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Nippon Sanso Holdings Corporation – Water Security 2023

W0. Introduction

W0.1

(W0.1) Give a general description of and introduction to your organization.

The Nippon Sanso Holdings Corporation (hereinto referred to as NSHD) was founded in 1910 as Nippon Sanso Ltd. In 1918, NSHD formally changed its name to Nippon Sanso and in 2004, merged with Taiyo Toyo Sanso Co., Ltd to become Taiyo Nippon Sanso Corporation (hereinto referred to as TNSC). From there, in 2014, TNSC became a consolidated subsidiary of Mitsubishi Chemical Holdings. On the other side, in 2018, through Nippon Gases Euro-Holdings S.L.U, NSHD acquired a stake in a corporation that operates part of Praxair, Inc's European operations. In 2019, NSHD acquired a portion of the HyCO business and related assets of Linde Gas North America LLC through Matheson Tri-Gas, Inc. and transitioned NSHD to a holding company structure effective October 1, 2020. Classified in the chemical industry, NSHD's primary business is the production and sale of oxygen, nitrogen, and argon, which are typical industrial gases, and other industrial gases such as carbon dioxide, hydrogen, helium, LP gas, and specialty gases for semiconductor applications. NSHD is comprised of 206 consolidated companies employing a total of 19,579 people worldwide (as of March 31, 2023). Under the previous Medium-term Management Plan, "Ortus Stage 2," during the period from the fiscal year ending March 31, 2018, to the fiscal year ending March 31, 2021, the Company achieved the following results: "Globalization and expansion of
presence through the acquisition of European businesses and HyCO business in the United States," "Expansion of specialty gas business for electronics in East Asia," "Production capacity expansion in the United States and Asia". Moreover, in October 2020, we transitioned to a pure holding company structure, and have formulated "NS Vision 2026 - Enabling the Future," which will conclude in the fiscal year ending March 31, 2026. “NS Vision 2026" is based on the business management structure of "four geographic hubs and the Thermos business," and in addition to financial KPI targets, non-financial KPI targets have also been newly established,

along with five key strategies (sustainability management, exploring new business toward carbon neutrality, total electronics, operational excellence, and DX initiatives) as we aim to strengthen the Group's overall capabilities and achieve growth.

W-CH0.1a

(W-CH0.1a) Which activities in the chemical sector does your organization engage in?

Bulk inorganic chemicals

W0.2

(W0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date
Reporting year	April 1 2022	March 31 2023

W0.3

(W0.3) Select the countries/areas in which you operate.

Australia
Belgium
Canada
China
Denmark
France
Germany
India
Indonesia
Ireland
Italy
Japan
Malaysia
Myanmar
Netherlands
Norway
Philippines
Poland
Portugal
Republic of Korea
Saudi Arabia
Singapore
Spain
Sweden
Taiwan
China
Thailand
United Kingdom of Great Britain and Northern Ireland

United States of America
Vietnam

W0.4

(W0.4) Select the currency used for all financial information disclosed throughout your response

JPY

W0.5

(W0.5) Select the option that best describes the reporting boundary for companies, entities, or groups for which water impacts on your business are being reported.

Companies, entities or groups over which financial control is exercised

W0.6

(W0.6) Within this boundary, are there any geographies, facilities, water aspects, or other exclusions from your disclosure?

No

W0.7

(W0.7) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization.	Provide your unique identifier
Yes, a Ticker symbol	4091

W1. Current state

W1.1

(W1.1) Rate the importance (current and future) of water quality and water quantity to the success of your business

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Important	Not important at all	◆Primary Use in Direct Operations◆ In the industrial gas production process, fresh water is used as a coolant for heat exchangers (a component in various manufacturing plants) built into rotating machines and other equipment.

			◆Why is the use of fresh water not important in indirect operations?◆ In our industry, the main use of water in our supply chain is limited to the manufacturing stage, which we are responsible for, and is not used upstream, downstream or in the product use stage. Therefore, the quality and quantity of