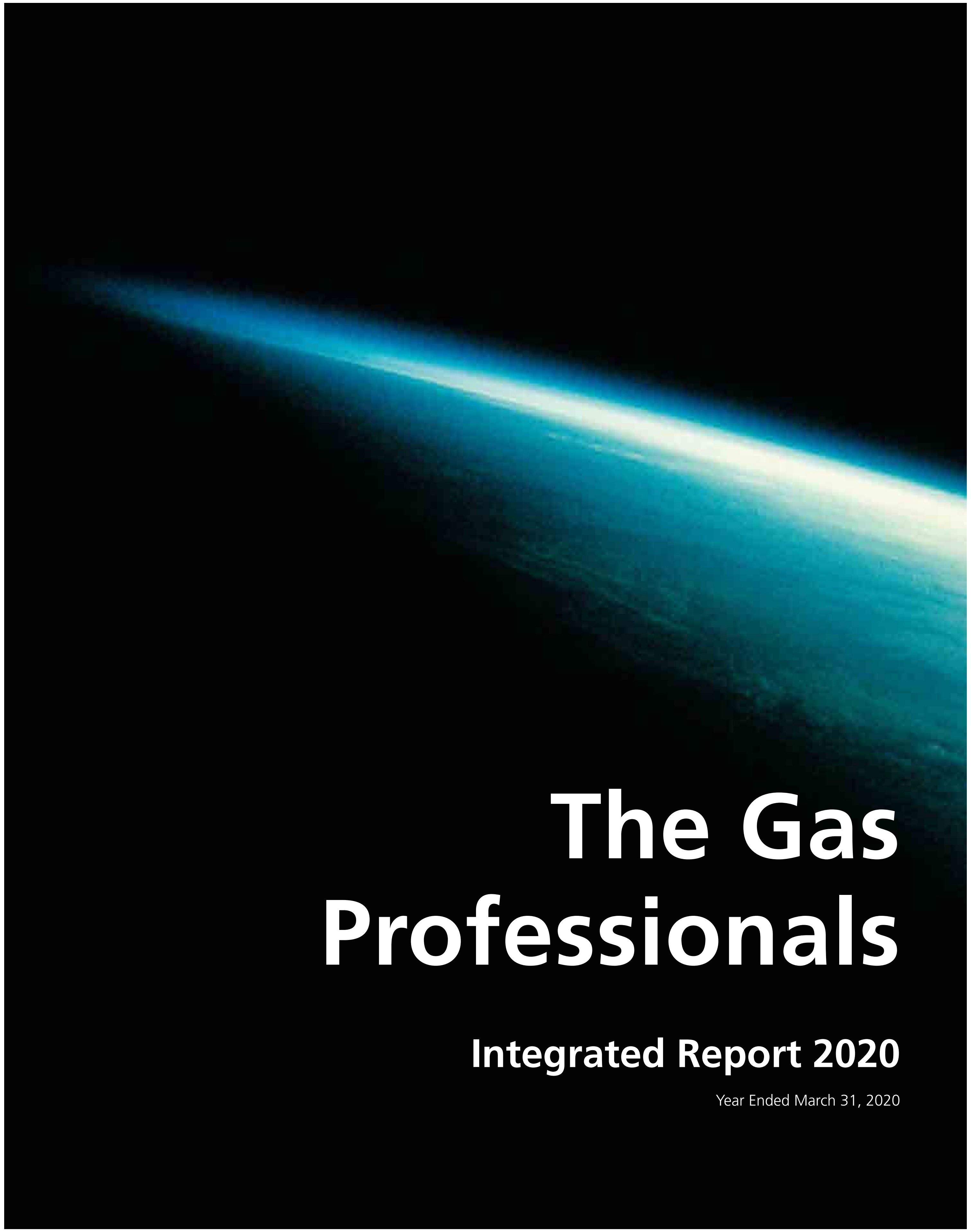


The Gas Professionals

Integrated Report 2020

Year Ended March 31, 2020

NIPPON SANSO HOLDINGS

We aim to contribute to the development of Japan and the world.

The first unit for separating oxygen from air was made in Europe in 1902. Oxygen has supported the advance of industries such as steelmaking and chemicals through various uses including the welding and cutting of steel.

In 1910, just eight years after oxygen production started in Europe, the Group's predecessor, Nippon Sanso Ltd., was founded. It was the birth of Japan's first industrial gases company, which has now been operating continuously for over a century.

At the time, Japanese industry was focused mainly on light industries such as spinning textiles. The Company's founder was one of the first to focus on the importance of industrial gases and held a strong ambition to contribute to the development of Japanese industry.

As times changed, the Group's industrial gases business expanded operations into 29 countries and regions around the world. We continue the Group's activities with the great ambition of contributing to the development of global industry.

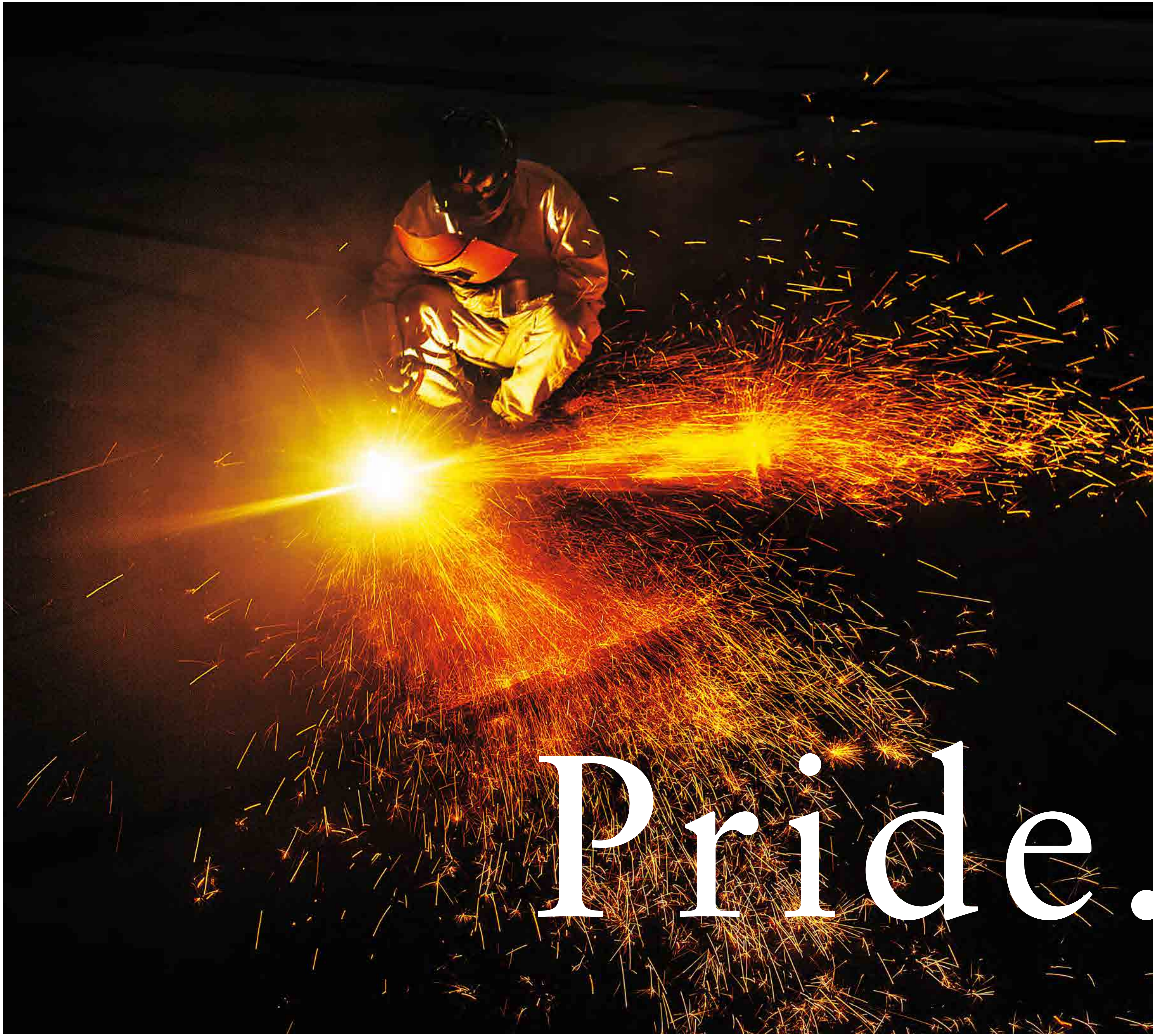
Supporting industries and peoples' lives as "The Gas Professionals."

Oxygen, nitrogen, and argon are manufactured by separating air.

These well-known industrial gases are essential to industrial manufacturing such as steelmaking, shipbuilding, and chemicals. Oxygen is also used in the field of medicine, while nitrogen is used to prevent food from oxidizing. In these and other ways, industrial gases play important roles in peoples' lives as well.

For many people, the industrial gases business may seem unfamiliar. However, industrial gases themselves are essential to industrial activity, and to daily life. They are a social infrastructure on a par with electricity and water supply.

We will continue to operate our business as "The Gas Professionals" with pride, ensuring a stable supply of industrial gases that can be used safety and securely.



Embarking on a New Stage with a New Business Structure —Making life better through gas technology.

On October 1, 2020, the holding company Nippon Sanso Holdings Corporation was launched.

Today, the world faces the challenges of abnormal weather conditions due to global warming and the COVID-19 pandemic. Meanwhile, artificial intelligence (AI) and other advanced technologies are evolving at a faster pace than expected. This will bring significant changes not only to our lifestyles, but to the structure of industry as well.

To respond properly to the rapid changes taking place in our world, we have transitioned to a holding company structure.

We aim to create social value through innovative gas solutions that increase industrial productivity, enhance human well-being and contribute to a more sustainable future.

Proactive. Innovative. Collaborative.

Group Philosophy

The Gas Professionals

Proactive. Innovative. Collaborative.
Making life better through gas technology.

Group Vision

We aim to create social value through innovative gas solutions that increase industrial productivity, enhance human well-being and contribute to a more sustainable future.

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The Nippon Sanso Holdings Group Aims to Realize an Affluent, Sustainable Future through Innovative Gas Solutions.

Yujiro Ichihara

Representative Director, President CEO

Introduction

I would like to start by expressing my sorrow for those who have lost their lives to COVID-19, and offering my condolences to all those who have been affected by the pandemic. Furthermore, I would like to express my deepest respect for the many people, such as medical professionals, who are battling to bring the pandemic to an end.

With the launch of Nippon Sanso Holdings Corporation on October 1, 2020, we formulated a new Group Vision, "We aim to create social value through innovative gas solutions that increase industrial productivity, enhance human well-being and contribute to a more sustainable future." We seek to be a company that constantly explores the potential of industrial gases and contributes to the development of every industry and provides solutions for social issues through new technologies and services.

Response to COVID-19

In spring 2020, as the COVID-19 pandemic began to spread globally, the Group moved quickly to establish a Global Crisis Headquarters. We set up implementation rules in each area for promoting telework and so forth, and worked to ensure the health and safety of employees along with a stable supply system for industrial gases in Japan and overseas.

What we have reconfirmed through our response to COVID-19 is that industrial gases are an important part of social infrastructure, and that our mission is to uphold our responsibility to ensure their supply even in emergencies. Industrial gases such as oxygen and nitrogen are essential not only to the production of industrial products but also to the medical front lines, such as hospitals. Considering the threat of viruses as well as the frequent occurrence of natural disasters such as torrential rains, we will strive to build a safer, more secure production and supply system for our customers, and for our employees.

Progress on the Medium-Term Management Plan

Under the medium-term management plan that started in FYE2018, we established four key strategies—"structural reform," "innovation," "globalization," and "M&A"—and have been working on various measures. The major results of these efforts have been the acquisition of the main European business of Praxair, Inc. and the U.S. HyCO business* of Linde Gas North America LLC. With this, we have suddenly achieved entry into the European market, which we had not previously, thereby expanding the Group's business scale. We believe that this offers significant potential for strengthening the Group's comprehensive capabilities going forward. Furthermore, the acquisition of the HyCO business adds a new product lineup to the Group, which realizes tremendous open innovation and increases our opportunity for new business development.

Consolidated earnings results for FYE2020 grew steadily overall up to the third quarter, bolstered by these acquisitions as well as a solid U.S. economy. However, in the fourth quarter the spread of COVID-19 negatively impacted the Gas Business in Europe as well as the Thermos Business. While the full-year consolidated earnings show higher sales and profits year on year, they have been lower than initially forecast.

FYE2021 is the final year of the medium-term management plan. While the electronics business has performed solidly in Japan and overseas, the industrial gases business and the Thermos business have been impacted by the economic slump due to the pandemic, with resulting forecasts for consolidated earnings being lower year on year. Therefore, while it will be difficult to achieve the targets provided in the plan, we will focus on that which is controllable, such as lifting productivity and marketing newly developed products so that we can return to a growth trajectory once the global economy normalizes.

* The HyCO business separates hydrogen (H_2) and carbon monoxide (CO) from feedstock such as natural gas and supplies it to the petroleum refining and petrochemical industries on a large scale through pipelines.

From Taiyo Nippon Sanso to Nippon Sanso Holdings: The Transition to a Holding Company Structure

I had been thinking about our transition to a holding company structure since the formulation stage of the current medium-term management plan. As our overseas business scale expanded, through M&As and so forth, and the majority of investment proposals presented to the Board of Directors and the Management Committee came to originate from overseas Group companies, I felt that we would reach the limits of effective management decision-making under a structure focused on the domestic business. With a view to this change in structure, from FYE2020 we had two top managers from our Gas Business in the United States and Gas Business in Europe join the Board of Directors of Taiyo Nippon Sanso Corporation. This addition of a more global perspective helped to deepen discussions at the Board of Directors' meetings regarding matters such as allocation of management resources and strengthening of governance. Moreover, I think there was a significant benefit in enabling the two new Board members to promote their own businesses with a clear understanding of the Group's overall direction. Nippon Sanso Holdings also includes these top managers from Europe and the United States in its Board of Directors, along with the top manager of the Japanese operating company (Member of the Board and General Manager of the Gases Business Division of the former Taiyo Nippon Sanso Corporation), where they are taking a leading role in formulating the policy for the Group overall. As the heads of operating companies, they will accurately exercise even greater authority than before, aiming to grow their respective businesses even further by responding to rapidly changing markets and customer needs. In addition, the holding company will act as a driver to share the strengths and points of excellence in each region to enhance the comprehensive capabilities of the Group.

There are five businesses under the holding company: the Gas Business in Japan, the Gas Business in the United States, the Gas Business in Europe, the Gas Business in Asia and Oceania, and the Thermos Business. The business operation structure under the holding company is composed of four groups: the Taiyo Nippon Sanso Corporation Group in Japan, the Matheson Tri-Gas, Inc. Group in the United States, the Nippon Gases Euro-Holding S.L.U. Group in Europe, and the Thermos K.K. Group for the Thermos business. The companies in Asia and Oceania are all under direct control of the holding company.

Outlook for Each Business

I will now talk about the outlook for each business under the Nippon Sanso Holdings umbrella.

In the Gas Business in Japan, we manufacture and sell industrial gases such as air separation gases and carbon dioxide gas, and gases used in the electronics industry. We also manufacture and sell air separation units (ASUs) and various gas supply equipment and installation services.

These comprehensive capabilities are supported by two R&D facilities (Yamanashi and Tsukuba). While the outlook for Japan's domestic economy is unclear, many companies are working to increase their productivity to achieve sustainable growth. We aim to increase our earnings capability in Japan by providing products and services with high value added based on our technological capabilities, with a view to solving customers' issues.

Turning to the Gas Business in the United States, since the U.S. industrial gases market is the world's largest, we have positioned this as a key growth area for the Group going forward. While there are concerns regarding the resurgence of the COVID-19 pandemic and a worsening of U.S.–China trade relations, we will continue to pursue our existing growth strategies, such as expanding the on-site business, including HyCO.

In the Gas Business in Europe, the pandemic has had a significant impact on business performance in our main earnings base, namely Iberia (Spain and Portugal), Italy, and Germany. Since June 2020, the area has been gradually recovering, but there are concerns that the pandemic may be prolonged, and we must therefore be prepared to accept that the adverse situation could continue. Nevertheless, Nippon Gases Euro-Holding Group companies are striving to continue stable supply of industrial gases under these harsh conditions and to recover earnings through a variety of measures. Moreover, the Group companies have built strong relationships with their customer base and I am therefore confident that they will have a strong earning recovery once the pandemic has been brought under control.

In the Gas Business in Asia and Oceania, the local companies are directly controlled by the holding company, with the regional management team for the area providing backup. The companies are smaller in scale than their counterparts in Japan, the United States, and Europe, but they are expected to grow significantly over the medium to long term in this emerging region. Under our new structure, we will strengthen links within the region and incorporate technologies and expertise from Japan, the United States and Europe to strengthen business growth and governance.

Finally, we come to the Thermos Business. In Japan, inbound tourism demand evaporated as a result of COVID-19, while sales of mainstay portable vacuum-insulated mugs also decreased, partly due to the state of emergency declaration. On the other hand, the impact of demand from people staying home helped to drive brisk sales of frying pans and tumblers. Looking ahead, we do not expect inbound tourism demand to recover quickly; however, we will make effective use of the Thermos brand, which has strong recognition among consumers, to develop new products that accurately capture consumer needs as we aim to recover our earnings.

Sustainability

The Group has many outstanding basic technologies from an Environment, Social, and Governance (ESG) standpoint. For example, we have developed oxygen enrichment combustion technology, which contributes to energy saving and the control of emissions of environmental pollutants. This technology increases combustion efficiency by increasing the concentration of oxygen in air, achieving flame temperatures that are higher than normal air combustions, which reduces environmental impact. We are now looking at various types of combustion application. In addition, in the Thermos Business, we manufacture and sell stainless steel vacuum-insulated bottles, which are also related to the environmental field. These bottles are based on vacuum-insulated technology that we developed in the industrial gases field by Nippon Sanso, the Company's predecessor, and which we were the first to commercialize globally in 1978. The products are environmentally friendly since they can retain heat or coldness without requiring use of electricity, gas, or any other form of energy. Thermos brand vacuum-insulated bottles have therefore earned the Eco Mark accreditation, and the Eco Mark is displayed on the product packaging, which encourages consumers to choose products that are environmentally considerate.

These are merely two examples, and in our business, the creation of economic value is inextricably linked to the creation of social value (ESG and the Sustainable Development Goals (SDGs)). However, the current medium-term management plan does not show the relationship between the two and our specific goals. Under our new medium-term management plan, I would like to clearly show how they are organically linked, and describe our pathway to truly sustainable growth. The Group confirmed its support for the Task Force on Climate-related Financial Disclosures (TCFD) recommendations in 2019, and we are working toward disclosing non-financial information in line with the recommendations starting in FYE2022.

What I Value

I have always communicated to our members that we must widen our view, take a higher perspective, and value communication. Trust is of great importance both in our personal lives and in business. I believe that by implementing the three points that I mentioned, we will earn the trust of our supervisors and junior colleagues, as well as our peers, and continue to contribute to society.

I would like to relate my own experience at this point. In 1981, just after the Company's predecessor, Nippon Sanso, had started expanding overseas, I was posted as a representative in Singapore. There, I was in charge of developing business with industrial gas customers in the then six ASEAN countries. The people that I had business talks with were from companies that varied in scale, but all of them were business managers. I was just one employee in my 20s, but in our business talks I always had a strong awareness of my role as a representative of Nippon Sanso the Japanese industrial gas company, and I was thinking about things from that perspective. I had a hard job developing customers as the Company was not well known overseas at that time. However, one of my big successes was in setting up business talks with a Singapore government-affiliated steel company by proposing an on-site joint business. The opening ceremony was attended by the Singapore government chief cabinet secretary, the Japanese ambassador to Singapore, and the president of the Company at that time. I still remember the sense of achievement that I had. Speaking of valuing communication, another key aspect of global management is the importance of person-to-person communication. I am sometimes invited to large internal

During my time stationed in Singapore

meetings held with many participants at our operating companies in Europe and the United States. On these occasions, I speak openly about the status of the overall Group, the positioning of the operating companies, and my expectations and so forth, and I listen intently to their feedback as well. Through this interaction, we develop trust in one another and I feel this enables us to speak more openly.

In Closing

The Group is still a growing company as it marks its 110th anniversary. Our human resources capabilities are a major driving force behind this growth. The Group has approximately 20,000 employees working at its sites in Japan, the United States, Europe, and Asia and Oceania. These diverse human resources support the Group. Moreover, in Europe and at other overseas Group companies, there are many female executives, and we are also seeing an increase in the hiring of women here in Japan recently. This kind of diversity is expected to drive a beneficial transformation of our organization. We will continue striving to create environments that enable diverse human resources to each demonstrate their full potential.

I see the launch of Nippon Sanso Holdings as a second founding of the Company. We will refocus on our original concept for the industrial gases business of delivering gases safely and securely to customers, and in the Thermos Business, realizing comfortable lifestyles for people. At the same time, we will aim to realize a sustainable future with greater consideration for the environment. I ask our shareholders and investors for your continued support as we go forward.

市原裕史郎

Yujiro Ichihara
Representative Director, President CEO

Progress under Ortus Stage 2

The medium-term management plan Ortus Stage 2 commenced in FYE2018 and covers the four years until the end of FYE2021. Under the theme of promoting growth, we have been promoting a range of measures for the following key strategies carried over from the previous medium-term management plan: structural reform, innovation, globalization, and M&A. Below, we present the main results of our key strategies through to the end of FYE2020, including our principal achievements: the acquisition of the main European business of Praxair and the U.S. HyCO business of Linde.

Status of Progress through to the End of FYE2020

Key strategies	Issues of Ortus Stage 2	Main results
Structural Reform	• Strengthen collaboration in sales and marketing functions • Integration of engineering functions • Integration of production and logistics • Promotion of shared services	• Consolidated sales bases and shared sales support tools • Promoted streamlining and optimization through integration of industrial gases operations
Innovation	• Innovation in R&D • Innovation in engineering • Innovation in sales approaches • Innovation in production and logistics	• Launched high-performance fluorinated resin using oxygen burner and carbon nanotube, etc. • Increased profitability and reduced environmental impact through energy efficiency improvement (SAITEKI activities)
Globalization	• Strengthen the functions of global operations • Strengthen the functions of regional holding companies • Expand business areas • "Total Electronics"	• Appointed regional Chief Compliance Officers (CCOs) and set up a global compliance structure • Acquired on-site projects in Southeast Asia • Established centralized response structure for strategic semiconductor customers and strengthened electronic materials gases production capacity
M&A	• Expand business territory and reinforce operational density • Acquire new products, technologies, and supply chains • Expand medical business	• Acquired the main European business of Praxair • Acquired the U.S. HyCO business of Linde • Acquired IMI Co., Ltd. (domestic medical equipment sales company)

Progress on Key Performance Indicators (KPIs)

Indicator	Unit	Final fiscal year of the previous medium-term management plan	Current medium-term management plan, Ortus Stage 2			
		FYE2017 results	FYE2018 results	FYE2019 results	FYE2020 results	FYE2021 (forecast)*2
Revenue	(Billions of yen)	581.5	646.2	740.3	850.2	910.0
Core operating profit	(Billions of yen)	54.7	60.0	65.8	90.3	100.0
Core operating profit margin	(%)	9.4	9.3	8.9	10.6	11.0
Overseas revenue ratio	(%)	40.8	43.3	47.9	55.5	55.0
ROCE*1	(%)	8.4	8.4	6.2	6.4	7.1
Adjusted net D/E ratio*1	(Times)	—	—	1.54	1.45	1.27

*1 For definitions of return on capital employed (ROCE) and adjusted net debt-to-equity (D/E) ratio, please refer to the notes to 11-Year Financial and Non-Financial Summary (→ P. 94).
The adjusted net D/E ratio has been calculated as a KPI since FYE2019.

*2 In FYE2021, the mainstay industrial gases business and the Thermos business have been impacted by the economic downturn caused by COVID-19, and consolidated sales and profits are expected to be lower year on year. In this situation, it will be difficult to achieve the abovementioned targets in the medium-term management plan. The consolidated earnings forecast for FYE2021 presented on July 30, 2020 is for revenue of ¥830.0 billion and core operating profit of ¥82.0 billion. Moreover, the other KPIs for FYE2021 calculated on the basis of this forecast are for a core operating profit margin of 9.9%, ROCE of 5.8%, and an adjusted net D/E ratio of 1.34 times.

A Message from the CFO

On October 1, 2020, Alan David Draper was appointed Chief Financial Officer (CFO) of Nippon Sanso Holdings. He is an expert in finance and accounting, and has experience and insight into the industrial gases business in Europe and the United States. In this section, he talks about current financial issues and matters to be taken up going forward.

Alan David Draper
Executive Officer, Group Finance and Accounting Office, and CFO

Background

I was appointed CFO of Nippon Sanso Holdings on October 1, 2020. Before assuming this role, I worked for the former Praxair Europe industrial gases business, which was acquired by then Taiyo Nippon Sanso in December 2018. At the time of acquisition, I served as European CFO based in Madrid, Spain, and with the acquisition I shifted to the Taiyo Nippon Sanso Group as CFO of Nippon Gases Euro-Holding S.L.U. For the first three years of my 27-year career, I worked as a certified public accountant (CPA). In 1996, I joined Praxair in the United States, where I was responsible for management operations centered on finance and accounting for the industrial gases business. Although my field of specialization is finance and accounting, I have 24 years of experience in the industrial gases business in both the United States and Europe. I am very excited about the prospect of using my experience and insight of both the European and U.S. industrial gases business as CFO of Nippon Sanso Holdings and to contribute in advancing the Group's globalization efforts and its financial performance.

Response to COVID-19

With no end in sight to the COVID-19 pandemic, there is a possibility that restrictions could be reimposed by countries and regions in the event of a resurgence of the virus, casting a shadow of uncertainty over the future of the global economy that makes it difficult to clearly predict a recovery of business conditions. In this situation, we have secured adequate operating capital and there are currently no significant credit concerns among our customers. For the time being, our efforts are focused on maintaining and reinforcing the soundness of our management structure, to ensure that we operate regardless of the external environment. For example, from the perspective of production efficiency, we will optimize our production and logistics to suit our customers' usage of gas, focusing on economic trends. In addition, we need to concentrate on productivity improvements, cost reductions, strict investment standards, and strengthening management of operating capital. By securing plenty of free cash flow through these measures, we will be ready to return to a positive growth trajectory with the normalization of the global economy after the pandemic subsides.

Status of Financial Health

One of the Group's most important priorities is to reduce the level of interest-bearing debt, which increased with the large-scale acquisitions conducted in FYE2019, and systematically improve the Company's financial position. To this end, the adjusted net debt-to-equity (D/E) ratio was added as a KPI for the medium-term management plan from FYE2019 to manage the Group's progress toward financial soundness. The indicator has moved from 1.54 times at the end of FYE2019 to 1.45 times at the end of FYE2020. We have set a target of bringing the adjusted net D/E ratio below 1.0 times by the end of FYE2023. Due to the impact of COVID-19, our operating results for FYE2021 are forecast to be lower than the medium-term management plan targets. Moreover, we cannot predict with confidence when we may return to the growth trajectory of the initial plan. Nevertheless, despite the temporary delay in improvement on this metric from the initial plan, the industrial gases business is generating stable operating cash flows, and with strict investment standards and more disciplined management of operating capital and so forth this will make returning to our targeted financial position an achievable goal.

Purpose of Transition to a Holding Company Structure

One of the most important roles of the holding company, Nippon Sanso Holdings, is to promote the globalization of the Nippon Sanso Holdings Group. Our new holding company structure enables appropriate allocation of management resources globally and builds a management structure that clarifies responsibility for business execution and regional performance. Furthermore, through sharing of best practices between regions, we will strengthen the comprehensive capabilities of the Group. In our Group Finance and Accounting Office, which I oversee as the CFO, we will focus on maintaining and strengthening financial health on a consolidated basis and conduct a range of initiatives that contribute to increasing shareholder value. We will improve cash flow through strict investment standards and rigorous project management, and work to improve profitability by improving productivity, efficiency, and strengthening cost management.

WHO WE ARE

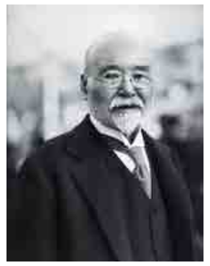
About the Nippon Sanso Holdings Group

Inheriting the Genes of a 100-Year-Old Company with a Passion for Challenges

Foundation Period

The first unit for separating oxygen from air was made in Europe in 1902, starting off the industrialization of oxygen production. In 1910, just eight years later, the predecessor of Nippon Sanso Holdings, Nippon Sanso Ltd., was founded by Takehiko Yamaguchi and others. In his work for a machine tool trading company, Yamaguchi imported oxygen welding and cutting equipment from Europe, along with tanks of oxygen. Japanese industry at the time was focused mainly on light industries, but the shift to heavy and chemical industries was already under way, and Yamaguchi perceived the social importance and future economic potential of producing and supplying oxygen in Japan. Korekiyo Takahashi, then deputy governor of the Bank of Japan (and later prime minister), agreed with Yamaguchi's ideas, and joined him as a co-founder of Japan's first industrial gases company.

Takehiko Yamaguchi



Korekiyo Takahashi

Sales office for inhalation oxygen (Nagoya)

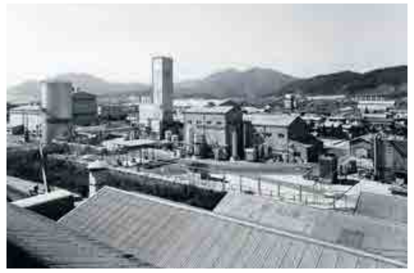
Development of the Electronics Industry from the Post-War Recovery Period to Japan's High Economic Growth Period

As the Japanese economy entered a period of expansion driven by the First World War (1914–1918), the development of the heavy and chemical industries created a surge in demand for oxygen. Following expansion of its business, in 1918 the Company dissolved its limited partnership structure and transitioned to a joint stock company. Then, in 1935, we succeeded in making the first ASU to be produced in Japan.

Japan's economy contracted sharply due to the Second World War, but the country pulled itself out of this slump, partly due to business based on munitions demand for the Korean War that broke out in 1950. Around this time, the Company's main customers were in the steel industry, where the basic oxygen process of blowing in oxygen during the steelmaking process was becoming popular, driving further increases in demand for oxygen.

From the mid-1950s to the 1960s, Japan experienced a period of high economic growth. As the country's top industrial gases manufacturer, in1964 we became first in the world to implement the on-site plant method, with our first installation at the Shunan Plant (now Shunan Sanso Co., Ltd.). The on-site plant method is a method for production and supply for customers that consume large quantities of air separation gases, in which an ASU is installed on the customers' site or an adjacent site, to facilitate the piped supply of gas to production lines and so forth. In the steelmaking and petrochemical industries, as new plants were being built in succession, driven by high economic growth, the Company was able to acquire a large number of projects by proposing the on-site plant method at the construction planning stage for new plants. These plants are still important production and supply bases for air separation gases in Japan today.

After the high economic growth period, semiconductor manufacturers and other members of the electronics industry emerged as a new major presence among users of industrial gases. The Company supplied nitrogen gas, used in large quantities as an atmospheric gas in semiconductor production lines, through the on-site plant method. We also supplied electronic materials gases used in semiconductor manufacturing processes such as deposition and etching, along with supply equipment based on sophisticated gas handling technologies. In this way, we have supported the development of Japan's semiconductor and electronics industries.



Shunan Plant (now Shunan Sanso Co., Ltd.)

Total gas center for electronics industry

New Technologies Developing in Multiple Directions

Vacuum, high pressure, low temperature, and gas control are our core technologies as an industrial gases manufacturer. To provide customers with safe, secure use of high-quality gases, we have accumulated these core technologies and applied them over a wide range of fields.

The Group's Thermos business has a totally different business model from industrial gases, but it began with the application of industrial gases technologies. The main products in the Thermos business are stainless steel vacuum-insulated bottles. We were the first to commercialize these in 1978, using vacuum technology and special welding technology for manufacturing low-temperature liquid gas storage tanks. We also conducted a food business centered on manufacture and sales of frozen foods, which was inspired by the development of freezing equipment capable of snap freezing rice and other foods to preserve their quality using super low-temperature liquid nitrogen and so forth.

The Company's technologies are also expanding in advanced fields. Having succeeded in developing original ultra-high-purity oxygen cryogenic separation technology, in 2004 we started manufacturing the Water-^{18}O stable isotope, which is used as a material for testing reagents used in positron emission tomography (PET) tests that help with early detection of cancer. Water-^{18}O is a stable isotope of oxygen manufactured using engineering technology for air separation that has been accumulated by the Company. The Company's advanced technologies have also made inroads into new fields, such as development of the Hydro Shuttle mobile hydrogen station based on gas control technologies.

Water-^{18}O stable isotope

The world's first stainless steel vacuum-insulated bottle, "Act Stainless Pot"

Seeking Further Growth by Expansion into Overseas Markets to a Global Network Spanning Four Geographic Hubs

The Company started expanding into overseas markets in 1980. We had progressed as the top manufacturer in Japan, and seeking to expand our business even further in overseas markets, took our first steps into Singapore and the United States. After establishing a joint on-site business with a state-owned steelmaker, in Singapore, in the 1990s we proceeded to develop our business in China, Thailand, the Philippines, Taiwan, and Vietnam, and in the 2000s we entered India, Indonesia, Australia, and Myanmar.

Meanwhile, in the United States, the world's largest industrial gases market, we conducted an aggressive series of M&As through our U.S. subsidiary, Matheson Tri-Gas, Inc., which now operates businesses nationwide as a national supplier for the United States. In 2018, the Company acquired part of the European business of U.S. company Praxair, Inc., making our first full-scale business expansion into Europe.

In this way, over the 40 years since 1980, we have developed our business overseas, expanding the area of the Group's operations to 29 countries and regions around the world, with revenue from overseas markets now accounting for more than 50%.

In October 2020, the Company transitioned to a holding company structure. We will continue taking up challenges toward further growth and evolution by advancing our business through our global network of four geographic hubs in Japan, the United States, Europe, and Asia and Oceania, centered on the holding company.

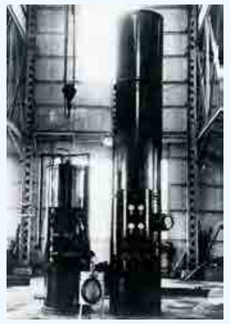
Global business bases

The Journey of the Nippon Sanso Holdings Group

Nippon Sanso Holdings' predecessor, Nippon Sanso Ltd., was born at the time when Japan's main industries were changing from light industries to heavy and chemical industries. Since then, the Group has expanded its industrial gases production and supply structure in step with the development of core industries such as steelmaking and chemicals, and used its accumulated basic technologies to expand its business fields. The Group started expanding into overseas markets in 1980, and over 40 years has rapidly expanded the scale of its overseas business.

Nippon Sanso

- **1910** Nippon Sanso is established under the name Nippon Sanso Ltd.
- **1935** Completes the first ASU to be produced in Japan
- **1954** Starts mass production of liquid oxygen and manufacture of high-purity argon gas
- **1964** Establishes Shunan Plant (now Shunan Sanso Co., Ltd.) as the first on-site plant
- **1971** Completes the world's first air separation equipment to use the cooling effect of LNG
- **1978** Commercializes stainless steel vacuum-insulated bottles
- **1981** Establishes Iwate Gas Center, the first total gas center for a semiconductor manufacturing plant
- **1982** Establishes National Oxygen Private Ltd. in Singapore
- **1983** Acquires U.S. company Matheson Gas Products, Inc.
- **1992** Acquires U.S. industrial gases manufacturer Tri-Gas, Inc.
- **1999** Merges the U.S. businesses to establish Matheson Tri-Gas, Inc.
- **2004** Starts production of PET diagnostic reagent material Water-^{18}O stable isotope



First ASU to be produced in Japan

Matheson Tri-Gas, Inc. (Irving Plant)

Toyo Sanso

- **1918** Toyo Sanso K.K. is established.
- **1986** Establishes low-temperature research laboratory and equipment plant in Kawasaki

Taiyo Sanso

- **1946** Taiyo Sanso Co., Ltd. is established.
- **1953** Starts dissolved acetylene business
- **1954** Enters the LP gas field
- **1962** Starts liquid oxygen manufacturing in Sakai Rinkai industrial area
- **1968** Establishes Kashima Sanso Co., Ltd. (now TM Air Co., Ltd.) as a joint company for on-site supply with Mitsubishi Petrochemical Co., Ltd. (now Mitsubishi Chemical Corporation)

Kashima Sanso Co., Ltd. (now TM Air Co., Ltd.)

Taiyo Toyo Sanso

1995
Taiyo Sanso Co., Ltd. and Toyo Sanso K.K. merge to launch Taiyo Toyo Sanso Co., Ltd.

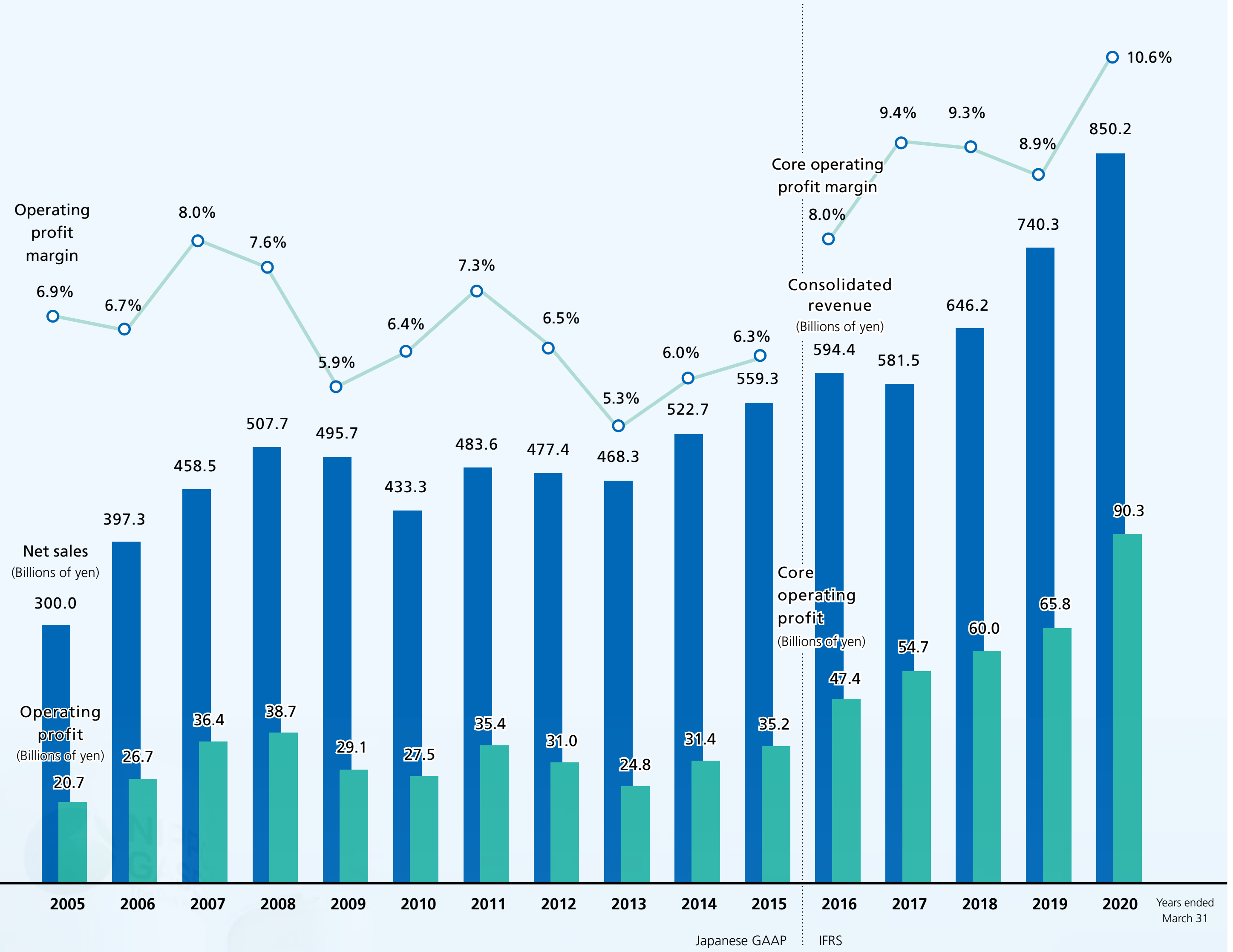
2000
Makes carbon dioxide gas operating company Nippon Tansan Co., Ltd. a wholly owned subsidiary

2001
Electronic materials gases manufacturing company Japan Fine Products Co., Ltd. is established as a joint company with Nippon Sanso Ltd.

Taiyo Nippon Sanso

2004
Taiyo Nippon Sanso Corporation is launched through the merger of Nippon Sanso Ltd. and Taiyo Toyo Sanso Co., Ltd.

2020
Transitions to a holding company and changes the company name to Nippon Sanso Holdings Corporation



2006
Acquires Linweld Inc., an industrial gases production and marketing company in the western and central United States

Purchases helium source contracts and other related assets of the former BOC Group plc (now Linde plc) in the United States and Europe

2007
Merges carbon dioxide businesses in Japan to establish Nippon Ekitan Corporation

2008
Establishes Dalian Changxing Island Taiyo Nippon Sanso Gas Co., Ltd., in China and installs ASU

2009
Acquires Valley National Gases LLC, the largest independent industrial gases distributor in the United States

2010
Acquires Western International Gas and Cylinders, Inc., a leading U.S. wholesale supplier of acetylene

2012
Acquires Singapore-based industrial gases and welding equipment manufacturer Leeden Limited

2013
Launches Hydro Shuttle package-type hydrogen refueling station

2014
Acquires U.S. carbon dioxide gas manufacturer Continental Carbonic Products, Inc.

Becomes a wholly owned subsidiary of Mitsubishi Chemical Holdings Corporation

2015
Acquires Australian LP gas and industrial gases distributor Renegade Gas Pty Ltd

2016
Acquires a portion of the U.S. gas business of Air Liquide S.A., together with related assets

2018
Acquires a portion of the European business of Praxair, Inc.

2019
Acquires the U.S. HyCO business of Linde Gas North America LLC

Passing on the Passion and Accumulated Knowledge of Our Predecessors

The Nippon Sanso Holdings Group around the World

With the acquisition of part of Praxair's European business in December 2018, the Group's industrial gases business achieved a global network spanning four geographic hubs in Japan, the United States, Europe, and Asia and Oceania. In the Thermos business, the Group ships Thermos brand products to over 120 countries globally through Thermos Group production and sales bases in Japan and overseas. Nippon Sanso Holdings promotes the businesses, and will strengthen and expand the Group's global network into new, untapped regions.

Business Scale (As of March 31, 2020)

Share of the global industrial gases market
4th

Number of countries and regions where we operate
29

Number of employees
19,719

Revenue
¥850.2 billion
(up 14.8% year on year)

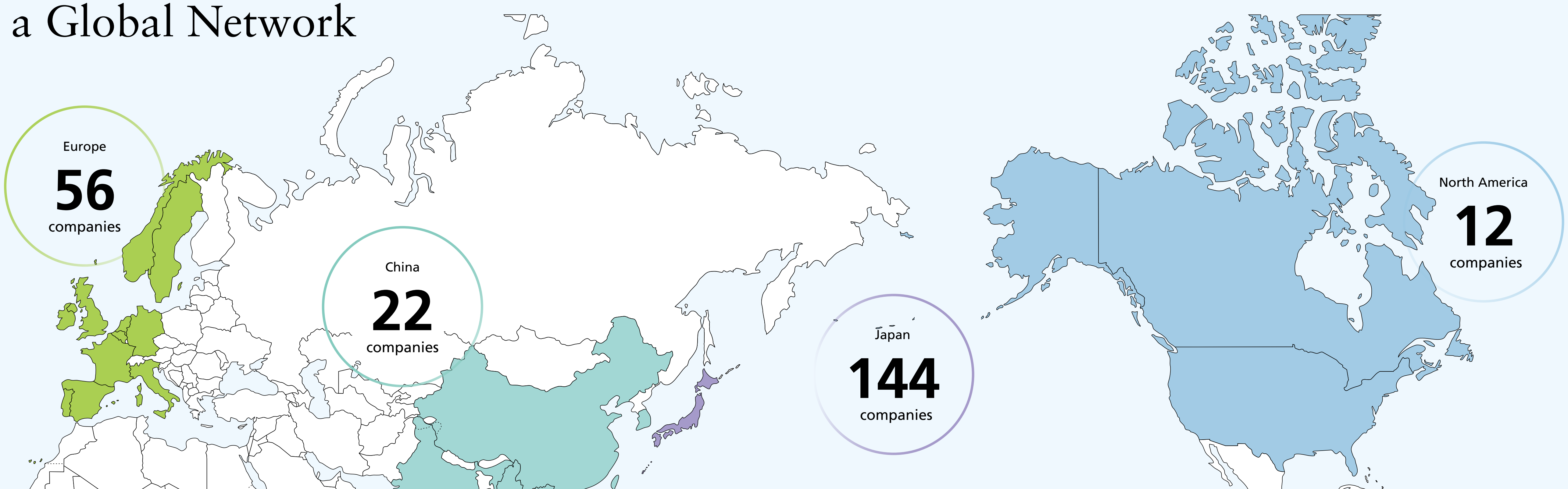
Core operating profit
¥90.3 billion
(up 37.2% year on year)

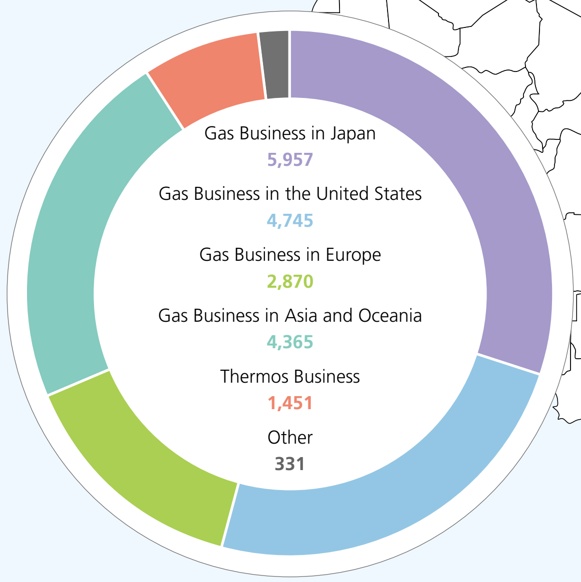
Overseas revenue ratio
55.5%

Creating a Global Network

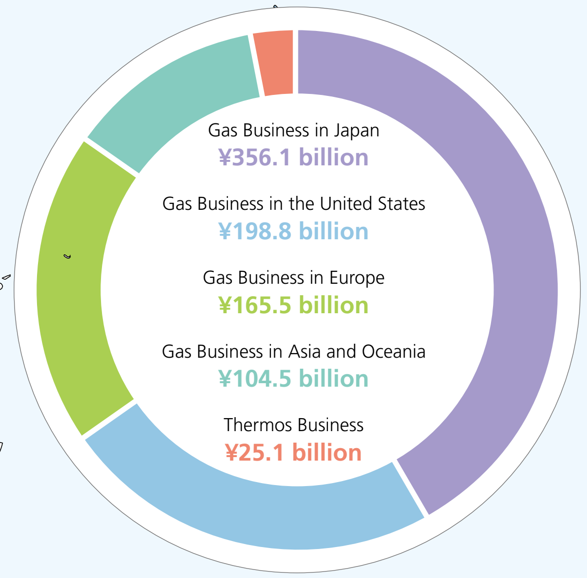
Affiliated companies in Japan
144

Affiliated companies overseas
168

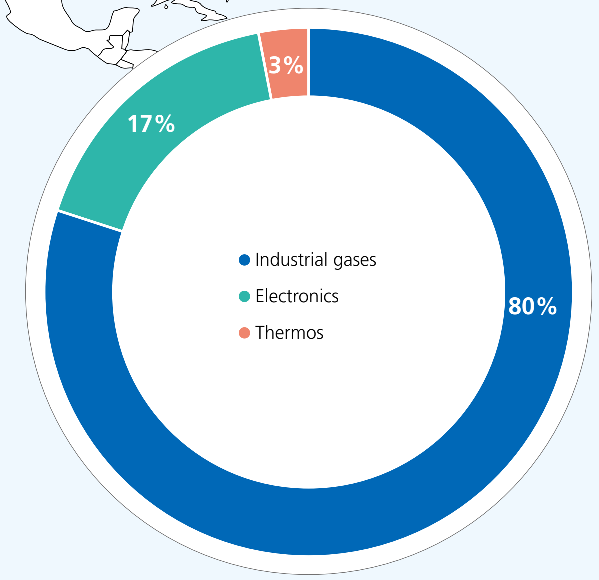




Number of Employees by Segment



Revenue by Segment



Percentage of Revenue by Business

What Are Industrial Gases?

Industrial gases is the collective term for gases used in industry. Well-known examples include oxygen, nitrogen, and argon. These are referred to as air separation gases, as they are separated and refined from the air that surrounds us by ASUs. We supply these gases to a wide range of industries, including steelmaking, chemicals, automotive, construction, shipbuilding, and food. In this section, we will explain how air separation gases are manufactured and the situations in which different industrial gases are used.

How Air Separation Gases Are Manufactured

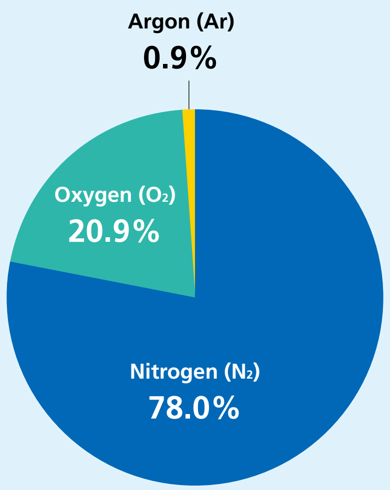
Cryogenic separation is a typical method for manufacturing air separation gases. Air is taken into an ASU from the atmosphere, then compressed. Water and impurities such as CO_2 are removed, and the air is cooled to boiling point to liquefy it. Boiling point is the temperature at which a liquid boils and becomes a gas. Conversely, if a gas is cooled down to boiling point, it becomes a liquid. Different elements have different boiling points, and this characteristic is used to separate oxygen, nitrogen, and argon out of the air and refine them.

Other Industrial Gases

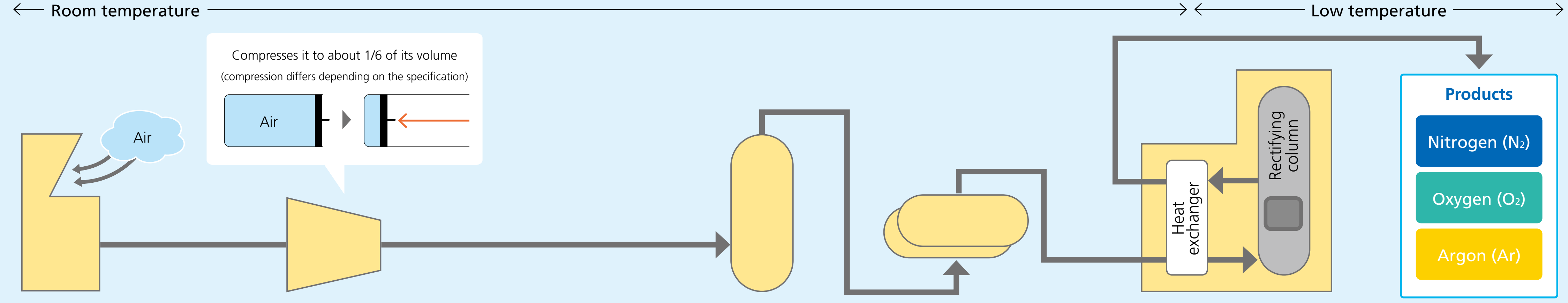
- Carbon dioxide gas (CO_2)
- Hydrogen (H_2)
- Helium (He)
- LP gas
- Electronic materials gases
- Acetylene (C_2H_2)

Gas Filling Plant

Air



Air Separation Process inside the Unit



① **Filter**
Removes particulates that are in the air

② **Compressor**
Takes in atmosphere and compresses

③ **Water-cooling column**
Cool water is sprayed from the top of the column to wash and cool the air.

④ **Adsorber**
Removes water and CO_2

⑤ **Separator**
Exchanges heat between the air and low-temperature product gases, cooling the air and using the differences in boiling points to separate the gases

The boiling points of the gases are as follows:
Oxygen −183℃
Nitrogen −196℃
Argon −186℃

Supplying Separated and Refined Gases as Products to a Wide Range of Customers







	Steelmaking	Chemicals	Automotive, Shipbuilding, Machinery, etc.	Food	Medical/Life Sciences	Electronics	Household and Commercial Use
Main types of gases used	Oxygen (O_2), Nitrogen (N_2)	Oxygen (O_2), Nitrogen (N_2)	Oxygen (O_2), Argon (Ar), Acetylene (C_2H_2)	Nitrogen (N_2), Carbon dioxide gas (CO_2)	Oxygen (O_2), Nitrogen (N_2)	Nitrogen (N_2), Argon (Ar), Electronic materials gases	LP gas
Related industry, etc.	Supply of large volumes of oxygen and nitrogen through on-site plants	Stable supply of nitrogen and other gases used for safety applications to multiple plants within chemical industrial complexes via pipeline networks set up inside the complexes using the on-site plant method	Supply of gases for cutting and welding, as well as of related equipment and materials, to various manufacturing industries	Supply of Bistranza® brand products, which represent applications for food, such as nitrogen-filled packaging and freezing (→ P. 55)	Supply of oxygen and other gases for medical use. Supply of products to cutting-edge medical fields such as Water-^{18}O used for PET diagnosis	Supply of high-quality nitrogen gas and electronic materials gases for the electronics industry, such as semiconductor and liquid-crystal display (LCD) manufacturers	Supply of environment-friendly, safe liquefied petroleum gas (LP gas) for use in homes, as well as in commercial and other premises

What Are Industrial Gases?

Nippon Sanso Holdings Group—Supporting Industry and Daily Life

Industrial gases are used in the production activities of all manner of industries, and they also support our daily lives. For example, smartphones incorporate semiconductors manufactured using the latest technologies, and electronic materials gases supplied by Nippon Sanso Holdings play an important role in the manufacturing process for these semiconductors. Industrial gases also support the advancement of items that enrich our daily lives. The potential of industrial gases has yet to be fully exploited. We will pursue the full potential of industrial gases to contribute to the realization of an affluent society.

Contribution to Industry

Automobiles

Automobile components

The manufacturing processes for automobiles and their components make use of various industrial gases. They are used in welding engines and bodies, and manufacturing glass, tires, and light-emitting diodes (LEDs). Mixed gas is also used for injecting into air bags.

Automobile fuels

Hydrogen is used as a fuel for fuel cell vehicles (FCVs), which are drawing attention as a clean energy automobile that can replace diesel and gasoline.

Large LED Displays

Hydrogen, argon, and helium gases are used when manufacturing LEDs, which play a familiar role in our everyday lives, including large LED displays, traffic lights, and street lights.

Marine Exploration

Deep sea exploration makes use of mixed gases based on oxygen combined with nitrogen, helium, or hydrogen, depending on the depth.

Superconducting Maglev Trains

Superconducting technology reduces electrical resistance to zero by supercooling a substance, and is used in nuclear fusion, superconducting electricity transmission, electricity storage, and maglev trains, among others. To create super cool conditions, helium is used, because it has a boiling point of near absolute zero (–273℃).

Metal 3D Printers

3D printers are able to create physical objects based on a 3D digital model. They use atmospheric gases in their printing processes. The Nippon Sanso Holdings Group has been working on R&D in the industrial gas field related to metal 3D printing as part of efforts to promote open innovation.

Contribution to Daily Life

Food

Food packaging

Nitrogen gas is injected into packaging to prevent food from losing flavor by oxidation and inhibit the growth of mold and so forth.

Beverages

Nitrogen is used to bolster internal pressure in aluminum cans for non-carbonated beverages, move beer concentrate and other concentrates under pressure, and prevent oxidization of wine and fruit juice. Easily dissolved in water, carbon dioxide gas is used to add sparkle to carbonated drinks, beer, and other beverages.

Portable Gas Stoves

LP gas is noted as a clean and environmentally safe source of energy. It is widely used: in household and commercial applications, as a fuel for commercial vehicles, in air conditioners at offices and so forth, for home electricity generation, and for hot water supply using waste heat.

Smartphones

Various electronic materials gases are used in the production of semiconductors used in smartphones. These gases also support numerous other electronics fields such as solar cells and LEDs.

Dry Ice

Dry ice is the solid form of carbon dioxide that has been condensed and cooled. Since carbon dioxide has cooling power down to –78.5℃, dry ice is used not only in the food sector but also for industrial and medical applications, and for visual effects.

Lighting Equipment

In lighting equipment, argon, nitrogen, krypton, xenon, and neon are used in most forms of illumination, from incandescent bulbs to fluorescent tubes. Some of the gases, such as krypton, are known as rare gases as only very small quantities are found in air.

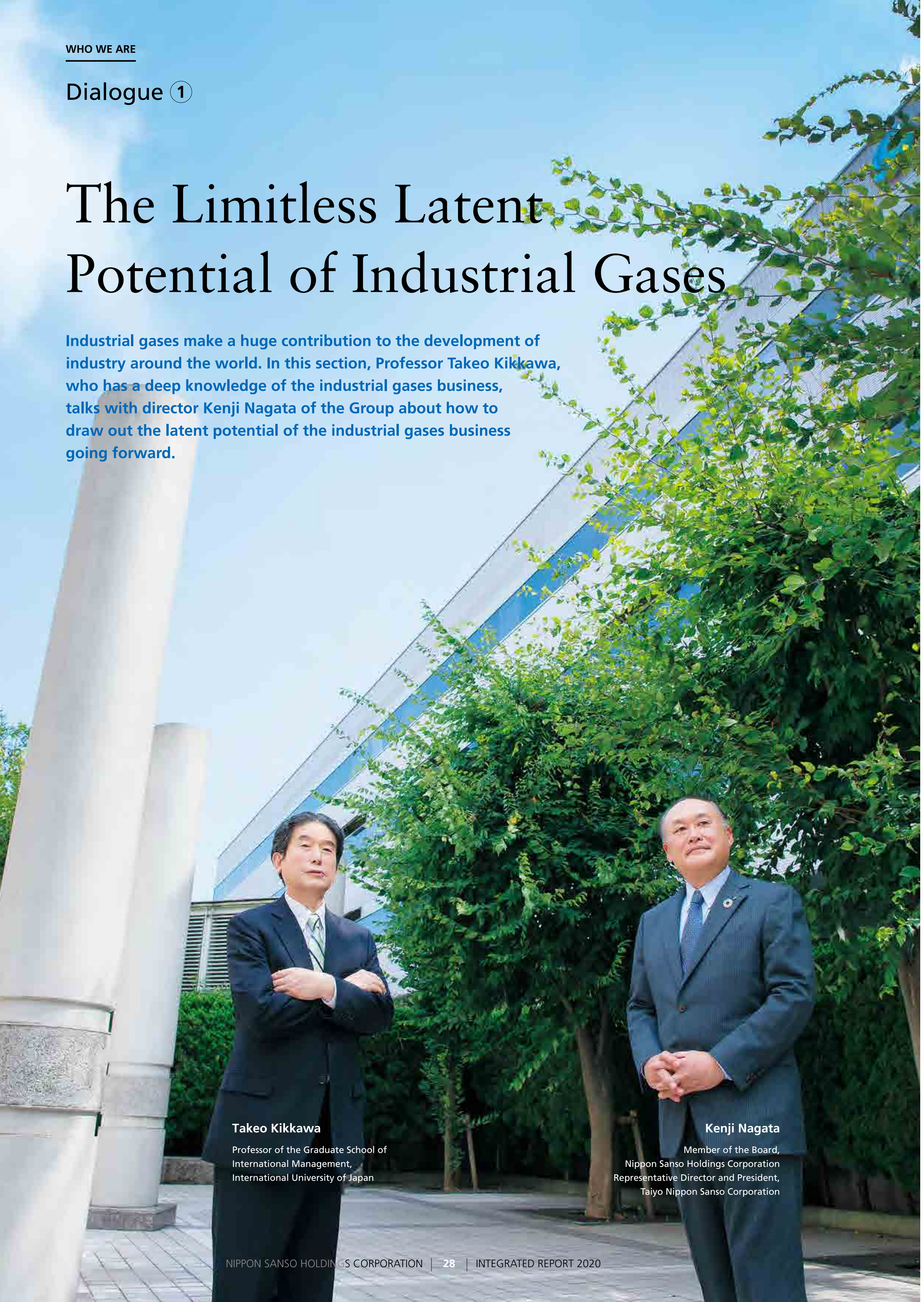
LCD and OLED Displays

Many types of gas are used in the manufacturing processes for LCD and organic light-emitting diode (OLED) displays.

Dialogue ①

The Limitless Latent Potential of Industrial Gases

Industrial gases make a huge contribution to the development of industry around the world. In this section, Professor Takeo Kikkawa, who has a deep knowledge of the industrial gases business, talks with director Kenji Nagata of the Group about how to draw out the latent potential of the industrial gases business going forward.



Takeo Kikkawa
Professor of the Graduate School of International Management, International University of Japan

Kenji Nagata
Member of the Board, Nippon Sanso Holdings Corporation
Representative Director and President, Taiyo Nippon Sanso Corporation

The Essential Role of Industrial Gases in Economic Development

Kikkawa: I have authored company histories for roughly 30 companies in my capacity as an expert on the history of entrepreneurship. From 2013 to 2019, I served as an outside director for Mitsubishi Chemical Holdings Corporation. Industrial gases is something of an invisible industry—not only because the products are invisible, but because there are only a very limited number of companies that sell industrial gases themselves, despite their being indispensable to chemical and steel companies. Nevertheless, these companies play an essential role. This is just one of the things I find interesting about industrial gases, and I believe that the adoption of gases among industries throughout the world will be an important theme going forward.
Nagata: Industrial gases will always be needed for the development of industries. They are basically produced at the site of consumption. For example, steel and automobiles can be manufactured in advanced countries and then shipped, but transportation of large volumes of industrial gases requires them to be liquefied, which creates difficulties in terms of control and long-distance transportation. The industrial gases business needs to contribute to the economic activity of a region by developing strong roots there, which I think is where industrial gases manufacturers find their social purpose. I feel they have an extremely important role and function not only for business but for economic development at the national level.
Kikkawa: I think this is one of the background reasons why the industrial gases business is particularly stable from a business perspective.
Nagata: In connection with this, I think that originality has been extremely important in the successful industrialization of oxygen. For example, even if an automaker manufactures mass-market vehicles, the mass production or design may be changed afterward; but industrial gases themselves do not change, which is one of their strengths, and the industry has grown and expanded by changing the application to suit the needs of the age. This is the potential of industrial gases, and I think it also relates to the stability that you mentioned. There are differences in products according to the industry structure of each country, but whether we are talking about Japan, Singapore, or Thailand, the global supply format is more or less the same. While there are differences in language and business customs, the industry is surprisingly suited to globalization.
Kikkawa: I hear that a team from your Group company Matheson Tri-Gas, Inc. in the United States played a role in the acquisition of Praxair Inc.'s European business in 2018. While the industry may be suited for globalization, I think that it is because of the success of your progressive expansion into the United States since the 1980s, and that you were chosen to make the acquisition because you have the ability to compete with global super majors.

The HyCO Business as a Powerful Tool for Achieving Goal 13 of the SDGs

Kikkawa: I think the way that gases can be used to combat global warming will be an important point, and I suspect the industrial gases industry will garner more attention going forward. I have the highest hopes for the HyCO business*. Goal 13 of the SDGs is a goal for specific countermeasures against climate change. One of the powerful tools in this effort that has been touted by the Ministry of Economy, Trade and Industry (METI) is carbon dioxide capture, utilization, and storage (CCUS), which involves the separation, storage, and use of CO_2 emitted from power stations and chemical plants. In the HyCO business, carbon is recovered in the form of hydrogen and carbon monoxide, which means that like CCUS it converts carbon into a resource. The HyCO business, which recovers carbon in the form of hydrogen and carbon monoxide rather than CO_2, has great potential to be a technology that can help save the human race.

* "HyCO" stands for hydrogen (H_2) and carbon monoxide (CO), which are separated from natural and other gases through a technology called Steam Methane Reforming (SMR). The HyCO business provides large-scale supply of H_2 and CO to oil refining and petrochemical industries by way of a pipeline.

Dialogue 1 The Limitless Latent Potential of Industrial Gases

Takeo Kikkawa

Born in 1951 in Hajikamimura (now Arita City) in Wakayama Prefecture. Graduated from the Faculty of Economics, The University of Tokyo, and obtained a PhD in Economics from the Graduate School of Economics, The University of Tokyo. Served on an expert panel for METI discussing the composition of electric power sources for 2030. Professor, Graduate School of International Management, International University of Japan. Professor Emeritus, The University of Tokyo. Professor Emeritus, Hitotsubashi University.

Nagata: That's right. HyCO changes hydrocarbon resources, separating them into hydrogen and carbon monoxide, which can then be used. Hydrogen is used for converting heavy oil into light oil, removing impurities, and other purposes. By adding hydrogen when these petroleum products are consumed, the sulfur content can be reduced to zero or heavily reduced. This reduces the environmental impact when the products are consumed as fuel. Therefore, in the HyCO business, in the process of separating natural gas and so forth into hydrogen and carbon monoxide, some CO_2 is emitted, but then by adding the product created by the HyCO business, the environmental impact at the consumption stage is reduced. Furthermore, among the process options for HyCO, there are some that enable the recovery of high-pressure CO_2 for separation or CCUS. This makes it possible to generate electricity with reduced CO_2 emissions, as you have pointed out. Setting HyCO aside, I think that we can talk about reducing environmental impact in relation to all products, such as oxygen and nitrogen. I mean, by applying oxygen to combustion technology we can reduce energy consumption by improving combustion efficiency. In the case of nitrogen, we can improve quality and productivity by preventing its oxidization. So, we can talk about the connection to reducing waste products and improving energy efficiency. We do not sell oxygen and nitrogen, but rather the effects and functions of oxygen and nitrogen. To sell these functions we are also promoting technology developments, such as gas hybrid technology and devices that use it. This is what I consider to be the industrial gases business.

Kikkawa: Looking further ahead, it seems likely that hydrogen will need to be used for electricity generation if we are to achieve a hydrogen society. If demand for hydrogen-powered electricity generation is established, the HyCO business will have even further potential for development. I think it is very possible that this could be realized by 2050.

Nagata: While we are not yet ready to start operating hydrogen stations, we are now working on the development and installation of stationary and mobile equipment. We would like to focus on hydrogen in terms of using it as a carrier in combustion technologies for ammonia and the like.

Kikkawa: Japanese power companies have chosen to use ammonia rather than hydrogen-based electricity generation, but this process requires nitrogen, which should offer opportunities for Nippon Sanso Holdings. After all, your strength is in your ability to meet all needs related to gases.

Nagata: Given the extremely matured state of the Japanese economy, I don't expect to see much growth in demand for oxygen, hydrogen, argon, and so forth. For this reason, I think it is most important to promote businesses that are focused on the SDGs and sustainability, which are key trends in the world today.

Industrial Gases Have Potential in Numerous Scenarios

Nagata: Members of the public may not feel that they have any points of contact with industrial gases. However, atmosphere control, which is a gas control technology, is playing an extremely important role in the field of 3D printing, which is capturing the public eye in numerous applications. We do not make 3D printers but we aim to contribute to widespread uptake of 3D printers in Japan through atmosphere control, working in partnership with 3D printer manufacturers. Moreover, recently industrial gases are being used in a growing range of applications in fields related to aquaculture. By dissolving high-pressure oxygen in water, rather than air, we expect to improve the cultivation environment. We supply a considerable volume of oxygen to the Norwegian salmon farming industry and the Japanese eel farming industry. Another application that has been prominent lately in the area of food and water issues is modified atmosphere packaging (MAP). By injecting a mixed gas of nitrogen and CO_2, this technology slows down the oxidization of food and helps to prolong the expiry dates of ready-made salads and similar products sold at convenience stores.

Kikkawa: This is a safe way to extend the expiry date rather than using a hypochlorite additive, isn't it?

Nagata: It's safe because it is nitrogen and carbon gases that are present in the air. By extending the expiry date, we aim to reduce food loss as much as possible. What's more, as the weather was particularly bad this year, driving up the price of leafy vegetables, there were a growing number of cases where vegetables were frozen at the production site to preserve them before shipping. Since the Group has a long track record in refrigeration technology, we were able to use our technologies to reduce food loss at production areas as well. Going forward, I think that industrial gases will be able to contribute even more in the area of food.

Kikkawa: How about the medical field?

Nagata: In the medical business, we are focusing on Water-^{18}O, a stable isotope used as a diagnostic reagent for cancer. It can now be used to diagnose Alzheimer's disease as well. In our medical business, we also use a lot of CO_2. For example, in endoscopic surgery, CO_2 gas is injected to expand the intestine. Medical CO_2 makes laparoscopic surgery much easier to perform. So various kinds of gases are used in the medical field—not only the oxygen used for ventilators that people would generally think of. In the case of a disaster, for example, we continue to supply these gases stably without stopping. In this way, we also aim to contribute to the medical field.

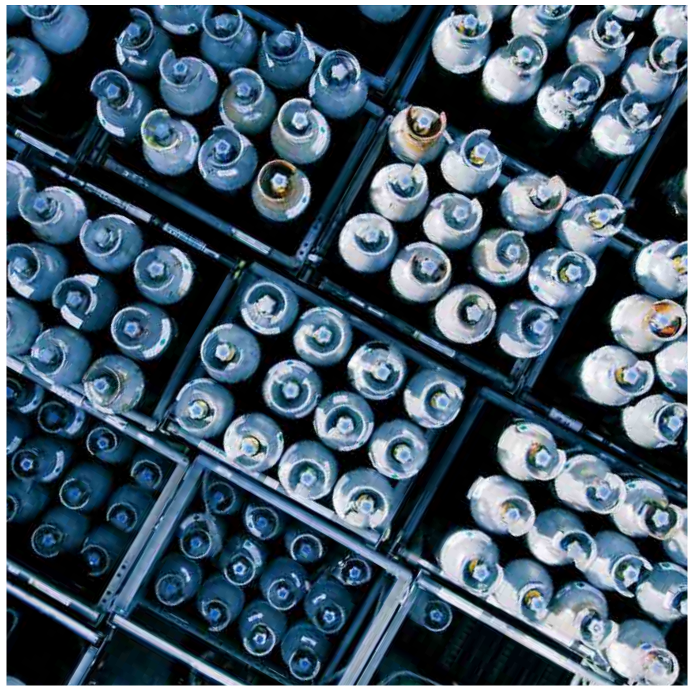
Kikkawa: So, the trend toward adopting gases has reached the agriculture, aquaculture, and medical fields. That's very interesting. I expect that the industrial gases industry will surprise us with even more unexpected ways for using gases going forward. It truly is an invisible industry, or rather, it has a lot of invisible latent potential. I think that Japan is extremely fortunate to have a global gas major such as Nippon Sanso Holdings.

Nagata: If we can fully realize the potential of the industrial gases business and continue contributing to the development of industries and the solution of social issues, then we are sure to achieve sustainable growth. I want to apply the power of industrial gases across a wider range going forward, including social issues and new fields following the development of industries. Pursuing this goal is our direction as an industrial gases manufacturer.

OUR BUSINESS

Over its 110-year journey since its founding, Nippon Sanso Holdings has developed together with industry.

We will concentrate our accumulated technological capabilities, customer base, and expertise in an effort to expand our business even further, seeking to continue playing an essential role in the development of industry and society over the next 100 years.



The Nippon Sanso Holdings Group's Value Creation Process

The Nippon Sanso Holdings Group contributes to the development of basic industries such as steelmaking and chemicals with its air separation gases made from the unlimited resource of air, as well as other industrial gases. We also supply cutting-edge industries such as electronics. Moreover, we supply industrial gases and related equipment in the medical field and support better lifestyles for people by supplying household goods in the Thermos business. We will continue to provide new value to society through innovative gas solutions and high-quality, highly functional Thermos brand products, and contribute to solutions to social issues.

Group Vision

We aim to create social value through innovative gas solutions that increase industrial productivity, enhance human well-being and contribute to a more sustainable future.

Medium-Term Management Plan Ortus Stage 2 (→ P. 14)

Group Philosophy

Proactive. Innovative. Collaborative. Making life better through gas technology.

Contribution to the Sustainable Development Goals (SDGs) through business

Key Social Issues for Nippon Sanso Holdings

- Climate change
- Resource shortages
- Food and agriculture
- Maintenance of health
- Medical care
- Respect for human rights
- Occupational health and safety
- Human resources development
- Promotion of diversity

* ESG materiality identification process (→ P. 80)

Nippon Sanso Holdings' Business Activities

Our concept in business

The Gas Professionals

The concept represents our strong passion to handle all aspects of customers' gas-related needs as a professional group.

- Technological capabilities
- Production capabilities
- Supply capabilities
- Human resources capabilities

Group Philosophy
Proactive. Innovative. Collaborative.
Making life better through gas technology.

Financial foundation
Governance
Global network spanning four geographic hubs

Supporting foundation for business activities

Business processes

(→ P. 36)

- Technological development
- Production
- Supply and sales
- Investments in growth

Outputs

Provision of solutions centered on products

- Industrial gases business
- Electronics business

Proposing better lifestyles with Thermos brand products

- Thermos business

Value Created

Fields where the Company can contribute by creating value

Earth

- Reduced environmental impact through efficient use of resources and energy
- Provision of products that reduce environmental impact
- Climate change mitigation and adaptation

Society

- Development and evolution of industries
- Stable supply of industrial gases
- Realization of social infrastructure

Economy

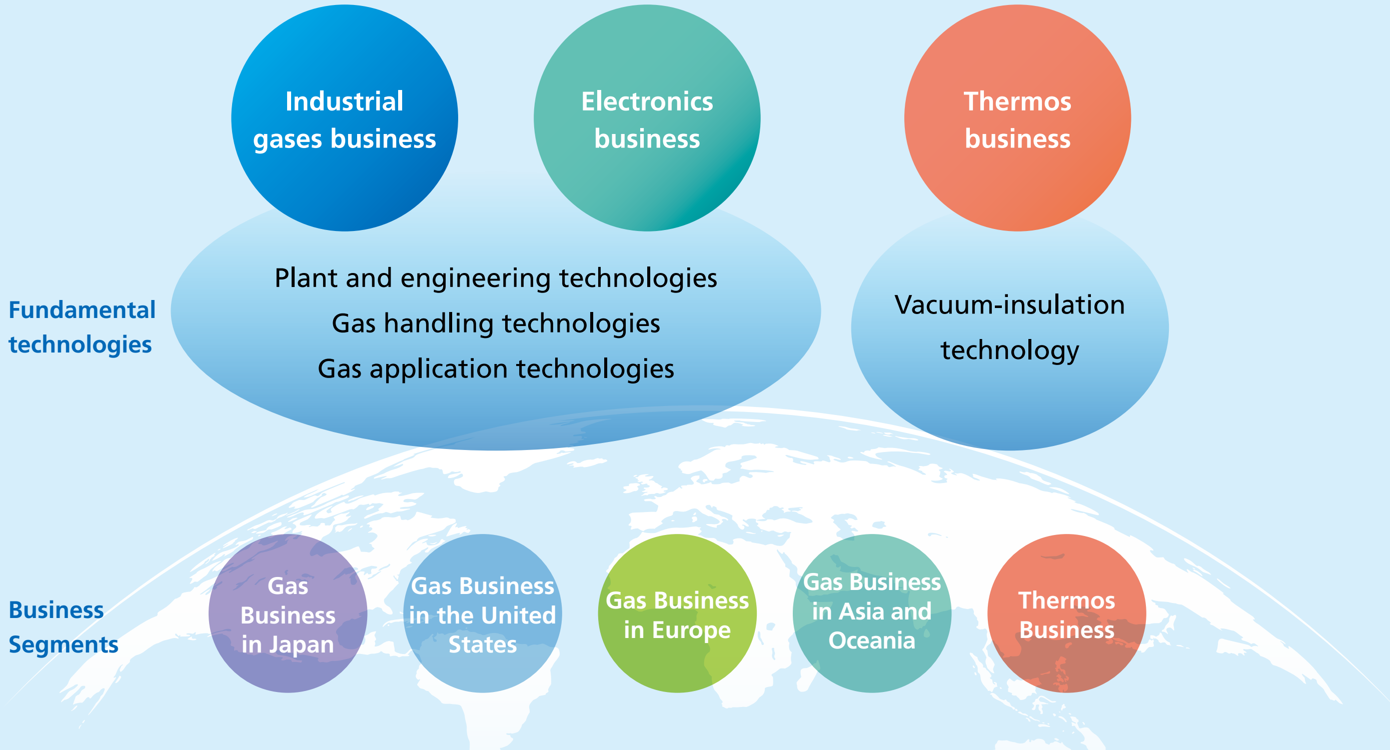
- Development and evolution of economic activity

Overview of the Nippon Sanso Holdings Group's Business

The Group's three business domains are the industrial gases business, the electronics business, and the Thermos business. Their business activities and growth are supported by fundamental technologies. The Group's five business segments are the Gas Business in Japan, the Gas Business in the United States, the Gas Business in Europe, the Gas Business in Asia and Oceania, and the Thermos Business.

Business	Main products and services	Main users
Industrial gases business	Air separation gases, carbon dioxide gas, helium, liquefied petroleum gas (LP gas), cutting and welding equipment and materials, plants and machinery, medical gases and equipment, other	Steelmaking, chemicals, automotive, shipbuilding, machinery, food, medicine, etc.
Electronics business	Air separation gases, electronic materials gases, electronics-related equipment and installation, etc.	Electronics (semiconductors, LCDs, etc.)
Thermos business	Household goods	General consumers

Three Business Domains and Five Business Segments



Industrial Gases Business Process Centered on Air Separation Gases

Investments in growth

Cash

Technological development

Develop products that can contribute to the solution of customers' issues through gas technologies cultivated over many years

- Plant and engineering technologies
- Gas handling technologies
- Gas application technologies

Production

Produce high-quality industrial gases needed by customers with high-efficiency (energy-saving) manufacturing equipment

Gas production technologies accumulated over many years

Safety, quality, and technological risk management

Air separation gases

Air → ASUs → Oxygen (O_2), Nitrogen (N_2), Argon (Ar)

Other industrial gases

Carbon dioxide gas (CO_2) | Hydrogen (H_2) | Helium (He)
LP gas | Electronic materials gases | Acetylene (C_2H_2)

Supply

Supply high-quality industrial gases required by customers in an appropriate specification to meet their unique needs

On-site supply
We install gas production facilities on sites adjacent to the customer's site and connect them via a pipeline to supply gases directly on a continuous basis.

Bulk supply
Gases manufactured at our production facility are liquefied and transported by tanker truck to fill liquid gas storage tanks installed on customers' sites.

Packaged supply
We package just the amount of gas required by customers into cylinders at a filling station then deliver them in individual cylinders to the customer.

Sales

We create new value by extending proposals for gas types, flow rates, pressures, supply formats, and backup systems that respond to their unique needs.

- Sales activities
- Quality assurance
- Gas engineering
- Safety training

Development and sale of new products (reflect customer feedback and create new value)

Business Domains

Industrial Gases Business

In the industrial gases business, we supply various industries, such as steelmaking, chemicals, and automotive, primarily with our mainstay air separation gases. We also provide oxygen and other products for medical use. The Company started operations with the on-site plant method in 1964, the first in Japan. The business is able to provide air separation gases stably and in large volumes. We have also deployed our advanced technological capabilities cultivated in Japan to the global market, and are expanding operations using the on-site plant method, primarily in the Gas Business in the United States.

The industrial gases business is established on the site of consumption, and operating companies in each region cultivate and expand their business in accordance with the local characteristics and customers. Looking forward, the holding company will act as a driver to jointly develop advanced technologies and expertise in each region, aiming to grow the industrial gases business locally.

Main Initiatives Based on Key Strategies in Ortus Stage 2

Optimizing Production and Logistics

Industrial gases are high-pressure gases, and their production and transport is subject to different regulations in each country and region. Accordingly, while a simple comparison is not possible, the production and logistics functions of the Gas Business in Japan faced more hurdles to optimization through Information and Communication Technology (ICT) and other technologies than the Gas Business in the United States. In conjunction with the start of Ortus Stage 2, the Gas Business in Japan revised its organization to integrate the management of production and logistics functions. We also worked to increase the operational efficiency of ASUs through data analysis and to optimize deliveries by using ICT to monitor customers' inventories, which resulted in cost reductions and so forth. Looking ahead, the industrial gases business in Japan and overseas will utilize advanced digital technology as part of efforts to optimize and streamline production and logistics functions.

Expanding Business Areas and Domains through M&A

During the period of Ortus Stage 2, we dramatically expanded our business area by acquiring the main European business of Praxair, Inc. We also acquired the U.S. HyCO business from Linde Gas North America LLC, adding a new business domain to the Group's industrial gases business.

In Japan, we have made aggressive use of M&A to expand the medical business. In 2018, we acquired the medical equipment sales company IMI Co., Ltd. The company is the largest ventilator sales company in Japan, and we have utilized its product development capabilities to establish a robust business base with the medical institutions that use its products, making the domestic medical business into a major business for the Group.

Gas and Related Devices Supporting Cutting-Edge Medical Fields

The Group supplies frontline medical facilities and research institutions with industrial gases such as oxygen, nitrogen, and helium. Oxygen is used for ventilation of patients with decreased cardiopulmonary function, while nitrogen is used in dermatology for freezing treatment and so forth. Helium is used to cool superconductor coils in MRI equipment.


Liquid nitrogen cryopreservation system

In addition, the Group conducts technology development related to the regenerative medicine and biomedicine fields. The regenerative medicine field uses cultured cells, which are stored at ultra-low temperatures in liquid nitrogen cryopreservation containers. The Group has a 50% share of the domestic market for these containers by revenue, and we also sell a fully automated cell cryopreservation system, the CryoLibrary®, that enables proper management of a larger quantity of cultured cells.

Electronics Business

In the electronics business, we supply electronic materials gases of various kinds, used in the manufacturing processes of semiconductors, LCD screens, and so forth in the electronics industry. The Group has electronic materials gases production facilities in Japan, the United States, South Korea, and China, and has built a supply chain centered on east Asia, which is a hub for manufacturing sites of major semiconductor manufacturers. In Japan, we offer on-site supply of nitrogen, and our Total Gas Centers in each area provide electronic materials gases and other gases along with services in a total package. We also provide supply equipment and facilities based on advanced gas handling technology to enable customers to use gases such as electronic materials gases safely and securely in a high-quality condition.

We will continue to provide solutions based on advanced technologies in response to the cutting-edge needs of the electronics industry.

Main Initiatives Based on Key Strategies in Ortus Stage 2

Total Electronics

Total Electronics is one of our initiatives under the key "Globalization" strategy of Ortus Stage 2. The initiative aims to expand earnings from electronic materials gases by responding flexibly to globalization by semiconductor manufacturers overseas, and to changes in technologies and markets.

Total Electronics was being promoted as a virtual organization centered on the Group's Chinese subsidiary in Shanghai. However, with the launch of Nippon Sanso Holdings, the holding company assumed an oversight role. Under the Total Electronics initiative, we will expand the following five functions and meet rising demand for electronic materials gases, primarily in east Asia.

1. Strategic Account Management (SAM)	2. Product Management	3. Supply Chain	4. Development Planning (R&D)	5. Operations
Strengthen internal links in the Group for strategic accounts Share information about strategic accounts and promote a unified strategy for procurement, production, and R&D	Promote stable supplies to strategic accounts through capital investment Strengthen product lineup (quality and cost)	Build efficient supply systems Implement global sourcing to achieve a stable supply of a wide range of products (optimize purchasing)	Develop products that meet customers' needs Enhance links with R&D bases to respond to customers' process requirements	Strengthen global supply systems (enhance production functions at existing plants, build new plants)

MOCVD Equipment Using Gas Control Technologies

The Group has developed composite semiconductor manufacturing equipment using metal organic chemical vapor deposition (MOCVD), based on gas control and vacuum technologies. We provide total packages of products and services, including equipment fabrication, supply of electronic materials gases used in the semiconductor manufacturing process, and exhaust gas processing.

Large-diameter gallium nitride (GaN) mass-production model MOCVD unit, UR26K

Thermos Business

In 1978, Nippon Sanso Holdings' predecessor developed the world's first stainless steel vacuum-insulated bottle using vacuum-insulation technology cultivated in the industrial gases business, then began manufacturing and sales operations. In 1989, Nippon Sanso acquired the Thermos business (manufacture and sales of Thermos brand glass vacuum-insulated bottles and so forth) from U.S. company Household International Inc., thereby starting the history of the Thermos brand in the Company. Then, in 2001, Nippon Sanso's household goods business was split off to establish Thermos K.K. The company continues to create new value using vacuum-insulation technologies carefully nurtured as a pioneer in the field of vacuum-insulated bottles, with the brand concept of "Thermos Magic."

In the Thermos business, we provide a product lineup to offer people delicious taste and convenience in various situations that includes sports bottles and portable mugs. In addition, through these products we propose environment-friendly lifestyles by saving energy, helping to realize a sustainable society.

Main Initiatives Based on Key Strategies in Ortus Stage 2

1. Strengthen Proposal Capabilities
- Expand the lineup of portable mugs for each target and develop and expand sales of products to meet in-home demand, such as tumblers and frying pans
- Bolster communication capability using the Company's website and pursue synergies through coordination with e-commerce

2. Increase Customer Satisfaction
- Reduce claim rate through rigorous quality control
- Increase customer support response using website

3. Increase Brand Value
- Promote effective advertising activities via multiple types of media and strengthen development of the Company's direct-sales outlets
- Start a café business proposing environment-friendly lifestyles

4. Strengthen Production Capability
- Achieve stable supply by establishing a three-facility structure overseas

The Thermos Brand Aligned with Customers' Lifestyles

Starting from stainless steel vacuum-insulated bottles that utilize vacuum-insulation technology, Thermos has developed a range of essential life-style products such as portable mugs and soup containers. Up until now, our lineup has been centered primarily on outdoor products, but recently we have also been focusing on products for indoor use in cooking and at mealtimes, such as frying pans and tumblers. We will continue to expand the diverse product lineup of Thermos, going beyond vacuum-insulated bottles to support customers lifestyles in a wider range of situations.

An appealing variety of Thermos frying pans to suit a range of customer needs

Fundamental Technologies

Nippon Sanso Holdings' basic technologies support its business domains. These include plant and engineering, which involves operations from design through to the maintenance of ASUs that produce air separation gases; gas handling, which involves the continuous stable and efficient production and supply of air separation gases; and gas application technologies, which involves using the characteristics of gases in various fields such as food freezing and metal processing. Using these technologies, we will continue uncompromising R&D to provide optimal solutions that meet customers' demands.

Plant and Engineering Technologies

Since achieving the first domestic production of ASUs in 1935, the Company has built over 100 plants around the world as a leading manufacturer of ASUs. We provide comprehensive services from basic design to detailed design, manufacture, procurement, construction, commissioning, and maintenance.

The stable, efficient, and safe production and supply of gases depends on improving the skill levels of plant operators, as well as on ensuring careful everyday operational and equipment management at our factories. We provide extensive practical education, including training for emergency situations, using a proprietary ASU simulator developed for this purpose.

Plant designers strive to achieve customers' required specifications as well as operationality and efficiency.

Gas Handling Technologies

In gas handling technologies, we deal with different conditions of gas supply, including requirements for the amount and pressure, depending on the customer's usage environment. Accordingly, we select the most appropriate mode of supply for each customer, including through pipelines from on-site plants or bulk supply by tanker truck for storage in tanks located at the customer's site.

Furthermore, different methods of handling gas present different risks. In addition to ensuring strict adherence to safe driving rules by companies responsible for conveying and supplying gases by tanker truck, we promote initiatives to improve the awareness and skills of employees involved in supply operations who handle high-pressure gas.

We use the most suitable method of gas supply for each customer.

Gas Application Technologies

Gas application technologies unlock the many potentials of gases. Depending on the application, we apply expertise for using gas more safely and efficiently. Through R&D of technologies related to welding, food processing, heat treatment, combustion, and refrigeration, we provide a host of technical support and solutions that contribute to solving customers' issues.

At the Yamanashi Laboratory, we conduct R&D on themes such as oxygen-enriched combustion, welding and cutting, and heat treatment.

Business Segments

The Group operates is businesses in five reportable segments: the Gas Business in Japan, the Gas Business in the United States, the Gas Business in Europe, the Gas Business in Asia and Oceania, and the Thermos business.

▶ For an organizational chart of Group companies, please see page 93.

Gas Business in Japan

The Gas Business in Japan is operated by Taiyo Nippon Sanso Corporation and its Group companies. It has the top share of the domestic market for industrial gases—around 40%—and we provide products and services that are widely used in all manner of industries, including steelmaking, chemicals, and automotive. In electronics, we have a major share of the market in sales of air separation gases, electronic materials gases, and also related equipment. Moreover, in the medical field, we sell medical gases as well as medical equipment such as ventilators. Group companies in this segment include the carbon dioxide gas and dry ice manufacturer Nippon Ekitan Corporation and cutting equipment manufacturer Nissan Tanaka Corporation.


Nippon Ekitan Corporation carbon dioxide gas terminal


View of the entire facility of Iwate Kurosawajiri Gas Center Corporation

Gas Business in the United States

The Gas Business in the United States is operated by Matheson Tri-Gas, Inc., headquartered in Dallas, Texas, and its Group companies. Matheson Tri-Gas has a robust operating foundation that includes California, which boasts the largest state economy, as well as Texas and Louisiana, leaders in the petroleum industry. In 2016, we conducted business acquisitions, starting with Air Liquide S.A., which helped to expand the industrial gas supply network along both the eastern and western United States, establishing our position as a major national supplier. Thereafter, backed by this production network, we continued to acquire on-site users. In 2019, we acquired the U.S. HyCO business from Linde Gas North America, thereby further expanding our business domain.


HyCO production facility


Westlake on-site piped gas facility

Gas Business in Europe

The Gas Business in Europe is operated by the European regional holding company Nippon Gases Euro-Holding S.L.U., headquartered in Madrid, Spain, and its Group companies. In this segment, we operate businesses in 12 European countries, primarily Spain, Portugal, Italy, and Germany, and we have built up a stable business foundation through piped supply in the region's main industrial areas. We are also expanding our business into a wide range of business areas, including healthcare, primarily in Spain, and refrigerants in Italy.


Nippon Gases Espana S.L.U. gas production facility


Bulk gas supply facility for an aquaculture facility

Sales composition by region
(FYE2020)

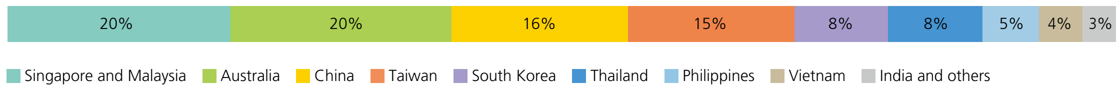
Gas Business in Asia and Oceania

In the Gas Business in Asia and Oceania, our operations center on the supply of industrial gases to customers in Southeast Asia, China, India, and Australia, and to electronics-related products to customers in China, Taiwan, and South Korea. In terms of the business operation structure, Nippon Sanso Holdings directly oversees the operating companies in the region, with the assigned regional management team within the holding company providing backup for business operations. Recently, we have acquired new on-site projects for metal manufacturers in Vietnam and the Philippines. Meanwhile, in the electronics business, the East Asia region is serving as the central site for the Group's global Total Electronics strategy.


Vietnam Japan Gas Joint Stock Company production facility


View of an electronic materials gases production facility in China

Sales composition by region
(FYE2020)



Thermos Business

The Thermos Business is operated by Thermos K.K. in Japan and its Group companies. Thermos K.K. has production subsidiaries in Malaysia and the Philippines, and a sales subsidiary in South Korea. Furthermore, we have affiliated companies in China, the United States, and Germany, among others, and through our regional bases we ship Thermos brand products to over 120 countries around with world. In Japan, we have expanded our product lineup with the new categories of tumblers and cooking utensils.


Stainless steel vacuum-insulated bottles


Vacuum-insulated tumblers

Business Segments

Overview of Performance by Segment for FYE2020

Overview of Performance

(Billions of yen)

Revenue	FYE2019	FYE2020	Year-on-year change
Gas Business in Japan	363.9	356.1	(7.8)
Gas Business in the United States	187.3	198.8	11.5
Gas Business in Europe	55.1	165.5	110.4
Gas Business in Asia and Oceania	106.1	104.5	(1.6)
Thermos Business	27.8	25.1	(2.7)
Total	740.3	850.2	109.9

(Billions of yen)

Core operating profit	FYE2019	FYE2020	Year-on-year change
Gas Business in Japan	29.8	28.7	(1.1)
Gas Business in the United States	15.6	22.2	6.6
Gas Business in Europe	6.5	24.8	18.3
Gas Business in Asia and Oceania	9.1	9.9	0.8
Thermos Business	9.1	7.2	(1.9)
Adjustment*	(4.5)	(2.6)	1.9
Total	65.8	90.3	24.5

* The adjustment to segment profit includes company-wide expenses that are not allocated to segments, such as intersegment eliminations and basic research expenses. The adjustments in FYE2019 include expenses of -¥2.7 billion to acquire the European business.

Main Reasons for Changes

		Year-on-year change	Main reasons for changes
Gas Business in Japan	Revenue	–2.1% ↓	● Air separation gases saw a decline in sales of both bulk and on-site gases to key industries. ○ Increase in sales due acquisition of IMI Co., Ltd., a medical equipment sales company
	Core operating profit (segment profit)	–3.6% ↓	● Lower profit from lower sales of air separation gases ○ Increase in profit from acquisition of IMI Co., Ltd., a medical equipment sales company
Gas Business in the United States	Revenue	+6.2% ↑	○ Favorable shipments of air separation gases, mainly bulk gas. Increase in shipments of carbon dioxide gas due to the start of operations at a new plant ○ Start of operation of new on-site projects. Contribution from acquisition of HyCO business.
	Core operating profit (segment profit)	+42.4% ↑	○ Increase in profit from higher sales of industrial gases, centered on air separation gases. Contribution from acquisition of HyCO business. ● Increase in production and logistics costs for carbon dioxide gas, etc.
Gas Business in Europe	The Gas Business in Europe has been included in the consolidated financial results since December 2018, and includes only four months' performance for FYE2019. Year-on-year changes and analysis have therefore been omitted.		
Gas Business in Asia and Oceania	Revenue	–1.5% ↓	● Decrease in sales of air separation gas (mainly bulk gas), mainly in China ○ Favorable sales of LP gas in Australia ● Decrease in sales of electronic materials gases, mainly due to deterioration of market conditions
	Core operating profit (segment profit)	+8.8% ↑	○ Improved profitability in the LP gas business in Australia ● Decreased profit due to lower sales of electronic materials gases ○ Recording of impairment loss of ¥1.3 billion on property, plant and equipment in FYE2019
Thermos Business	Revenue	–9.6% ↓	● Unseasonable weather in the holiday season. Decrease in domestic sales, partly reflecting the elimination of inbound tourism demand due to COVID-19, starting in 2020.
	Core operating profit (segment profit)	–21.4% ↓	● In Japan, lower profit due to lower sales ● Overseas, lower profit due to lower operation rate at production subsidiaries. Low earnings of Group companies accounted for by the equity method due to slump in sales to Europe and the United States.

Member of the Board,
Nippon Sanso Holdings Corporation
Representative Director and President,
Taiyo Nippon Sanso Corporation

Gas Business in Japan

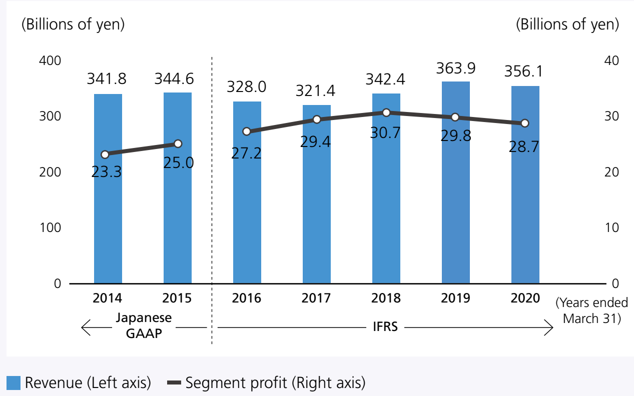
Kenji Nagata

We will pursue the potential of gases to the limit.

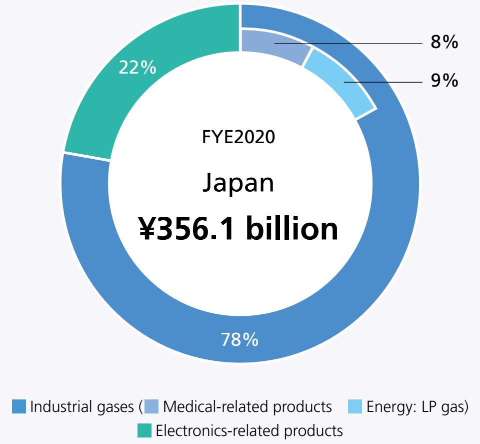
The COVID-19 pandemic is having an impact on the Gas Business in Japan by reducing the capacity utilization of the nation's core industries. However, a fall-off in growth of gas demand following the maturation of Japan's core industries had been apparent before the pandemic. Therefore, we recognize that the pandemic does not change the strategies we have been engaged in for continuous growth in a mature market; rather, it requires us to accelerate our initiatives.

We have two broad strategies for the Gas Business in Japan. The first is to strengthen our fundamental businesses, such as industrial gases. Customers use industrial gases because their use increases the customer's own product quality and productivity. We need to recognize anew that we are providing customers with the power of industrial gases. In addition, by providing gases and related equipment as a solution, we aim to strengthen our fundamental businesses and increase our earning capability. Our other strategy is to open up new business domains originating from gas technology. We are working currently on technology and product development to expand our business in metal 3D printing and so forth, but we will now accelerate our efforts through internal and external collaboration. The shift to a holding company structure has advanced the delegation of authority, allowing each operating company to respond more swiftly and accurately to the changes in the regional industrial structure and environment. Taiyo Nippon Sanso Corporation will also seek to increase management speed and flexibility, and to pursue the potential of gas to the limit.

Revenue and Segment Profit



Percentage of Revenue by Business



Development of the Intelligent Gas Supplying System (IGSS)

IGSS is a new gas supplying system that is driving digital innovation of the gas industry to meet new customer needs for converting to smart factories, and cope with issues such as staff shortages and reduced working hours. Container transportation, container management, daily inspections, and gas monitoring systems are all integrated into the user interface on a tablet. Stable gas supply and monitoring and daily container exchange operations play an important role in ensuring the production, quality, and safety of customers' products.

Gas cylinders weighing over 50 kg each are automatically delivered by a robot.

Business Segments

Member of the Board,
Nippon Sanso Holdings Corporation
Chairman and CEO,
Matheson Tri-Gas, Inc.

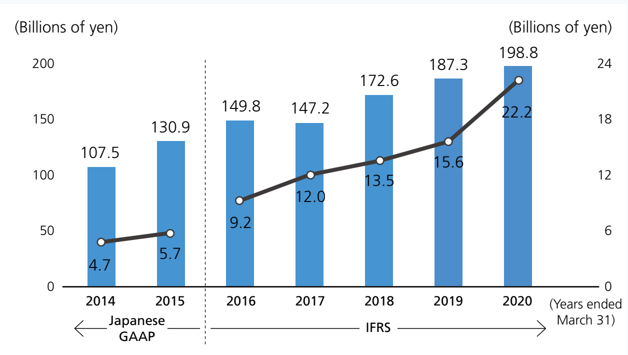
Thomas Scott Kallman

Gas Business in the United States

Pursuing business expansion based on Safety, Quality, and Profitable Growth

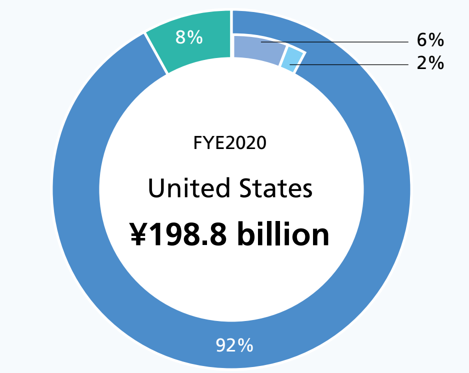
The COVID-19 pandemic in the United States is still at an unpredictable stage, and it is difficult to forecast when the economy will make a full-scale recovery. However, disciplined price and cost management has been key to our performance during this time. Under these conditions, we will continue to drive our business forward focused on our core strategies in the areas of Safety, Quality, and Profitable Growth. We are executing our vertical integration strategy adding bulk liquid capacity with new ASUs to complement our packaged gas distribution networks. We also seek to further develop these packaged gas distribution networks with strategic acquisitions of independent industrial gases distributors. We are reinforcing our liquid carbon dioxide (LCO_2) and dry ice capacity with existing plant expansions and construction of new plants while actively pursuing new on-site and HyCO project opportunities. Centralized, remote operations of key production facilities combined with centralized distribution planning and dispatch allow for a very competitive cost position. These considerations along with effective cross-selling efforts have allowed Matheson Tri-Gas to provide for the total gas and related equipment needs across our customer base and position Matheson Tri-Gas to exceed our customer expectations and enhance Nippon Sanso Holdings shareholder value.

Revenue and Segment Profit



Revenue (Left axis) — Segment profit (Right axis)

Percentage of Revenue by Business

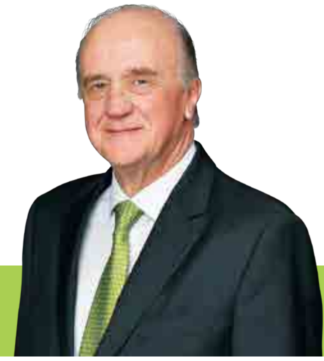


Industrial gases (Medical-related products Energy: LP gas)
Electronics-related products

Expansion of the on-site plant gas supply system

Including units that are scheduled to begin operations in the future, Matheson Tri-Gas has over 30 ASUs throughout the United States. Over the past few years, we have started operations at four on-site projects that were ordered in Texas and Louisiana. Matheson Tri-Gas plans to install an additional unit in 2021.

On-site plant method ASU in operation at Westlake Chemical (Texas)



Member of the Board,
Nippon Sanso Holdings Corporation
Chairman and President,
Nippon Gases Euro-Holding S.L.U.

Eduardo Gil Elejoste

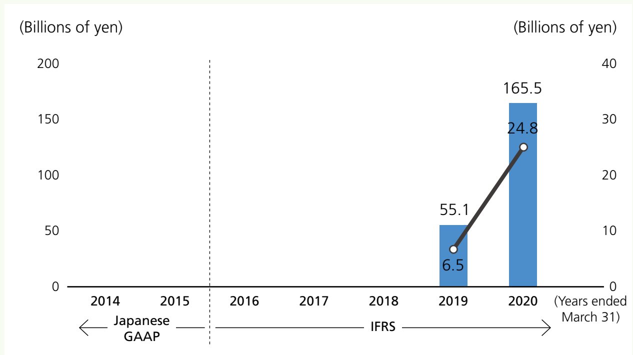
Gas Business in Europe

Post-merger integration has been completed smoothly. We now aim to grow the business using our excellent management resources.

Nippon Gases Euro-Holding has a large operation in Italy, which was the location of the first COVID-19 pandemic in Europe, and it was one of the first European companies to take measures to ensure the safety of customers and employees. As a result, we were able to ensure the safety of employees and their families without any significant issues for business continuity. In the production and supply of industrial gases during the pandemic, we have focused on securing the maximum capacity possible for medical institutions in particular.

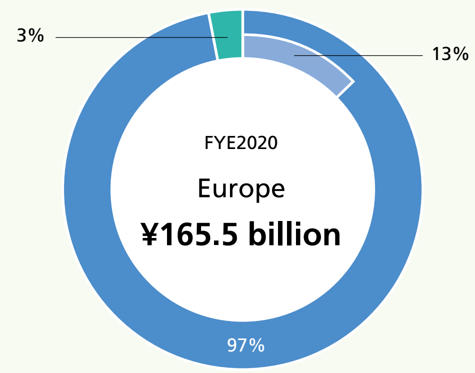
In December 2018, we moved out from the U.S. Praxair Group and joined what was then the Taiyo Nippon Sanso Group. Subsequently, we rapidly and efficiently carried out post-merger integration (PMI), and this has enabled us to continue working also on strengthening safety, compliance, and human resources, which have been our most important business management priorities since before the merger. We have an extremely well-balanced business portfolio in terms of products and services that we supply and markets that we serve in the regions where we are operating. Looking ahead, we will seek to maintain this excellent portfolio while increasing the density of our business in areas where we have strengths while at the same time exploring growth opportunities in new areas.

Revenue and Segment Profit



Revenue (Left axis) — Segment profit (Right axis)
* Financial results for FYE2019 are for the four months from December 2018 to March 2019.

Percentage of Revenue by Business



Industrial gases (Medical-related products)
Electronics-related products

Decision to build a new ASU for the aquaculture industry in Norway

Increasing the oxygen level in the rearing environment for farmed fish promotes their growth and activity. In Norway, where aquaculture such as salmon farming is widespread, demand for industrial gases for use in fish farming and aquaculture is increasing. Nippon Gases Euro-Holding has captured this opportunity by building an ASU on the northwest coast of Norway, where fish farming and aquaculture-related demand in particular is expected to grow.

Norwegian marine aquaculture facility

Business Segments

Gas Business in Asia and Oceania

Executive Officer,
Group Planning Office*

Tsutomu Moroishi

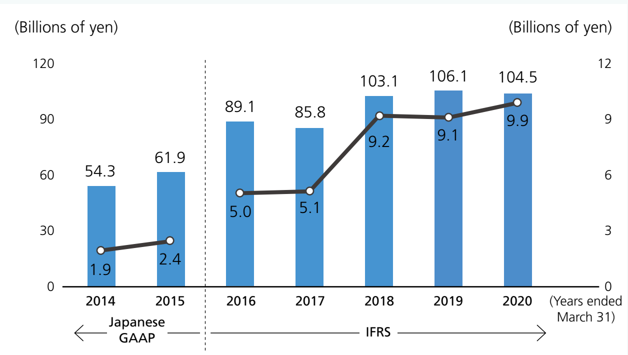
* The Oceania and Asia Management Division has been established within the Corporate Planning Office to oversee business promotion for companies in Asia and Oceania.

We aim to leverage the results of enhancing the Group's comprehensive capabilities to expand business scale and increase earning capability.

The status of the COVID-19 pandemic is different in each country where we have operations in the region. Compared to Europe and the United States, the impact on business activities and earnings has generally been smaller. In China, Taiwan, and South Korea especially, the electronics business has performed solidly, assisted by an increase in our production capacity for electronic materials gases in China and other areas.

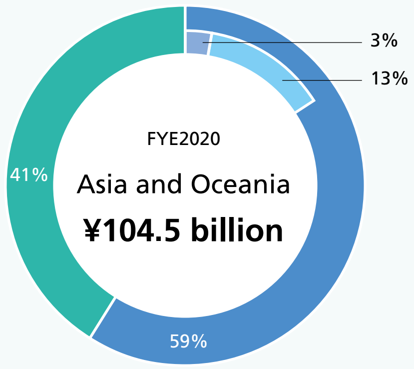
Within the Group's global framework for four geographic hubs, the Asia and Oceania region differs from the other three hubs in that the companies within the region are directly controlled by Nippon Sanso Holdings. In addition, our regional management team supports each company in strengthening its management foundation and advancing its business. So far, we have had support from Japan in safety and technology aspects, while promoting the sharing of information inside the region. Now, we will accelerate these kinds of initiatives. In addition, we will aggressively promote horizontal development of first-class technologies and expertise not only from Japan but also from Europe and the United States. We already have examples of activities to increase productivity in the Production Division, and teams from Europe and the United States are guiding the deployment of activities that have been successful in their regions in Southeast Asia. The business scales of the companies in the region are smaller than in Japan, the United States, and Europe, but the region is expected to see significant economic growth going forward. Therefore, the holding company will drive efforts to enhance the comprehensive capabilities of the Group, and we will aim to leverage the results of these efforts to expand business scale and increase earning capability.

Revenue and Segment Profit



Revenue (Left axis) Segment profit (Right axis)

Percentage of Revenue by Business



Industrial gases (Medical-related products Energy: LP gas)
Electronics-related products

Plans to start operations at a fourth ASU in Vietnam in 2021

In May 2020, our local subsidiary in Vietnam, Vietnam Japan Gas Joint Stock Company, completed installation of three ASUs in the southern province of Bà Rja-Vung Tàu. The units supply an underground pipe network totaling 20 km in length and provide piped gas supply to seven companies at an adjacent industrial park, mainly related to the steelmaking and chemicals industries. To keep pace with the remarkable economic growth of Vietnam, we will start operations at an additional fourth ASU in 2021, and build a robust backup system.

Vietnam Japan Gas Joint Stock Company

Thermos Business

President,
Thermos K.K.

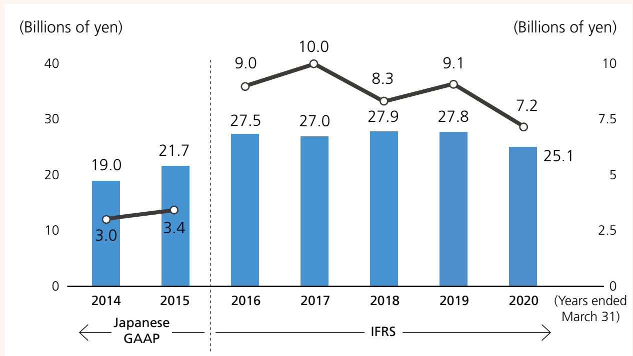
Keiichiro Chujo

Even amid the COVID-19 pandemic, we will steadily advance our initiatives under the medium-term management plan.

The COVID-19 pandemic is having a significant impact on the earnings of the Thermos Business through the decrease of consumption resulting from factors such as elimination of inbound tourism demand and movement restrictions. However, we will not be dissuaded by the impact of the pandemic, and will continue to focus on the initiatives of the action plan, laid out in our medium-term management plan: "Strengthen proposal capabilities," "Increase customer satisfaction," "Increase brand value," and "Strengthen production capacity."

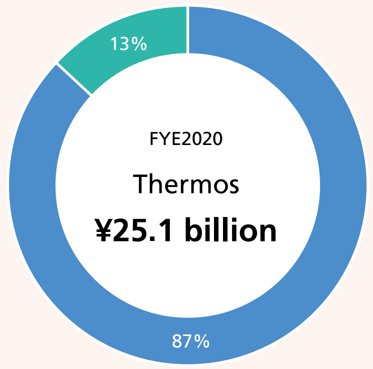
In the Thermos Business, we are promoting sales strategies for each area, strongly grounded in the national character and lifestyle habits of each region. In Japan, we have adopted the theme of "creating new demand from households," and expanded our product categories to include frying pans and tumblers. Sales of these categories targeting households during FYE2020 have trended briskly, driven in part by stay-at-home demand due to the pandemic. Thermos brand products are manufactured by overseas Group companies in Malaysia, China, and the Philippines. One of our top priorities is to build a production framework that can respond swiftly and accurately to demand in Japan and areas around the world, and provide a stable supply of products. During the pandemic, national and regional-level restrictions obliged us to halt operations at our production sites, initially in China and then in Malaysia and the Philippines. Going forward, we will build a stable supply framework with a supply chain and production system that is designed to cope with this kind of scenario.

Revenue and Segment Profit



Revenue (Left axis) Segment profit (Right axis)

Percentage of Revenue by Area

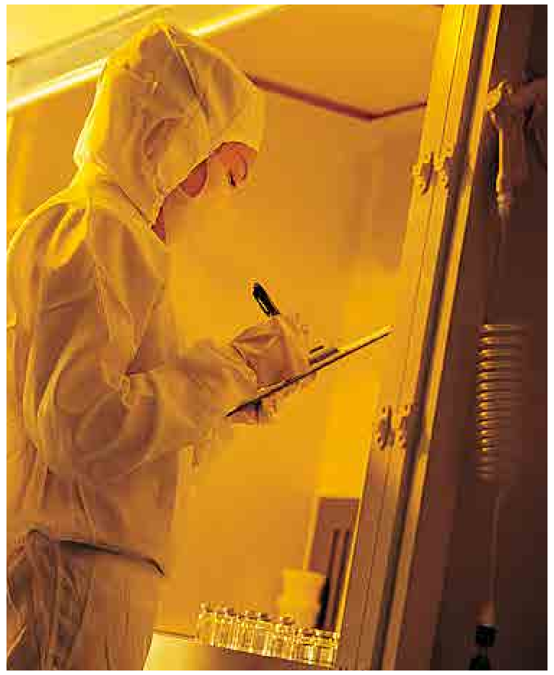


Japan Overseas

Launch of popular new Thermos durable series of frying pans

In September 2020, we launched the new Thermos durable series of frying pans using wear-resistant durable coating. These products stand out for their high level of wear resistance and non-stick performance and a distinctive deep design. The range has eight items, including a frying pan as well as a deep-frying pot with a super-deep design and a rectangular fry pan for making Japanese-style omelets. The design has been changed to make products lighter than conventional frying pans, with handles that are slimmer, making them easy to grasp and less conductive of heat.

Thermos durable series



OUR SUSTAINABILITY

The sustainability of the global environment is an important issue for the Nippon Sanso Holdings Group. By contributing to solutions to environmental and social issues and the SDGs through our business activities, we aim to increase our corporate value and realize a sustainable, affluent society.

Realizing a Sustainable Society and Global Environment through Industrial Gases

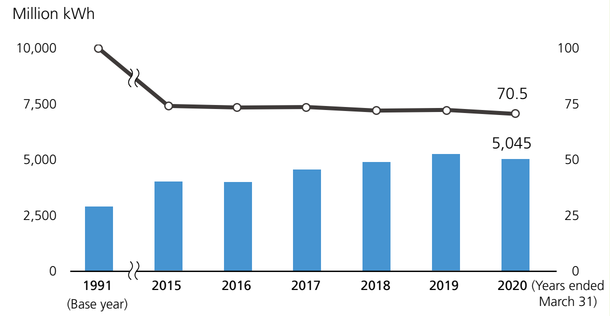
Nippon Sanso Holdings aims to realize a sustainable society and global environment through the industrial gases business. The Nippon Sanso Holdings Group considers air to be a precious natural resource, and the global environment to be irreplaceable. We naturally consider it our mission to maintain the global environment in a sustainable condition for the future. In addition to the global environment, the Group will also address various social issues by proposing solution strategies through products and services that utilize its technological capabilities. In this way, we will contribute to the realization of a sustainable society and global environment.

Reducing the Environmental Impact of Our Business Processes

The process for manufacturing air separation gases uses a large quantity of electricity. The Group is taking steps to reduce the environmental impact of its business activities with a view to mitigating climate change risk. These efforts include reducing energy consumption per unit of production at its gas production facilities, promoting energy savings at business sites, enhancing the efficiency of transportation by tanker trucks, and expanding the use of renewable energy.

We are also working to increase our disclosure of non-financial information and to expand the range of data collection. In FYE2020, we calculated and disclosed our contribution to reducing greenhouse gas emissions through environmental products, declared support the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), and made proactive information disclosures. In FYE2021, we will collect and disclose even more non-financial information and conduct aggregation and disclosure of non-financial data, respond to the CDP (formerly the Carbon Disclosure Project) regarding climate change and water, among other activities.

Electricity Consumption at Gas Production Facilities* in Japan / Electricity per Unit of Production Index



Electricity consumption (Left axis)
Electricity per unit of production index (Right axis)

* Gas production facilities of Taiyo Nippon Sanso Corporation and its consolidated subsidiaries, and of certain affiliated companies

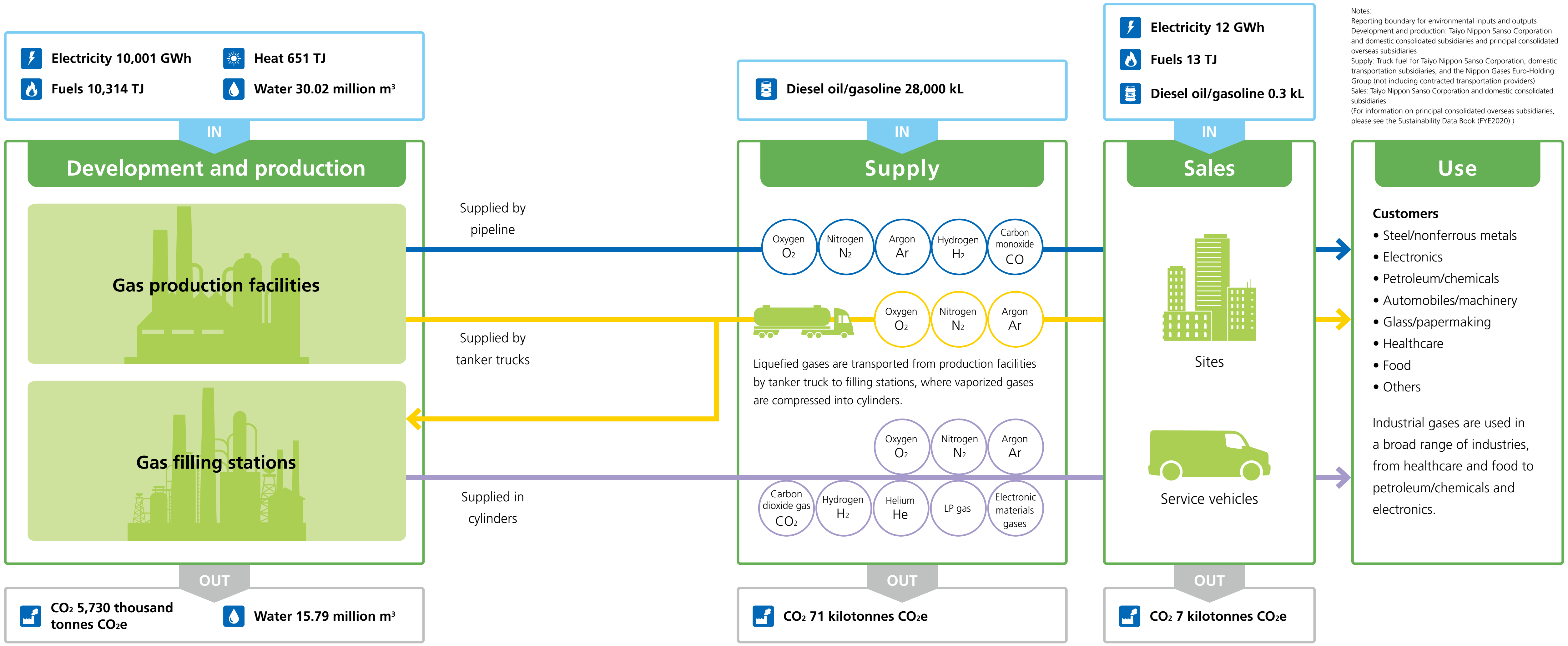
Among Typical Industrial Gases, Air Separation Gases, which Use Air as a Resource, Comprise a Circular Business Model

The Group's core products are oxygen, nitrogen, and argon. These gases are made using air as a raw material, and most of them return to the atmosphere after use. Moreover, the raw material and the products are both gases, so there is little waste product, and since the raw material is air, there is no need to procure other raw materials. The business model for industrial gases is effectively to separate and sell air, which means there is neither raw material nor waste to be considered. It is truly a sustainable, circular business model that recycles resources.

Total Greenhouse Gas Emissions
5,808 kilotonnes CO_2e

Greenhouse Gas Emission Reduction Contribution
2,373 kilotonnes CO_2e*

* Calculated on a stock basis for the following services and products supplied or sold by Taiyo Nippon Sanso Corporation or its domestic consolidated subsidiaries. The calculation method is presented in the Sustainability Data Book (FYE2020).
SF_6 Recovery Service, combustion-type exhaust gas abatement systems, SCOPE-Jet®, MG Shield®, nitrogen supply systems for laser processing (PSA), Thermos Shuttle Chef®, and hydrogen stations



Notes:
Reporting boundary for environmental inputs and outputs
Development and production: Taiyo Nippon Sanso Corporation and domestic consolidated subsidiaries and principal consolidated overseas subsidiaries
Supply: Truck fuel for Taiyo Nippon Sanso Corporation, domestic transportation subsidiaries, and the Nippon Gases Euro-Holding Group (not including contracted transportation providers)
Sales: Taiyo Nippon Sanso Corporation and domestic consolidated subsidiaries
(For information on principal consolidated overseas subsidiaries, please see the Sustainability Data Book (FYE2020).)

Environment-Friendly Products That Apply Gas Control Technologies

Aiming to help realize a sustainable global environment through business, we are developing environmental products that contribute to the reduction of environmental impact and preservation of the global environment based on gas control technologies refined over many years. When customers use the Group's products and services, we contribute together with them to reducing environmental impact.

SF_6 Gas Recovery Service Realized Using Proprietary Technologies

SF_6 gas is a type of greenhouse gas known as sulfur hexafluoride. Used in voltage transformers and high voltage electrical equipment, it has a global warming potential (GWP) around 20,000 times that of CO_2. In addition, on sites where SF_6 gas is used, the purity decreases after recovery, making it unsuitable for reuse. We have addressed this issue using proprietary technologies developed in-house to provide a comprehensive service for recovering SF_6 gas, processing it for reuse, and detoxifying and recycling it. By achieving zero emissions, we aim to contribute to preservation of the global environment and the building of a recycling society.

We supply all equipment and services related to SF_6 recovery.

MG Shield® for Reducing Customers' CO_2 Emissions

MG Shield® is a gas used as a combustion prevention gas when welding magnesium alloy in manufacturing.

Magnesium alloy is used to make cases for mobile phones, laptop PCs, and other home electronics. In the manufacturing process, the magnesium alloy is welded at high temperatures. This makes it necessary to prevent the alloy from reacting with the oxygen in the air and combusting. Compared with SF_6 gas that is generally used for this purpose, MG Shield® has a much lower GWP, helping to reduce the volume of CO_2 emissions.

Left: MG Shield® in tank, right: supply equipment

Thermos Proposes New Environment-Friendly Lifestyles

In June 2020, we opened THERMOS COFFEE TO GO, a coffee shop specializing in take-out coffee where customers can buy coffee or tea by volume, using their own bottles. For those who bring their own bottles, the shop sells beverages in as many units of 100 ml as the customer wants. The basic premise is to encourage people to bring their own bottles, offering them a chance to experience environment-friendly purchasing. Take-out cups are also available, made from certified forest protection materials. For every cup sold, ¥20 is donated for use in nature protection activities through World Wildlife Fund Japan (WWF Japan). Through our first Thermos café business, we will propose environment-friendly lifestyles.

THERMOS COFFEE TO GO in Nishi-Shimbashi Square (Tokyo, Japan)

Propagating Value over Wide-Ranging Fields through Industrial Gases

Society is facing a wide range of issues, such as improving productivity, safety, and stability in industry, the global-scale issue of food waste, and upgrading medical front lines in a super-aged society. When customers use products and services that utilize the Group's technological capabilities, we also contribute to resolving these issues. Taking a "market-driven" approach, we aim to stay highly attuned to social changes, helping resolve social issues through our business activities and generating economic value.

Contribution to Industry

The Group developed Innova-Jet® technology, which significantly reduces nitrogen oxides (NOx) generated in oxygen-enriched combustion, while also saving energy. Oxygen-enriched combustion produces less exhaust gas compared with combustion in air, reducing exhaust gas heat loss, which helps to save energy. On the other hand, hotter flame temperatures generated a larger amount of NOx, and when oxygen-enriched combustion is used in high-temperature furnaces and smelters it is essential to control NOx generation. Innova-Jet® not only reduces fuel consumption by 50% or more but also helps to improve the working environment by curbing the generation of black smoke.

Oxygen-enriched combustion by Innova-Jet®

Contribution to Food Issues

The Group has a long track record in food technologies, starting in 1962 with research into rapid freezing by a continuous freezer unit. This technology has been refined over many years and commercialized under the Bistranza® brand. In addition, the past few years have seen a rapid uptake of modified atmosphere packaging (MAP) in major convenience stores and supermarkets. By injecting gases such as nitrogen into food packaging, food can be kept fresh for longer without the use of chemical preservatives. Expiry dates can be extended by 1.5 to 3 times, reducing food waste due to expiration as well as energy used in waste processing, ultimately reducing CO_2 emissions.

Liquid nitrogen tunnel freezer, "Bistranza-FZT"

Contribution to Medical Care

The Group provides a stable supply of high-quality medical gases to medical facilities and research institutions. We also develop and manufacture a range of equipment for home medical use. In addition, we were the first in the world to manufacture Water-^{18}O, a pharmaceutical ingredient for reagents used in PET diagnostics, using oxygen distillation based on air separation technology. PET scans are widely used for early detection and diagnosis of cancer. Currently, we have three oxygen isotope separation plants in Japan, with an annual production capacity of 600 kg. The advanced gas technologies that we have developed in-house are supporting the medical field and contributing to advances in medical technology.

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

Dialogue ②

Inaki Uriarte
Operations & Safety Director,
Nippon Gases Euro-Holding S.L.U.

Takeshi (Ken) Miki
Executive Officer,
Group Technological Affairs & Environment Office,
and Chief Sustainability Officer (CSO),
Nippon Sanso Holdings Corporation
(Additionally appointed as Executive Officer,
Executive General Manager, Technological Affairs Division,
Taiyo Nippon Sanso Corporation)

Welcome NGE!
Promoting Global Sustainability

Nippon Gases Euro-Holding S.L.U. ("NGE") joined the Group in December 2018.
NGE's Operations & Safety Director, Inaki Uriarte, recently had a discussion with executive officer and Chief Sustainability Officer (CSO) of Nippon Sanso Holdings, Takeshi (Ken) Miki, regarding the sustainability issues that should be addressed in a coordinated effort by the newly launched Nippon Sanso Holdings Group going forward.

Pursuing Global Synergies

Miki: The Group has been holding an annual Safety Meeting since 2015. The idea is that persons in charge of health and safety from each of the overseas companies gather together in one room to exchange information and opinions about safety measures. Inaki, you attended the meeting for the first time last year; what was your impression?
Uriarte: My colleagues and I were quite inspired by the meeting. People from Japan, Matheson Tri-Gas, Inc. ("MTG") in the United States, and Group companies in Asia really did have a lively exchange of opinions. I think it is tremendous that the entire Group has such a shared interest in learning from each other's experiences.
Miki: The meeting was held in Japan last year, so you were also able to observe the Technical Academy at the Kawasaki-Mizue site. How was that?
Uriarte: I had heard a lot about the Technical Academy from both the NGE President and the CFO who visited the Academy before, and was myself deeply impressed by the experiments and demonstrations involving the knowledge of so many professionals that I saw there. A particularly memorable item was the hazard experience with experiments that envisage various accidents or faults that can occur on a site such as using high-pressure gas, over and sub oxygen atmosphere hazards, the electric shocks live experiment, and combustion caused by adiabatic compression. All the devices produced an excellent simulation of risks that we could have on a site with the support of using virtual reality (VR). I would really like to create this kind of experience and learning space at NGE as well.
Miki: As a company that handles industrial gases, our first priority is ensuring safety. Also, there are many aspects of the operation not limited to safety that are handled differently between Japan and Europe, so we have a lot to learn. It is important that we share each other's best practices to create better systems for one another. I would also like to receive active advice from you, Inaki.
Uriarte: We also have a lot to learn from Japan. The first area is in insight about the handling of specialty gases, which is an area where we have received thorough support from Japan. The second is insight about HyCO, which is an area where MTG has brought synergies. Meanwhile, the area where NGE can contribute to the Group is by providing knowledge of various standards. As our knowledge of aspects such as operations, security, health and safety, and quality grows deeper, I would like to coordinate with Nippon Sanso Holdings to standardize them. Knowledge is a universal asset that can be applied in any situation. Therefore, it would be good to accumulate knowledge about specialty gases in Japan, and about HyCO in the United States, and then bring them together and share the knowledge. Conversely, if we were to attempt to build up all of the knowledge and functions independently in each area, it would be extremely inefficient.
Miki: Thank you for that valuable proposal. NGE's participation in the Group is a huge benefit not only to Japan but also to MTG in the United States and our companies in Asia. I would like us to continue to pursue synergies through integration as we go forward.

Vision for Sustainability Disclosure

Miki: In response to changes in social awareness, companies now face the important task of enhancing their non-financial disclosures and initiatives, such as responding to ESG and the SDGs. In Europe there is a considerably high level of interest in sustainability, and NGE has recently issued its sustainability report for FYE2020. Could you explain your initiatives in Europe?
Uriarte: The sustainability report is a mandatory disclosure for large corporations in Europe, just like a financial report. The minimum content for disclosure is set by the authorities. Our sustainability report is published on each of the company websites so that all stakeholders can access it. This is extremely important for gaining the understanding of our stakeholders regarding our activities. We have promoted the creation of a system that starts by first formulating a framework, then identifying where stakeholders' interests lie. Basically, we decided to use this report as a marketing tool. The main point for creating the framework was to establish an internal Sustainability Committee. The committee has 13 members, including the president, CFO, CCO*1, CHRO*2, and the directors in charge of procurement, quality, marketing, safety,

Dialogue ②
Welcome NGE! Promoting Global Sustainability

and Group integration. The committee had weekly meetings over a 10-week period. Each member establishes their own team, which examines issues brought back from the meetings. Roughly 50 people were involved in operations lasting a total of about 70 days. We received over 150 questions from Audit & Supervisory Board members and consultants, and revised the draft for the report six times. However, having issued the sustainability report for the year, our task is not finished. This activity continues indefinitely, as we strive to make further improvements. NGE has committed itself to eight of the SDGs and has defined 17 targets within those. Seven of these SDGs are also shared with Nippon Sanso Holdings. I would like us to focus particularly on energy efficiency, community engagement, compliance, and safety, while constantly improving our business and communicating this to stakeholders.

Miki: I read the FYE2020 report, and found the content to be well-organized and thought out. I would really like to draw inspiration from your initiatives. We are still just developing our activities in this field, but with our recent conversion into a holding company, we will radically strengthen our initiatives. Last year, we expressed our support for the TCFD*[3] recommendations, and this year we also responded individually to the CDP*[4] survey. In this integrated report, we have already enhanced our reporting regarding sustainability. Our task now is threefold. First, we are enhancing our disclosure of non-financial data, which we have tried to do in this integrated report. Second, we will systematically organize and disclose our various policies. We also plan to review and add to our current materiality matrix. And third, we will set KPIs. It is important to set targets and work through a plan-do-check-act cycle (PDCA) cycle. We are thinking to take specific action on these in our next medium-term management plan.

Uriarte: I think a good way to set KPIs is to start by first getting an overall image, and then narrowing down the areas that are to be evaluated. For example, NGE has 106 facilities in all, but over 95% of our energy consumption occurs at just 27 of these. I think it is important to get an accurate overall image like this, then properly discern which facilities and processes to pursue data on.

*1 Chief Compliance Officer
*2 Chief Human Resources Officer
*3 Task Force on Climate-related Financial Disclosures. A task force established by the Financial Stability Board, the TCFD recommended that companies disclose the financial impacts (risks and opportunities) of climate change.
*4 A U.K.-based NPO (formerly called the Carbon Disclosure Project). The CDP cooperates with institutional investors and others to require companies and government agencies to disclose information about their countermeasures for environmental issues, and conducts surveys and analyses.

Industrial Gases as a Sustainable Business

Miki: The air separation process is important in the manufacture of industrial gases. This process separates air, the raw material, to produce oxygen, nitrogen, and argon. These products are finally returned to the natural environment, and the process generates almost no waste at all. Furthermore, the distillation process used for air separation is conducted at extremely low temperatures, and although it uses electricity it does not involve combustion of fossil fuels. Since air is the raw material, there is no supply chain risk. In addition to reducing the environmental impact of this kind of manufacturing process, another important point is the contribution of the products themselves. Gas helps to reduce the environmental impacts of various industrial processes. In addition, the injection of gas to extend best-before and use-by dates for food helps to reduce food losses. This shows that industrial gases are actually a substantially environment-friendly business. In addition, Thermos brand products, which keep foods hot or cold, help to reduce energy losses. However, outside of the Thermos Business that I've just mentioned, our main business is in the B2B field, which makes it difficult for general investors to understand. I think we need to communicate more about it.

Uriarte: I feel exactly the same way. Through gas applications, we can make a significant contribution to helping customers reduce their environmental impacts. We can contribute to promoting sustainability not only by safely supplying gas but also through our customers using our gas and improve their processes.

Miki: I believe that under its new framework, the Group now needs to pursue "collective strengths" and "autonomous strengths." I want to respect the autonomy of Group companies, and while putting our so-called centrifugal force to work, simultaneously develop collective strengths that generate synergies within the Group. The field of sustainability should also present significant potential for creating such synergies.

Uriarte: By promoting the sharing of gas application technologies, we can both make further progress in developing environment-friendly businesses and products. We may also be able to cooperate in the manufacturing process to reduce CO_2 emissions and water usage. I hope that we can further strengthen this kind of technology sharing between Japan and Europe.

A Member of the Nippon Sanso Holdings Group

Miki: We started working with Inaki at the preparation stage before the management integration. At that time, what kind of image did you have of the integration?

Uriarte: I had a positive impression of Taiyo Nippon Sanso, as it was named at the time, before it was decided that the Group would buy us. I thought that Taiyo Nippon Sanso had businesses in Asia, North America, and Europe that matched us perfectly, so I was rather delighted with this outcome.

Miki: Having NGE join our Group has been hugely stimulating for us in many ways other than earnings. In the integration, we respect NGE's autonomy as much as possible, and I think that NGE has joined our Group in a form that enables everyone to continue working as they had before.

Uriarte: We haven't experienced any particular difficulties with the transition. If I had to point to something, I would say that we did not know each other as individuals, but the Japan side often attends our meetings, and we have also visited Japan several times, so this issue resolved itself quickly. Now that we have become familiar faces to one another, the integration has really moved ahead.

Miki: The so-called PMI*[5] process has really gone smoothly, and we have built trust naturally through our visits with one another. The difficult part was really at the stage before the integration. At that time, we were both separate companies with confidentiality obligations, and most of our consultations were by telephone, so we didn't have a chance to properly meet. In this business dealing with high-pressure gas, the most important part is safety and security. From the date of the management integration, we would become an entity with a shared destiny, and we needed to finish smoothing out various wrinkles by then. I was looking forward to completing the integration and building relationships of trust as soon as possible.

Uriarte: I felt the same way. Ken, please do come and visit us again once the COVID-19 pandemic has passed. It will be an excellent opportunity to develop a deeper mutual understanding. And let's continue to cooperate closely going forward.

Miki: Thank you for your invitation. I have complete trust in you, Inaki, and in everyone at NGE. With work styles and lifestyles now changing around the world due to COVID-19, we must make our business more sustainable and contribute to the realization of more sustainable societies. With our recent transition to a holding company, I aim to further develop our cooperation framework with a view to promoting global sustainability.

*5 Post-Merger Integration. The integration process that occurs after an M&A.

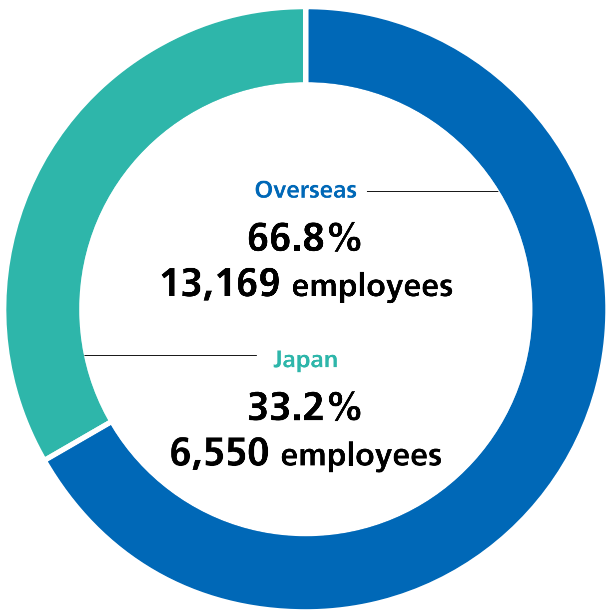
Human Resources to Support the Nippon Sanso Holdings Group

The proper development of human resources is essential for the sustainable growth of a company. It is individual employees who support our social mission of stably supplying industrial gases. Having changed its structure on October 1, 2020, Nippon Sanso Holdings is now expanding its fields of activity even further on a global scale. Right now, nearly 70% of the Group's consolidated employees are non-Japanese, and we are continuing to become a multinational organization. We will strive to create a structure were employees can actively play their roles as "The Gas Professionals" while respecting the values and cultures of different regions.

Number of Employees

19,719
(consolidated)

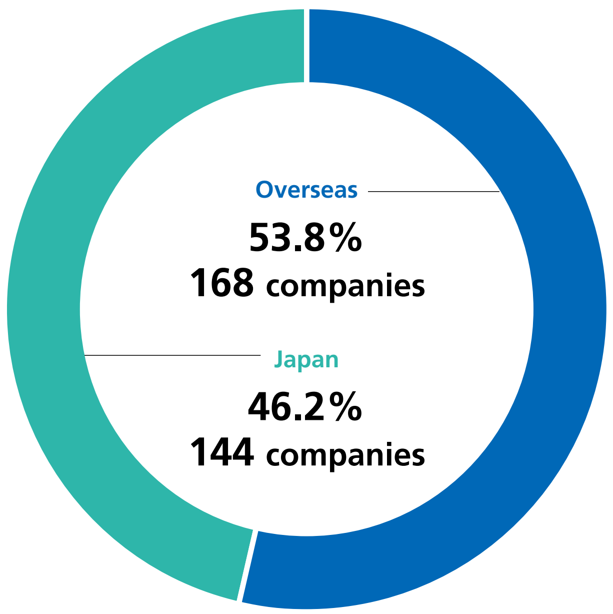
As of March 31, 2020



Number of Consolidated Group Companies

312

As of March 31, 2020



Basic Themes of Human Resources Development

Nippon Sanso Holdings is ranked No. 1 in Japan and No. 4 in the world in the industrial gases market. In Japan, we have already established a solid position as the market leader, and now our aim is to become a global player. Developing human resources who are capable of conducting business globally is an important pillar of the Group's strategy. Looking forward, we aim to implement our "Basic Themes of Human Resources Development" and "Key Employee Qualities and Conduct," which underpin our human resources development, for our employees not only in Japan but globally.

- **Human resources development that accommodates further globalization**
- **Human resources development that trains "The Gas Professionals"**
- **Human resources training that addresses customers' and society's needs**
- **Human resources training that emphasizes strengthening integrity**

Key Employee Qualities and Conduct

Health

1. Understands the Importance of Occupational Health and Safety
Looks after their own health and helps create positive working environments

2. Displays a Positive Attitude
Has a positive attitude and see things through

3. Demonstrates Organizational Capabilities
Uses communication to overcome limited personnel levels and maximize teamwork

Integrity

1. Earns Customer Trust
Exhibits a dedication to stable supply and quality assurance and responds with sincerity

2. Exhibits a Well-Formed Character
Maintains an agreeable temperament and promotes mutual trust and respect

3. Endeavors to Fulfill Responsibility to Society
Works to comply with safety, security, and environmental standards, as well as with social norms

Resource-fulness

1. Knows the Customer
Responds to customers' expectations and interests

2. Knows Himself/Herself
Works to realize personal goals and acquire knowledge and skills crucial to a professional and strives to act independently

3. Knows Society
Strives to be open, grasp changes, and looks to the future

Human Resources to Support the Nippon Sanso Holdings Group

Human Resources Development at Taiyo Nippon Sanso

The Group's operating company, Taiyo Nippon Sanso Corporation, emphasizes human resources development in order to realize the safe, secure, and stable supply of industrial gases as "The Gas Professionals." We have prepared education and training programs for the growth of employees, starting with training over a five-year period after joining the Company, and aim to develop employees who can embody the ideals of health, integrity, and resourcefulness. In addition, with our recent transition to a holding company structure, we now face the urgent task of creating systems and structures that enable a more globally diverse team of human resources to participate.

Efforts to Develop More Globally Competent Human Resources

The Company has always placed emphasis on initiatives to develop professional human resources that are able to work with a global perspective, whether in Japan or overseas. Following this transition, it is now necessary for us to focus even more on these efforts. Currently, we have stationed or assigned overseas a wide range of employees of all ages, ranks, and job types, mainly in Southeast Asia, China, and North America. However, for a company seeking to increase the ratio of overseas sales, the number of our people overseas is still small. We therefore need to have each employee come to see their workplace as being not only Japan but the whole world. To help cultivate this awareness, the Company has implemented training for global human resources and the Overseas Trainee Program.

Training for Global Human Resources

We introduced this program in 2007 to enable employees who are capable of functioning in a global business environment to learn the necessary skills for playing an active role both in Japan and overseas. The training is conducted entirely in English by instructors who are foreign nationals and encompasses seven sessions, including final presentations, held over approximately six months. It covers such topics as mindset, logical presentation skills, business model generation, case studies, negotiating proficiency, and leadership skills. In addition to improving language capabilities, the training seeks to cultivate the confidence and presentation skills necessary to express one's own opinions clearly and effectively whenever and wherever necessary.

Overseas Trainee Program

This program was introduced in 2016 with the goal of developing human resources that are able to quickly produce results when posted overseas. Selected young employees between their fifth and tenth year in the Company are given extensive on-the-job training at one of the Company's overseas subsidiaries. Participants need to apply for the program, and those who wish to are given an opportunity to work overseas. One of the characteristics of Taiyo Nippon Sanso Corporation is that an encouraging environment is provided for those who are motivated to acquire experience.

Tomoyasu Azuma
Manager
HR Development Team
HR Division

Comment from the Manager of the HR Division's HR Development Team

Taiyo Nippon Sanso has continued to grow steadily, backed by a stable business model. However, it would be a mistake to assume that this business model is permanent. We must constantly think about the next business model to suit the changes in the times. The same principle applies with human resources development. The industrial gases sector is undergoing rapid globalization, and I believe that we need to develop human resources in connection with regions and operating companies all over the world, not only in Japan. The Company has always emphasized training, but now our vision is to widen the selection pool to a global scale and expand opportunities for personnel exchange training with operating companies and exchange meetings between different industries.

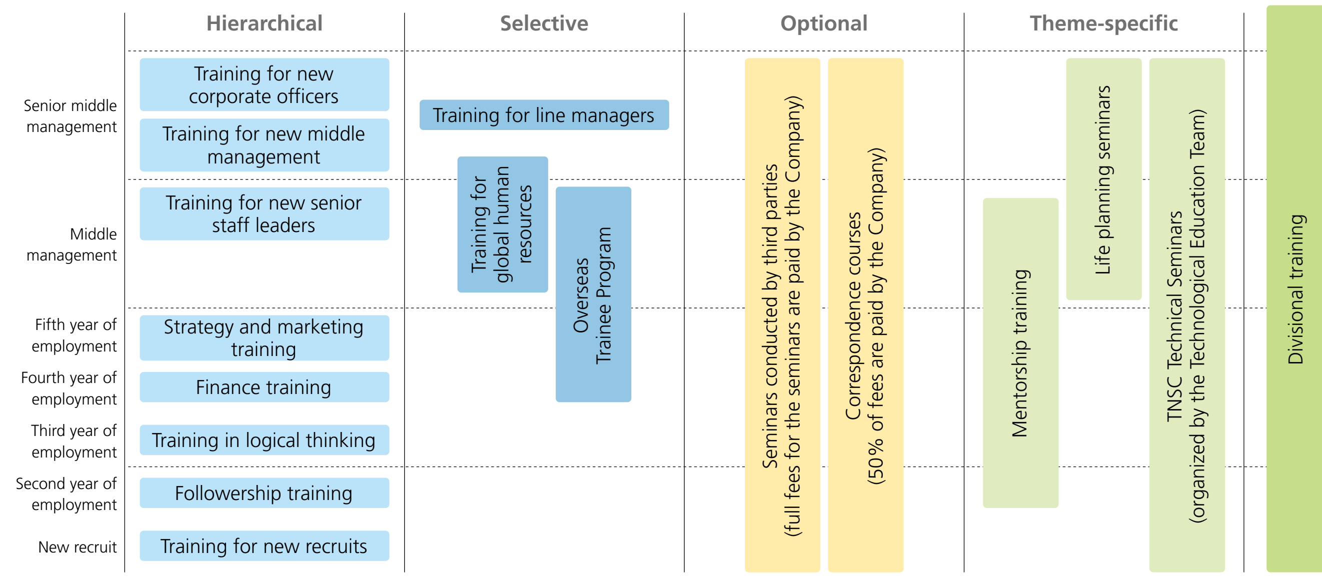
Education and Training for Developing "The Gas Professionals"

I believe that what a company can do to develop human resources is provide a place to accumulate experience, conduct education and training covering the required knowledge and skills, and establish a chain of experience. With this in mind, we have been building an education system since FYE2008 and introduced a wide range of focused training programs, including hierarchical, selective, optional, theme-specific, and division-specific education.

In training for new recruits, participants experience a wide range of operations from production to sales, regardless of the job for which they were hired, in order to build a foundation for acquiring the knowledge and skills required by the Company. In our hierarchical training, we provide a program for acquiring the knowledge and skills required to be a working professional, which is arranged so that people can complete the course by their fifth year. (→ P. 64). Also, even after the five years of basic training after joining the Company, there are training programs for supervisors, managers, and executive officers.

In 2017, we established training for line managers, aimed at strengthening line management and developing team members. Furthermore, we encourage employees to actively participate in external training and selective training run by the Mitsubishi Chemical Holdings Group. For employees who aim to acquire national qualifications, we provide support such as a qualification acquisition incentive scheme and correspondence education course materials. By providing an environment and systems that allow individual employees to grow, we will continue to develop "The Gas Professionals," that are equipped with health, integrity, and resourcefulness.

Taiyo Nippon Sanso Employee Training Framework



Training Example | **Training for Line Managers**

Managers and line managers are required to increase the motivation of their subordinates and create an environment for them to utilize their abilities. This program offers management lectures given by external speakers on such topics as the achievement of goals and fostering subordinates, as well as training in performance evaluation, i.e., how to evaluate employees, provide feedback, and conduct performance reviews; labor management; and compliance training, including responding to harassment, among others. Through the training, participants increase their ability to communicate logically with subordinates and help to boost their motivation. The training has been held twice a year for the past three years for managers and line managers who are newly appointed or have only a few years' experience in their positions. We will continue to conduct the training going forward.

Human Resources to Support the Nippon Sanso Holdings Group

Human Resources Development at Taiyo Nippon Sanso

Cultivating a Sense of Mission as a Provider of Social Infrastructure over a Five-Year Training System

The Company has a distinctive training system that provides basic training to young employees over a five-year period after recruitment. The basic training starts with a three-month training for new recruits, followed by annual group training with other employees from the same recruitment intake once a year until the fifth year. The program is for all employees, regardless of their type of work, whether it is in business administration or engineering. By building up cross-organizational basic training outside of technical aspects, we aim to have all employees develop a full awareness and deep understanding of the characteristics of the industrial gases business and the importance of our mission of maintaining supply at all costs. Through the five years of basic training, all employees will become more conscious of their roles as "The Gas Professionals" as they work in various fields.

Hierarchical Training (First Year to Fifth Year in the Company) Basic Training

Basic training increases employees' skills and raises their perspective incrementally and continuously over five years. In their feedback, employees that have participated in the training indicate that they can observe its benefits and effects. Young employees are assigned to various departments after joining the Company, and enjoy being reunited with others from the same recruitment year where they share their trials and observations. The growth of their same-year colleagues stimulates and motivates them to grow themselves. By conducting the training over five years, the young employees advance through friendly competition and grow, developing a spirit of cooperation that builds better teamwork.

First year of employment

Training for new recruits
In a three-month group training, employees tour research laboratories and production facilities to learn about the work places.

Second year of employment

Followership training
Employees learn the skill of expressing information clearly as a follower and develop communication skills.

Third year of employment

Training in logical thinking
Employees acquire logical thinking and presentation skills.

Fourth year of employment

Finance training
Employees learn how to read essential financial figures for business and acquire basic financial knowledge, and understand the correlation between their work and figures.

Fifth year of employment

Strategy and marketing training
At the culmination of five years, employees form teams to propose management strategies and present them.


First year of employment – Training for new recruits


Third year of employment – Training in logical thinking


Fifth year of employment – Strategy and marketing training

* Assignment and position are as of July 16, 2020, when the interview was conducted.

Syuta Higa
Business Planning & Administration
Global Operations
Taiyo Nippon Sanso Corporation

Gradually Building Up Foundational Capabilities Enables Employees to Get a True Sense of Their Mission as "The Gas Professionals"

The training that left the strongest impression on me was the logical presentation training* that we had in the third year. I was aware that I was not good at speaking in front of people. Therefore, during the training period I practiced harder than ever before, videoing myself giving a presentation so that I could review my appearance. The result was that I overcame my reluctance in my own way and discovered my confidence in my ability to do it if I tried. It was a very positive experience.

I think one of the best things about the five-year training period is that one gradually builds up basic skills. In the logical communication training* in the second year, we studied the basics on how to communicate clearly to people. In the third year, we had a more practical presentation training. This was followed by management training. Doing so in this manner allowed us to step up gradually and acquire the foundation skills for a working professional. I also think that bringing colleagues from the same recruitment year together regularly is extremely beneficial because it provides additional motivation.

Building up years of experience in this way cultivates the employee's self-awareness of their role as one of "The Gas Professionals." In daily work as well, by accumulating practical experience, we become able to take on more difficult work with a greater sense of responsibility. By watching how our supervisors and colleagues work and seeing up close how they have a sense of mission, we can develop the sense of responsibility that is required of the Company's employees ourselves.

* At the time when the training was conducted. The current training curriculum has changed.

Hayato Sakurai
Stable Isotope project
Project Administration Section
Research & Development Division
Taiyo Nippon Sanso Corporation

Every Employee Can Develop a Mindset Attuned to the Corporate Philosophy, Regardless of Their Type of Work

I majored in biological engineering at university, and initially I hoped to join the R&D Division. However, my first assignment was to a department in quality control. Here, I was instructed thoroughly about basic gas handling, such as gas pipe assembly. After that, I was put in charge of engineering gas supply equipment, and in dealing directly with customers I was able to sense their needs in person. After that, I was assigned to the development department, which I had originally wanted to join. Having been able to fully experience the gas business like this has been a real strength for me in my current position in charge of development. I often reflect that the Company really thought about where to assign me while looking ahead to my future.

Right after I joined the Company, I don't think I had such a strong awareness of supplying gas safely and securely. But as I received training at the Company every year and carried on with my work, I naturally developed a mindset attuned to the corporate philosophy. Over five years, my colleagues from the same recruitment year came together for training, regardless of whether they were in business administration or engineering positions, and I felt that all of us developed an increased awareness of supplying gas safely and securely. I think that is what enables the Company to realize a stable supply of gas.

Human Resources to Support the Nippon Sanso Holdings Group

Health Management and Work-Style Reforms of Employees and Work Places

Over the past few years, long working hours and overtime work have become social issues. Nippon Sanso Holdings believes that consideration for employees' work styles and health is part of a management strategy for enhancing individual capabilities, increasing productivity, and raising corporate value. We have therefore been promoting health management, which realizes mental and physical health with a view to being a company where employees can work with enthusiasm, and work-style reforms, aimed a realizing working environments that are comfortable to all of our diverse employees.

Health Management for Creating a Corporate Culture That Prioritizes Health

The Company aims to foster a culture that puts health first, following the idea that the health of its employees is the driving force behind everything it does. To promote employee health, we conduct health examinations for all employees as a matter of course. We also subsidize the use of health facilities and participation in health promotion programs, and provide consultations with a physician to workers who are working long hours. In addition, we are cooperating with industrial physicians and the health insurance societies to assign industrial physicians to each branch office. This will enable us to respond to health issues related to extreme overwork and expedite support for employees who have taken leave for the treatment of mental health issues returning to work. We have also revised items covered in annual health checks to facilitate the early detection of cancer, and introduced subsidies for employees obtaining influenza vaccinations and treatment to quit smoking.

Participants engage in stretching at FYE2019 Seminar for Healthy Working Women

Wearable Devices for Visualizing Health

In FYE2018, we began distributing wristband-type wearable devices that increase the visibility of individual health-related data. These devices are designed to make employees more health conscious by enabling them to understand their own health status from day to day, providing such information as step count, heart rate, sleep time, and calorie burn. As of March 31, 2020, approximately 1,300 employees are wearing these devices. From July 2018, we introduced a walking point system where users can convert their daily step count into points redeemable for various services, or donatable to the Japanese Red Cross Society and others. We will continue to devise creative ways to further increase health management in an enjoyable way, and plan to expand the walking point system to include affiliated companies and employees' dependents going forward.

distributed to Taiyo Nippon Sanso Wearable devices

Akira Sakai

Executive Director
Taiyo Nippon Sanso
Health Insurance Society

Comment from the Health Insurance Society Executive Director

The Taiyo Nippon Sanso Health Insurance Society conducts activities that contribute to promoting and maintaining the health of employees and their families through health operations based on data. In 2018, we concluded a memorandum for promoting collaborative health with the Company, and are now making a full-scale collaborative effort with the Company on activities to promote and maintain employee health.

Meanwhile, from the Health Insurance Society side, we face challenges from the perspective of encouraging employees. The Company's Health Insurance Society does not have specialist positions such as consulting physicians or public health nurses. For example, we would like to actively encourage employees to seek further consultation based on their health examination results, but this is difficult under the current system from a perspective of privacy protection. Therefore, we think it would be better to create a structure that enables direct access to collaboration with medical professionals. As a Health Insurance Society, I think an important task going forward will be to find ways to encourage individual employees while cooperating with the Company.

Work-Style Reforms Designed to Create Positive Work Environments for All Employees

With the aim of creating positive work environments for all of our employees, we have developed a variety of leave systems to accommodate individual needs.

Eligibility for reduced working hours following childcare leave has been set at children up to the third year of elementary school, higher than the legal standard of three years of age. Furthermore, in FYE2018 the possible reduction in working hours, previously set at 2.0 hours, was lowered to 1.0 hour, making the system easier to use.

We have also made it possible for employees to use their expired annual vacation days to take special childcare leave to nurse children of elementary school age or younger in the event of illness, assist with childcare, or attend school functions, or to provide nursing care for family members. There is also a system that enables them to take nursing care leave of up to 365 days in total.

Other moves designed to realize more flexible work styles include the adoption in FYE2018 of a leave system that allows employees to accompany spouses on overseas assignments and a rehiring scheme for employees that have resigned because of pregnancy, childcare, or nursing care. From FYE2019, we introduced a system that allows employees to take annual leave in hourly units, and from October 2019 a flextime system was launched on a restricted basis at certain business sites, aiming to promote measures to enable flexible working hours and realize work-style reforms.

As of October 1, 2020, to prevent the spread of COVID-19 we have been promoting staggered starting times using the flextime system to reduce the risk of infection on crowded public transport during peak commuter times. Flextime is ordinarily only available at certain workplaces, but for the time being it has been allowed for all employees.

Measures Such as Reduced Working Hours within the Childcare Leave System

	Reduced working hours	Flextime
Eligibility	Employees with children up to the third year of elementary school	Employees with children up to three years of age
Duration	Up to the end of the child's third year of elementary school	Up until the month the child turns three years of age (i.e., until the day before the child's birthday)
Terms	Start and/or end of working day can be adjusted in either direction in 30-minute intervals (maximum permitted reduction per day: 1 hour or 2 hours)	Flextime (Core time: 10:30–15:00)

Number of Employees Making Use of Childcare Leave Systems

		FYE2017	FYE2018	FYE2019	FYE2020
Special maternity leave before/after birth		6	2	4	4
Childcare leave		7 (Female employees: 7)	7 (Female employees: 7)	7 (Female employees: 5)	7 (Female employees: 7)
Reduced working hours		9	11 (Female employees: 11)	11 (Female employees: 11)	13 (Female employees: 13)
Flextime		0	0	1 (Female employees: 1)	2* (Female employees: 1)
Special childcare leave	Cumulative number of individuals	42	39 (Female employees: 25; male employees: 14)	75 (Female employees: 46; male employees: 29)	119 (Female employees: 70; male employees: 49)
	Cumulative number of days	37.0	52.0 (Female employees: 34.0; male employees: 18.0)	52.5 (Female employees: 33.0; male employees: 19.5)	100 (Female employees: 59.5; male employees: 40.5)

* Flextime indicates the number of users of childcare flextime. Separately, there was 1 person (male) who used nursing care flextime (not included in the above count). Furthermore, from October 2019, flextime has been introduced at each business site, such as the Head Office, and due to the nature of the system the numbers of people using it have not been included.

Roundtable Discussion

Human Resources to Carry the Nippon Sanso Holdings Group into the Future

Satoshi Wataru
Executive Officer
Executive General Manager
HR Division
Taiyo Nippon Sanso Corporation

Akari Ikeda
Development Section
SI Innovation Center
SI Business Department
Medical Division
Taiyo Nippon Sanso Corporation

Mitsuhiro Saida
General Manager on Assignment
Shanghai Taiyo Nippon Sanso Gas Co., Ltd.

Shinya Fujita
Process Design Section
PEC Engineering Department
Engineering Division
Taiyo Nippon Sanso Corporation

* Assignment and position are as of July 16, 2020, when the interview was conducted.

On October 1, 2020, we made a fresh start as "Nippon Sanso Holdings," having changed our structure and our company name. At this turning point, Executive Officer Satoshi Wataru, Executive General Manager of the HR Division, and three employees working on the front lines had a discussion about the quality of human resources that the Nippon Sanso Holdings Group needs going forward.

Deciding Factors for Joining Nippon Sanso Holdings

Wataru: To begin, I would like to ask each of you to introduce yourselves and briefly tell us about your career up to now.

Fujita: I joined the Company in 2009, so this is now my 12th year. Originally, I joined because I wanted to be involved in building ASUs. However, before I could do that I felt I needed to learn more about ASUs, and so I wanted my first assignment to be at an ASU. My wish was granted, and I worked for three years at the Nagoya Sanso Center. The opportunity to see actual ASUs in operation was an extremely valuable experience. I currently work in the Process Design Section of the PEC Engineering Department in the Engineering Division. My current department is involved in ASU design, so there are few opportunities to visit on-site. My three years working at an ASU enables me to understand how a new ASU will operate after it has been installed. Being able to use that experience in the design process is a powerful tool for me in my present role, so I am glad that I agreed to do that when I joined the Company.

Ikeda: Although Taiyo Nippon Sanso Corporation is mainly an industrial gases company, I work in the SI* Business Department of the Medical Division, which handles stable isotopes. I am responsible for developing applications for stable isotopes—in other words, finding out how customers can use them to their benefit. It may seem strange to say that I handle stable isotopes at an industrial gases company, but the principle of separating oxygen, nitrogen, and argon out from air can also be used to separate the stable isotopes of oxygen 16, 17, and 18. In fact, the core technologies are shared with industrial gases. The SI Business Department has a lot of customers with high levels of expertise, such as universities, hospitals, government agency research laboratories, and pharmaceutical companies. I value communication and dialogue with customers, based on accurately picking up their various needs, getting a feel for them, and uncovering them. I am sometimes asked to present lectures at academic conferences and symposiums, and so forth, and I actively make an effort to maintain a lot of contact points with customers. At seminars and symposiums, where there are opportunities for direct dialogue in an open atmosphere, in many cases I have found that customers have hidden latent needs that they themselves are unaware of. When I talk with customers, I try to identify their fundamental issues, not just what they present on the surface, and then propose solutions, asking their opinion about a certain approach to solving it or suggesting alternatives. Sometimes the issue can be solved using an approach that does not use my goods or services, but even in these cases, the most important thing is that the customer trusted me and consulted with me.

* Stable Isotope

Saida: I am the oldest in this group. Currently, I am working as the General Manager for our local subsidiary in China, Shanghai Taiyo Nippon Sanso Gas Co., Ltd. The company has a large plant for making gases, an ASU. The gas is transported by our Transport Division and sold by our Sales Division. For the equipment needed for gas supply installed on customers' sites, the Engineering Division handles everything from installation to after-sales service. The company is like a miniature version of Taiyo Nippon Sanso Corporation, undertaking everything from making gases to serving the customers who use them. I joined the Company in 1997, and this year is my 24th. At first, I worked in the Gas Sales Division of the Tokyo Branch, selling general gases such as oxygen, nitrogen, and argon. After that, in 2004 I started working on new sales channels for gases at the Head Office. At the time, we were seeing an increase in Japanese customers expanding their operations overseas in China, Thailand, and so forth. We thought we would like to supply these customers overseas in China, Thailand, and even India as well, so from 2004 onward we started providing support for them through our overseas subsidiaries. In 2011, I was assigned to Shanghai Taiyo Nippon Sanso Gas. I was initially responsible for sales as the vice president. Since 2015, I have been responsible for overall management as General Manager.

Wataru: What has been your most difficult experience?

Saida: In 2015, when I was appointed General Manager, the company recorded a loss. At the time, I wondered how to make the company profitable and generate a profit. As you might expect, our employees are Chinese, and while commonly accepted ideas for Japan are not completely strange to non-Japanese, they do have a really different way of thinking about things. On the other hand, since there are limits to what Japanese people can do at an overseas local subsidiary, we have to rely on the national staff to take care of all the detailed aspects of operations. I was certainly struggling at first to see how I could convey our passion to them and lift their motivation, and how we might work together to increase the company's earnings.

Wataru: Within the Group, most of the assignments as presidents of subsidiaries or affiliated companies are usually given to people who have a long history in the Company. Mr. Saida, you have become a company president at a young age. I think it is a tremendous example in terms of succession planning, and I would really like to see more people like yourself. While I don't think young people necessarily need to be at the very top, I do think it is a good idea for them to experience serving in a role at around the level of No. 2 so that they can get an overall view of the company.

Trust Relationships with Customers Are a Differentiation Factor

Wataru: Could you tell me what is important to you in carrying out your work?

Saida: When I was responsible for sales, I found the most important things to be an attitude of sincerity and seriousness. Since gas itself cannot be differentiated, our nitrogen cannot be differentiated from that of our competitors because it is colorless and odorless. To have customers choose our products, I felt it was of paramount importance for the sales personnel to provide something extra in terms of their passion, their earnestness, and so forth.

Ikeda: On the topic of something extra, our most important product in the SI Business Department is Water-^{18}O, which is an essential material for PET diagnosis used for early detection of cancer. However, it can also be used for other applications. For example, we propose Water-^{18}O as part of a package with the peripheral technologies we have developed so we can add value through something extra.

Saida: The same applies with gas sales. It is extremely important to start by getting an understanding of what is troubling the customer, or what the customer is seeking, and then propose a solution. This is a key approach for gaining customers' trust. Possibly because I am living overseas, in my work I am strongly conscious that I should avoid shutting myself inside my own shell and that I should always think about things from a higher perspective. China is developing rapidly, and we must change also if we want to keep up. Moreover, I think we must also change if we are to compete with major global industrial gases companies. Since my coworkers are not Japanese, I try to incorporate the good aspects of how Chinese people think and break down my preconceived ideas and attitudes. I have a strong intuition that hanging on to the notion that "Japanese people are like this" will not help me perform well.

Roundtable Discussion: Human Resources to Carry the Nippon Sanso Holdings Group into the Future

Fujita: I am also constantly aware of this. I am an engineer, but when customers tell me that they want to buy an ASU, I think together with the sales personnel about what kind of unit would be suitable. As an engineer, it is important simply to make something good, however, the definition of "something good" is different for each customer. When I make a proposal, I really try to incorporate the demands that the customer does not articulate. Another thing I do when making a proposal is to try and predict what kind of impact I want to have on the customer and relevant parties. In some cases, I may prepare a separate response, anticipating what one person is likely to do and what another person is likely to do after that. In this way, I try to act with the idea of looking ahead at what will happen next.
Ikeda: As I listen to Mr. Fujita, I feel that our approach is broadly similar, although we have different jobs and handle different products and services. He and I joined the Company in the same year, so we both received the same training since our new recruit days, and I am impressed that 10 years later we have the arrived at the same kind of thinking. I pay attention to "ensuring the reliability of stable performance." Safety and reliability are extremely important factors for industrial gases and stable isotopic labeling reagents, and for Water-^{18}O, which I mentioned before. In the SI Business Department, where I work, I often have contact with customers as the person responsible for engineering, and I try to give them a sense of peace of mind and confidence through a combination of not only my performance as the person in charge of engineering but also multifaceted proposals delivered with passion, and a strong grasp of data to back them up.

The Real Meaning of "The Gas Professionals"

Wataru: Even after becoming Nippon Sanso Holdings, the philosophies of "Market-driven collaborative innovation: Improving the future through gases" and "The Gas Professionals" have not changed. "The Gas Professionals" cannot be changed; or rather, I think it does not need to be changed. What do each of you think about this?
Saida: Personally, I interpret the "The Gas Professionals" as meaning "sincerity" and "honesty." If gas supplies are cut, then plants such as steelworks have to stop operations. They would become unable to make steel. We provide gas to customers like this as part of their infrastructure, so I think that our responsibility as a supplier is extremely important. However, from the customer's point of view, it is taken for granted in the same way as water coming out when you turn on a tap—when they open the valve, nitrogen comes out. That's how if feels for them. Our mission as an infrastructure service, our job as a group of professionals, is one of sincerity and honesty, providing gas reliably and safely. Listening sincerely to customers' concerns and being ready to work with them to find solutions—this is what "The Gas Professionals" means in my opinion.
Fujita: Since we present ourselves as "The Gas Professionals," we are telling customers to trust us with their gas-related issues. In the Engineering Division, where I work, I suppose we are telling people to trust us with engineering-related issues. While that would be fine if I were able to resolve everything myself, that tends not to be possible. Therefore, I aim to use the specialization of each member of the team, asking various people to help me and giving them help in return in order to create better proposals for the customer. Our ultimate goal is to propose the optimal solution for the customer. In our approach to this goal, various people cooperate with one another to achieve it. I think this is what "The Gas Professionals" as a team is all about. Recently, our European business is increasing and I too was involved in consultations with European engineers; however, since Praxair, Inc. itself is a large company, as one would expect, it has strong technological capabilities and there is much for us to learn from them. As we have brought them into our Group, we will absorb their technological knowledge as well as their management style and other aspects in order to further develop our own style. I believe this will increase the level of our professionalism even more.
Ikeda: The Company's internal resources are limited, so naturally there are limits to our ability to solve customers' issues or develop new products through our own efforts alone. I think it is necessary to grow our community, for example, by collaborating with customers to solve issues and develop new products. As we stand now, we have a network with external entities such as universities and research laboratories, and we are currently using this to create new value. I think the philosophy refers to using our external network to enhance our capabilities by taking a "market-driven" approach for grasping latent needs when conceptualizing new products, then "collaborating" to give concrete form to the products.
Fujita: I am not only given directions by a boss, but am also given quite a lot of freedom to follow my own ideas. I interact directly with our sales team and find that if I churn out proposals they are adopted surprisingly often. I have experienced this several times, and find it rather fulfilling.

I think the entire Group has this way of allowing people to do things their own way if they actively ask to be allowed to, provided that they have been in the job long enough to have sufficient experience. That has been my actual experience.
Ikeda: In my department, we are also allowed to follow our own lead (laughs). When I express an interest in doing something, nobody ever tries to put me off or stop me. If we can bring together a reasonable amount of information or supporting data to suggest that a project will work, the department will encourage us to go for it. This kind of atmosphere and culture is really good.

The Human Resources Needed for Nippon Sanso Holdings Group Going Forward

Wataru: Nippon Sanso Holdings will advance even further in becoming a global company going forward. When we have reached that stage, what kind of human resources would you like to be in charge of the Group's future?
Fujita: I joined the Company 10 years ago, and at the time I would never have imagined that the Company would grow to this size. The markets in the United States, Asia, and Europe have already become large, and I never thought that I would be going to Europe for a business trip, so I feel that the situation has been changing progressively. Therefore, I think the question to ask is how flexible these human resources can be in responding to the situation. As "The Gas Professionals," we take pride in holding steadfastly to our course, while also being flexible. I think that human resources who can find this balance will be extremely valuable, and I am also trying to develop this ability.
Saida: Reflecting on my current responsibility for Shanghai Taiyo Nippon Sanso Gas, I think the most important thing is the strong determination of the leader. It is essential first to have a strong determination to achieve goals, and to get everyone involved. The other factor is how well this determination can be shared by others in the company. There are various ways of achieving that I think, but I feel that it is important to be able to discuss issues together honestly from an equal position, and to find ways to deal with them.
In particular, people overseas have different values, and I think that bringing in the opinions of diverse people enables the creation of something new. As Mr. Fujita said, we may hold tightly to our creed, but if we hold on too tightly and don't admit diversity, nothing new can be created. Going forward, I think that the Company needs flexible human resources who accept diversity and are willing to change themselves and create something new.
Ikeda: I think that's right. To overlap with what Mr. Saida just said, the SI Business Department where I work now has a very high number of mid-career hires, and we have new people joining such as researchers and people who have founded start-up companies. I think my department takes in more mid-career hires than others in the Company, but when I work with them I can feel they have a different perspective. If you are alone, your field of view tends to become narrower, but I have really noticed that the difference in the perspectives of people with different career backgrounds helps to stimulate opinions and leads to more flexible business planning. If specialists with various viewpoints join the Company, or not only specialists but also generalists and management personnel, as mid-career hires, I am excited to see what kind of synergies will be created.
Wataru: Actually, I think that employees have been held back a little in some ways by the values that we have had up to now. Our business model to date has been stable, and I think that we need to break up the parts that have become stultified with innovation driven by diversity. Ideally, we should have high-quality human resources in every area, including Japan, the United States, Europe, Asia and Oceania, and the Thermos Business, and I think this will be necessary. We need to enable further stimulation of employees' desire to grow, including by preparing systems, and increase their motivation. Having just heard all of your honest thoughts, I feel a great sense of promise. Let us share our philosophy not only in Japan but across the globe, as we pave the way for the future. Thank you again for giving your valuable time and sharing your opinions.

OUR MANAGEMENT

Nippon Sanso Holdings will continue to build strong bonds with all of our stakeholders, including shareholders, customers, employees, and local communities, while working to strengthen our highly efficient management structure.

Corporate Governance

Management Organization

Management Organization through Transition to a Holding Company

In October 2020, we made a fresh start as Nippon Sanso Holdings Corporation, a holding company for industrial gases companies in Japan, the United States, Europe, and Asia and Oceania, as well as Thermos K.K.

Through the transition to a holding company, we aim to promote the following:

- Increased decision-making speed and clarification of business execution responsibility through delegation of authority
- Appropriate allocation of management resources based on the characteristics of each region
- Strengthening of the Group's comprehensive capabilities by deploying the strengths of each region globally
- Strengthening of the global risk management system, advancement of safety, and increased compliance

In this way, we aim to achieve further growth in an era marked by rapidly changing political and economic environments.

Management Policy

With the launch of a holding company, the Group has redefined its previous management philosophy, "Market-driven collaborative innovation: Improving the future through gases," as its vision, redefining it more clearly as follows.

Group Philosophy

The Gas Professionals
Proactive. Innovative. Collaborative.
Making life better through gas technology.

Group Vision

We aim to create social value through innovative gas solutions that increase industrial productivity, enhance human well-being and contribute to a more sustainable future.

To share and inculcate this philosophy and vision throughout the Group, we have formulated codes of conduct for each of the Group's operating companies. These are based on the philosophy and vision and are aligned to the characteristics of each operating company's region and business activities to make them easier for employees to understand. Through these codes, we aim to promote sustainable growth and increase corporate value.

From the perspective of fulfilling our responsibility as a corporate citizen, all Group officers and employees act in compliance with laws and regulations as well as corporate ethics. Going forward, we will also work to raise their awareness of the SDGs, which are common goals for the international community regarding such issues as the global environment and human rights. In this way, we will respond to the expectations of all our stakeholders.

Relationship with Parent Company

On May 13, 2014, Taiyo Nippon Sanso and parent company Mitsubishi Chemical Holdings Corporation established a capital alliance. Under the terms of the alliance, agreed to respect our independence and fully support and cooperate with us in accordance with its Group Management Regulations. We maintain our status as an independent company with autonomous management, financial, sales, R&D, and other corporate functions.

In addition, if a conflict of interest occurs between the parent company and other shareholders, Nippon Sanso Holdings' directors take action so as not to harm the interests of the other shareholders. We appoint two independent outside directors and two full-time independent outside Audit & Supervisory Board members. They supervise to ensure that any conflict of interest between the parent company and other shareholders does not happen. In addition, we have an Advisory Committee on Appointments and Remuneration that is established voluntarily for the Board of Directors to consult with regarding the selection of candidates for directors and Audit & Supervisory Board members, as well as the appointment and dismissal of the President CEO and other executive officers. The committee consists of the President CEO and two independent outside directors, one of them serving as the chairperson. With this structure, we ensure independence from the parent company of the appointment of senior executives. In addition, parent company Mitsubishi Chemical Holdings is a pure holding company, and its main operating company, Mitsubishi Chemical Corporation, and the Company had transactions totaling ¥1,964 million in FYE2020.

Background to Adoption of the Current Structure for Management Execution and Supervision

We provide air separation gases (oxygen, nitrogen, and argon) and other industrial gases to customers in diverse industries around the world and carry out a wide range of activities in diverse business areas. For this reason, business judgments, decision-making, and oversight must be based on expert knowledge derived from experience in or close to the industry to facilitate the effective assessment of a wide range of risks from multiple perspectives. Our current management structure centers on the Board of Directors, which is responsible for making decisions related to business execution above a certain scale, including those regarding M&As and investments. We have also adopted the Company with an Audit & Supervisory Board corporate governance model, whereby Audit & Supervisory Board members themselves audit business activities.

The Board of Directors is organized such that directors familiar with the business of the Group supervise operations and conduct decision-making from various perspectives. To reinforce our global management framework, in June 2019 Matheson Tri-Gas Chairman and CEO Thomas Scott Kallman and Nippon Gases Euro-Holding Chairman and President Eduardo Gil Elejoste were newly appointed to the position of director. Since the transition to a holding company in October 2020, the director who was previously responsible for the industrial gases business division in Japan has become a member of the Board as the president of the Japanese operating company, creating a more global management structure.

In addition, two outside directors have also been appointed to facilitate supervision from a broader perspective—thereby further enhancing management transparency and fairness, as well as reinforcing compliance, which is particularly crucial to business continuity—and advise management from a medium- to long-term perspective. Both individuals satisfy the criteria for the independence of directors set by the Tokyo Stock Exchange (TSE).

We have also established the Advisory Committee on Appointments and Remuneration, a voluntary advisory body, as an internal committee of the Board of Directors. The Board of Directors consults this committee regarding the selection of candidates for the position of director and Audit & Supervisory Board member, the appointment and dismissal of the President CEO and other executive officers, and revisions to the rules governing compensation for directors and executive officers, and seeks advice from the independent outside directors to ensure the transparency and objectivity of decision-making. The Advisory Committee on Appointments and Remuneration consists of the President CEO and the outside directors and is headed by an independent outside director.

Furthermore, to ensure the objectivity, transparency, and fairness of the management monitoring function, as well as to strengthen the supervisory function, the Audit & Supervisory Board is fully independent of the Board of Directors. In addition to an understanding of the business, the Audit & Supervisory Board boasts specialized expertise in such areas as law, finance, and accounting, enabling it to effectively monitor the execution of duties by directors. The Audit & Supervisory Board comprises four full-time members, who conduct audits by leveraging their extensive experience, knowledge, and ability to exercise authority. Three of the four are outside, with two satisfying the TSE's criteria for the independence of Audit & Supervisory Board members. To ensure the effectiveness of audits conducted by the Audit & Supervisory Board, we have also established the Office of Corporate Auditors, which comprises dedicated staff who are charged with supporting Board members' efforts.

As this shows, our corporate governance system is actually a hybrid, combining the Company with an Audit & Supervisory Board model with an outstanding feature of the Company with Three Designated Committees (Nomination, Audit, and Remuneration) model in the form of the Advisory Committee on Appointments and Remuneration.

Boards and Committees

Board of Directors

The Board of Directors is responsible for making decisions regarding basic management policies and key matters related to business execution, which includes formulating key management indicators and medium- to long-term strategies, as well as for supervising the execution of business activities.

Advisory Committee on Appointments and Remuneration (Chairperson: Independent Outside Director)

The Advisory Committee on Appointments and Remuneration advises the Board of Directors on the selection of candidates for the position of director and Audit & Supervisory Board member, the appointment and dismissal of the President CEO and other executive officers, and revisions to the plans for developing the next generation of management personnel and the rules governing compensation for directors and executive officers.

Audit & Supervisory Board

The Audit & Supervisory Board is tasked with monitoring the framework and status of internal control and auditing the daily execution of management duties, including by directors, by conducting business and accounting audits.

Management Committee

In accordance with the basic management policy of the Group, established by the Board of Directors, the Management Committee deliberates and approves important management matters pertaining to the execution of duties by the President CEO.

Global Strategy Review Committee (Chairperson: President CEO)

To realize the Group's comprehensive capabilities, the Global Strategy Review Committee meets regularly once a year, or as necessary, to deliberate the following matters regarding promotion of business strategies by Group companies.

- Examination and adjustment of overall strategy related to Groupwide themes such as global products and services and technology development
- Examination of appropriate resource allocation over the entire Group and budget formulation
- Formulation of the Group management plan and progress management
- Confirmation of the status for the entire Group regarding sustainability and the environment, and formulation of policy
- Confirmation of the status for the entire Group regarding safety and quality management, and formulation of policy

Global Risk Management Committee (Chairperson: President CEO)

To achieve and improve risk management for the Group, the Global Risk Management Committee meets once a year, or as necessary, to deliberate the following matters.

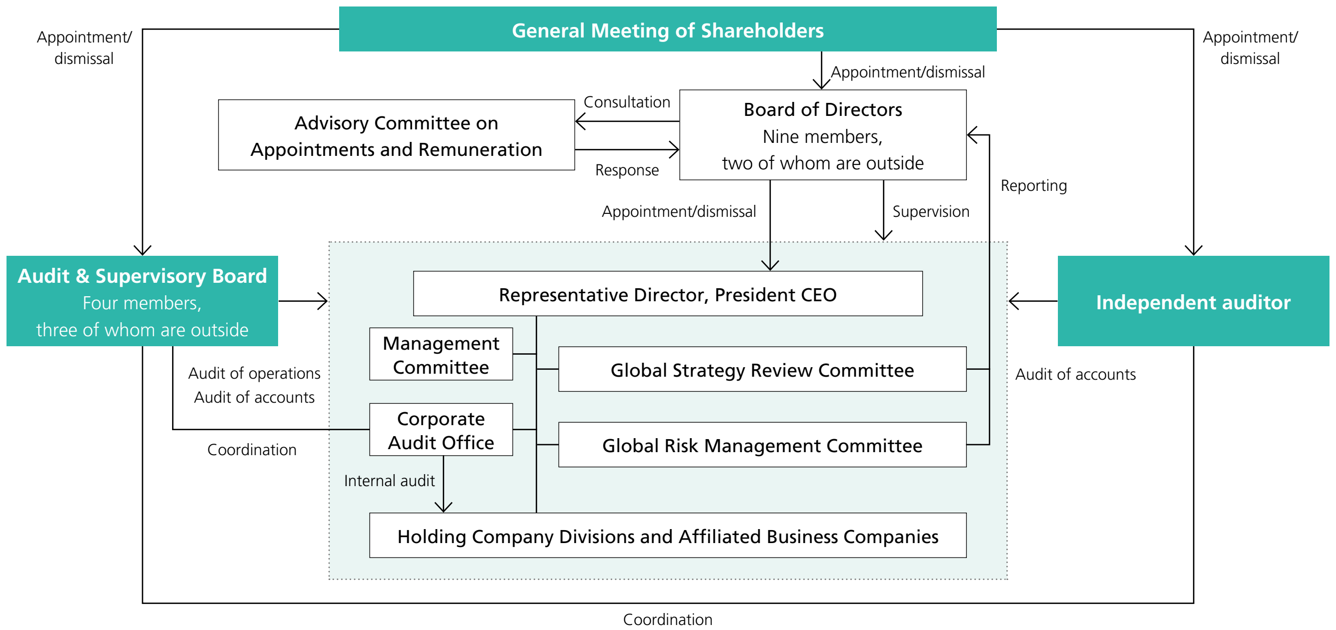
- Examination and adjustment of Groupwide risk management policy
- Formulation of risk management plan for the entire Group and progress management
- Examination of appropriate resource allocation concerning risk management over the entire Group and budget formulation
- Reporting on planned initiatives for promoting compliance and the status of compliance at Group companies and confirming the progress of remedial measures and of related legal actions
- Management of cybersecurity, business continuity plans (BCPs), and important information at Group companies, and examination of operation structure

Corporate Governance

Corporate Governance Framework

We have established corporate governance principles to serve as guidelines for corporate governance across the Nippon Sanso Holdings Group. With the aim of ensuring sustainable growth and increasing corporate value over the long term, and taking into account the positions of stakeholders, we strive to guarantee the transparency and fairness of decision-making. This reflects our belief that the key to effective corporate governance is to bolster the strength of management by ensuring the effective use of available management resources and making swift, resolute decisions.

Auditing Structure and Risk Management Structure



Policies for Determining Remuneration for Directors and Audit & Supervisory Board Members

Remuneration for directors and Audit & Supervisory Board members is determined by resolution at the annual General Meeting of Shareholders in line with the total compensation limits for directors and Audit & Supervisory Board members. We have established the Advisory Committee on Appointments and Remuneration, which comprises multiple independent outside directors and the President CEO. The Advisory Committee on Appointments and Remuneration deliberates the appropriateness of remuneration proposed after being consulted by the Board of Directors and Audit & Supervisory Board and reports the results of its deliberations to the Board of Directors and Audit & Supervisory Board.

Directors

Remuneration for directors consists of basic monthly remuneration (base salary) + bonuses (performance linked) (generally at a ratio of 6:4). Outside directors receive basic monthly remuneration only.

Basic monthly remuneration	Directors are paid rank-specific base salary.
Performance-linked bonuses (short term)	Directors are paid rank-specific bonuses tied to year-on-year improvements in consolidated operating results (revenue, core operating profit, and profit attributable to owners of parent).
Performance-linked bonuses (medium and long term)	Directors are paid rank-specific bonuses tied to the degree of achievement of medium-term management plan targets (revenue and core operating profit margin).

Audit & Supervisory Board Members

Remuneration for Audit & Supervisory Board members, including outside members, consists of base salary.

Basic monthly remuneration	Audit & Supervisory Board members are paid a rank-specific base salary.

Performance-Linked Bonus Indicator Targets and Results for Directors (Excluding Outside Directors) in FYE2020

Year-on-Year Earnings Growth

Evaluation indicator	Evaluation weight	FYE2019 results	FYE2020 results
Consolidated revenue	16.6%	¥740,341 million	¥850,239 million
Consolidated core operating profit	16.6%	¥65,819 million	¥90,337 million
Profit attributable to owners of parent	16.6%	¥41,291 million	¥53,340 million

Outlook for Achievement of Medium-Term Management Plan Targets

Evaluation indicator	Evaluation weight	FYE2020 targets	FYE2020 results
Consolidated revenue	25%	¥890,000 million	¥850,239 million
Consolidated core operating profit margin	25%	10.7%	10.6%

Evaluation of the Board of Directors' Effectiveness

Our Principles of Corporate Governance stipulate that the Board of Directors carry out an annual analysis and evaluation of its overall effectiveness and make a summary of the results public in a timely and appropriate manner. The following is an outline of this process and the results thereof in FYE2020.

Process for Analysis and Evaluation

We evaluate the Board of Directors using a questionnaire for the directors. To explain the process more specifically, a questionnaire was distributed to the directors after explaining its content at January's Board meeting. Each director answered the questionnaire and submitted it to the chairperson. In the Board meeting in January, the directors evaluated the effectiveness of the Board based on the answers submitted while discussing problems and proposals for improvement.

The questionnaire included questions about the Board's responsibilities as provided in the Company's Principles of Corporate Governance, which are: (1) the supervision of overall operation; (2) the establishment of an internal control structure; (3) the selection, appointment, dismissal, and evaluation of the President CEO as well as other senior executives, and the determination of their compensation; (4) the formulation of management strategy and decisions on the execution of important operations; and (5) communication with shareholders.

As for the Company's planned transition to a holding company structure in October 2020, the questionnaire also asked opinions about what the Board of Directors should be like under a holding company structure.

Outline of Results

(1) Overall summary

As a result, it was confirmed that the Board had been performing its functions as required. In addition, the directors provide many opinions about what the Board of Directors and the next medium-term management plan should be like after the transition to the holding company structure. Therefore, based on a proposal from the chairperson, the Board of Directors continued to discuss these two themes.

(2) Initiatives to further improve the Board's performance

- Discussed the transition to the holding company structure, decided on January 22, 2020 to transition to a holding company structure, and announced the decision.
- Reported on dialogues with shareholders to the Board of Directors.
- Detailed reports on quarterly earnings were made to the Board of Directors by presidents of local subsidiaries appointed from among the Company's directors for the Gas Business in the United States and the Gas Business in Europe and by the general manager of the supervising division for the Gas Business in Asia and Oceania.
- The Board of Directors received reports on the details of major internal communications.

On October 1, 2020, the inaugural meeting of the Board of Directors of Nippon Sanso Holdings was held. Directors Thomas Scott Kallman and Eduardo Gil Elejoste attended the Board of Directors' meeting via a web conferencing system.

ESG Materiality

With the aim of contributing to the realization of a sustainable society, Nippon Sanso Holdings works to ensure a solid grasp of its impact on the global environment, society, and people (the Company and its organizational structure) through all of its business processes, that is, across the entire value chain. To this end, we have defined the roles we are expected to play in addressing issues we have identified as being of material importance, which are grouped under four themes, including management issues.

External Environment

- Low-carbon society
- Climate change
- Technological innovation
- Falling birthrate and aging population
- International situation

Theme	Materiality (Material Issues)	Role of the Nippon Sanso Holdings Group	Principal Initiatives	Relevant SDGs
Management issues	• Compliance • Corporate governance • Process safety	• In adherence to high ethical standards, strive to conduct corporate activities in a fair, impartial, and sincere manner by promoting and maintaining compliance with relevant laws, regulations, international norms, and internal rules. • Reinforce corporate governance by improving management transparency and fairness, as well as by increasing management agility through efforts to enhance management oversight functions and accelerate decision-making. • Strengthen independent systems for ensuring process safety in line with our belief that selling gases is commensurate with selling safety. • Realize stable supply of industrial gases, thereby ensuring our ability to provide the gases our customers need when they are needed.	• Reinforcement of systems based on Japan's Corporate Governance Code • Initiatives to ensure safe and stable supply • Continuous implementation of compliance training	8 DECENT WORK AND ECONOMIC GROWTH 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
Global environment	• Efficient use of resources and energy • Climate change • Securing of clean water resources • Preservation of biodiversity	• Introduce effective ASUs that help reduce electric power consumption and CO_2 emissions. • Lower fuel consumption by tanker trucks to reduce related CO_2 emissions. • Fortify framework for mitigating climate change through the reduction of greenhouse gas emissions and other efforts. • Promote the reduction of greenhouse gas emissions and the creation of opportunities to mitigate/adapt to climate change and expansion of business through the sale of vacuum-insulated bottles and cookware.	• Promotion of environmental management • Initiatives to protect the global environment	7 AFFORDABLE AND CLEAN ENERGY 12 RESPONSIBLE CONSUMPTION AND PRODUCTION 13 CLIMATE ACTION
Society	• Contribution to maintenance of physical health • Contribution to medical care • Response to food- and agriculture-related issues • Increase in consumer satisfaction • Contribution to upgrading and expanding social infrastructure • Response to smart societies	• Contribute to health and medical care through the provision of products for the medical field. • Provide industrial gases and related equipment that contribute to the resolution of key issues by helping protect food resources and improve agricultural productivity. • Leverage the advantages of LP gas, including its low carbon footprint and disaster-resistant nature of its distribution system, to create business opportunities and expand business. • Contribute to the realization of comfortable and environment-friendly lifestyles through the sale of Thermos brand products. • Ensure that customers can use products and services with peace of mind by strengthening systems to ensure quality and safety across the entire product life cycle.	• Development of products that contribute to solutions for environmental and social issues • Reinforcement of quality assurance and management systems	3 GOOD HEALTH AND WELL-BEING 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
People (the Company and its organizational structure)	• Respect for human rights • Occupational health and safety • Human resources development and training • Diversity and inclusion • Product and service reliability • Promotion of measures to improve information security and privacy • Stakeholder engagement • Contribution to communities • Promotion of sophisticated ICT use • Participation in initiatives and demonstration of leadership • Promotion of sustainability in the supply chain	• Respect human rights in corporate activities and require that business partners do not violate human rights or engage in any form of discriminatory behavior (through such measures as the promotion of anti-harassment initiatives and the establishment of hotlines). • Promote health management in accordance with relevant national and regional laws and regulations, create a safe work environment, while at the same time maintaining and advancing the physical and mental health of employees. • Offer equal opportunities in hiring, placement, advancement, and skill development as well as seek to foster and develop human resources from a medium- and long-term perspective. • Actively seek to secure diverse human resources with diverse values without regard to considerations such as nationality, age, or religion and promote diversity and inclusion in corporate activities (e.g., promotion of active roles for women, hiring of non-Japanese, employment of people with disabilities, etc.). • Recognize the importance of and responsibilities associated with protecting information assets in corporate activities and ensure appropriate information management to prevent leaks of confidential information pertaining to customers, business partners, Nippon Sanso Holdings, and other parties. • Step up efforts to contribute to society through business activities and deepen understanding of communities while at the same time working continuously to respond to communities' requests and expectations. • Earn stakeholders' trust through respect and close dialogue and by reflecting their views in corporate activities, and work with stakeholders to realize a better society.	• Thorough internal promotion of the "Policy on the Prevention and Eradication of Harassment in the Workplace" • Employee education and training • Maintenance and improvement of information security systems • Promotion of sophisticated ICT use • Dialogue with shareholders and investment analysts • Initiatives to ensure safe and stable supply • Creation of environments to promote innovation and diversity • Social contribution activities • Health management initiatives • Enhancement of information disclosure	3 GOOD HEALTH AND WELL-BEING 8 DECENT WORK AND ECONOMIC GROWTH 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

ESG Materiality

ESG Materiality Identification Process

Based on the materiality matrix set out by the parent company, Mitsubishi Chemical Holdings Corporation, we have formulated the Nippon Sanso Holdings Group's version, deciding on the importance of management issues based on their materiality. In the identification process, the suitability of the themes was discussed by the KAITEKI Promotion Committee,* which is an ancillary body of the Management Committee that promotes Mitsubishi Chemical Holdings' vision, "Realizing KAITEKI." Moreover, in accordance with the identification process detailed below, we are examining the revision of ESG materiality and KPIs for the next medium-term management plan.

* The discussion will be conducted within the sustainability strategy of the Global Strategy Review Committee, which was newly established on October 1, 2020 as part of a reorganization that was conducted on the same day in conjunction with the transition to a holding company structure. The following identification process is presented based on the results of initiatives taken under the corporate structure prior to September 2020.

As the KAITEKI Promotion Committee secretariat, the KAITEKI promotion project prepares materials related to ESG materiality. ▶ Examination, discussion, and decision by the KAITEKI Promotion Committee ▶ Report to the Management Committee (in effect, decisions made by execution function)

Matrix of Key Initiatives

Importance to stakeholders \ Importance to Nippon Sanso Holdings	High	Very high	Extremely high
Extremely high	● Response to food- and agriculture-related issues ● Securing clean water resources		● Efficient use of resources and energy ● Climate change ● Product and service reliability ● Human resources development and training ● Occupational health and safety ● Diversity and inclusion
Very high	● Promotion of sustainability in the supply chain	● Contribution to communities ● Contribution to maintenance of physical health ● Contribution to medical care	● Respect for human rights ● Promotion of measures to improve information security and privacy
High	● Contribution to upgrading and expanding social infrastructure	● Preservation of biodiversity ● Response to smart societies ● Stakeholder engagement ● Promotion of sophisticated ICT use ● Participation in initiatives and demonstration of leadership	● Increase in consumer satisfaction

● Key issues related to the global environment ● Key issues related to social systems
● Key issues related to the Company and its organizational structure

Risk Management

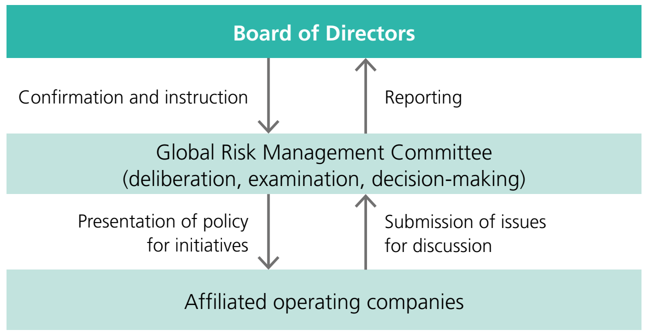
Comprehensive Risk Management Supporting Global Business Activities

Basic Approach

The Group must deal appropriately with various risks as it operates its businesses globally. We therefore strive to identify general risks that could impact the continuity of business and take steps to reduce them.

We aim to achieve a structure in which the holding company's identification of important risks is linked to appropriate risk reduction activities undertaken by its affiliated operating companies. The holding company also provides support and monitoring for risk management implemented autonomously at the operating company level.

Risk Management Structure



Change in Management Structure with Transition to Holding Company Structure

On October 1, 2020, the Company transitioned to a holding company structure, and the Global Risk Management Committee (chairperson: President CEO) was established to manage risk for the Group overall. In this committee, we comprehensively manage risks related to the management and business activities of each operating company by providing a forum for reporting, examination, and deliberation of the following matters. The ordinary meeting is held once per year, with extraordinary meetings held as needed. The details of the meetings are reported to the Board of Directors.

Main Matters for Discussion

- Determination of important policies regarding risk management of Nippon Sanso Holdings
- Important risks at each operating company, reports on the status of response to those risks, and report on the next response plan
- Identification of important risks for Nippon Sanso Holdings, deliberation on response measures, and formulation of the next response plan

Results of Initiatives in FYE2020

The Nippon Sanso Holdings Group's important matters related to business continuity are establishing a compliance structure and responding to technical risks such as safety and quality in accordance with the nature of its businesses whose core products are various high-pressure gases. We have implemented the following management system.

Risk Assessment Committee

The Risk Assessment Committee manages risk for the entire Group, identifying and assessing risks unique to the Group and clarifying the departments responsible for each individual risk. The committee regularly reviews the suitability of the risk management system by verifying risks and conducting risk reduction activities.

Risk Management

Technological Risk Management Committee

In accordance with technology-related Group standards of conduct and the Presidential Policy Directive on Technology Risk Management, the Technological Risk Management Committee responds appropriately to technological risks faced by the Nippon Sanso Holdings Group as the organization for managing technological risks (security, safety, quality, environment, intellectual property, etc.) for the entire Group, with the aim of reducing these risks and preventing them from manifesting as actual issues.

TNSC Technical Academy—An Educational Facility for Improving Group Technological and Safety Capabilities

Under the medium-term management plan, Ortus Stage 2, one of the basic policies is to step up safety, quality, and compliance initiatives and the entire Group is working to strengthen its technological risk management. Winning the trust of the market takes a long time, but that trust can be lost in a moment. To ensure we do not cause accidents it is important as a company to establish operational procedures and rules to preserve quality. Having employees understand properly the reasons that the rules must be observed, rather than simple blind obedience, helps to reduce risk. In June 2019, we established the TNSC Technical Academy educational and training facility as one of our basic initiatives to increase individual safety awareness and foster a safety culture.

Exterior view of the TNSC Technical Academy

Risk experience equipment that uses VR technology

The Presidential Policy Directive on Technology Risk Management

The Group's response to safety, quality, and so forth is central to maintaining society's trust and to the stable supply of products. As such, it is the most important priority in the industrial gases business. Moreover, since this issue requires a company-wide, organization-level response, including Group companies in Japan and overseas, the entire Group is addressing this issue under the following policy.

The Presidential Policy Directive on Technology Risk Management

The President CEO of Nippon Sanso Holdings requests all the Group members to comply thoroughly with the applicable laws, regulations, and rules as "The Gas Professionals," and herewith has established the following policy on the risk management of public safety and security, quality, product safety, environmental sustainability, and intellectual property, that are essential to running our business.

All the Group members are expected to:

- thoroughly comprehend this policy and put it into practice,
- minimize the risk of loss by planning, doing and continuously improving the corporate risk management system and business continuity plan (BCP) to cope with disasters, e.g., large-scale earthquakes,
- make sincere efforts to raise customers' satisfaction over our business activities,
- obtain and maintain social credibility by achieving public safety and security, and contribution to environmental sustainability of the earth, and
- pursue a sound prosperity of our business and an enhancement of our corporate value.

Public safety and security: We, Nippon Sanso Holdings, implement voluntary activities for safety assurance based on our motto of "Selling gas is selling safety."

Quality: We, Nippon Sanso Holdings, accurately identify the sophisticated and diversifying needs of customers and society, and offer the services and products of the best suited quality in response.

Product safety: We, Nippon Sanso Holdings, offer safer and more reliable products by minimizing dangers inherent over the life of the products.

Environmental sustainability: We, Nippon Sanso Holdings, drive action to reduce the impact on the global environment and prevent pollution.

Intellectual property: We, Nippon Sanso Holdings, by obtaining the exclusive right of intellectual properties and exploiting them, protect our business from patent litigation that might be imposed by other parties.

Business Risks

Among various matters relating to the statuses of our business, management, and so forth, the following could have a material impact on investment decisions. Forward-looking statements in the following section are based on the Group's judgment as of March 31, 2020.

Business Risks and Responses

	Risk	Main measures
Management Policy- and Business-Related Risks		
(1) About capital investment	• All or part of the Company's production facilities could become obsolete due to factors such as elimination and consolidation of manufacturing bases, and overseas relocation. • If the burden cannot be covered by contractual compensation, the Group may incur losses due to retirement of equipment.	• Before making a decision on capital investment, give full consideration to expected profitability of the business and changes in the business environment • If environmental changes mean that the initial investment recovery can no longer be expected, apply appropriate accounting treatment
(2) About manufacturing cost	• A sharp increase in the price of crude oil or LNG, or a change in the exchange rate, could cause a substantial rise in the cost of electricity, which is the major component of the cost of manufacturing core products.	• Factor the cost into the price, giving consideration to the relationship with the customer, to prevent the Group from suffering difficulties with business continuity due to manufacturing cost fluctuations
(3) About overseas expansion	• Factors such as market trends, politics, economy, customs, religion, terrorism, and large-scale disasters in countries and regions where the Group has operations may affect its business activities, performance, and financial status.	• Before deciding to execute capital investment and M&A overseas, carefully examine changes in the market environment of the target country or region and expected profitability of the project
(4) About laws and regulations	• Unexpected changes in laws and regulations and the establishment of new laws and administrative guidance in countries and regions where the Group has operations may result in costs that may affect the Group's business performance.	• Implement countermeasures such as employee education to prevent legal and regulatory violations in advance, in order to observe laws and regulations in countries and regions where the Group has operations • Gather information to ensure that the Group does not encounter disadvantages in conducting business in Japan or overseas
(5) About securing human resources	• If the Group cannot secure the necessary human resources as planned due to changes in the employment situation and labor supply–demand conditions, its business activities and performance may be affected.	• Build systems that can secure the necessary human resources for maintaining and developing business activities • Appropriately plan and implement human resource-related systems concerning hiring, education, remuneration, etc.
Technology and Security		
(1) About technological development	• The Group's products may become less competitive due to new technologies and products or alternative products produced by other companies. • In industry–academia–government collaborations and joint development with other companies, cooperation may not progress well.	• Manage R&D using the Stage-Gate method* to promote commercialization and profitability on the relevant theme • Focus on strengthening cooperation in industry–academia–government collaborations and joint development with other companies * A methodology for efficiently narrowing down a large number of products or technology development themes
(2) About intellectual property	• The Group may not have sufficient intellectual property rights to protect its technologies and products. • A third party may infringe on the Group's intellectual property rights and use them illegally.	• Build a system capable of protecting intellectual property needed for maintaining and developing business activities • Survey and monitor intellectual property rights of third parties
(3) About safety and security of products	• Customer trust may be lost due to product defects, quality control problems, or failures. • Business performance and financial status may be affected due to the burden of damage compensation.	• Appropriately manage risks arising from products, such as the safety and quality management of the Group's products • Implement technical education for employees involved in product manufacture and supply to enable them to manage the processes appropriately
Finance and Others		
(1) About exchange rate fluctuations	• If the Group is unable to cope with sudden exchange rate fluctuations, its business performance may be affected. • If the exchange rate fluctuates more than expected, the Group's business performance and financial status may be affected.	• Focus on avoiding exchange rate fluctuation risk in foreign currency-denominated transactions with measures including exchange contracts
(2) About changes in interest rates	• Interest rate fluctuations may affect the Group's business performance and financial status.	• Considering future interest rate fluctuation risk before procuring funds by external borrowings for capital investments and M&A
(3) About natural disasters, unexpected accidents, and infectious diseases	• In the event of natural disasters such as earthquakes, the Group's business sites may be seriously damaged. • In the event of a serious accident or large-scale infectious disease caused by unforeseen circumstances, including human factors, the Group's business activities and performance may be affected.	• In preparation for such emergencies, establish an information gathering system and promote initiatives for continuation of the core business and early recovery of business based on the BCP
(4) About the medium-term management plan	• The targets of the medium-term management plan may not be achieved due to changes in the business environment and various other factors.	• Promote business activities adaptively to changes in the business environment • For earnings forecasts, revise plans and forecasts in line with the immediate business environment and provide timely disclosure
(5) About capital relationship with Mitsubishi Chemical Holdings Corporation	• The Group's business management, performance, and financial status may be significantly affected if the capital relationship with Mitsubishi Chemical Holdings Corporation changes in the future.	• The Group recognizes that there is currently no policy to increase or decrease the shareholding ratio.
(6) About goodwill and intangible assets	• In the event that recoverable amounts decrease significantly, causing impairment losses, the Group's business performance and financial status may be affected.	• Conduct impairment testing each period to measure goodwill and intangible assets with indefinite useful lives • If environmental changes mean that the initial investment recovery can no longer be expected, apply appropriate accounting treatment as necessary
(7) About information management	• In the event of information leakage due to an unforeseen situation, the Group may suffer damage to corporate value and loss of social credibility. • The Group may have to pay compensation to customers and other parties affected by the leak, leading to deterioration of market competitiveness.	• Build suitable information management systems to protect business information including important and personal information • Implement continuous education for employees regarding information security and so forth
(8) About environmental issues such as climate change	• The introduction of greenhouse gas emission regulations in countries and regions where the Group has operations may affect the business performance of the industrial gases business, which has a large amount of indirect greenhouse gas emissions. • An increase in natural disasters due to climate change and a shortage of water resources due to droughts may affect the Group's manufacturing bases. • If the global average temperature rises, the power of the raw air compressor in the air separation unit may increase, causing the amount of electricity used to increase.	• Promote overall environmental management and declare to support the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) • Survey trends in the introduction of greenhouse gas emission regulations in countries and regions where the Group has operations and examine and implement appropriate response measures
(9) About the impact of COVID-19	• Decrease in shipments of industrial gases due to lower operating rates at customer factories	• Take initiatives to prevent infection spreading among employees involved with manufacturing, supply, and sales • Gather information about customers' production plans and demand trends

Dialogue ③

Strengthening Governance through a Global Framework of Four Geographic Hubs

Outside directors Akio Yamada and Mitsuhiro Katsumaru have provided leadership in the Company's governance reforms. Here, they have an open discussion on various issues, including a review of the five years since their appointments, the effectiveness of the Board of Directors, the significance of the transition to a holding company structure, challenges for the future, and response to the COVID-19 pandemic.

Looking Back on Five Years Since the Introduction of Japan's Corporate Governance Code

Katsumaru: Mr. Yamada and I were appointed as outside directors in 2015, the year that Japan's Corporate Governance Code (the "Code") was formulated. The management of Taiyo Nippon Sanso Corporation at the time took the philosophy of the Code seriously and it was a time when they started specific initiatives. One of the major themes of the Code was enhancing and strengthening the Board of Directors, and in fact the Group's Board of Directors has changed in several ways since that time.

First, discussions in the Board of Directors' meetings have become more active. Perhaps this was set in motion by our free questioning and expression of opinions from an outside viewpoint. Outside directors in general have also become more active in the contributions than before.

Second, the responsibility of the Board of Directors has been clarified. The Board makes decisions on important management issues centrally, and governance has now become transparent.

Third, I must mention the establishment of the Advisory Committee on Appointments and Remuneration. This was an excellent decision by President Ichihara as the committee ensures accountability on important internal personnel matters with plenty of discussion to decide on matters. Mr. Yamada plays an especially important role in leading the committee as its chairperson.

Yamada: The Advisory Committee on Appointments and Remuneration is composed of three members, including President Ichihara and ourselves. The committee met 11 times during FYE2020, so it is rather active. The most important theme for the committee recently has been selection of a future successor candidate for the President CEO. Referring to best practices at other companies and so forth, we interviewed multiple candidates in the selection process and proceeded to select personnel based on evaluation and screening criteria. Our next task is how to approach the development of future management executive candidates.

Katsumaru: I think this is a good point to mention the issue that arises when both parent and subsidiary are listed companies. The Company is a consolidated subsidiary of Mitsubishi Chemical Holdings Corporation, which is the parent company of the Nippon Sanso Holdings Group as it is the controlling shareholder. In this case, the protection of minority shareholders' interests is a focus, and there are two important points to be considered in this regard.

First, the Company's governance is systemically guaranteed to a certain extent by the independence of the outside directors. We are both in an independent position with no relationship to the parent company, and we both strive to speak out with a constant awareness of the issue of protecting minority shareholders' interests in the Board of Directors and other places.

Second, parent company Mitsubishi Chemical Holdings' stance is to place an extremely strong emphasis on the autonomy of the Company's governance. As such, we recognize that the risk of minority shareholders' interests being harmed by the controlling shareholder will remain extremely low.

Yamada: Since 2018, the issue of protecting minority shareholders' interests in listed subsidiaries has been much discussed. As Mr. Katsumaru has pointed out, we have an important role to play as independent outside directors in this regard.

Diversity of the Board of Directors

Yamada: Another important theme is ensuring diversity in the composition of the Board of Directors; for example, appointing female directors. President Ichihara and ourselves have taken this issue very seriously; however, we have not yet managed to appoint a female director at this stage. We will continue making a sincere effort on this issue.

Next, at the General Meeting of Shareholders in 2019, Chairman and CEO Thomas Kallman of Matheson Tri-Gas, Inc. was appointed as a director along with Chairman and President Eduardo Gil Elejoste of Nippon Gases Euro-Holding S.L.U., which joined the Group at the end of 2018. Their inclusion has greatly changed the composition of the Board of Directors.

Katsumaru: The management team has been working proactively on this theme and intends to continue strengthening its initiatives. Furthermore, with the participation of the heads of our U.S. and European operating companies, just mentioned, and the selection of Vice President Hamada, who has experience on assignment at Matheson Tri-Gas, discussions in the Board of Directors' meetings have a more global perspective than ever before. In every theme that we discuss, including response to the COVID-19 pandemic, which will be mentioned later, we are now able to keep an eye on the status of the rest of the world, including Europe and the United States, at all time.

Furthermore, since October 2015, we have conducted evaluations of the effectiveness of the Board of Directors. This has been the most trying part of complying with the Code, but setting up a system for collecting the opinions of each director using the questionnaire, having a careful discussion based on the results, and implementing steps to solve issues has been an extremely important result.

Furthermore, a distinctive feature of the Company's governance is the presence of a powerful Audit & Supervisory Board. The Board also provides tremendous support for us as outside directors when we are giving our opinions. Diversity has been secured for both the Board of Directors and the Audit & Supervisory Board, and the two meeting bodies are both functioning properly.

Yamada: Three of the four full-time Audit & Supervisory Board members are outside members and all have affluent corporate management experience and accounting knowledge. They make insightful observations and actively share opinions in the Board of Directors' meetings. This is quite different from the scenario in other companies, I believe.

They say that all companies find it difficult to carry out an evaluation of the Board of Directors. The Company conducts a questionnaire survey and based on the results the execution site provides specific proposals, which are discussed again in turn by the Board of Directors. This approach has produced results such as narrowing down the matters for discussion, simplifying operating reports, and strengthening investment monitoring. In addition, the Audit & Supervisory Board is also active in presenting opinions and proposals.

Katsumaru: The organization is extremely good at self-transformation. There have been a large number of changes over these past five years compared with before the introduction of the Code. Many people are now interested in ESG and the SDGs as well.

Going forward, companies will be required to have diversity in management leadership and to have the power to transform themselves in step with the times. I believe that Nippon Sanso Holdings has the ability to meet these requirements.

Dialogue ③
Strengthening Governance through a Global Framework of Four Geographic Hubs

Insights Achieved through Response to the COVID-19 Pandemic

Yamada: The Company rapidly implemented a series of responses to the COVID-19 pandemic. The Board of Directors has constantly had the latest situational reports since February, and in April a policy on preventing infection was formulated. Also, as Mr. Katsumaru just mentioned, Chairman and CEO Kallman and Chairman and President Elejoste have been appointed to the Board of Directors, providing direct access to wide-ranging information from outside of Japan as well, such as the overall status of infection in the United States and Europe, the economic impacts, and the impacts on the Group's businesses and customer relationships. Without a clear outlook on when the pandemic may subside, we will make a united effort in Japan, the United States, Europe, and Asia and Oceania to recover earnings within the fiscal year, based on various information such as trends in demand industries.

Another important point is a company's response to its social responsibilities. Amid concerns over the securing of adequate ventilators in medical institutions, the Company's wholly owned subsidiary IMI Co., Ltd. was right at the front of the supply line as a medical equipment sales company. Many Group companies also supply medical oxygen. The employees of each company face the risk of infection in the same way as medical professionals, and continue to strive, putting their own health at risk.

Katsumaru: Everyone has performed admirably during the pandemic. I found two points particularly impressive.

The first was the supply of masks in and outside the Company. In May, the Company donated a total of 1.5 million medical masks to medical institutions and others. The Company took this action right when the world was in an uproar due to an acute shortage of masks, and its effort was recognized with a letter of thanks from the Governor of Tokyo. The Company also distributed 100 masks to every employee and made efforts to prevent infection. Both of these actions were extremely proactive and effective.

The other point was the Company's supply of industrial gases amid the pandemic in Europe and other countries. The Board of Directors received an explanation from Chairman and President Elejoste of Nippon Gases Euro-Holding about its response to the pandemic in Italy. We were presented with the visual image of employees of Nippon Gases Euro-Holding risking infection to deliver oxygen to local hospitals, giving us a good understanding of the situation on the ground.

Through the recent series of situations, many companies have probably had to review the purpose of their existence and their role in society. The Nippon Sanso Holdings Group has performed its role tremendously, and I think it has reaffirmed its own purpose for existing.

Yamada: I feel that the Group philosophy of "Proactive. Innovative. Collaborative." has truly been put into practice.

Objectively Clear ESG Disclosure

Yamada: Recently, there has been a surge of public interest around corporate ESG initiatives. The capital markets have also been emphasizing ESG investment and socially responsible investment (SRI). In light of the situation, I think the Group needs to apply more innovative thinking about the status of its ESG disclosure. The Group provides many gas applications that contribute to increasing operational and combustion efficiency and to reducing the environmental impact of metal cutting and welding, and smelting in blast furnaces. It is important to provide more intuitive and clear explanations focused on these initiatives in order to gain stakeholders' understanding.

Katsumaru: It is somewhat difficult to achieve both objectivity and intuitiveness in ESG disclosures.

However, the focus here should be on the extremely sustainable nature of the Group's business model itself. The industrial gases business takes in oxygen and nitrogen from the atmosphere and converts them into energy before releasing them back into the atmosphere. It is a wonderful circular process. This oxygen and nitrogen cycle supports various aspects of industry throughout the world. I think it is necessary to pursue a clearer explanation of how gas plays this social role and creates unique value.

Yamada: For example, just as the technology for the maglev train is supported by superconduction provided by liquid helium, the progress of humankind and the development of the economy rely on industrial gases.

The impact of having the heads of our U.S. and European operating companies on the Board of Directors is apparent in the change of focus on ESG. For example, in 2019 the Group announced its support for the TCFD recommendations. In discussions about this in the Board of Directors' meetings,

they drew out examples of other major companies that compete with the Group and stated their views that the Group should also promote its initiatives with greater urgency.

Acquisition of European Business and Creation of Synergies

Katsumaru: The acquisition of the European business (now Nippon Gases Euro-Holding) at the end of 2018 involved a major decision to invest acquisition funds comparable to the Company's annual sales. We actively expressed our encouragement for the acquisition up to the decision. The reason was that while the Japanese economy had continued to stagnate since the 1990s, the U.S. and European economies had grown steadily. Operating only in Japan limited the Group's aspirations for growth and transformation. Given the backdrop to this deal, as an outside director unfettered by any need to continue the previous trajectory or preserve continuity, my thinking was that we might not see such an opportunity again. There is still a lot of work to do, but thus far things have progressed nicely.

Yamada: Another important role that we have is to support appropriate decision-making by top management and to build a foundation for setting the Company on its course. President Ichihara made a huge decision, and I believe he has created a way forward for the Group's continuous growth.

Furthermore, Nippon Gases Euro-Holding's management executive team have been actively working to assist in the process of its integration. Moreover, the executive teams of Nippon Gases Euro-Holding and Matheson Tri-Gas have been involved in discussions about generating synergies after the integration. Chairman and President Elejoste made specific proposals such as deepening relationships with global customers in the electronic materials gases business, creating business opportunities through cooperation between engineering divisions, and mutual use of gas application technologies. These formed the basis for deeper discussion in the Global Operations Division (at the time) and subsequently in the Global committees.

In this way, the PMI is proceeding smoothly, and we have transitioned to a holding company structure to fully maximize management efficiency for the global framework of our four geographic hubs and the Thermos business. With this, the Nippon Sanso Holdings Group made a fresh start under a new structure on October 1, 2020.

Katsumaru: The Group management philosophy and policies are created by the Company. However, each operating company has a considerable level of discretion and responsibility, and will promote its business autonomously. Generally, a holding company structure can be seen in various ways, but I believe it is one of the ultimate structures for promoting efficient, rational group

management while utilizing the characteristics and strengths of each region of the world. Moreover, in our discussion on this issue, my contribution was regarding the change of company name. I thought it would be an appropriate time for a name that clearly reflected the new holding company structure. Moreover, Taiyo Nippon Sanso Corporation is a fine company name that carries the Company's history, so it has remained in use for the domestic operating company. In addition, in terms of having an executive function that specializes in business management, the appointment of Director Nagata as president of the Taiyo Nippon Sanso Corporation as the domestic operating company is appropriate for the holding company structure since he has a wealth of experience in the industrial gases business in Japan.

Yamada: Even in an ordinary operating company, if it has a lot of subsidiaries then strengthening governance as a group is a major challenge. In this regard, as a holding company, Nippon Sanso Holdings is truly an organization for Group governance, and will efficiently perform the functions of business strategy, management functions, risk management, and synergy creation for the entire Group.

Generally speaking, information sharing using IT and financial management are essential for creating Group synergies. In regard to this, CFO Draper, who is in charge of finance, accounting, and IT at Nippon Gases Euro-Holding, has been made executive officer of the Group Finance and Accounting Office and CFO of Nippon Sanso Holdings. I expect this will not only contribute to diversity and globalization within the execution structure but also generate wide-ranging ripple effects in all directions within the Company.

Katsumaru: I think this kind of diversity will create even more big changes in the newly launched Nippon Sanso Holdings Group. Nippon Gases Euro-Holding, which operates businesses in every country in Europe, has a great deal of knowledge regarding Group management. It is also well developed in terms of its relationships with employees and its stance on ESG. Having gained Nippon Gases Euro-Holding as a member on the heels of Matheson Tri-Gas, the Nippon Sanso Holdings Group can be expected to continue changing and growing going forward.

Members of the Board of Directors and Audit & Supervisory Board Members (As of October 1, 2020)

Members of the Board of Directors

Yujiro Ichihara

Representative Director, President CEO

Member of the Advisory Committee on Appointments and Remuneration

- April 1974 Joined the Company
- June 2005 Executive officer, deputy general manager of Business Planning Division and General Affairs Division, and manager of Secretary's Office and Corporate Audit Office
- June 2008 Senior executive officer and general manager of General Affairs Division, with responsibility for company-wide internal control
- June 2010 Managing director and general manager of General Affairs Division, with responsibility for company-wide internal control
- June 2012 Senior managing director and general manager of Corporate Administration Division, with responsibility for company-wide internal control
- June 2013 Executive vice president, director, and general manager of Corporate Administration Division, with responsibility for company-wide internal control
- April 2014 Executive vice president and director, with responsibility for Corporate Administration Division and Corporate Planning & Global Operations Division
- June 2014 Representative Director, President CEO
- February 2015 Director, KAITEKI Institute, Inc. (current)
- June 2015 Representative Director, President CEO
  Director, Mitsubishi Chemical Holdings Corporation
- June 2018 Representative Director, President CEO (current)

Toshihiko Hamada

Member of the Board,
Executive Vice President (Aide to the President)

- April 1981 Joined the Company
- July 2002 Executive vice president responsible for Specialty Gas Technology, Matheson Tri-Gas, Inc.
- October 2005 Deputy general manager of Semiconductor Gas Section of Electronics Division, the Company
- April 2006 General manager of Semiconductor Gas Section of Electronics Division, the Company
- January 2010 Subordinate directly to general manager of Electronics Division and general manager of Business Strategy Promotion Section, the Company
- June 2014 Managing director, Nissan TANAKA Corporation
- June 2016 Senior managing director, Nissan TANAKA Corporation
- June 2017 President and representative director, Nissan TANAKA Corporation
- June 2020 Director, executive vice president of the Company (Aide to the President) (current)

Kazuyuki Futamata

Member of the Board,
Managing Executive Officer,
Chief Compliance Officer (CCO),
(Taiyo Nippon Sanso Corporation Group CCO),
with responsibility for groupwide internal control

- April 1980 Joined Mitsubishi Chemical Industries Limited (now Mitsubishi Chemical Corporation)
- June 2011 Executive officer, general manager of Human Resources Division, Mitsubishi Chemical Corporation; Executive officer, general manager of CEO's office, Mitsubishi Chemical Holdings Corporation
- April 2013 Executive officer, Mitsubishi Rayon Co., Ltd. (responsible for Internal Control Division)
- April 2015 Executive officer, Mitsubishi Rayon Co., Ltd. (responsible for Human Resources, General Affairs, Information Systems, and Internal Control divisions); Executive officer, general manager of Human Resources Office, Mitsubishi Chemical Holdings Corporation
- April 2017 Director and managing executive officer, CCO (responsible for Human Resources, General Affairs, and Internal Control divisions), Mitsubishi Chemical Corporation
- January 2019 Managing executive officer, CCO (Taiyo Nippon Sanso Corporation Group CCO), with responsibility for groupwide internal control
- June 2019 Director and managing executive officer, CCO of the Company (Taiyo Nippon Sanso Corporation Group CCO), with responsibility for groupwide internal control (current)

Kenji Nagata

Member of the Board,
Representative Director and President of Taiyo Nippon Sanso Corporation

- April 1981 Joined the Company
- June 2013 Executive officer, general manager of North Kanto Branch
- April 2016 Executive officer, deputy general manager of Industrial Gases Division, general manager of Gases Business Unit, general manager of Product Management Unit
- June 2016 Senior executive officer, deputy general manager of Industrial Gases Division, general manager of Gases Business Unit, general manager of Product Management Unit
- April 2017 Senior executive officer, general manager of Industrial Gases Division
- June 2018 Senior managing executive officer, director, general manager of Industrial Gases Division
- October 2020 Director of the Company, president of Taiyo Nippon Sanso Corporation (current)

Thomas Scott Kallman

Member of the Board,
Chairman and CEO, Matheson Tri-Gas, Inc.

- July 1981 Joined BOC Group, plc
- January 2000 Vice president, general manager responsible for Eastern Region, BOC Group, plc
- January 2005 Executive vice president responsible for Industrial Gas Group, Matheson Tri-Gas, Inc.
- January 2008 Senior executive vice president and COO, Matheson Tri-Gas, Inc.
- June 2009 President and COO, Matheson Tri-Gas, Inc.
- January 2013 President and CEO, Matheson Tri-Gas, Inc
- June 2017 Chairman, President, and CEO, Matheson Tri-Gas, Inc.
- April 2019 Chairman and CEO, Matheson Tri-Gas, Inc. (current)
- June 2019 Director of the Company (current)

Eduardo Gil Elejoste

Member of the Board,
Chairman and President, Nippon Gases Euro-Holding S.L.U.

- April 1981 Joined Argon S.A.
- January 1992 Director of Marketing, responsible for Spain and Portugal, Argon S.A.
- September 1996 Director of Business Development, responsible for Europe, Praxair España, S.L.
- January 2000 Director of Marketing, responsible for Europe, Praxair Euroholding S.L.
- October 2004 CEO, Germany, Praxair Euroholding S.L.
- January 2006 CEO, Germany and Benelux, Praxair Euroholding S.L.
- April 2008 CEO, Praxair España S.L. (now Nippon Gases Espana S.L.U.); CEO, Praxair Portugal S.A.
- December 2016 President, Praxair Euroholding S.L.
- December 2018 Chairman and President, TNSC Euro-Holding S.L.U. (now Nippon Gases Euro-Holding S.L.U.) (current)
- June 2019 Director of the Company (current)

Members of the Board of Directors and Audit & Supervisory Board Members (As of October 1, 2020)

Members of the Board of Directors

Akio Yamada

Member of the Board (Outside Director)

Independent outside director

Chairman of the Advisory Committee on Appointments and Remuneration

April	1967	Joined General Secretariat of Japan Fair Trade Commission
June	1996	Director general of Trade Practices Department, General Secretariat of Japan Fair Trade Commission
June	1997	Director general of Investigation Bureau, General Secretariat of Japan Fair Trade Commission
June	1998	Director general of Economic Affairs Bureau, General Secretariat of Japan Fair Trade Commission
June	2000	Secretary general, Japan Fair Trade Commission
December	2003	Commissioner, Japan Fair Trade Commission
April	2009	Senior advisor to Jones Day
June	2010	Audit & Supervisory Board member, Daiichi Sankyo Co., Ltd.
March	2014	Audit & Supervisory Board member, Yokohama Rubber Co., Ltd.
June	2014	Director, Watahan & Co., Ltd.
June	2015	Outside director of the Company (current)
March	2018	Chairman, Fair Trade Institute (current)

Mitsuhiro Katsumaru

Member of the Board (Outside Director)

Independent outside director

Member of the Advisory Committee on Appointments and Remuneration

April	1978	Appointed as a public prosecutor assigned to Tokyo District Public Prosecutors Office
July	1989	First secretary of Embassy of Japan in Germany
June	2000	Director of Criminal Affairs Division, Criminal Affairs Bureau, Ministry of Justice
June	2001	Director of General Affairs Division, Criminal Affairs Bureau, Ministry of Justice
January	2003	Director of Finance Division, Minister's Secretariat, Ministry of Justice
April	2005	Assistant vice minister, Ministry of Justice (responsible for general policy integration)
December	2005	Chief prosecutor, Fukui District Public Prosecutors Office
June	2007	Chief prosecutor, Mito District Public Prosecutors Office
October	2008	Chief prosecutor, Saitama District Public Prosecutors Office
January	2010	Director, Public Security Department, Supreme Public Prosecutors Office
December	2010	Superintending prosecutor, Takamatsu High Public Prosecutors Office
June	2012	Superintending prosecutor, Hiroshima High Public Prosecutors Office
July	2014	Resigned from superintending prosecutor position
October	2014	Registered as an attorney
June	2015	Outside director of the Company (current)
March	2017	Director of Shimano Inc. (current)

Hidefumi Date

Member of the Board,
Director, Managing Corporate Executive Officer, and Chief Financial Officer,
Mitsubishi Chemical Holdings Corporation

April	1982	Joined Mitsubishi Chemical Industries Limited (now Mitsubishi Chemical Corporation)
April	2013	Executive officer, general manager of Consolidated Management Department, Mitsubishi Chemical Corporation
March	2014	Executive officer, general manager of Consolidated Management Department and Finance & Accounting Department, Mitsubishi Chemical Corporation
April	2014	Executive officer, general manager of Finance & Accounting Department, Mitsubishi Chemical Corporation
April	2015	Executive officer and general manager of Corporate Management Office, Mitsubishi Chemical Holdings Corporation
April	2018	Managing corporate executive officer and chief financial officer, Mitsubishi Chemical Holdings Corporation
June	2019	Director, managing corporate executive officer, and chief financial officer of Mitsubishi Chemical Holdings Corporation Director of the Company (current)
April	2020	Representative Director and President of Mitsubishi Chemical Holdings Corporate Staff, Inc. (current)

Audit & Supervisory Board Members

Junzo Tai

Audit & Supervisory Board member

April	1979	Joined the Company
June	2013	Manager of Corporate Audit Office
June	2014	Executive officer and manager of Corporate Audit Office
January	2015	Executive officer assigned to Mitsubishi Chemical Holdings Corporation
March	2017	Resigned from executive officer position
April	2017	Executive officer, manager of Industrial Gases Strategy Office in Corporate Strategy Division, Mitsubishi Chemical Holdings Corporation
March	2018	Resigned from executive officer position at Mitsubishi Chemical Holdings Corporation
April	2018	General manager of the Corporate Planning Office of the Company
June	2018	Audit & Supervisory Board member (current)

Masahiro Osada

Audit & Supervisory Board member (Outside Auditor)

April	1981	Joined Mitsubishi Chemical Industries Limited (now Mitsubishi Chemical Corporation)
June	2012	Executive officer and general manager of Corporate Management Office, Mitsubishi Chemical Holdings Corporation
April	2015	Executive officer, general manager of Finance & Accounting Department, Mitsubishi Chemical Corporation
April	2017	Managing executive officer (in charge of Corporate Management Department and Finance & Accounting Department), Mitsubishi Chemical Corporation
April	2019	Director and managing executive officer (in charge of Corporate Management Department and Finance & Accounting Department), Mitsubishi Chemical Corporation
March	2020	Resigned from director and managing executive officer position at Mitsubishi Chemical Corporation
April	2020	Advisor to the Company
June	2020	Outside auditor (current)

Akihiro Hashimoto

Audit & Supervisory Board Member (Outside Auditor)

Independent outside director

April	1983	Joined The Fuji Bank, Limited (now Mizuho Bank, Ltd.)
April	2010	Executive officer and general manager of Americas Financial Products Division of Mizuho Corporate Bank, Ltd. (now Mizuho Bank, Ltd.)
April	2012	Managing executive officer in charge of branches, Mizuho Bank, Ltd. (to July 2013)
April	2013	Managing executive officer in charge of corporate banking, Mizuho Corporate Bank, Ltd.
July	2013	Managing executive officer in charge of corporate banking, Mizuho Bank, Ltd. (Mizuho Bank, Ltd. and Mizuho Corporate Bank, Ltd. merged to form the current Mizuho Bank, Ltd.)
April	2014	Senior general manager, Mizuho Bank, Ltd.
April	2014	Resigned from Mizuho Bank, Ltd
May	2014	Senior general manager, Sharp Corporation
June	2014	Director and executive managing officer, Sharp Corporation
June	2016	Resigned from Sharp Corporation
June	2016	Senior general manager, Mizuho Bank, Ltd.
June	2017	Resigned from senior general manager position at Mizuho Bank, Ltd.
June	2017	Outside auditor of the Company (current)

Kazuya Kobayashi

Audit & Supervisory Board member (Outside Auditor)
Concurrently part-time Audit & Supervisory Board member, Taiyo Nippon Sanso Corporation

Independent outside auditor

April	1985	Joined The Fuji Bank, Limited (now Mizuho Bank, Ltd)
April	2012	Executive officer, general manager of Corporate Banking Division No. 13, Mizuho Corporate Bank, Ltd (now Mizuho Bank, Ltd).
April	2014	Managing executive officer, head of Investment Banking Unit, Mizuho Financial Group, Inc. Managing executive officer, head of Investment Banking Unit, Mizuho Bank, Ltd.
April	2016	Managing executive officer in charge of Specific Business of Global Corporate Company, Mizuho Financial Group, Inc. Managing executive officer, head of Global Corporate Division, Mizuho Bank., Ltd
April	2017	Senior general manager, Mizuho Financial Group, Inc.
March	2019	Resigned from senior general manager position at Mizuho Financial Group, Inc.
April	2019	Audit & Supervisory Board member (full-time), Mizuho Human Service Co., Ltd.
March	2020	Resigned from Audit & Supervisory Board member (full-time) position at Mizuho Human Service Co., Ltd
April	2020	Senior general manager, Mizuho Financial Group, Inc. (current)
June	2020	Resigned from senior general manager at Mizuho Financial Group, Inc.
June	2020	Outside auditor of the Company (full-time)
October	2020	Audit & Supervisory Board member of Taiyo Nippon Sanso Corporation (current)

Corporate Data

Company Overview (As of October 1, 2020)

Company name:
Nippon Sanso Holdings Corporation

Date founded:
October 30, 1910

Paid-in capital:
¥37,344 million

Head office:
1-3-26 Koyama, Shinagawa-ku, Tokyo 142-0062, Japan

Number of employees:
19,719

Independent public accountants:
Ernst & Young ShinNihon LLC

Stock exchange listing:
Tokyo

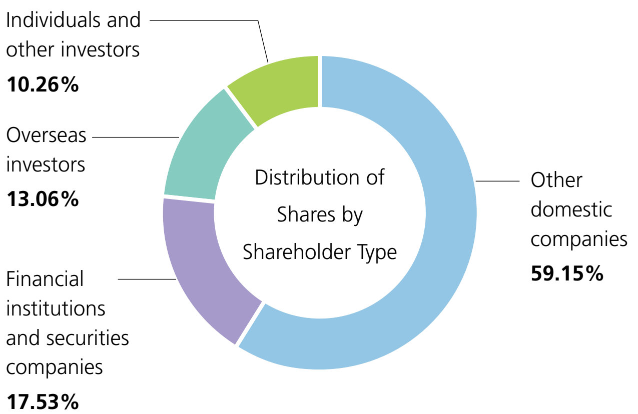
Transfer agent:
Mizuho Trust & Banking Co., Ltd.
2-8-4 Izumi, Suginami-ku, Tokyo 168-8507, Japan
Tel (toll free in Japan): 0120-288-324

Contact:
Investor Relations, Group Finance and Accounting Office,
Nippon Sanso Holdings Corporation
Tel: +81-3-5788-8512

Share and Shareholder Information (As of March 31, 2020)

Status of Shares

Number of shares authorized: 1,600,000,000
Number of shares issued: 433,092,837
Number of shareholders: 15,216



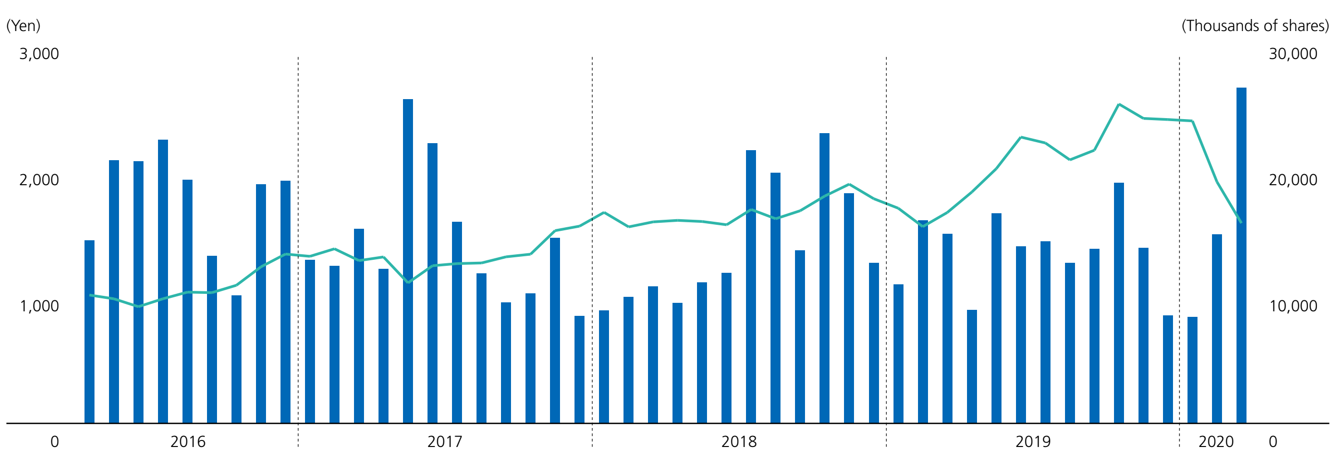
Major Shareholders

(10 Largest Shareholders, Shares Held Rounded Down to the Nearest Thousand)

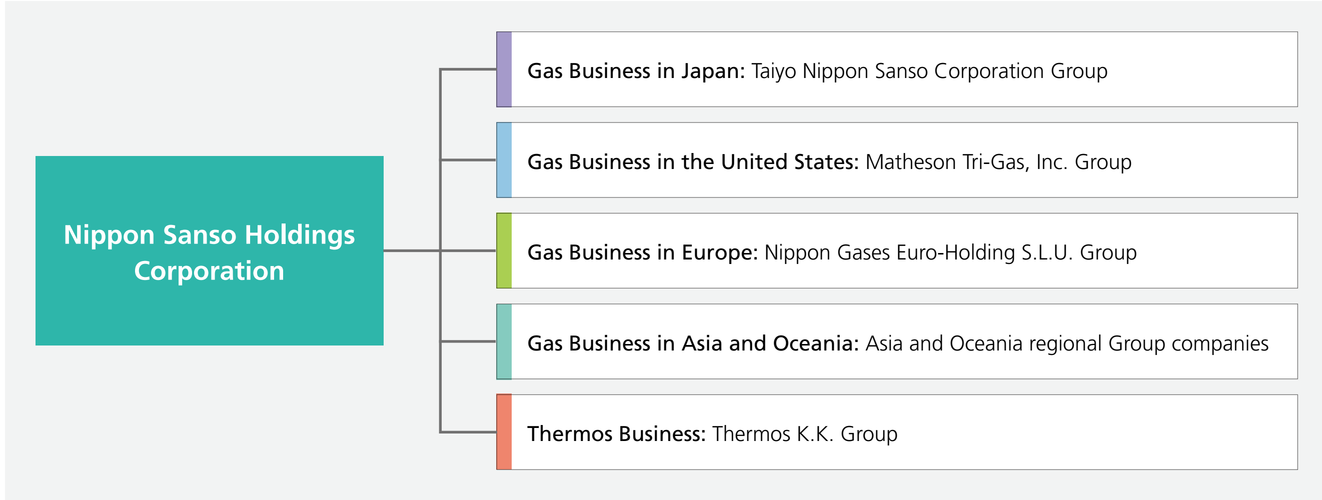
	Thousands of shares owned	Percentage of total (%)
Mitsubishi Chemical Holdings Corporation	218,996	50.57
Taiyo Nippon Sanso Client Shareholding Society	18,125	4.19
The Master Trust Bank of Japan, Ltd. (Trust Account)	12,302	2.84
Japan Trustee Services Bank, Ltd. (Trust Account)	11,188	2.58
JFE Steel Corporation	11,127	2.57
Meiji Yasuda Life Insurance Company	10,007	2.31
Mizuho Bank, Ltd.	8,182	1.89
JP MORGAN CHASE BANK 380055	7,976	1.84
The Norinchukin Bank	7,000	1.62
Japan Trustee Services Bank, Ltd. (Trust Account 5)	3,834	0.89

* The Company holds 179,000 treasury shares.
Percentage of total is calculated excluding treasury shares.

Common Stock Price Range and Trading Volume



Group Organization (As of October 1, 2020)



Main Affiliated Companies (Company Names as of October 1, 2020)

Taiyo Nippon Sanso Corporation
1-3-26 Koyama, Shinagawa-ku,
Tokyo 142-8558, Japan
Tel: +81-3-5788-8000

Matheson Tri-Gas, Inc.
909 Lake Carolyn Parkway, Suite 1300,
Irving, TX 75039, U.S.A.
Tel: +1-972-560-5700

Nippon Gases Euro-Holding S.L.U.
Calle Orense, 11, 9th Floor, 28020 Madrid, Spain
Tel: +34-91-453-72-00

Taiyo Nippon Sanso (China) Investment Co., Ltd.
No.137 Bacha Road,
Changxing Island Harbor Industrial Zone,
Dalian, China
Tel: +86-411-6528-4066

Leeden National Oxygen Ltd.
1 Shipyard Road, Singapore, 628128
Tel: +65-6266-4868

Nippon Sanso (Thailand) Co., Ltd.
282 Bangbon 3 Road, Kwaeng Nongkhaem,
Khet Nongkhaem, Bangkok 10160, Thailand
Tel: +66-2-445-5010

Ingasco, Inc.
One Corporate Center, 23rd Floor,
Dona Julia Vargas Avenue, Corner Meralco Avenue Ortigas
Center, Pasig City 1605, Philippines
Tel: +63-2-8626-1500

Vietnam Japan Gas Joint Stock Company
No. 33, Road 3A Bien Hoa Industrial Zone II,
Bien Hoa City, Dong Nai Province, Vietnam
Tel: +84-251-3836706–09
Tel: +84-251-3992418–21

Supagas Pty Ltd
5 Benson Road, Ingleburn,
NSW 2565, Australia
Tel: +61-2-8788-4444

Thermos K.K.
Mita NN Bldg., 4-1-23 Shiba, Minato-ku,
Tokyo 108-8450, Japan
Tel: +81-3-5730-0130

Consolidated Financial Statements

Taiyo Nippon Sanso Corporation and Consolidated Subsidiaries

* As these financial statements are translated into English based on the annual securities report issued on June 22, 2020, the former company name, Taiyo Nippon Sanso Corporation, is used to denote the Company.

Consolidated Statement of Financial Position

(Millions of yen)

	Notes	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Assets			
Current assets			
Cash and cash equivalents	6	**¥ 100,005**	¥ 59,620
Trade receivables	7	**179,243**	197,952
Inventories	8	**65,886**	66,288
Other financial assets	13	**7,147**	10,051
Other current assets	14	**15,020**	13,231
Total current assets		**367,302**	347,143
Non-current assets			
Property, plant and equipment	9	**655,195**	639,332
Goodwill	10	**419,290**	437,722
Intangible assets	10	**232,077**	253,897
Investments accounted for using the equity method	12	**32,065**	34,434
Other financial assets	13	**38,834**	51,314
Retirement benefit asset	19	**1,358**	1,773
Other non-current assets	14	**971**	720
Deferred tax assets	29	**4,637**	4,676
Total non-current assets		**1,384,430**	1,423,871
Total assets		**¥1,751,732**	¥1,771,015
Liabilities and equity			
Liabilities			
Current liabilities			
Trade payables	15	**¥ 93,885**	¥ 105,966
Bonds and borrowings	16	**154,980**	533,925
Income taxes payable		**8,331**	10,704
Other financial liabilities	17	**51,525**	41,818
Provisions	20	**375**	352
Other current liabilities	21	**22,805**	26,410
Total current liabilities		**331,903**	719,177
Non-current liabilities			
Bonds and borrowings	16	**807,611**	466,206
Other financial liabilities	17	**29,171**	4,054
Retirement benefit liability	19	**12,952**	12,377
Provisions	20	**3,281**	7,603
Other non-current liabilities	21	**20,282**	20,336
Deferred tax liabilities	29	**105,835**	105,403
Total non-current liabilities		**979,135**	615,983
Total liabilities		**1,311,038**	1,335,160
Equity			
Share capital	22	**37,344**	37,344
Capital surplus	22	**56,387**	53,116
Treasury shares	22	**(268)**	(261)
Retained earnings	22	**379,322**	339,393
Other components of equity	22	**(63,441)**	(22,991)
Total equity attributable to owners of parent		**409,344**	406,602
Non-controlling interests		**31,349**	29,251
Total equity		**440,693**	435,854
Total liabilities and equity		**¥1,751,732**	¥1,771,015

See notes to consolidated financial statements.

Consolidated Statement of Profit or Loss

(Millions of yen)

	Notes	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Revenue	4, 26	**¥ 850,239**	¥ 740,341
Cost of sales		**(522,680)**	(473,332)
Gross profit		**327,559**	267,008
Selling, general and administrative expenses		**(242,129)**	(204,789)
Other operating income	27	**10,623**	4,748
Other operating expenses	27	**(5,665)**	(3,940)
Share of profit of investments accounted for using the equity method	12	**3,533**	3,836
Operating profit		**93,921**	66,863
Finance income	28	**1,150**	2,294
Finance costs	28	**(15,938)**	(7,074)
Profit before income taxes		**79,133**	62,083
Income taxes	29	**(24,095)**	(18,373)
Profit		**¥ 55,038**	¥ 43,709
Profit attributable to:			
Owners of parent		**¥ 53,340**	¥ 41,291
Non-controlling interests		**1,697**	2,417
Earnings per share			
Basic earnings per share (Yen)	30	**¥ 123.26**	¥ 95.42

See notes to consolidated financial statements.

Consolidated Statement of Comprehensive Income

(Millions of yen)

	Notes	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Profit		**¥ 55,038**	¥ 43,709
Other comprehensive income			
Items that will not be reclassified to profit or loss			
Financial assets measured at fair value through other comprehensive income	24	**(4,061)**	(2,485)
Remeasurements of defined benefit plans	24	**(698)**	(623)
Share of other comprehensive income of investments accounted for using the equity method	24	**33**	1
Total of items that will not be reclassified to profit or loss		**(4,727)**	(3,107)
Items that may be reclassified subsequently to profit or loss			
Exchange differences on translation of foreign operations	24	**(36,897)**	(7,955)
Effective portion of net change in fair value of cash flow hedges	24	**59**	(2,944)
Share of other comprehensive income of investments accounted for using the equity method	24	**(1,446)**	43
Total of items that may be reclassified subsequently to profit or loss		**(38,284)**	(10,856)
Total other comprehensive income		**(43,012)**	(13,963)
Comprehensive income		**¥ 12,025**	¥ 29,745
Comprehensive income attributable to:			
Owners of parent		**¥ 10,996**	¥ 27,532
Non-controlling interests		**1,029**	2,212

See notes to consolidated financial statements.

Consolidated Financial Statements

Taiyo Nippon Sanso Corporation and Consolidated Subsidiaries

Consolidated Statement of Changes in Equity

(Millions of yen)

	Notes	FYE2020 (From April 1, 2019 to March 31, 2020)			
		Share capital	Capital surplus	Treasury shares	Retained earnings
Balance at April 1, 2019		¥37,344	¥53,116	¥(261)	¥339,393
Profit		—	—	—	53,340
Other comprehensive income	24	—	—	—	—
Comprehensive income		—	—	—	53,340
Purchase of treasury shares	22	—	—	(7)	—
Disposal of treasury shares	22	—	0	0	—
Dividends	23	—	—	—	(11,688)
Changes in ownership interest in subsidiaries		—	(264)	—	—
Business combinations or business divestitures		—	3,535	—	—
Transfer from other components of equity to retained earnings		—	—	—	(1,893)
Transfer from other components of equity to non-financial assets		—	—	—	—
Change in scope of consolidation		—	—	—	171
Other changes		—	—	—	(1)
Total transactions with owners		—	3,270	(7)	(13,411)
Balance at March 31, 2020		¥37,344	¥56,387	¥(268)	¥379,322

	Notes	Other components of equity					Total equity attributable to owners of parent	Non-controlling interests	Total equity
		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			
Balance at April 1, 2019		¥(33,440)	¥(39)	¥10,488	¥ —	¥(22,991)	¥406,602	¥29,251	¥435,854
Profit		—	—	—	—	—	53,340	1,697	55,038
Other comprehensive income	24	(37,730)	59	(3,983)	(689)	(42,343)	(42,343)	(668)	(43,012)
Comprehensive income		(37,730)	59	(3,983)	(689)	(42,343)	10,996	1,029	12,025
Purchase of treasury shares	22	—	—	—	—	—	(7)	—	(7)
Disposal of treasury shares	22	—	—	—	—	—	0	—	0
Dividends	23	—	—	—	—	—	(11,688)	(742)	(12,431)
Changes in ownership interest in subsidiaries		—	—	—	—	—	(264)	318	54
Business combinations or business divestitures		—	—	—	—	—	3,535	1,950	5,485
Transfer from other components of equity to retained earnings		—	—	1,203	689	1,893	—	—	—
Transfer from other components of equity to non-financial assets		—	—	—	—	—	—	—	—
Change in scope of consolidation		—	—	—	—	—	171	5	177
Other changes		—	—	—	—	—	(1)	(464)	(465)
Total transactions with owners		—	—	1,203	689	1,893	(8,255)	1,068	(7,186)
Balance at March 31, 2020		¥(71,170)	¥ 19	¥ 7,709	¥ —	¥(63,441)	¥409,344	¥31,349	¥440,693

(Millions of yen)

	Notes	FYE2019 (From April 1, 2018 to March 31, 2019)			
		Share capital	Capital surplus	Treasury shares	Retained earnings
Balance at April 1, 2018		¥37,344	¥53,072	¥(256)	¥305,400
Profit		—	—	—	41,291
Other comprehensive income	24	—	—	—	—
Comprehensive income		—	—	—	41,291
Purchase of treasury shares	22	—	—	(5)	—
Disposal of treasury shares	22	—	0	0	—
Dividends	23	—	—	—	(10,389)
Changes in ownership interest in subsidiaries		—	43	—	—
Business combinations or business divestitures		—	—	—	—
Transfer from other components of equity to retained earnings		—	—	—	3,070
Transfer from other components of equity to non-financial assets		—	—	—	—
Change in scope of consolidation		—	—	—	20
Other changes		—	—	—	—
Total transactions with owners		—	43	(5)	(7,298)
Balance at March 31, 2019		¥37,344	¥53,116	¥(261)	¥339,393

	Notes	Other components of equity					Total equity attributable to owners of parent	Non-controlling interests	Total equity
		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			
Balance at April 1, 2018		¥(25,699)	¥ (38)	¥16,632	¥ —	¥ (9,105)	¥386,457	¥25,614	¥412,072
Profit		—	—	—	—	—	41,291	2,417	43,709
Other comprehensive income	24	(7,740)	(2,944)	(2,470)	(602)	(13,759)	(13,759)	(204)	(13,963)
Comprehensive income		(7,740)	(2,944)	(2,470)	(602)	(13,759)	27,532	2,212	29,745
Purchase of treasury shares	22	—	—	—	—	—	(5)	—	(5)
Disposal of treasury shares	22	—	—	—	—	—	0	—	0
Dividends	23	—	—	—	—	—	(10,389)	(852)	(11,242)
Changes in ownership interest in subsidiaries		—	—	—	—	—	43	42	86
Business combinations or business divestitures		—	—	—	—	—	—	2,265	2,265
Transfer from other components of equity to retained earnings		—	—	(3,673)	602	(3,070)	—	—	—
Transfer from other components of equity to non-financial assets		—	2,943	—	—	2,943	2,943	—	2,943
Change in scope of consolidation		—	—	—	—	—	20	49	69
Other changes		—	—	—	—	—	—	(80)	(80)
Total transactions with owners		—	2,943	(3,673)	602	(127)	(7,387)	1,424	(5,963)
Balance at March 31, 2019		¥(33,440)	¥ (39)	¥10,488	¥ —	¥(22,991)	¥406,602	¥29,251	¥435,854

See notes to consolidated financial statements.

Consolidated Statement of Cash Flows

(Millions of yen)

	Notes	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Cash flows from operating activities			
Profit before income taxes		¥ 79,133	¥ 62,083
Depreciation and amortization		83,798	56,111
Impairment losses		1,948	1,459
Interest and dividend income		(1,150)	(1,402)
Interest expenses		13,895	7,072
Share of (profit) loss of investments accounted for using the equity method		(3,533)	(3,836)
Loss (gain) on sales and retirement of property, plant and equipment, and intangible assets		(6,479)	(582)
(Increase) decrease in trade receivables		14,209	(20)
(Increase) decrease in inventories		(844)	(4,883)
Increase (decrease) in trade payables		(10,195)	2,469
(Increase) decrease in retirement benefit asset		(416)	(470)
Increase (decrease) in retirement benefit liability		689	588
Other		7,019	(2,376)
Subtotal		178,073	116,214
Interest received		244	250
Dividends received		4,912	4,718
Interest paid		(11,738)	(6,445)
Income taxes refund (paid)		(21,407)	(16,052)
Net cash provided by operating activities		150,084	98,685
Cash flows from investing activities			
Purchase of property, plant and equipment		(72,810)	(74,152)
Proceeds from sales of property, plant and equipment		8,409	2,649
Purchase of investments		(535)	(1,494)
Proceeds from sales and redemption of investments		3,023	8,740
Payments for acquisition of subsidiaries		(15)	(638,731)
Proceeds from sales of subsidiaries		1,586	—
Payments for acquisition of businesses		(182)	(50,899)
Other		(2,105)	(1,080)
Net cash used in investing activities		(62,629)	(754,969)
Cash flows from financing activities			
Net increase (decrease) in short-term borrowings		(414,640)	433,773
Net increase (decrease) in commercial papers		8,000	12,000
Proceeds from long-term borrowings		393,994	179,028
Repayments of long-term borrowings		(62,148)	(37,720)
Proceeds from issuance of bonds		49,736	107,035
Redemption of bonds		—	(15,000)
Repayments of lease liabilities		(8,646)	(2,214)
Purchase of investments in subsidiaries not resulting in change in scope of consolidation		(55)	(169)
Dividends paid	23	(11,688)	(10,389)
Dividends paid to non-controlling interests		(742)	(852)
Other		(51)	(565)
Net cash provided by (used in) financing activities		(46,242)	664,925
Effect of exchange rate changes on cash and cash equivalents		(1,096)	3,128
Net increase (decrease) in cash and cash equivalents		40,116	11,770
Balance of cash and cash equivalents at beginning of the fiscal year		59,620	47,809
Increase (decrease) in cash and cash equivalents resulting from change in scope of consolidation		268	40
Balance of cash and cash equivalents at end of the fiscal year		¥ 100,005	¥ 59,620

See notes to consolidated financial statements.

Notes to Consolidated Financial Statements

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 (https://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. 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 CEO of the Company, on June 19, 2020.

(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.

Although the global economic outlook is unclear due to the impact of the COVID-19 pandemic, the TNSC Group assumes that it will continue in the following fiscal year based on the information available at the end of the fiscal year ended March 31, 2020. The amounts determined based on accounting judgments and estimates may be subject to change if these assumptions and conditions change.

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 ("29. Income Taxes")
- Measurement of defined benefit obligations ("19. Post-employment Benefits")
- Fair value of financial instruments ("32. Financial Instruments")

(6) New accounting standard applied

The major accounting standard applied by the TNSC Group from the fiscal year ended March 31, 2020 is as follows:

Accounting standard or interpretation		Outline of newly established/revised standard
IFRS 16	Leases	This revised standard applies to accounting treatments and disclosure requirements on leases. Primarily, 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 recognize right-of-use assets and obligations to make lease payments on its financial statements.

A contract is, or contains, a lease when the right to control the use of an identified asset is transferred for a period of time in the exchange for consideration, and the lessee recognizes a right-of-use asset and a lease liability at the commencement date of the lease. The TNSC Group determines whether a contract is, or contains, a lease based on the substance of the contract, even if the contract does not take the legal form of a lease.

The lease liability is measured at the present value of the total lease payments payable at the commencement date of the lease. The right-of-use asset is initially measured at the amount of the lease liability, adjusted for any initial direct costs and other costs such as prepaid lease payments as well as estimated costs such as restoration obligations as required by the lease contract.

The lease payments are allocated between repayments of the lease liability and finance charges to achieve a constant rate of interest on the outstanding balance of the lease liability, and the finance charges are recognized in profit or loss.

A right-of-use asset is depreciated over its useful life on a systematic basis if ownership of the underlying asset is transferred to the lessee by the end of the lease term or if the cost of the right-of-use asset reflects the exercise of a purchase option, otherwise it is depreciated over the shorter of its useful life or the term of the lease.

In addition, for leases with a lease term of 12 months or less and leases for which the underlying asset is of low value, lease payments associated with such leases are recognized as an expense on a systematic basis over the lease term.

As a result of the application of IFRS 16, the carrying amount of the TNSC Group's lease-related assets increased by ¥34.1 billion and the balance of lease liabilities increased by ¥34.6 billion as of the date of initial application of this standard. The right-of-use assets are included in property, plant and equipment, and lease liabilities are included in other financial liabilities under current or non-current liabilities.

In applying IFRS 16, the TNSC Group has taken the transitional approach of recognizing the cumulative effect of the application of this standard at the date of initial application, but there is no cumulative effect at the date of initial application of this standard.

Further, in applying IFRS 16, instead of reviewing whether the contract is, or contains, a lease as of the date of initial application, the TNSC Group has adopted a method permitted as a transitional measure based on IAS 17 "Leases" and IFRIC 4 "Determining whether an Arrangement Contains a Lease."

The TNSC Group used to classify a lease contract as a finance lease if substantially all of the risks and economic value of ownership of the leased asset were transferred to the TNSC Group, otherwise it was classified as an operating lease, in accordance with IAS 17. Under IFRS 16, the TNSC Group recognizes a right-of-use asset and a lease liability for a lease based on the substance of the contract, rather than classifying them as finance and operating leases.

For leases classified as finance leases under IAS 17, the carrying amount of the right-of-use asset and the lease liability at the date of initial application are determined based on the carrying amount of the respective leased asset and lease liability in accordance with IAS 17 as of the day immediately before the date of initial application.

For leases classified as operating leases under IAS 17, the lease liability as of the date of initial application is measured at the present value of the total remaining lease payments discounted using an incremental borrowing rate of the TNSC Group's lessee at the date of initial application. The right-of-use asset is measured at the amount of the lease liability, adjusted for prepaid or accrued lease payments.

In applying IFRS 16, the TNSC Group applies the following practical expedients, as permitted as a transitional measure, to leases previously classified as operating leases under IAS 17:

- To adjust the amount of the right-of-use asset by the amount of provision for onerous contracts under IAS 37 "Provisions, Contingent Liabilities and Contingent Assets" immediately before the date of initial application, as an alternative to performing an impairment review
- To elect not to apply the requirements to recognize a right-of-use asset and a lease liability to leases whose remaining lease terms are within 12 months
- To exclude initial direct costs from the measurement of the right-of-use asset at the date of initial application
- To use hindsight, such as in determining the lease term if the contract contains options to extend or terminate the lease

For the measurement of a lease liability, the TNSC Group discounts the lease payments using its weighted average incremental borrowing rate of the lessees as of the date of initial application. The weighted average incremental borrowing rate used is 2.5%.

The difference between future minimum lease payments under non-cancelable operating leases at March 31, 2019 and lease liabilities at the date of initial application is as follows:

(Millions of Yen)

Total future minimum lease payments under non-cancelable operating leases at March 31, 2019	¥23,029
Total future minimum lease payments under non-cancelable operating leases at March 31, 2019 (after discounting using the weighted average incremental borrowing rate at April 1, 2019)	20,875
Finance lease liabilities at March 31, 2019	5,269
Short-term lease or leases for low-value assets for which lease liabilities are not recognized	(1,804)
Extension options which are reasonably certain to be exercised and termination options which are reasonably certain not to be exercised	15,585
Lease liabilities at April 1, 2019	¥39,927

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

Regarding major accounting standards and interpretations issued prior to the approval date of the consolidated financial statements as of and for the fiscal year ended March 31, 2020, the TNSC Group has applied all those accounting standards and interpretations, including early application, that would have potential significant impacts on the consolidated financial statements.

Notes to Consolidated 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 interests 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 statement 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 reflects 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 the 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 interests 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 instruments designated as hedging instruments of net investments in foreign operations, 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 on the date of occurrence. 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 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 statement 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 and hedges of net investments in foreign operations 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.

(iii) Hedges of net investments in foreign operations

As to hedges of net investments in foreign operations, the TNSC Group applies the same accounting treatment as to 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. When a foreign operation is disposed, cumulative gain or loss previously recognized as equity through other comprehensive income are reclassified to profit or loss.

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 30 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

FYE2020 (From April 1, 2019 to March 31, 2020)

A contract is, or contains, a lease when the right to control the use of an identified asset is transferred for a period of time in the exchange for consideration, and the TNSC Group recognizes a right-of-use asset and a lease liability at the commencement date of the lease. The TNSC Group determines whether a contract is, or contains, a lease based on the substance of the contract, even if the contract does not take the legal form of a lease.

The lease liability is measured at the present value of the total lease payments payable at the commencement date of the lease. The right-of-use asset is initially measured at the amount of the lease liability, adjusted for any initial direct costs and other costs such as prepaid lease payments as well as costs such as restoration obligations as required by the lease contract.

The lease payments are allocated between repayments of the lease liability and finance charges so as to achieve a constant rate of interest on the outstanding balance of the lease liability, and the finance charges are recognized in profit or loss.

A right-of-use asset is depreciated over its useful life on a systematic basis if ownership of the underlying asset is transferred to the lessee by the end of the lease term or if the cost of the right-of-use asset reflects the exercise of a purchase option, otherwise it is depreciated over the shorter of its useful life or the term of the lease.

In addition, for leases with a lease term of 12 months or less and leases for which the underlying asset is of low value, lease payments associated with such leases are recognized as an expense on a regular basis over the lease term.

FYE2019 (From April 1, 2018 to March 31, 2019)

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 statement 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.

The TNSC Group determines whether a contract is a lease or it contains a lease based on the substance of the contract, even if the contract is not legally in the 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, the TNSC Group uses an appropriate valuation model that is 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

The TNSC Group recognizes revenue in an amount that reflects the compensation to which the entities expect to be entitled in exchange for goods and services transferred to customers based on the following five-step model.

Step 1: Identify the contract with the customer
Step 2: Identify performance obligations in the contract
Step 3: Determine the transaction price
Step 4: Allocate the transaction price to the performance obligations in the contract
Step 5: Recognize revenue when (or as) the performance obligations are satisfied

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, Europe, and Asia and Oceania. In addition, the TNSC Group manufactures and sells housewares such as stainless steel vacuum bottles.

Regarding product sales in these businesses, because a customer acquires control over a product at the time the product is delivered, the TNSC Group judges that its performance obligations have been satisfied and recognizes revenue at the time the product is delivered.

Revenue is measured at the price promised in the contract with the customer, after deducting such amounts as discounts, rebates, and returns.

The amount of the price in the sales contract of a product is generally collected within one year from the time when control over the product is transferred to a customer, and does not include a significant financing component.

(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 (or 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 and laws 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, Europe, and Asia and Oceania. In addition, the TNSC Group manufactures and sells housewares such as stainless steel vacuum bottles. Therefore, the Company has established the following five reportable segments: Gas Business in Japan, Gas Business in the United States, Gas Business in Europe, Gas Business in Asia and Oceania, and Thermos Business.

The principal products and services included in the five 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 Europe 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, liquefied petroleum gas (LPG) and related equipment, medical-use gases (oxygen, nitrous oxide, etc.), medical equipment, stable isotopes
Thermos Business	Housewares

The accounting methods adopted for the reported operating segments are the same as the TNSC Group's accounting policies described in Note "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

FYE2020 (From April 1, 2019 to March 31, 2020)

(Millions of yen)

	Gas Business in Japan	Gas Business in the United States	Gas Business in Europe	Gas Business in Asia and Oceania	Thermos Business	Total	Reconcil-ing items (Note 1)	Amounts on the consolidated statement of profit or loss
Revenue								
Revenues from external customers	**¥356,145**	**¥198,869**	**¥165,564**	**¥104,541**	**¥25,118**	**¥850,239**	**¥ —**	**¥850,239**
Intersegment revenues and transfers	**10,272**	**17,480**	**166**	**3,088**	**24**	**31,032**	**(31,032)**	**—**
Total	**366,418**	**216,350**	**165,731**	**107,629**	**25,143**	**881,272**	**(31,032)**	**850,239**
Segment profit (Note 2)	**28,737**	**22,263**	**24,854**	**9,952**	**7,224**	**93,032**	**(2,695)**	**90,337**
Other items								
Depreciation and amortization	**18,924**	**28,749**	**27,732**	**6,732**	**1,226**	**83,365**	**433**	**83,798**
Impairment losses	**38**	**—**	**—**	**—**	**—**	**38**	**—**	**38**
Share of profit (loss) of investments accounted for using the equity method	**280**	**(123)**	**(23)**	**63**	**3,372**	**3,569**	**(0)**	**3,569**

Notes: 1. The negative ¥2,695 million reconciling item for segment profit is comprised of ¥853 million of intersegment eliminations and companywide expenses of ¥1,841 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).

FYE2019 (From April 1, 2018 to March 31, 2019)

(Millions of yen)

	Gas Business in Japan	Gas Business in the United States	Gas Business in Europe	Gas Business in Asia and Oceania	Thermos Business	Total	Reconciling items (Note 1)	Amounts on the consolidated statement of profit or loss
Revenue								
Revenues from external customers	¥363,951	¥187,323	¥55,101	¥106,164	¥27,800	¥740,341	¥ —	¥740,341
Intersegment revenues and transfers	8,177	14,426	—	3,813	37	26,454	(26,454)	—
Total	372,129	201,749	55,101	109,977	27,837	766,795	(26,454)	740,341
Segment profit (Note 2)	29,808	15,634	6,567	9,149	9,189	70,350	(4,531)	65,819
Other items								
Depreciation and amortization	18,077	21,710	8,855	6,257	1,090	55,992	118	56,111
Impairment losses	97	—	—	1,340	—	1,438	—	1,438
Share of profit (loss) of investments accounted for using the equity method	52	(121)	(6)	(10)	3,923	3,835	0	3,836

Notes: 1. The negative ¥4,531 million reconciling item for segment profit is comprised of ¥237 million of intersegment eliminations, companywide expenses of ¥1,598 million that were not allocated to any particular reportable segment, and acquisition-related costs of ¥2,695 million to acquire the European business. 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).

Notes to Consolidated Financial Statements

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

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Segment profit	**¥ 90,337**	¥65,819
Gain on sales of fixed assets	**6,490**	1,336
Share of profit (loss) of investments accounted for using the equity method	**(35)**	—
Impairment losses	**(1,910)**	(20)
Other	**(960)**	(272)
Operating profit	**93,921**	66,863
Finance income	**1,150**	2,294
Finance costs	**(15,938)**	(7,074)
Profit before income taxes	**¥ 79,133**	¥62,083

(3) Information about geographical areas

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

Revenues from external customers

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Japan	**¥368,216**	¥376,536
The United States	**189,992**	177,940
Europe	**170,307**	59,324
Asia, Oceania and others	**121,723**	126,540
Total	**¥850,239**	¥740,341

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

Non-current assets

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Japan	**¥ 175,547**	¥ 170,094
The United States	**371,186**	367,101
Europe	**650,627**	682,686
Asia, Oceania and others	**110,172**	111,789
Total	**¥1,307,534**	¥1,331,673

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

FYE2020 (From April 1, 2019 to March 31, 2020)

There were no significant business combinations.

FYE2019 (From April 1, 2018 to March 31, 2019)

Acquisition (100% Ownership) of Praxair, Inc. ("Praxair")'s European Businesses (Praxair is headquartered in the United States.)

(1) Overview of business combination

1) Name and business description of acquired companies

Names of acquired companies:

Praxair España S.L. and 36 other companies

Business description:

The industrial gas business of Praxair's European territories in Germany, Spain, Portugal, Italy, Norway, Denmark, Sweden, the Netherlands, and Belgium; the carbon dioxide gas business in the United Kingdom, Ireland, the Netherlands, and France; and helium-related businesses.

2) Acquisition date

December 3, 2018

3) Main reason for business combination

The Company upholds a long-term vision with the aim of achieving 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, with a view toward sharpening its global competitive edge and securing its position as a major player, amid a realignment of the industry. The Company regards this acquisition as a means to make a large advancement toward realizing such vision and an attractive investment opportunity with strategic significance at the same time.

The industrial gas market in Europe is the second largest behind the North American market, and its competition environment is stable. This acquisition will accelerate the TNSC Group's global expansion by obtaining businesses with a certain share in the market where it has not had previous participation. Furthermore, the TNSC Group will be able to acquire profitable businesses with a certain scale and network (e.g., manufacturing base) as well as talented personnel including the current top management and business platform. Based on such a business foundation, the TNSC Group is planning to provide its products, such as environmentally responsive products, and to reinforce its group-wide functions, such as enhancement of marketing to global firms.

4) Percentage of voting rights acquired

Essentially 100.0%

5) Method for gaining control of acquired companies

Consolidated subsidiary Nippon Gases Euro-Holding S.L.U. and other companies acquired the shares of the acquired companies by purchasing shares for cash.

(2) Fair value of consideration transferred

(Millions of yen)

	Acquisition date (December 3, 2018)
Cash	¥635,847
Total of consideration transferred	¥635,847

(3) Goodwill, assets acquired, liabilities assumed, and non-controlling interests

(Millions of yen)

	Acquisition date (December 3, 2018)
Current assets	
Cash and cash equivalents	¥ 4,354
Trade receivables (Note 2)	32,664
Inventories	8,368
Other	3,681
Non-current assets	
Property, plant and equipment (Note 1)	190,561
Intangible assets (Note 1)	208,301
Investments accounted for using the equity method	5,998
Other	4,196
Assets acquired	458,123
Current liabilities	
Trade payables	23,882
Other financial liabilities	13,593
Other	12,254
Non-current liabilities	
Retirement benefit liability	6,942
Deferred tax liabilities	72,444
Other	1,297
Liabilities assumed	130,412
Net assets acquired and liabilities assumed	327,711
Non-controlling interests (Note 3)	2,265
Goodwill (Notes 4, 5)	¥310,401

Notes: 1. Details of property, plant and equipment and intangible assets
Property, plant and equipment are mainly machinery and vehicles of ¥136,460 million. Intangible assets are mainly customer-related intangible assets of ¥203,900 million.
2. Fair value of acquired receivables, contractual amounts receivable, and estimated uncollectible amount
The fair value of acquired receivables and contractual amounts receivable are approximately equal. None of the contractual amounts receivable are estimated to be uncollectible.
3. Non-controlling interests
Non-controlling interests are measured at the amount of the non-controlling interests in proportion to the fair value of identifiable net assets of the acquired company.
4. Goodwill
Goodwill mainly comprises anticipated synergies and excess earnings capabilities arising from the acquisition that do not match specific recognition criteria. Goodwill is not tax deductible.
5. Basis adjustment
In order to hedge the currency risks involved in investment in the acquired company, a forward exchange contract was executed. For such forecasted transactions, hedge accounting was applied for the purpose of a cash flow hedge, with the fair value of the hedging instruments on the acquisition date of negative ¥3,791 million applied as a basis adjustment to goodwill derived from this business combination, resulting in an increase in the amount of goodwill initially recognized by the same amount.

(4) Acquisition-related costs

Acquisition-related costs were ¥6,722 million. Of these, "Selling, general and administrative expenses" and "Finance costs" were recorded at ¥2,695 million and ¥548 million, respectively, in the consolidated statement of profit or loss. "Bonds and borrowings" in "Current liabilities" and "Bonds and borrowings" in "Non-current liabilities" were recorded at negative ¥771 million and negative ¥2,708 million, respectively, in the consolidated statement of financial position. Acquisition-related costs recorded in the consolidated statement of financial position represent the unexpired balance yet to be recorded as finance costs, as of March 31, 2019, of the fair value at the initial recognition of such bonds and borrowings for financing the acquisition, less related bond issuance costs and organization fees.

(5) 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 companies subsequent to the acquisition date of ¥55,101 million and ¥6,167 million, respectively.

The TNSC Group's revenue and profit (pro forma information) assuming that the business combination was undertaken on April 1, 2018, the beginning of the fiscal year ended March 31, 2019, were ¥857,543 million and ¥53,761 million, respectively. The pro forma information has not been audited.

Acquisition of the HyCO Business and Related Assets in the United States

(1) Overview of business combination

1) Name and business description of counterpart

Name of counterpart:
Linde Gas North America LLC ("Linde America")

Business description:
A portion of the HyCO business* operated in the United States by Linde America

* "HyCO" stands for hydrogen (H_2) and carbon monoxide (CO), which are separated from natural gas and other gases through a technology called Steam Methane Reforming and other equipment. The HyCO business provides large-scale supply of H_2 and CO to customers in the oil refining and petrochemical industries by way of a pipeline.

2) Acquisition date

February 27, 2019

3) Main reason for business combination

The Company is aiming to expand in the gas technology field by utilizing M&As as a strategy for its medium-term management plan entitled "Ortus Stage 2." The Company decided on full-scale entry into the HyCO business from the perspective of strengthening its proposal capabilities with enhancements to its product lineup. The acquisition further realizes this endeavor, and the following can be expected as a result of the agreement:

(i) Steady generation of earnings over the medium to long term from on-site supply of H_2 and CO

(ii) Acquisition of resources (people / technology) further facilitating efficient operation of the HyCO business

(iii) Strengthening of the ability to offer proposals that will capture demand for new on-site projects in the United States (petroleum refining and petrochemicals, etc.)

4) Method for gaining control of acquired company

Consolidated subsidiary Matheson Tri-Gas, Inc. acquired part of the HyCO business conducted in the United States by Linde America and related business assets thereto through purchases for cash.

(2) Fair value of consideration transferred

(Millions of yen)

	Acquisition date (February 27, 2019)
Cash	¥46,133
Total of consideration transferred	¥46,133

(3) Goodwill, assets acquired, and liabilities assumed

(Millions of yen)

	Acquisition date (February 27, 2019)
Current assets	¥ 215
Non-current assets	
Property, plant and equipment (Note 1)	31,387
Intangible assets (Note 1)	7,852
Assets acquired	39,454
Non-current liabilities	498
Liabilities assumed	498
Net assets acquired and liabilities assumed	38,956
Goodwill (Notes 2, 3)	¥ 7,177

The provisional accounting treatment was applied at March 31, 2019 since the fair value measurement of assets acquired, liabilities assumed, and goodwill was not completed. The measurement has been completed in the second quarter of FYE2020.

Notes: 1. Details of property, plant and equipment and intangible assets
Property, plant and equipment are mainly machinery and vehicles of ¥31,361 million. Intangible assets are customer-related intangible assets of ¥7,852 million.
2. 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.
3. Basis adjustment
In order to hedge the currency risks involved in investment in the acquired company, a forward exchange contract was executed. For such forecasted transactions, hedge accounting was applied for the purpose of a cash flow hedge, with the fair value of the hedging instruments on the acquisition date of negative ¥452 million applied as a basis adjustment to the goodwill derived from this business combination, resulting in an increase in the amount of goodwill initially recognized by the same amount.

(4) Acquisition-related costs

Acquisition-related costs were ¥149 million, and are included in "Selling, general and administrative expenses" in the consolidated statement of profit or loss.

(5) Impact on the TNSC Group's results

The TNSC Group's revenue and profit (pro forma information) assuming that the business combination was undertaken on April 1, 2018, the beginning of the fiscal year ended March 31, 2019, were ¥749,999 million and ¥46,026 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)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Cash and deposits	**¥100,005**	¥59,620
Total	**¥100,005**	¥59,620

7. Trade Receivables

A breakdown of trade receivables is as follows:

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Notes and accounts receivable–trade	**¥185,784**	¥204,418
Allowance for doubtful accounts	**(6,540)**	(6,466)
Total	**¥179,243**	¥197,952

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

8. Inventories

A breakdown of inventories is as follows:

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Merchandise and finished goods	**¥43,331**	¥43,815
Work in process	**10,517**	10,728
Raw materials and supplies	**12,037**	11,744
Total	**¥65,886**	¥66,288

Amounts of inventories measured based on net realizable value at March 31, 2020 and 2019 were ¥3,554 million and ¥3,064 million, respectively.

Amounts of write-downs of inventories recognized as expenses for FYE2020 and FYE2019 were ¥179 million and ¥165 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:

FYE2020 (From April 1, 2019 to March 31, 2020)

Costs

(Millions of yen)

	Machinery and vehicles	Buildings and structures	Land	Construction in progress	Tools, furniture and fixtures	Total
Balance at April 1, 2019	¥827,191	¥152,983	¥55,757	¥ 61,153	¥153,137	¥1,250,224
Adjustment due to application of IFRS 16	8,095	23,879	2,099	—	120	34,195
Restated balance at April 1, 2019 (After adjustment)	835,287	176,863	57,856	61,153	153,258	1,284,419
Individual acquisition (Note)	70,828	11,553	744	(14,225)	11,259	80,161
Impairment losses	—	—	—	—	—	—
Business combination, business divestitures, etc.	812	211	99	6	181	1,312
Sale and disposal	(6,785)	(4,544)	(390)	(111)	(3,565)	(15,397)
Transfer	(4,359)	402	(18)	(441)	(1,762)	(6,180)
Exchange differences on translation of foreign operations, etc.	(18,155)	(1,163)	(878)	(1,186)	(5,483)	(26,867)
Balance at March 31, 2020	¥877,627	¥183,322	¥57,413	¥ 45,196	¥153,887	¥1,317,447

Note: Individual acquisition in the construction in progress column represents net amount of an increase due to new acquisitions after reclassifying to respective accounts of property, plant and equipment.

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, 2019	¥(445,232)	¥(84,963)	¥(2,927)	¥—	¥(77,768)	¥(610,891)
Depreciation	(51,860)	(8,814)	(221)	—	(9,036)	(69,933)
Impairment losses	(1,271)	(358)	—	—	(2)	(1,632)
Business divestitures, etc.	12	—	—	—	2	15
Sale and disposal	6,019	2,588	125	—	2,716	11,450
Transfer	1,990	(124)	(70)	—	(71)	1,723
Exchange differences on translation of foreign operations, etc.	5,368	2	0	—	1,644	7,015
Balance at March 31, 2020	¥(484,973)	¥(91,670)	¥(3,093)	¥—	¥(82,515)	¥(662,252)

Carrying amounts

(Millions of yen)

	Machinery and vehicles	Buildings and structures	Land	Construction in progress	Tools, furniture and fixtures	Total
Restated balance at April 1, 2019 (After adjustment)	¥390,054	¥91,899	¥54,929	¥61,153	¥75,489	¥673,528
Balance at March 31, 2020	¥392,653	¥91,652	¥54,320	¥45,196	¥71,372	¥655,195

The right-of-use assets (capital expenditure amount) increased by ¥5,508 million for FYE2020.

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.

FYE2019 (From April 1, 2018 to March 31, 2019)

Costs

(Millions of yen)

	Machinery and vehicles	Buildings and structures	Land	Construction in progress	Tools, furniture and fixtures	Total
Balance at April 1, 2018	¥626,736	¥137,356	¥47,361	¥41,297	¥116,308	¥ 969,061
Individual acquisition (Note)	46,357	5,330	155	12,748	11,203	75,796
Impairment losses	—	—	—	(1,340)	—	(1,340)
Business combination, business divestitures, etc.	167,690	11,624	9,526	6,798	28,446	224,087
Sale and disposal	(15,297)	(2,112)	(288)	(284)	(3,944)	(21,927)
Transfer	(584)	1,179	(1,449)	389	(177)	(641)
Exchange differences on translation of foreign operations, etc.	2,288	(395)	451	1,544	1,300	5,188
Balance at March 31, 2020	¥827,191	¥152,983	¥55,757	¥61,153	¥153,137	¥1,250,224

Note: Individual acquisition in the construction in progress column represents net amount of an increase due to new acquisitions after reclassifying to respective accounts of property, plant and equipment.

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, 2018	¥(419,810)	¥(81,850)	¥(2,822)	¥—	¥(72,647)	¥(577,130)
Depreciation	(35,937)	(4,751)	—	—	(7,566)	(48,255)
Impairment losses	—	(13)	(84)	—	—	(97)
Sale and disposal	14,276	1,855	48	—	3,743	19,924
Transfer	624	29	—	—	48	702
Exchange differences on translation of foreign operations, etc.	(4,385)	(233)	(68)	—	(1,347)	(6,034)
Balance at March 31, 2019	¥(445,232)	¥(84,963)	¥(2,927)	¥—	¥(77,768)	¥(610,891)

Carrying amounts

(Millions of yen)

	Machinery and vehicles	Buildings and structures	Land	Construction in progress	Tools, furniture and fixtures	Total
Balance at April 1, 2018	¥206,925	¥55,506	¥44,538	¥41,297	¥43,661	¥391,930
Balance at March 31, 2019	¥381,959	¥68,020	¥52,829	¥61,153	¥75,369	¥639,332

The right-of-use assets (capital expenditure amount) increased by ¥5,508 million for FYE2020.

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) Right-of-use assets

Carrying amounts of right-of-use assets (leased assets under finance leases in FYE2019) included in property, plant and equipment are as follows:

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Machinery and vehicles	¥10,143	¥2,050
Buildings and structures	20,371	0
Land	1,932	—
Tools, furniture and fixtures	2,075	1,717
Total	¥34,521	¥3,768

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:

FYE2020 (From April 1, 2019 to March 31, 2020)

Costs

(Millions of yen)

	Goodwill	Intangible assets		
		Customer-related intangible assets	Other	Total
Balance at April 1, 2019	**¥439,361**	**¥268,910**	**¥21,259**	**¥290,170**
Individual acquisition	**355**	**—**	**1,181**	**1,181**
Business combination, business divestitures, etc.	**2,493**	**2,603**	**(280)**	**2,322**
Sale and disposal	**—**	**—**	**(2,046)**	**(2,046)**
Exchange differences on translation of foreign operations, etc.	**(21,328)**	**(11,970)**	**(793)**	**(12,764)**
Balance at March 31, 2020	**¥420,881**	**¥259,543**	**¥19,321**	**¥278,864**

Accumulated amortization and accumulated impairment losses

(Millions of yen)

	Goodwill	Intangible assets		
		Customer-related intangible assets	Other	Total
Balance at April 1, 2019	**¥(1,638)**	**¥(24,085)**	**¥(12,186)**	**¥(36,272)**
Amortization	**—**	**(12,458)**	**(1,406)**	**(13,865)**
Impairment losses	**—**	**—**	**(5)**	**(5)**
Business divestitures, etc.	**—**	**—**	**86**	**86**
Sale and disposal	**—**	**—**	**1,984**	**1,984**
Exchange differences on translation of foreign operations, etc.	**47**	**1,068**	**218**	**1,287**
Balance at March 31, 2020	**¥(1,591)**	**¥(35,476)**	**¥(11,310)**	**¥(46,786)**

Carrying amounts

(Millions of yen)

	Goodwill	Intangible assets		
		Customer-related intangible assets	Other	Total
Balance at April 1, 2019	**¥437,722**	**¥244,824**	**¥9,073**	**¥253,897**
Balance at March 31, 2020	**¥419,290**	**¥224,067**	**¥8,010**	**¥232,077**

FYE2019 (From April 1, 2018 to March 31, 2019)

Costs

(Millions of yen)

	Goodwill	Intangible assets		
		Customer-related intangible assets	Other	Total
Balance at April 1, 2018	¥120,773	¥ 56,490	¥16,059	¥ 72,549
Individual acquisition	223	—	646	646
Business combination, business divestitures, etc.	324,284	216,899	4,600	221,500
Sale and disposal	(13)	—	(156)	(156)
Exchange differences on translation of foreign operations, etc.	(5,907)	(4,479)	110	(4,369)
Balance at March 31, 2019	¥439,361	¥268,910	¥21,259	¥290,170

Accumulated amortization and accumulated impairment losses

(Millions of yen)

	Goodwill	Intangible assets		
		Customer-related intangible assets	Other	Total
Balance at April 1, 2018	¥(1,551)	¥(16,778)	¥(10,838)	¥(27,617)
Amortization	—	(6,635)	(1,221)	(7,856)
Impairment losses	(20)	—	—	—
Sale and disposal	—	—	152	152
Exchange differences on translation of foreign operations, etc.	(66)	(671)	(279)	(951)
Balance at March 31, 2019	¥(1,638)	¥(24,085)	¥(12,186)	¥(36,272)

Carrying amounts

(Millions of yen)

	Goodwill	Intangible assets		
		Customer-related intangible assets	Other	Total
Balance at April 1, 2018	¥119,221	¥ 39,711	¥5,220	¥ 44,932
Balance at March 31, 2019	¥437,722	¥244,824	¥9,073	¥253,897

There were no significant internally generated intangible assets for FYE2020 or FYE2019.

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 FYE2020 and FYE2019 were ¥3,389 million and ¥3,494 million, respectively.

The carrying amount of assets with indefinite useful lives in the intangible assets above was ¥898 million at March 31, 2020 and ¥1,069 million at March 31, 2019. 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 are customer-related intangible assets held by Nippon Gases Euro-Holding S.L.U. and Matheson Tri-Gas, Inc., which are consolidated subsidiaries. Their carrying amounts and the remaining period of amortization are as follows:

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)	Remaining period of amortization
Nippon Gases Euro-Holding S.L.U.	**¥179,372**	¥194,267	Mainly 28 years
Matheson Tri-Gas, Inc.	**¥39,057**	¥43,966	Mainly 16 years

Notes to Consolidated Financial Statements

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 FYE2020 and FYE2019 were ¥1,948 million and ¥1,459 million, respectively. Impairment losses were included in "Other operating expenses" in the consolidated statement of profit or loss.

Major assets for which impairment losses were recognized are as follows:

FYE2020 (From April 1, 2019 to March 31, 2020)

(Millions of yen)

Usage	Location	Type	Reportable segment	Impairment losses
Carbon dioxide production facilities	Kurashiki, Okayama Kitakyushu, Fukuoka	Machinery and vehicles, and other	Gas Business in Japan	¥1,598

Breakdown of impairment losses
• Carbon dioxide production facilities
¥1,598 million (Machinery and vehicles: ¥1,271 million, and other: ¥327 million)
The carrying amount of the carbon dioxide production facilities located in Okayama and Fukuoka was reduced to the recoverable amount, since these facilities are scheduled to be disposed of due to changes in the business environment. The recoverable amount is measured at value in use, which is estimated at zero, and reduced to the memorandum value.

FYE2019 (From April 1, 2018 to March 31, 2019)

(Millions of yen)

Usage	Location	Type	Reportable segment	Impairment losses
Natural gas liquefier	Indonesia	Construction in progress	Gas Business in Asia and Oceania	¥1,340

Breakdown of impairment losses
• Natural gas liquefier
¥1,340 million
The carrying amount of the natural gas liquefaction business in progress in Indonesia was reduced to the recoverable amount, since its profitability was expected to decline due to drastic changes in the market environment surrounding the raw fuel. The recoverable amount is measured at value in use, and calculated by discounting the future cash flows at 11.0%.

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

(Millions of yen)

Cash-generating unit (a group of cash-generating units)	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Nippon Gases Euro-Holding S.L.U.	**¥287,310**	¥300,702
Matheson Tri-Gas, Inc.	**98,523**	100,343
TNSC (Australia) Pty Ltd	**19,878**	23,550
Other	**14,476**	14,195
Total	**¥420,188**	¥438,792

The carrying amounts of intangible assets with indefinite useful lives at March 31, 2020 and 2019 were ¥898 million and ¥1,069 million, respectively, and were included in TNSC (Australia) Pty Ltd.

As to goodwill and intangible assets with indefinite useful lives, the TNSC Group performs impairment tests every year and each time when there is an indicator of impairment. The recoverable amount of a cash-generating unit (a group of cash-generating units) is measured as the higher of an asset's fair value less costs of disposal and its value in use.

An asset's fair value less costs of disposal and its value in use are calculated by discounting estimated future cash flows projected based on the business plan, which is prepared by reflecting past experiences and external information and approved by the management. The estimated period of future cash flows is approximately 10 years for fair value less costs of disposal and generally limited to five years for the value in use. Cash flows exceeding the business plan period is determined by referring to the long-term average growth rate of a market or a country that a cash-generating unit (a group of cash-generating units) belongs to.

The business plan prepared and approved by the management, the growth rates, and the discount rates are the major assumptions used for impairment tests of goodwill. The business plan may be affected mainly by revenue expansion, and these major assumptions may be affected by the results of changes in future uncertain conditions of the economy. Thus, when the circumstances under which the assumptions were changed, the result of calculation of the recoverable amount may differ.

In addition, although the world economic outlook is uncertain due to the COVID-19 pandemic, the TNSC Group estimates future cash flows for the purpose of impairment tests based on the available information at March 31, 2020, by assuming the impact would continue in the following fiscal year.

The fair value is categorized as Level 3 of the fair value hierarchy based on inputs used to develop those measurements.

Growth rates and discount rates used in the measurement of the recoverable amount are as follows:

Cash-generating unit (a group of cash-generating units)	FYE2020 (March 31, 2020)		FYE2019 (March 31, 2019)	
	Growth rate	Discount rate	Growth rate	Discount rate
Nippon Gases Euro-Holding S.L.U.	**1.8%**	**7.3%**	1.7%	6.9%
Matheson Tri-Gas, Inc.	**3.5%**	**9.6%**	3.9%	9.6%
TNSC (Australia) Pty Ltd	**3.0%**	**9.3%**	3.0%	8.5%

The recoverable amount measured by value in use of Nippon Gases Euro-Holding S.L.U. as of March 31, 2020 exceeded its carrying amount by ¥37,276 million; it is estimated that if the discount rate rises by 0.4% these amounts would be approximately the same.

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)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Carrying amount of investments in joint ventures	**¥6,148**	¥6,256

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

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Share of profit	**¥(60)**	¥(205)
Share of other comprehensive income	**(1)**	1
Total share of comprehensive income	**¥(62)**	¥(203)

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

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Carrying amount of investments in associates	**¥25,916**	¥28,177

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

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Share of profit	**¥ 3,593**	¥4,042
Share of other comprehensive income	**(1,410)**	43
Total share of comprehensive income	**¥ 2,182**	¥4,085

13. Other Financial Assets

A breakdown of other financial assets is as follows:

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Equity securities and investments in capital	**¥28,999**	¥38,676
Other	**18,133**	23,331
Allowance for doubtful accounts	**(1,151)**	(642)
Total	**¥45,981**	¥61,365
Current assets	**¥ 7,147**	¥10,051
Non-current assets	**38,834**	51,314
Total	**¥45,981**	¥61,365

Equity securities and investments in capital 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:

FYE2020 (March 31, 2020)

(Millions of yen)

Name	Amount
IBIDEN CO., LTD.	¥3,139
Tosoh Corporation	2,742
Koatsu Gas Kogyo Co., Ltd.	2,427
JFE Holdings, Inc.	1,808
Toho Acetylene Co., Ltd.	842

FYE2019 (March 31, 2019)

(Millions of yen)

Name	Amount
JFE Holdings, Inc.	¥4,833
Tosoh Corporation	3,834
Koatsu Gas Kogyo Co., Ltd.	2,862
IBIDEN CO., LTD.	2,227
Tokyo Tatemono Co., Ltd.	1,723

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)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Fair value	**¥2,862**	¥8,740
Cumulative gains or losses	**1,518**	4,428

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

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Financial assets that were derecognized	**¥ 84**	¥ 149
Financial assets held at end of the fiscal year	**815**	1,006

14. Other Assets

A breakdown of other assets is as follows:

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Prepaid expenses	**¥ 6,838**	¥ 5,500
Other	**9,153**	8,451
Total	**¥15,991**	¥13,951
Current assets	**¥15,020**	¥13,231
Non-current assets	**971**	720
Total	**¥15,991**	¥13,951

15. Trade Payables

A breakdown of trade payables is as follows:

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Notes and accounts payable–trade	**¥93,885**	¥105,966
Total	**¥93,885**	¥105,966

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

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16. Bonds and Borrowings

A breakdown of bonds and borrowings is as follows:

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Short-term borrowings	**¥ 38,777**	¥ 461,510
Current portion of long-term borrowings	**86,202**	60,415
Commercial papers	**20,000**	12,000
Current portion of bonds	**10,000**	—
Long-term borrowings	**620,613**	319,141
Bonds	**186,997**	147,065
Total	**¥962,592**	¥1,000,132
Current liabilities	**¥154,980**	¥ 533,925
Non-current liabilities	**807,611**	466,206
Total	**¥962,592**	¥1,000,132

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, 2020 were 1.96% and 1.27%, respectively.

Average interest rates applicable to short-term borrowings and long-term borrowings at March 31, 2019 were 0.67% and 1.84%, respectively.

The repayment term of long-term borrowings at March 31, 2020 is from 2020 to 2059.

A breakdown of bonds is as follows:

(Millions of yen)

Company name	Name	Issuance date	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)	Interest rate (%)	Collateral	Maturity date
*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
*1	The 1st Series Deferrable Interest and Callable Unsecured Subordinated Bonds	January 29, 2019	99,323	99,153	1.41 (*2)	None	January 29, 2054
*1	The 2nd Series Deferrable Interest and Callable Unsecured Subordinated Bonds	January 29, 2019	7,920	7,911	1.87 (*3)	None	January 29, 2059
*1	The 15th Domestic Unsecured Straight Corporate Bonds	October 16, 2019	19,907	—	0.13	None	October 16, 2024
*1	The 16th Domestic Unsecured Straight Corporate Bonds	October 16, 2019	9,947	—	0.19	None	October 16, 2026
*1	The 17th Domestic Unsecured Straight Corporate Bonds	October 16, 2019	19,899	—	0.30	None	October 16, 2029
	Total		¥196,997	¥147,065			

*1 The bonds were issued by the Company.
*2 A fixed interest rate is applied to the period between the day following January 29, 2019 and January 29, 2024, while a variable interest rate is to be applied from the day following January 29, 2024 (step-up in interest rate occurring on January 30, 2024).
*3 A fixed interest rate is applied to the period between the day following January 29, 2019 and January 29, 2029, while a variable interest rate is to be applied from the day following January 29, 2029 (step-up in interest rate occurring on January 30, 2029).

Assets pledged as collateral and secured obligations are as follows:

Assets pledged as collateral

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Property, plant and equipment	**¥1,071**	¥1,463
Total	**¥1,071**	¥1,463

Secured obligations

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Bonds and borrowings	**¥538**	¥716
Other financial liabilities (current)	**19**	126
Total	**¥558**	¥843

17. Other Financial Liabilities

A breakdown of other financial liabilities is as follows:

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Lease liabilities under finance leases	**¥ —**	¥ 5,269
Lease liabilities	**35,797**	—
Accrued expenses	**34,017**	30,589
Accounts payable—other	**9,498**	8,064
Other	**1,383**	1,949
Total	**¥80,696**	¥45,873
Current liabilities	**¥51,525**	¥41,818
Non-current liabilities	**29,171**	4,054
Total	**¥80,696**	¥45,873

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

18. Lease Transactions

(1) Finance leases under IAS 17

Total future minimum lease payments and their present value are as follows:

(Millions of yen)

	FYE2019 (March 31, 2019)		
	Total minimum lease payments	Future finance charges	Present value
One year or less	¥2,227	¥(25)	¥2,201
More than one year but within five years	2,627	(39)	2,587
More than five years	503	(22)	480
Total	¥5,358	¥(88)	¥5,269

(2) Operating leases under IAS 17

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

(Millions of yen)

	FYE2019 (March 31, 2019)
One year or less	¥ 5,709
More than one year but within five years	12,108
More than five years	5,210
Total	¥23,029

Lease payments recognized as expenses for FYE2019 were ¥7,388 million.

(3) Gain or loss and cash outflows related to lease transactions

Gain or loss and cash outflows related to lease transactions are as follows:

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)
Depreciation charges for right-of-use assets	
Land, buildings and structures as underlying assets	¥ 3,768
Tools, furniture and fixtures as underlying assets	929
Machinery and vehicles as underlying assets	3,576
Total depreciation charges	8,273
Expenses relating to leases of low-value assets	1,720
Total cash outflows for leases	¥10,367

Lease payments recognized as expenses for FYE2019 were ¥7,388 million.

Please see Note "9. Property, Plant and Equipment" for information on increases in right-of-use assets.

Please see Note "32. Financial Instruments" for information on balances of lease liabilities by due date.

(4) Additional information related to lease transactions

The majority of the TNSC Group's lease transactions involve property leases, primarily leasing land and buildings as office and factory sites. Some of these leases are covered by options to extend or terminate the leases to ensure business flexibility. The TNSC Group determines the term of the leases after evaluating whether it is reasonably certain that the TNSC Group will exercise the options to extend the leases or will not exercise the options to terminate the leases.

The TNSC Group's leasing activities do not include significant sales and lease-back transactions and restrictions or covenants imposed by leases.

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 are responsible for operating plan assets based on the prescribed policies.

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

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Present value of defined benefit obligations	**¥ 43,192**	¥ 45,920
Fair value of plan assets	**(31,598)**	(35,317)
Net amount of defined benefit obligations and assets	**¥ 11,594**	¥ 10,603
Retirement benefit liability	**¥ 12,952**	¥ 12,377
Retirement benefit asset	**(1,358)**	(1,773)
Net amount of defined benefit obligations and assets	**¥ 11,594**	¥ 10,603

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

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Current service cost	**¥1,810**	¥1,872
Interest expenses	**326**	269
Interest income	**(178)**	(444)
Other	**(28)**	—
Total	**¥1,929**	¥1,696

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

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Balance at beginning of the fiscal year	**¥45,920**	¥32,929
Current service cost	**1,810**	1,872
Interest expenses	**326**	269
Remeasurements		
Actuarial gains and losses arising from changes in demographic assumptions	**(59)**	—
Actuarial gains and losses arising from changes in financial assumptions	**907**	922
Retirement benefits paid	**(2,265)**	(2,349)
Changes from business combinations	**14**	12,816
Other (Note)	**(3,462)**	(540)
Balance at end of the fiscal year	**¥43,192**	¥45,920

Note: Defined benefit obligations decreased by ¥2,672 million since certain consolidated subsidiaries terminated their defined benefit plans in FYE2020.

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

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Balance at beginning of the fiscal year	**¥35,317**	¥30,756
Interest income	**178**	444
Remeasurements		
Return on plan assets	**(154)**	(47)
Contributions from companies	**1,151**	972
Retirement benefits paid	**(1,914)**	(1,925)
Changes from business combinations	**—**	5,275
Other (Note)	**(2,981)**	(157)
Balance at end of the fiscal year	**¥31,598**	¥35,317

Note: Plan assets decreased by ¥2,643 million since certain consolidated subsidiaries terminated their defined benefit plans in FYE2020.

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

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Discount rate	**0.50%**	0.45%

If discount rates, which are the major actuarial assumptions, fluctuate, the present values of defined benefit obligations at March 31, 2020 and 2019 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)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Increase by 0.5%	**¥(2,549)**	¥(2,818)
Decrease by 0.5%	**2,443**	2,700

Fair values of plan assets at March 31, 2020 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	**¥2,994**	**¥ —**	**¥ 2,994**
Equity financial instruments			
Jointly managed trusts	**—**	**1,253**	**1,253**
Total equity financial instruments	**—**	**1,253**	**1,253**
Debt financial instruments			
Jointly managed trusts	**—**	**15,234**	**15,234**
Total debt financial instruments	**—**	**15,234**	**15,234**
Life insurance general accounts	**—**	**11,859**	**11,859**
Other	**—**	**255**	**255**
Total	**¥2,994**	**¥28,603**	**¥31,598**

Fair values of plan assets at March 31, 2019 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	¥1,967	¥ —	¥ 1,967
Equity financial instruments			
Jointly managed trusts	—	2,444	2,444
Total equity financial instruments	—	2,444	2,444
Debt financial instruments			
Jointly managed trusts	—	15,812	15,812
Total debt financial instruments	—	15,812	15,812
Life insurance general accounts	—	15,051	15,051
Other	—	40	40
Total	¥1,967	¥33,349	¥35,317

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.

Contributions to the defined benefit plans are readjusted based on periodic actuarial reviews, in order to ensure balanced pension finance in the future. In such actuarial reviews, the adequacy of contribution is verified by reviewing the basic rates for determining contributions (such as expected rate of interest, expected mortality, and expected rate of withdrawal).

For FYE2021, the TNSC Group plans to contribute ¥1,335 million to plan assets.

The weighted average durations of the defined benefit obligation at March 31, 2020 and 2019 were 12.0 years and 11.9 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)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Expenses under defined contribution plans	**¥2,297**	¥2,174
Expenses under public pension systems	**4,330**	4,261

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20. Provisions

A breakdown of changes in provisions is as follows:

FYE2020 (From April 1, 2019 to March 31, 2020)

(Millions of yen)

	Provision for construction warranties	Asset retirement obligations	Other provisions	Total
Balance at April 1, 2019	**¥310**	**¥ 7,603**	**¥ 42**	**¥ 7,956**
Increase during the fiscal year	**108**	**1,158**	**—**	**1,267**
Decrease during the fiscal year (Intended use)	**(33)**	**—**	**(42)**	**(75)**
Decrease during the fiscal year (Reversal)	**(10)**	**(5,381)**	**—**	**(5,392)**
Other	**0**	**(99)**	**—**	**(99)**
Balance at March 31, 2020	**¥375**	**¥ 3,281**	**¥ —**	**¥ 3,656**
Current liabilities	**¥375**	**¥ —**	**¥ —**	**¥ 375**
Non-current liabilities	**—**	**3,281**	**—**	**3,281**
Total	**¥375**	**¥ 3,281**	**¥ —**	**¥ 3,656**

FYE2019 (From April 1, 2018 to March 31, 2019)

(Millions of yen)

	Provision for construction warranties	Asset retirement obligations	Other provisions	Total
Balance at April 1, 2018	¥ 674	¥5,742	¥ 80	¥6,496
Increase during the fiscal year	24	1,261	12	1,298
Decrease during the fiscal year (Intended use)	(373)	(32)	(50)	(456)
Decrease during the fiscal year (Reversal)	(14)	—	—	(14)
Other	0	633	—	633
Balance at March 31, 2019	¥ 310	¥7,603	¥ 42	¥7,956
Current liabilities	¥ 310	¥ —	¥ 42	¥ 352
Non-current liabilities	—	7,603	—	7,603
Total	¥ 310	¥7,603	¥ 42	¥7,956

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)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Advances received	**¥ 3,856**	¥ 3,924
Deferred income	**5,983**	6,290
Employees' bonuses	**4,909**	4,545
Employees' paid absence	**3,712**	3,709
Other	**24,626**	28,277
Total	**¥43,088**	¥46,747
Current liabilities	**¥22,805**	¥26,410
Non-current liabilities	**20,282**	20,336
Total	**¥43,088**	¥46,747

22. Equity

(1) Share capital and treasury shares

Numbers of shares authorized and shares issued are as follows:

(Thousands of shares)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
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:

(Thousands of shares)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Beginning of the fiscal year	**335**	332
Increase	**3**	3
Decrease	**(0)**	(0)
End of the fiscal year	**339**	335

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 (the "Act") 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 and cumulative amounts of effective portion of gain or loss on hedging instruments designated as hedges of net investments in foreign operations.

(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:

FYE2020 (From April 1, 2019 to March 31, 2020)

(Millions of yen)

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, 2019	**Ordinary shares**	**¥5,627**	**¥13**	**March 31, 2019**	**June 21, 2019**
Board of Directors' meeting held on October 31, 2019	**Ordinary shares**	**6,060**	**14**	**September 30, 2019**	**December 2, 2019**

FYE2019 (From April 1, 2018 to March 31, 2019)

(Millions of yen)

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
Board of Directors' meeting held on October 31, 2018	Ordinary shares	5,194	12	September 30, 2018	December 3, 2018

Dividends whose effective date falls in the following fiscal year are as follows:

FYE2020 (From April 1, 2019 to March 31, 2020)

(Millions of yen)

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 19, 2020	**Ordinary shares**	**¥6,060**	**¥14**	**March 31, 2020**	**June 22, 2020**

FYE2019 (From April 1, 2018 to March 31, 2019)

(Millions of yen)

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, 2019	Ordinary shares	¥5,627	¥13	March 31, 2019	June 21, 2019

24. Other Comprehensive Income

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

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Financial assets measured at fair value through other comprehensive income		
Amount arising during the fiscal year	**¥ (5,695)**	¥ (3,247)
Tax effects	**1,633**	761
Net amount	**(4,061)**	(2,485)
Remeasurements of defined benefit plans		
Amount arising during the fiscal year	**(1,002)**	(970)
Tax effects	**303**	346
Net amount	**(698)**	(623)
Exchange differences on translation of foreign operations		
Amount arising during the fiscal year	**(36,897)**	(7,955)
Net amount	**(36,897)**	(7,955)
Effective portion of net change in fair value of cash flow hedges		
Amount arising during the fiscal year	**39**	(4,148)
Reclassification adjustments	**45**	(95)
Tax effects	**(25)**	1,299
Net amount	**59**	(2,944)
Share of other comprehensive income of investments accounted for using the equity method		
Amount arising during the fiscal year	**(1,412)**	45
Net amount	**(1,412)**	45
Total other comprehensive income	**¥(43,012)**	¥(13,963)

25. Employee Benefit Expenses

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

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Wages and salaries	**¥124,686**	¥102,985
Total	**¥124,686**	¥102,985

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26. Revenue

(1) Revenue by source and by reportable segment

FYE2020 (From April 1, 2019 to March 31, 2020)

(Millions of yen)

	Reportable segment					Total
	Gas Business in Japan	Gas Business in the United States	Gas Business in Europe	Gas Business in Asia and Oceania	Thermos Business	
Revenue						
Gas	**¥234,211**	**¥159,751**	**¥151,167**	**¥ 75,084**	**¥ —**	**¥620,213**
Equipment and other	**121,934**	**39,118**	**14,397**	**29,457**	**—**	**204,907**
Housewares	**—**	**—**	**—**	**—**	**25,118**	**25,118**
Total	**¥356,145**	**¥198,869**	**¥165,564**	**¥104,541**	**¥25,118**	**¥850,239**

FYE2019 (From April 1, 2018 to March 31, 2019)

(Millions of yen)

	Reportable segment					Total
	Gas Business in Japan	Gas Business in the United States	Gas Business in Europe	Gas Business in Asia and Oceania	Thermos Business	
Revenue						
Gas	¥243,038	¥146,136	¥50,347	¥78,565	¥ —	¥518,088
Equipment and other	120,913	41,186	4,753	27,599	—	194,453
Housewares	—	—	—	—	27,800	27,800
Total	¥363,951	¥187,323	¥55,101	¥106,164	¥27,800	¥740,341

Determination of the timing of the fulfillment of performance obligations in contracts with customers, and the method for calculating the transaction price and its allocation to performance obligations, are as described in Note "3. Significant Accounting Policies." The amount of revenue recognized arising from other revenue sources is insignificant.

(2) Outstanding contract amount

Contract assets mainly comprise consideration for construction in progress. Contract liabilities mainly comprise consideration received from customers prior to the delivery of products. Receivables, contract assets, and contract liabilities derived from contracts with customers are as follows:

(Millions of yen)

	At the beginning of FYE2019 (April 1, 2018)	FYE2019 (March 31, 2019)	**FYE2020 (March 31, 2020)**
Receivables arising from contracts with customers	¥165,626	¥202,568	**¥185,784**
Contract assets	951	1,850	**1,515**
Contract liabilities	7,402	11,316	**10,741**

Of the outstanding amounts of contract liabilities, as of the beginning of the fiscal years ended March 31, 2020 and 2019, the amounts recognized as revenue for the fiscal years are insignificant. For FYE2020 and FYE2019, the amounts of revenue recognized based on the performance obligations that were fulfilled in prior periods are also insignificant. Outstanding amounts of contract assets and contract liabilities have not undergone any significant changes.

(3) Transaction price allocated to remaining performance obligations

At March 31, 2020, the total transaction price allocated to remaining performance obligations is ¥16,460 million. The TNSC Group estimates to recognize revenues in the amount of ¥10,426 million for the fiscal year ending March 31, 2021 and ¥6,034 million for the remaining fiscal periods. These amounts do not include any transaction whose expected contractual term is within one year. Meanwhile, all significant considerations are included in the transaction price arising from contracts with customers.

27. Other Operating Income and Other Operating Expenses

A breakdown of other operating income is as follows:

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Grant income	**¥ 351**	¥ 61
Gain on sales of property, plant and equipment	**6,882**	1,479
Other	**3,389**	3,208
Total	**¥10,623**	¥4,748

A breakdown of other operating expenses is as follows:

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Impairment losses	**¥1,948**	¥1,459
Loss on sales and retirement of property, plant and equipment	**402**	897
Loss on reduction of property, plant and equipment	**348**	57
Other	**2,965**	1,526
Total	**¥5,665**	¥3,940

28. Finance Income and Finance Costs

A breakdown of finance income is as follows:

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Interest income		
Financial assets measured at amortized cost	**¥ 250**	¥ 246
Dividend income		
Financial assets measured at fair value through other comprehensive income	**900**	1,156
Foreign exchange gains	**—**	881
Other	**—**	9
Total	**¥1,150**	¥2,294

A breakdown of finance costs is as follows:

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Interest expenses		
Financial liabilities measured at amortized cost	**¥13,895**	¥7,072
Foreign exchange losses	**1,953**	—
Other	**90**	1
Total	**¥15,938**	¥7,074

29. 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:

FYE2020 (From April 1, 2019 to March 31, 2020)

(Millions of yen)

	April 1, 2019	Recognized in profit or loss	Recognized in other comprehensive income	Other (Note)	March 31, 2020
Deferred tax assets					
Employees' bonuses	¥ 2,332	¥ (56)	¥ —	¥ —	¥ 2,275
Accrued expenses	3,521	(768)	—	(51)	2,701
Property, plant and equipment and intangible assets	4,166	(498)	—	(19)	3,648
Retirement benefit liability	3,835	(1,064)	298	(65)	3,005
Unused tax losses	7,661	1,996	—	(150)	9,507
Unrealized gains (inventories and property, plant and equipment)	2,179	167	—	—	2,346
Other	5,404	355	1,106	63	6,931
Total	29,101	131	1,404	(223)	30,415
Deferred tax liabilities					
Securities and other investments	(4,944)	—	509	670	(3,764)
Property, plant and equipment and intangible assets	(118,186)	(3,435)	—	3,169	(118,452)
Undistributed earnings of overseas consolidated subsidiaries, etc.	(5,381)	(1,690)	—	—	(7,071)
Other	(1,317)	(1,019)	(3)	15	(2,324)
Total	(129,829)	(6,145)	506	3,855	(131,613)
Net deferred tax liabilities	¥(100,727)	¥(6,013)	¥1,911	¥3,632	¥(101,198)

FYE2019 (From April 1, 2018 to March 31, 2019)

(Millions of yen)

	April 1, 2018	Recognized in profit or loss	Recognized in other comprehensive income	Other (Note)	March 31, 2019
Deferred tax assets					
Employees' bonuses	¥ 2,400	¥ (127)	¥ —	¥ 59	¥ 2,332
Accrued expenses	3,172	241	—	107	3,521
Property, plant and equipment and intangible assets	4,022	142	—	2	4,166
Retirement benefit liability	1,232	539	209	1,855	3,835
Unused tax losses	—	7,666	—	(5)	7,661
Unrealized gains (inventories and property, plant and equipment)	1,931	248	—	—	2,179
Other	2,589	1,860	1,462	(507)	5,404
Total	15,347	10,570	1,671	1,511	29,101
Deferred tax liabilities					
Securities and other investments	(7,938)	—	1,039	1,954	(4,944)
Property, plant and equipment and intangible assets	(31,825)	(15,525)	—	(70,835)	(118,186)
Undistributed earnings of overseas consolidated subsidiaries, etc.	(4,341)	(1,039)	—	—	(5,381)
Other	(687)	952	(302)	(1,278)	(1,317)
Total	(44,793)	(15,613)	736	(70,159)	(129,829)
Net deferred tax liabilities	¥(29,445)	¥ (5,042)	¥2,408	¥(68,648)	¥(100,727)

Note: Other includes exchange differences on translation of foreign operations and changes from business combinations, etc.

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, 2020 and 2019 were ¥19,421 million and ¥18,385 million, respectively.

(2) Income taxes

A breakdown of income taxes is as follows:

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Current income taxes	¥18,081	¥13,331
Deferred income taxes	6,013	5,042
Total	¥24,095	¥18,373

(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 FYE2020 and FYE2019 was 30.62%. 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:

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Statutory tax rate	30.62%	30.62%
Permanently non-deductible or non-taxable items	0.63	0.86
Unrecognized deferred tax assets	0.43	1.33
Differences in tax rates for overseas consolidated subsidiaries	(3.32)	(2.46)
Tax effects on undistributed earnings	2.14	1.68
Share of profit of investments accounted for using the equity method	(1.37)	(1.89)
Other	1.32	(0.54)
Effective tax rate	30.45%	29.60%

30. Earnings per Share

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

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Profit attributable to owners of parent (Millions of Yen)	¥53,340	¥41,291
Average number of shares during the fiscal year (Thousands of shares)	432,755	432,758
Basic earnings per share (Yen)	¥123.26	¥95.42

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

31. Cash Flow Information

Changes in liabilities arising from financing activities

Changes in liabilities arising from financing activities are as follows:

FYE2020 (From April 1, 2019 to March 31, 2020)

(Millions of yen)

	Balance at April 1, 2019	Adjustment due to application of IFRS 16	Restated balance at April 1, 2019 (After adjustment)	Changes from cash flows	Non-cash changes: Changes from business combinations, etc.	Non-cash changes: New lease transactions and changes in lease contract, etc.	Non-cash changes: Exchange differences on translation of foreign operations, etc.	Balance at March 31, 2020
Short-term borrowings	**¥461,510**	**¥ —**	**¥461,510**	**¥(414,640)**	**¥220**	**¥ —**	**¥(8,312)**	**¥38,777**
Commercial papers	**12,000**	**—**	**12,000**	**8,000**	**—**	**—**	**—**	**20,000**
Long-term borrowings (Note)	**379,556**	**—**	**379,556**	**331,845**	**140**	**—**	**(4,726)**	**706,816**
Bonds (Note)	**147,065**	**—**	**147,065**	**49,736**	**—**	**—**	**195**	**196,997**
Lease liabilities (Note)	**5,269**	**34,657**	**39,926**	**(8,646)**	**—**	**5,657**	**(1,140)**	**35,797**

Note: Balances include the current portion.

FYE2019 (From April 1, 2018 to March 31, 2019)

(Millions of yen)

	Balance at April 1, 2018	Changes from cash flows	Non-cash changes: Changes from business combinations, etc.	Non-cash changes: New lease transactions and changes in lease contract, etc.	Non-cash changes: Exchange differences on translation of foreign operations, etc.	Balance at March 31, 2019
Short-term borrowings	¥ 35,403	¥433,773	¥ 87	¥ —	¥(7,754)	¥461,510
Commercial papers	—	12,000	—	—	—	12,000
Long-term borrowings (Note)	230,664	141,307	2,026	—	5,559	379,556
Bonds (Note)	55,000	92,035	—	—	29	147,065
Lease liabilities under finance leases (Note)	5,892	(2,214)	—	1,612	(20)	5,269

Note: Balances include the current portion.

32. 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 adjusted net debt-to-equity (D/E) ratio.

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Return on capital employed (ROCE) (Note 1)	**6.4%**	6.2%
Adjusted net D/E ratio (Note 2)	**1.45**	1.54

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

Note 2: (Net interest-bearing liabilities – equity-type liabilities) / (equity attributable to owners of parent + equity-type liabilities)
Net interest-bearing liabilities refer to interest-bearing liabilities less cash and cash equivalents.
Equity-type liabilities refer to liabilities created through financing activities that are certified as equity-type by credit rating agencies.

(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 identify and alleviate collection concerns due to a deteriorating financial situation at an early stage. 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 statement 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 included in the amount of the expected credit losses for the entire period.

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Balance at beginning of the fiscal year	**¥ 7,108**	¥3,180
Increase during the fiscal year	**2,286**	4,871
Decrease during the fiscal year (Intended use)	**(1,156)**	(605)
Decrease during the fiscal year (Reversal)	**(232)**	(364)
Other	**(313)**	26
Balance at end of the fiscal year	**¥ 7,692**	¥7,108

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:

FYE2020 (March 31, 2020)

(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	¥ 93,885	¥ 93,885	¥93,885	¥ —	¥ —	¥ —	¥ —	¥ —
Accounts payable—other	9,498	9,498	9,498	—	—	—	—	—
Short-term borrowings	38,777	38,777	38,777	—	—	—	—	—
Long-term borrowings	706,816	711,146	86,202	74,370	63,345	61,663	67,592	357,971
Commercial papers	20,000	20,000	20,000	—	—	—	—	—
Bonds	196,997	198,000	10,000	15,000	—	—	20,000	153,000
Lease liabilities	35,797	38,935	7,814	6,942	5,438	4,353	3,188	11,197
Accrued expenses	34,017	34,017	34,017	—	—	—	—	—
Other	1,304	1,304	704	4	1	1	1	590
Derivative liabilities								
Forward exchange contracts	10	10	10	—	—	—	—	—
Currency swaps	—	—	—	—	—	—	—	—
Interest rate swaps	67	67	16	11	11	11	11	5

FYE2019 (March 31, 2019)

(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	¥105,966	¥105,966	¥105,966	¥ —	¥ —	¥ —	¥ —	¥ —
Accounts payable—other	8,064	8,064	8,064	—	—	—	—	—
Short-term borrowings	461,510	461,510	461,510	—	—	—	—	—
Long-term borrowings	379,556	381,603	60,415	58,474	45,781	23,564	31,275	162,092
Commercial papers	12,000	12,000	12,000	—	—	—	—	—
Bonds	147,065	148,000	—	10,000	15,000	—	—	123,000
Lease liabilities	5,269	5,358	2,226	1,152	805	460	209	503
Accrued expenses	30,589	30,589	30,589	—	—	—	—	—
Other	1,881	1,881	904	3	1	1	1	968
Derivative liabilities								
Forward exchange contracts	22	22	22	—	—	—	—	—
Currency swaps	3	3	0	0	0	0	0	1
Interest rate swaps	41	41	33	8	—	—	—	—

(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.

The TNSC Group's net investments in foreign operations are exposed to the risk of exchange rate fluctuations. The TNSC Group hedges the risk by using borrowings denominated in foreign currencies as necessary.

Currency sensitivity analysis

The following is the impact on profit before income taxes on the consolidated statement 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)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
U.S. dollar (1% appreciation of the yen)	¥(41)	¥(40)
Euro (1% appreciation of the yen)	1	125

(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 statement 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)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Profit before income taxes	¥(2,988)	¥(2,522)

(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 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 FYE2020 or FYE2019.

Notes to Consolidated Financial Statements

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

Financial instruments measured at fair value are as follows:

FYE2020 (March 31, 2020)

(Millions of yen)

	Level 1	Level 2	Level 3	Total
Assets				
Equity securities and investments in capital	**¥20,797**	**¥—**	**¥8,202**	**¥28,999**
Derivative assets	**—**	**71**	**—**	**71**
Total	**¥20,797**	**¥71**	**¥8,202**	**¥29,071**
Liabilities				
Derivative liabilities	**¥ —**	**¥78**	**¥ —**	**¥ 78**
Total	**¥ —**	**¥78**	**¥ —**	**¥ 78**

FYE2019 (March 31, 2019)

(Millions of yen)

	Level 1	Level 2	Level 3	Total
Assets				
Equity securities and investments in capital	¥29,050	¥—	¥9,625	¥38,676
Derivative assets	—	65	—	65
Total	¥29,050	¥65	¥9,625	¥38,741
Liabilities				
Derivative liabilities	¥ —	¥67	¥ —	¥ 67
Total	¥ —	¥67	¥ —	¥ 67

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)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Balance at beginning of the fiscal year	**¥9,625**	¥10,403
Other comprehensive income (Note)	**(31)**	1,394
Purchase	**479**	1,119
Sale	**(45)**	(3,137)
Change in scope of consolidation	**(973)**	(104)
Other changes	**(852)**	(49)
Balance at end of the fiscal year	**¥8,202**	¥ 9,625

Note: This is included in "Financial assets measured at fair value through other comprehensive income" in the consolidated statement 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:

FYE2020 (March 31, 2020)

(Millions of yen)

	Carrying amount	Fair value			
		Level 1	Level 2	Level 3	Total
Liabilities					
Long-term borrowings	**¥706,816**	**¥—**	**¥723,575**	**¥—**	**¥723,575**
Bonds	**196,997**	**—**	**198,961**	**—**	**198,961**
Total	**¥903,814**	**¥—**	**¥922,536**	**¥—**	**¥922,536**

FYE2019 (March 31, 2019)

(Millions of yen)

	Carrying amount	Fair value			
		Level 1	Level 2	Level 3	Total
Liabilities					
Long-term borrowings	¥379,556	¥—	¥392,708	¥—	¥392,708
Bonds	147,065	—	148,830	—	148,830
Total	¥526,622	¥—	¥541,538	¥—	¥541,538

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, 2020 and 2019, for trade receivables transferred without meeting the requirements for derecognition of financial assets, ¥1,811 million and ¥2,057 million were included in "Trade receivables," respectively, and the amounts received due to the transfer of ¥1,346 million and ¥1,446 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.

Notes to Consolidated Financial Statements

(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:

FYE2020 (March 31, 2020)

(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	**¥ 2,951**	**¥2,951**	**¥ —**	**¥ —**	**¥ —**	**¥ —**	**¥ —**
Interest rate risk							
Interest rate swaps	**2,639**	**1,297**	**¥297**	**297**	**297**	**297**	**148**
Hedges of net investments							
Currency risk							
Borrowings denominated in foreign currencies	**74,718**	**—**	**—**	**—**	**—**	**—**	**74,718**

FYE2019 (March 31, 2019)

(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	¥ 2,294	¥ 1,624	¥ 670	¥ —	¥ —	¥ —	¥ —
Interest rate risk							
Interest rate swaps	18,844	16,284	1,283	283	283	283	425

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

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Cash flow hedges		
Currency risk		
Forward exchange contracts		
U.S. dollar	**¥103.93–¥111.68**	¥107.13–¥111.68
Euro	**¥118.23–¥122.43**	¥124.43–¥131.48
Interest rate risk		
Interest rate swaps		
Fixed payables and floating receivables	**0.70%**	0.34%–0.70%

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

FYE2020 (March 31, 2020)

(Millions of yen)

	Contract amounts, etc.	Carrying amount: Assets	Carrying amount: Liabilities	Items on the consolidated statement 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	**¥ 2,951**	**¥37**	**¥ 10**	**Other financial assets Other financial liabilities**	**¥ 49**
Interest rate risk					
Interest rate swaps	**2,638**	**—**	**67**	**Other financial liabilities**	**(48)**
Hedges of net investments					
Currency risk					
Borrowings denominated in foreign currencies	**74,718**	**—**	**74,718**	**Bonds and borrowings**	**937**

FYE2019 (March 31, 2019)

(Millions of yen)

	Contract amounts, etc.	Carrying amount: Assets	Carrying amount: Liabilities	Items on the consolidated statement 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	¥ 2,294	¥ 0	¥22	Other financial assets Other financial liabilities	¥ 40
Interest rate risk					
Interest rate swaps	18,844	22	41	Other financial liabilities	(24)

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

(Millions of yen)

	FYE2020 (March 31, 2020)			FYE2019 (March 31, 2019)		
	Changes in fair value used to calculate ineffective portion of hedges for the fiscal year	Cash flow hedge reserves	Foreign currency translation reserve	Changes in fair value used to calculate ineffective portion of hedges for the fiscal year	Cash flow hedge reserves	Foreign currency translation reserve
Cash flow hedges						
Currency risk						
Planned purchase	**¥ 49**	**¥22**	**¥—**	¥(40)	¥(12)	¥—
Interest rate risk						
Interest on borrowings	**(48)**	**(3)**	**—**	24	(27)	—
Hedges of net investments						
Currency risk						
Effect of exchange rate changes on net investments	**937**	**—**	**937**	—	—	—

Details of cash flow hedges are as follows:

FYE2020 (From April 1, 2019 to March 31, 2020)

(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 statement 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 statement of profit or loss that include gain or loss due to reclassification adjustments
Cash flow hedges					
Currency risk					
Forward exchange contracts	**¥ 49**	**¥—**	**¥—**	**¥18**	**Finance costs**
Interest rate risk					
Interest rate swaps	**(48)**	**—**	**—**	**12**	**Finance costs**
Hedges of net investments					
Currency risk					
Borrowings denominated in foreign currencies	**937**	**—**	**—**	**—**	**—**

FYE2019 (From April 1, 2018 to March 31, 2019)

(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 statement 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 statement of profit or loss that include gain or loss due to reclassification adjustments
Cash flow hedges					
Currency risk					
Forward exchange contracts	¥(2,973)	¥—	¥—	¥(115)	Finance costs
Interest rate risk					
Interest rate swaps	29	—	—	48	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)

	FYE2020 (March 31, 2020)			FYE2019 (March 31, 2019)		
	Contract amount, etc.	More than one year	Fair value	Contract amount, etc.	More than one year	Fair value
Currency swaps	**¥338**	**¥268**	**¥33**	¥627	¥168	¥38

33. Subsidiaries

For FYE2020 or FYE2019, there were no individually significant subsidiaries with non-controlling interests.

34. Related Parties

Remuneration for major executives

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

(Millions of yen)

	FYE2020 (From April 1, 2019 to March 31, 2020)	FYE2019 (From April 1, 2018 to March 31, 2019)
Remuneration and bonuses	**¥383**	¥377
Total	**¥383**	¥377

35. Commitments

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

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Acquisition of property, plant and equipment and intangible assets	**¥3,128**	¥3,952

36. Contingent Liabilities

Guaranteed obligations

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

(Millions of yen)

	FYE2020 (March 31, 2020)	FYE2019 (March 31, 2019)
Joint ventures	**¥ 32**	¥ 55
Associates	**246**	372
Other (Note)	**1,067**	1,002
Total	**¥1,346**	¥1,430

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

37. Subsequent Events

(1) Not applicable.

(2) Other

Quarterly information for FYE2020 (From April 1, 2019 to March 31, 2020)

(Millions of yen)

(Cumulative period)	First quarter of FYE2020	First half of FYE2020	First three quarters of FYE2020	FYE2020
Revenue (Millions of Yen)	**¥210,329**	**¥422,881**	**¥633,435**	**¥850,239**
Profit before income taxes (Millions of yen)	**18,264**	**40,831**	**60,915**	**79,133**
Profit attributable to owners of parent (Millions of yen)	**12,221**	**27,740**	**41,358**	**53,340**
Basic earnings per share (Yen)	**28.24**	**64.10**	**95.57**	**123.26**

(Quarterly period)	First quarter	Second quarter	Third quarter	Fourth quarter
Basic earnings per share (Yen)	**28.24**	**35.86**	**31.47**	**27.69**

Independent Auditor's Report

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Independent Auditor's Report

The Board of Directors
TAIYO NIPPON SANSO CORPORATION

Opinion

We have audited the accompanying consolidated financial statements of TAIYO NIPPON SANSO CORPORATION and its subsidiaries, which comprise the consolidated statement of financial position as at March 31, 2020, and the consolidated statements of profit or loss, comprehensive income, changes in equity, and cash flows for the year then ended, and notes to the consolidated financial statements, all expressed in Japanese yen.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of TAIYO NIPPON SANSO CORPORATION and its consolidated subsidiaries as at March 31, 2020, and their consolidated financial performance and cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRSs).

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in Japan. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in Japan, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of the audit of the consolidated financial statements as a whole, and in forming the auditor's opinion thereon, and we do not provide a separate opinion on these matters.

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Valuation of goodwill	
Description of Key Audit Matter	Auditor's Response
As described in note 11 to the consolidated financial statements, goodwill and intangible assets with indefinite life are valued at ¥420,188 million on March 31, 2020. Among which, goodwill at Nippon Gases Euro Holding S.L.U. comprises ¥287,310 million, approximately 16.4% of the Company's total assets. Assumptions used in impairment tests of goodwill are also disclosed in note 11 to the consolidated financial statements. In the impairment tests, the Company measures the recoverable amount of the cash generating unit including goodwill based on value in use. The value in use is measured using discounted future cash flows from the business. The future cash flows are based on the five-year projections approved by management. The cash flows after the fifth year are estimated using a long-term growth rate (or "LTGR") which considers future uncertainties. The significant assumptions in estimating the value in use are the future cash flows based on the five-year projections approved by management, LTGR and the discount rate. The five-year projections are affected primarily by the sales volume developments. The impairment test of goodwill is complex and the five-year projections, the LTGR and the discount rate involve uncertainty and thus determination of these assumptions requires management to apply judgment. Further, as the audit of the goodwill impairment test is complex and requires us to apply professional judgment, we determined it to be a key audit matter.	We performed the following procedures to assess valuation of goodwill, among others: ● With the involvement of the valuation specialists of our network firm, we assessed valuation methodologies used in the calculation of the value in use. ● We assessed the future cash flows for the five-year period by evaluating consistency with the five-year projections approved by management. Further, in assessing revenues and their growth rates for the five-year period, we compared the revenues in the five-year projections with the estimates of our valuation specialists using publicly available data. ● In assessing the LTGR and the discount rate, we compared them with the estimates of our valuation specialists using publicly available data. ● We independently performed sensitivity analyses for the LTGR and the discount rate and compared them with the analyses performed by management. ● In assessing the revenues and their growth rates for the five-year period, the LTGR and the discount rate, we evaluated management's assumptions with regard to the severity and duration of the COVID-19 pandemic by using publicly available data and the demand-projections management gathered from its major customers.

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Independent Auditor's Report

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Responsibilities of Management, the Corporate Auditor and the Audit & Supervisory Board for the Consolidated Financial Statements

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

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern and disclosing, as required by IFRSs, matters related to going concern.

The Corporate Auditor and the Audit & Supervisory Board are responsible for overseeing the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with auditing standards generally accepted in Japan, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.
- Consider internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances for our risk assessments, while the purpose of the audit of the consolidated financial statements is not expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation in accordance with IFRSs.

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- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with the Corporate Auditor and the Audit & Supervisory Board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the Corporate Auditor and the Audit & Supervisory Board with a statement that we have complied with the ethical requirements regarding independence that are relevant to our audit of the financial statements in Japan, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with the Corporate Auditor and the Audit & Supervisory Board, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Interest Required to Be Disclosed by the Certified Public Accountants Act of Japan

Our firm and its designated engagement partners do not have any interest in the Group which is required to be disclosed pursuant to the provisions of the Certified Public Accountants Act of Japan.

Ernst & Young ShinNihon LLC
Tokyo, Japan

June 19, 2020

中村和臣
Kazuomi Nakamura
Designated Engagement Partner
Certified Public Accountant

寒河江祐一郎
Yuichiro Sagae
Designated Engagement Partner
Certified Public Accountant

川脇哲也
Tetsuya Kawawaki
Designated Engagement Partner
Certified Public Accountant

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11-Year Financial and Non-Financial Summary

(Millions of yen)

	Japanese GAAP							IFRS				
	2010.3	2011.3	2012.3	2013.3	2014.3	2015.3	2016.3	2016.3	2017.3	2018.3	2019.3	**2020.3**
Revenue	—	—	—	—	—	—	—	594,421	581,586	646,218	740,341	**850,239**
Net sales	433,390	483,620	477,451	468,387	522,746	559,373	641,516	—	—	—	—	**—**
Selling, general and administrative expenses	119,305	126,265	125,526	125,503	138,052	149,151	182,051	161,169	165,071	178,690	204,789	**242,129**
Core operating profit*1	—	—	—	—	—	—	—	47,456	54,736	60,033	65,819	**90,337**
Operating profit	27,556	35,468	31,067	24,884	31,489	35,297	43,362	48,925	53,664	59,862	66,863	**93,921**
Profit attributable to owners of parent	—	—	—	—	—	—	—	29,030	34,740	48,919	41,291	**53,340**
Profit (loss)	15,748	12,736	21,200	(2,071)	20,194	20,764	25,845	—	—	—	—	**—**
Total equity attributable to owners of parent	—	—	—	—	—	—	—	320,457	351,576	386,457	406,602	**409,344**
Total equity	212,396	207,416	219,611	224,253	298,475	341,207	337,974	—	—	—	—	**—**
Total assets	—	—	—	—	—	—	—	787,505	924,281	931,047	1,771,015	**1,751,732**
Total assets	617,215	617,676	607,024	615,820	731,677	782,357	783,248	—	—	—	—	**—**
Interest-bearing liabilities	259,111	256,358	241,121	253,424	278,063	266,276	274,424	266,215	359,528	326,959	1,005,402	**998,389**
Net interest-bearing liabilities*2	235,082	211,808	206,524	228,681	219,727	212,855	223,638	215,492	304,308	274,968	945,782	**898,384**
Cash flows from operating activities	40,730	65,897	45,986	33,964	56,716	58,615	81,555	73,347	74,596	83,199	98,685	**150,084**
Cash flows from investing activities	(103,697)	(44,834)	(32,748)	(37,225)	(55,295)	(30,583)	(82,130)	(74,252)	(147,082)	(52,088)	(754,969)	**(62,629)**
Cash flows from financing activities	56,048	(3,343)	(23,536)	(8,181)	27,884	(33,866)	(1,825)	(2,385)	80,777	(39,859)	664,925	**(46,242)**
Free cash flow	(62,967)	21,063	13,238	(3,261)	1,421	28,032	(575)	(905)	(72,486)	31,111	(656,284)	**87,455**
Cash and cash equivalents	24,029	44,549	34,596	24,743	58,336	53,420	50,785	50,723	55,220	51,991	59,620	**100,005**
Capital expenditures*3	38,366	31,991	31,452	31,715	32,532	35,201	53,611	52,657	43,796	62,569	76,657	**81,017**
Investment and loans receivable*2	63,408	15,171	8,035	5,672	35,749	5,710	32,941	25,507	102,034	4,556	691,126	**733**
Depreciation and amortization	30,143	32,167	30,471	29,400	33,507	35,568	44,864	39,696	40,048	43,266	56,111	**83,798**
Amortization of goodwill	3,153	3,635	2,472	2,719	3,668	4,959	7,352	—	—	—	—	**—**
Research and development costs	4,137	3,924	3,458	3,177	3,170	3,430	3,348	3,238	3,323	3,255	3,494	**3,389**
Profit (EPS) (Yen)	39.39	31.86	53.33	(5.25)	49.42	47.98	59.72	67.08	80.28	113.04	95.42	**123.26**
Annual dividends per share (Yen)	12.0	12.0	12.0	12.0	12.0	13.0	16.0	16.0	20.0	23.0	25.0	**28.0**
Dividend payout ratio (%)	30.5	37.7	22.5	—	24.3	27.1	26.8	23.9	24.9	20.3	26.2	**22.7**
Core operating profit margin (%)	—	—	—	—	—	—	—	8.0	9.4	9.3	8.9	**10.6**
Operating profit margin (%)	6.4	7.3	6.5	5.3	6.0	6.3	6.8	—	—	—	—	**—**
Overseas revenue ratio (%)	22.8	23.6	24.3	27.6	31.4	35.0	44.4	40.7	40.8	43.3	47.9	**55.5**
Selling, general and administrative expenses / revenue (%)	27.5	26.1	26.3	26.8	26.4	26.7	28.4	27.1	28.4	27.7	27.7	**28.5**
Return on equity (ROE) (%)*4	8.3	6.5	10.8	(1.0)	8.4	7.0	8.2	9.1	10.3	13.3	10.4	**13.1**
Return on capital employed (ROCE) (%)*5	6.6	7.8	7.0	5.5	6.2	6.2	7.4	8.1	8.4	8.4	6.2	**6.4**
Net debt-to-equity (D/E) ratio (Times)	1.11	1.10	1.03	1.12	0.80	0.67	0.71	0.67	0.87	0.71	—	**—**
Adjusted net D/E ratio (Times)*6	—	—	—	—	—	—	—	—	—	—	1.54	**1.45**
Share price (March 31) (Yen)	914	693	584	638	812	1,639	1,068	1,068	1,302	1,611	1,686	**1,601**
Price earnings ratio (PER) (Times)	23.20	21.75	10.95	—	16.43	34.16	17.88	15.92	16.22	14.25	17.67	**12.99**
Number of employees (Consolidated)	9,631	10,269	11,588	11,468	12,955	13,142	14,127	14,107	15,860	16,746	19,229	**19,719**
Number of employees in Japan	—	—	—	—	—	5,747	5,795	5,775	5,827	6,172	6,461	**6,550**
Number of employees overseas	—	—	—	—	—	7,395	8,332	8,332	10,033	10,574	12,768	**13,169**
Overseas employees as a percentage of total labor force (%)	—	—	—	—	—	56.3	59.0	59.1	63.3	63.1	66.4	**66.8**
Female employees as a percentage of total labor force (Taiyo Nippon Sanso) (%)	—	—	—	—	—	7.6	7.9	7.9	9.2	10.0	11.3	**12.3**
Number of employees leaving the Company (Taiyo Nippon Sanso, including mandatory retirees; excluding transfers to Group companies)	—	—	—	—	—	—	—	—	42	44	55	**63**
Energy consumption (TJ)*7	—	—	—	—	—	44,620	47,599	47,599	62,516	67,613	72,014	**109,512**
Waste generated (including valuable materials) (Tonnes)	—	—	—	—	—	—	—	2,834	2,917	2,910	3,023	**3,762**
Fresh water withdrawn (Millions of m^3)	—	—	—	—	—	7.91	8.16	8.16	10.14	10.92	13.62	**30.02**
Greenhouse gas emissions (Scope 1) (Thousand tonnes CO_2e)*8	—	—	—	—	—	—	—	—	9	19	14	**1,061**
Greenhouse gas emissions (Scope 2) (Thousand tonnes CO_2e)*8	—	—	—	—	—	—	—	—	3,363	3,838	4,056	**4,747**
Greenhouse gas emissions (Scope 3) (Thousand tonnes CO_2e)*8	—	—	—	—	—	—	—	—	—	3,671	3,634	**3,662**

*1 Core operating profit is calculated by subtracting losses (non-operating items) produced by non-recurring factors from operating profit. Non-recurring factors include structural reform charges, including costs associated with business downsizing or withdrawal; special severance payments; losses due to disasters or major accidents; and other factors such as the disposal of idle assets. *2 The standard changed in FYE2019 compared to previous fiscal years. *3 The figures are based on construction, in accordance with the presentation in the annual securities report. *4 Return on equity (ROE) is calculated as profit attributable to owners of parent divided by average shareholders' equity. Average shareholders' equity is the average of shareholders' equity at beginning of period and shareholders' equity at end of period; where shareholders' equity is calculated as net assets – non-controlling interests. *5 Return on capital employed (ROCE) = Core operating profit / (outstanding interest-bearing debt + equity attributable to owners of parent) *6 Adjusted D/E ratio = (Net interest-bearing debt – equity-type debt) / (equity attributable to owners of the parent + equity-type debt). Equity-type debt is debt procured through hybrid financing that has been recognized as equity credit by ratings agencies (50% of the procured amount); hybrid financing is a form of debt financing that has features resembling equity, including voluntary deferral of interest, extremely long-term redemption periods, and subordination during liquidation or bankruptcy procedures. This kind of financing does not cause stock dilution, and a certain ratio of the funds procured in this way can be recognized as equity credit by rating agencies provided that certain conditions are met.

*7 The energy of the consumed fuels are calculated based on the gross calorific values specified in Japan's Act on the Rational Use of Energy. Purchased electricity and purchased steam are converted into primary energy amounts. *8 Greenhouse gas emissions in Japan are calculated using emission factors specified in Japan's Act on Promotion of Global Warming Countermeasures. For electricity, basic emission factors for each electricity provider are used. For greenhouse gas emissions overseas, Scope 1 emissions are calculated using emission factors set forth in Japan's Act on Promotion of Global Warming Countermeasures, while Scope 2 emissions are calculated using country-specific emission factors published by the International Energy Agency (IEA).

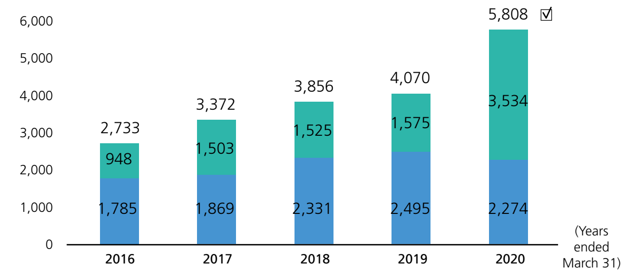
For information about the reporting boundaries for environmental data please refer to Non-Financial Highlights (→ P. 96).

Non-Financial Highlights

Indicators with ☑ mark have been assured by KPMG AZSA Sustainability Co., Ltd.

Greenhouse Gas Emissions

Thousand tonnes CO_2e



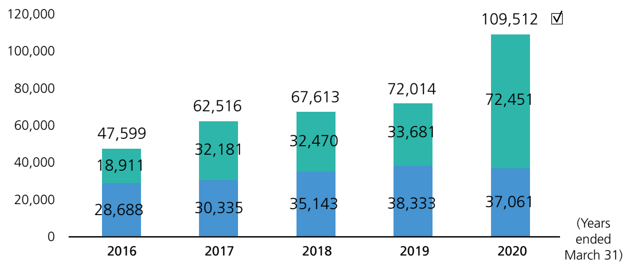
Japan Overseas

Reporting boundary: Taiyo Nippon Sanso Corporation and its consolidated subsidiaries in Japan and principal consolidated subsidiaries overseas*

Greenhouse gas emissions (Scope 1 + Scope 2) in Japan in FYE2020 decreased to 2,274 thousand tonnes CO_2e, mainly due to the effect of upgrading to energy-efficient ASUs. Greenhouse gas emissions overseas increased to 3,534 thousand tonnes CO_2e, mainly as a result of proactive M&A activities overseas, such as the acquisition of the European business and the HyCO business in the United States.

Energy Consumption

Terajoules (TJ)



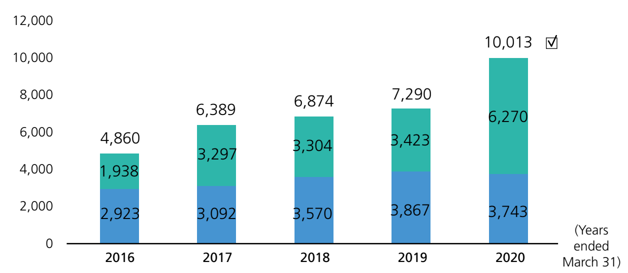
Japan Overseas

Reporting boundary: Taiyo Nippon Sanso Corporation and its consolidated subsidiaries in Japan and principal consolidated subsidiaries overseas*

Energy consumption in Japan in FYE2020 decreased to 37,061 TJ, mainly due to the effect of upgrading to energy-efficient ASUs. Energy consumption overseas increased to 72,451 TJ year on year, mainly as a result of proactive M&A activity overseas, such as the acquisition of the European business and the HyCO business in the United States.

Electric Power Consumption

Gigawatt hours (GWh)



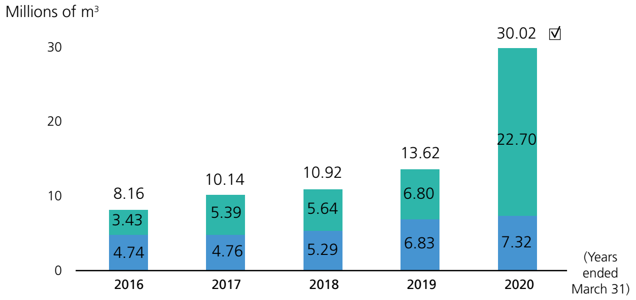
Japan Overseas

Reporting boundary: Taiyo Nippon Sanso Corporation and its consolidated subsidiaries in Japan and principal consolidated subsidiaries overseas*

Production processes for industrial gases use a significant amount of electric power. The bulk of our electric power consumption goes to the operation of ASUs. Electric power consumption in Japan decreased year on year to 3,743 GWh, mainly due to the the effect of upgrading energy-efficient ASUs. Electric power consumption overseas increased year on year to 6,270 GWh, mainly as a result of proactive M&A activity overseas, such as the acquisition of the European business and the HyCO business in the United States.

Fresh Water Withdrawn

Millions of m^3



Japan Overseas

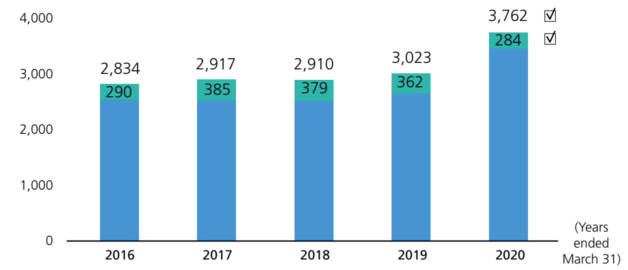
Reporting boundary: Gas production facilities of Taiyo Nippon Sanso Corporation and its consolidated subsidiaries in Japan, and principal consolidated subsidiaries overseas*

In FYE2020, consolidated subsidiaries in Japan with facilities specified under the Water Pollution Prevention Act were added to the reporting boundary.

The production of industrial gases uses a water cooler to cool atmospheric air, the principal raw material. Replenishing the water for this purpose uses the bulk of our fresh water withdrawn. Fresh water withdrawn in FYE2020 was 7.32 millions of m^3 in Japan and 22.70 millions of m^3 overseas, owing to the expansion of operations as a result of proactive M&As. From FYE2021, we have disclosed a breakdown of fresh water withdrawn in our Sustainability Data Book.

Waste Generated (Including Valuable Materials)

Tonnes



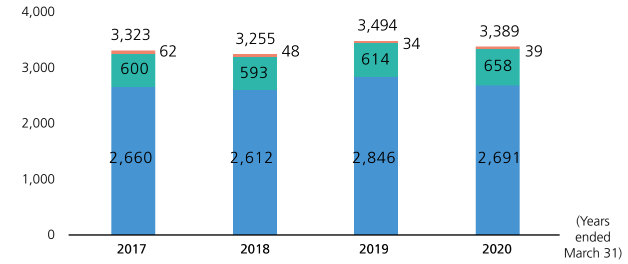
Amount of waste recycled or reduced Final disposal amount (including residues after intermediary processing outside the Company)

Reporting boundary: Taiyo Nippon Sanso Corporation and its consolidated subsidiaries in Japan

Waste generated in FYE2020 increased year on year to 3,762 tonnes, reflecting bulk recycling of high-pressure gas containers that had passed their expiry dates.

Research and Development Costs

Millions of yen



Gas Business in Japan Gas Business in the United States Thermos Business

Reporting boundary: Taiyo Nippon Sanso Corporation and its consolidated subsidiaries

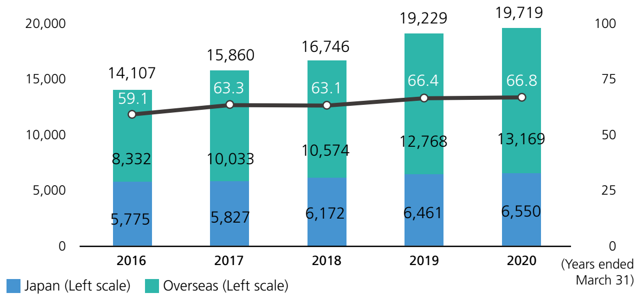
Research and development costs in FYE2020 were level year on year at ¥3,389 million. In research and development, we work on the development of new products and technologies for various fields, based on our proprietary gas technology, which will contribute to earnings growth.

Greenhouse gas emissions in Japan are calculated using emission factors specified in Japan's Act on Promotion of Global Warming Countermeasures. For electricity, basic emission factors for each electricity provider are used. For greenhouse gas emissions overseas, Scope 1 emissions are calculated using emission factors set forth in Japan's Act on Promotion of Global Warming Countermeasures, while Scope 2 emissions are calculated using country-specific emission factors published by the IEA.

Energy consumption: The energy of the consumed fuels are calculated based on the gross calorific values specified in Japan's Act on the Rational Use of Energy. Purchased electricity and purchased steam are converted into primary energy amounts.

Number of Employees (Consolidated)

Number of individuals %

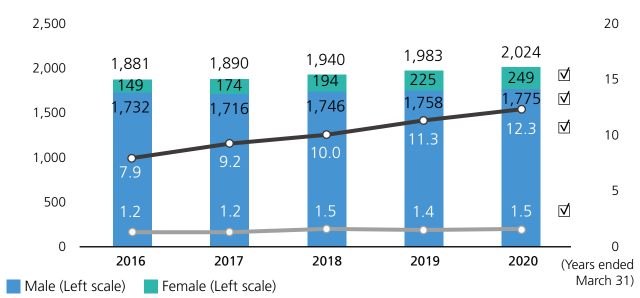


Japan (Left scale) Overseas (Left scale)
Overseas employees as a percentage of total labor force (Right scale)

In FYE2020, the number of individuals employed by the consolidated Nippon Sanso Holdings Group was 6,550 in Japan and 13,169 overseas. Owing to the expansion of operations as a result of proactive M&A activity overseas, employees as a percentage of total labor force was also up from FYE2019.

Number of Employees (Taiyo Nippon Sanso)

Number of individuals %

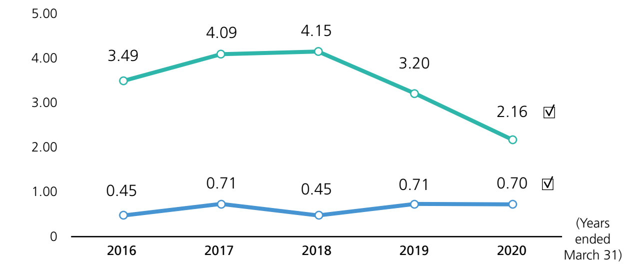


Male (Left scale) Female (Left scale)
Female employees as a percentage of total labor force (Right scale)
Female managers as a percentage of total managerial positions (Right scale)

In FYE2020, Taiyo Nippon Sanso Corporation's labor force comprised 1,775 male employees and 249 female employees. While female employees as a percentage of total labor force rose 1.0 percentage point, female managers as a percentage of total managerial positions remained level. Going forward, we will continue working to expand career opportunities for female employees by improving working environments and establishing pertinent systems.

Frequency Rate* of Occupational Accidents Resulting in Lost Workdays (Consolidated)

* The frequency rate expresses the frequency of accidents resulting in lost workdays in a fiscal year, calculated as the number of injuries/deaths due to occupational accidents per million work hours



Japan Overseas

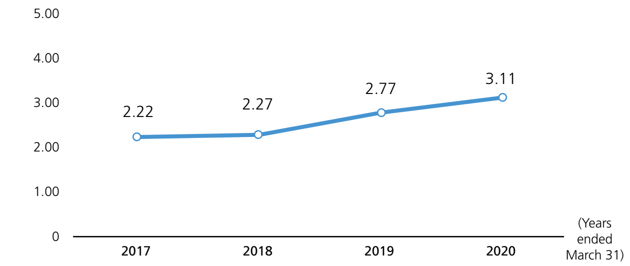
Reporting boundary: Taiyo Nippon Sanso Corporation, its principal consolidated subsidiaries in Japan that have production divisions, and its principal production subsidiaries overseas (excluding overseas Thermos Group)

Overseas performance in FYE2019 includes data for Europe for the three months ended March 31, 2019.

In FYE2020, the frequency rate of occupational accidents resulting in lost workdays was 0.70 in Japan and 2.16 overseas. We continue to promote efforts to prevent occupational accidents, including analyzing the causes of occupational accidents and proposing countermeasures, improving employees' ability to recognize danger, and fostering a safety-oriented corporate culture.

Employee Turnover Rate (Taiyo Nippon Sanso)

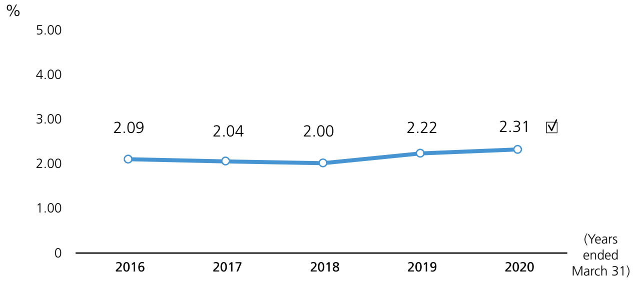
%



The employee turnover rate in FYE2020 was 3.11%, an increase of 0.34 percentage point year on year. Going forward, we will continue taking steps to retain human resources by executing measures to enable employees to feel a sense of worth and achievement in their work.

Employment Rate of Persons with Disabilities (Taiyo Nippon Sanso; as of June 1 each year)

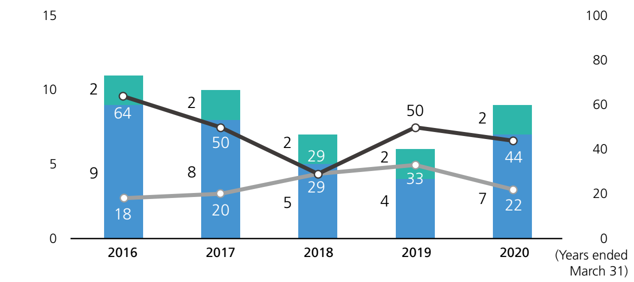
%



In FYE2020, employees with disabilities accounted for 2.31% of our labor force, slightly higher than the legally mandated rate for private-sector companies in Japan of 2.2%. We endeavor to provide working environments in which individuals with disabilities can reach their full potential and to support the realization of a society that enables individuals with disabilities to play an active role that leverages their abilities.

Directors and Outside Directors

Number of individuals %



Inside directors (Left scale) Independent outside directors (Left scale)
Percentage of directors serving concurrently as executive officers (Right scale)
Independent outside directors (Right scale)

* Regarding the number of directors and outside directors, the President CEO is counted as an executive officer.

In FYE2020, the Board of Directors comprised seven inside and two independent outside directors, with directors serving concurrently as executive officers accounting for 44% of the Board as a whole and independent outside directors accounting for 22%. The Advisory Committee on Appointments and Remuneration, which is chaired by an independent outside director and comprises the President CEO and independent outside directors, was established to improve the transparency and objectivity of procedures for appointing and determining remuneration for directors.

* For information on principal overseas subsidiaries, please see the Sustainability Data Book for FYE2020.

Independent Assurance Report

KPMG

Independent Assurance Report

To the Representative Director, President CEO of Nippon Sanso Holdings Corporation

We were engaged by Nippon Sanso Holdings Corporation (the "Company") to undertake a limited assurance engagement of the environmental and social performance indicators marked with ☑ (the "Indicators") for the period from April 1, 2019 to March 31, 2020 included in its Integrated Report 2020 (the "Report") for the fiscal year ended March 31, 2020.

The Company's Responsibility

The Company is responsible for the preparation of the Indicators in accordance with its own reporting criteria (the "Company's reporting criteria"), as described in the Report.

Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Indicators based on the procedures we have performed. We conducted our engagement in accordance with the 'International Standard on Assurance Engagements (ISAE) 3000, Assurance Engagements other than Audits or Reviews of Historical Financial Information' and the 'ISAE 3410, Assurance Engagements on Greenhouse Gas Statements' issued by the International Auditing and Assurance Standards Board. The limited assurance engagement consisted of making inquiries, primarily of persons responsible for the preparation of information presented in the Report, and applying analytical and other procedures, and the procedures performed vary in nature from, and are less in extent than for, a reasonable assurance engagement. The level of assurance provided is thus not as high as that provided by a reasonable assurance engagement. Our assurance procedures included:

- Interviewing the Company's responsible personnel to obtain an understanding of its policy for preparing the Report and reviewing the Company's reporting criteria.
- Inquiring about the design of the systems and methods used to collect and process the Indicators.
- Performing analytical procedures on the Indicators.
- Examining, on a test basis, evidence supporting the generation, aggregation and reporting of the Indicators in conformity with the Company's reporting criteria, and recalculating the Indicators.
- Visiting the Keihin Plant of JFE Sanso Center Co., Ltd. selected on the basis of a risk analysis.
- Evaluating the overall presentation of the Indicators.

Conclusion

Based on the procedures performed, as described above, nothing has come to our attention that causes us to believe that the Indicators in the Report are not prepared, in all material respects, in accordance with the Company's reporting criteria as described in the Report.

Our Independence and Quality Control

We have complied with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. In accordance with International Standard on Quality Control 1, we maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

KPMG AZSA Sustainability Co., Ltd.

KPMG AZSA Sustainability Co., Ltd.
Tokyo, Japan
December 9, 2020

Awards

Japan

"Oita Petroleum Combinate Firefighting Competition Award" Top Prize
The manufacturing division of Tsurusaki Sanso Center Co., Ltd. won top prize in a competition held in the Oita Combinate site for improving firefighting skills and disaster prevention awareness.

Award for Services to Safety
Taiyo Nippon Sanso Corporation received an award in recognition of its track record in the Tokyo Metropolitan High Pressure Gas Safety Competition held by the Tokyoto Koatsu Gasu Hoan Kyokai (the High Pressure Gas Safety Institute in Tokyo). The competition is held to promote autonomous safety activities by all companies and industries.

Award Received at the "Chiba Labor Bureau Chief's Commendation Awards"
Chiba Sanso Center Co., Ltd. received an award from the Ministry of Health, Labour and Welfare in recognition of its efforts in an award program for companies in a region that are recognized as having excellent standards of health and safety and improvement initiatives that are a model for others.

Award Received at the "IOMA International Harmonization Award"
An employee of Taiyo Nippon Sanso Corporation received this award from the Japan Industrial and Medical Gases Association (JIMGA) for successfully serving as task team leaders for the drafting of safe handling guidelines for arsine phosphine.

Top prize in the "Trailhead Contest"
Taiyo Nippon Sanso System Solutions Corporation and the Information Systems Department of Taiyo Nippon Sanso Corporation won top prize in the corporate division of a contest for completing the highest number of units in a free online learning service for Salesforce, called "Trailhead."

Letter of Appreciation Received Regarding Surgical Masks
Taiyo Nippon Sanso Corporation received a letter of appreciation from the Governor of Tokyo for donating surgical masks to medical institutions and others in response to a severe shortage of masks in medical institutions following the spread of COVID-19.

Received "Packaging Technology Award" and "Appropriate Packaging Award"
Taiyo Nippon Sanso Corporation employees received an award from the Japan Packaging Institute for developing a gas canister cap that complies with the sealing function stipulated in relevant laws and does not return easily to its current status.

Letter of Appreciation Received for Explanation of High-Pressure Gas Combustion Characteristics
Taiyo Nippon Sanso Corporation received a letter of appreciation from the Kanagawa Ken Koatsu Gasu Hoan Kyokai (the High Pressure Gas Safety Institute in Kanagawa Prefecture) for its track record in contributing to an explanation of high-pressure gas combustion characteristics in an earthquake preparedness drill that has been held by the association for many years.

Overseas

Received the "Award for Companies Promoting Safe Production"
Shanghai Taiyo Nippon Sanso Gas Co., Ltd. received the "Award for Companies Promoting Safe Production" in recognition of its record of beneficial activities from the Shanghai Industrial Park Safety Production Committee. One of the company's employees received an award as a "Person Who Has Contributed to Safe Transport."

Award for "Company Practicing Excellent Safety Management"
Shanghai Taiyo Nippon Sanso Gas Co., Ltd. received an award as a "Company Practicing Excellent Safety Management" in recognition of its excellent record of activities from the Shanghai Municipal Transport Bureau. One of the company's employees also received an honorary award as a "Driver with Excellent Manners."

Received "AAA Rating (Highest Rating) for Liaoning Road Transport Management"
Dalian Taiyo Nippon Sanso Gas Co., Ltd. received an award from the Dalian provincial government in recognition of its record in raising awareness of safe driving over many years.

* Dalian Taiyo Nippon Sanso Gas is the only company to receive consecutive AAA ratings from the Dalian provincial government.

Received "Regional Supplier Recognition Award for Asia"
Ingasco, Inc. received an award from Texas Instruments Incorporated in recognition of its performance in meeting customer expectations for quality and stable supply.

Received "Supplier Excellence Award"
Taiyo Nippon Sanso Taiwan, Inc. received an award from Epistar Corp. in recognition of its performance in meeting customer expectations for quality and stable supply.

Received "Best Supplier Award"
Ingasco, Inc. received an award from IBIDEN Philippines, Inc. in recognition of its performance in meeting customer expectations for quality and stable supply.

Received "Green Industry Award"
Air Products Industry Co., Ltd. received an award as an environmentally considerate, clean factory from the Thai government in recognition of its various environmental activities, such as reducing environmental impact and energy consumption.

Received "EIGA Annual Safety Award" (8th consecutive time)
Nippon Gases Euro-Holding S.L.U. received an award from the European Industrial Gases Association in recognition of the Nippon Gases Euro-Holding Group's safety initiatives. This is the 8th consecutive time to receive the award, and the 15th time in total.

EIGA Safety Awards

* Company names are the current name at the time of receiving the reward.

Editorial Policy

We strive to guarantee management transparency and believe in the importance of building relationships of trust with stakeholders through dialogue. Accordingly, in this report we place a priority on ensuring that stakeholders understand our overall value creation process.

Since FYE2017, we have published an annual integrated report. 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. Information has been selected with consideration to relevance to give shareholders, investors, and other stakeholders an accurate overall understanding of the Nippon Sanso Holdings Group, its operating activities, and its approach to value creation. In editing the report, we have referred to the International Integrated Reporting Council (IIRC)'s *International IR Framework*, and the *Guidance for Integrated Corporate Disclosure and Company–Investor Dialogue for Collaborative Value Creation*, published by the Ministry of Economy, Trade and Industry.

Reporting boundary

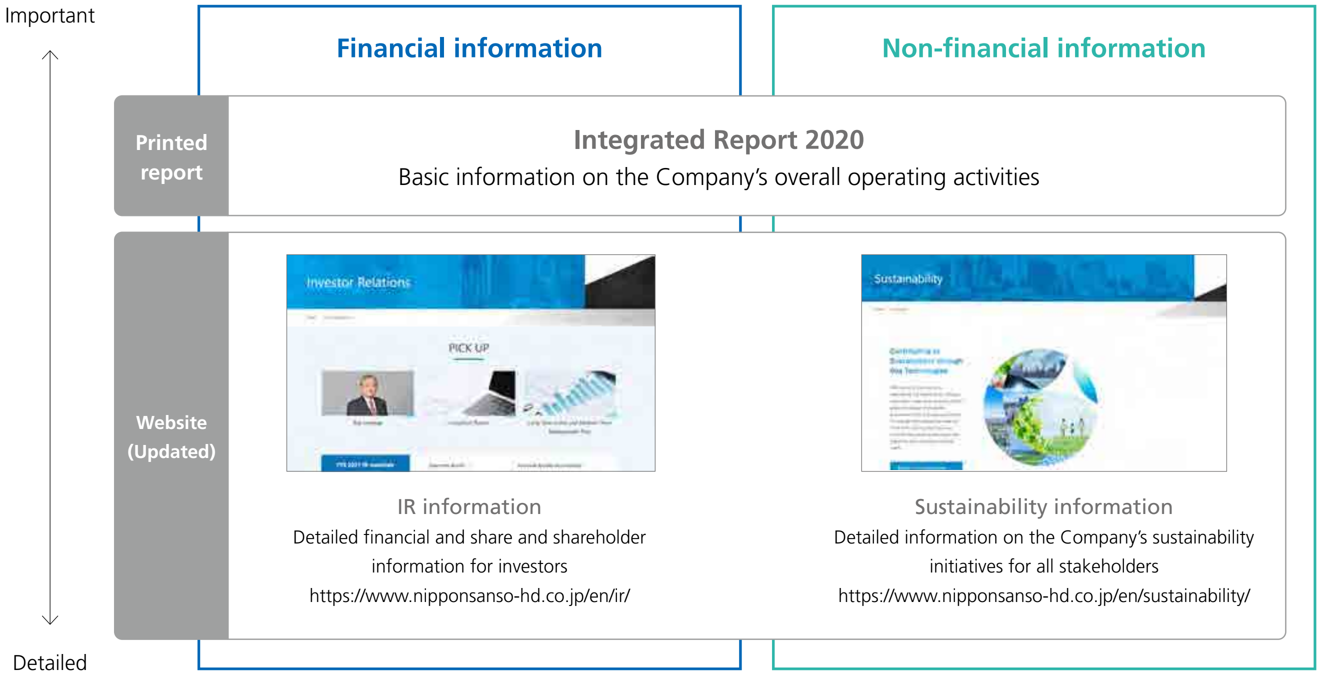
This report covers the activities of Nippon Sanso Holdings Corporation and the companies of the Nippon Sanso Holdings Group. In principle, non-financial information is for Nippon Sanso Holdings Group companies in Japan and overseas, although in some cases the scope varies.

Period Covered

Data in this report is for FYE2020, ended March 31, 2020, although some FYE2021 activities and future issues and targets are also featured.

Disclosure System

This report contains important basic information that Nippon Sanso Holdings Corporation particularly wishes to communicate to stakeholders. For more detailed non-financial information, please visit the Sustainability section of the Company's corporate website.



Publication Process of This Report

In publishing "Nippon Sanso Holdings Integrated Report 2020," we held 12 planning meetings based on the results of investor survey questionnaires and feedback and requests received from stakeholders.

Overview of the 12 Planning Meetings

Main participants at the meetings
(Rank, position, and organization as of October 1, 2020)

- Nippon Sanso Holdings Corporation
  Representative director, President CEO Yujiro Ichihara;
  Executive officers Satoshi Wataru, Tsutomu Moroishi, Takeshi Miki;
  Group Planning Office, Corporate & Business Planning Division, Corporate Planning Division, Group Human Resources & Corporate Secretariat, Public Relations Division, Group Finance and Accounting Office, Investor Relations Division
- Taiyo Nippon Sanso Corporation
  Representative director, president Kenji Nagata
  Director and senior managing executive officer Masahiro Uehara
  Senior executive officer Nobuaki Kobayashi
  Executive officer Yoshifumi Koide
  Legal Affairs Department, Human Resource Department, Corporate Planning Office, Corporate Planning Department, Corporate Administration Division, Corporate Communications Department, Technological Affairs Division, Research & Development Division, and KAITEKI Promotion Project
- Edge International, Inc.

Main Discussion Themes

- Evaluation and review of Integrated Report 2019
- Why make an integrated report? Frameworks followed by investors and corporations in Japan and overseas
- ESG-related information for priority disclosure
- Nippon Sanso Holdings' strengths in governance
- Nippon Sanso Holdings' human resources
- Direction and overall composition of Integrated Report 2020

Editorial Note

Thank you for taking the time to read Integrated Report 2020 in its entirety. The Company transitioned to a holding company structure on October 1, 2020. The report presents the background to this transition as the Group's business continues to globalize, and the Group's aims for the future. We also kept two key points in mind, based on the feedback and requests received through dialogue with stakeholders. The first is the social value of the existence of the industrial gases business, which is the Group's original industry. The second is the relationship between the Group's business of producing and supplying industrial gases, ESG, and sustainability. We have strived to communicate these two key points in a way that any stakeholder can clearly understand, thereby making the purpose for the Company's existence clear. However, to really enable people to understand the Group, there is still much information that has yet to be communicated. Under the new structure with Nippon Sanso Holdings, we aim to make our integrated reports even better, from a more global perspective; and I believe that the source of this enhancement will be our dialogue with stakeholders. I thank you for your continued support of the Nippon Sanso Holdings Group.

Takayoshi Umehara
General Manager
Investor Relations, Group Finance and Accounting Office,
Nippon Sanso Holdings Corporation

Integrated Report 2020 editing team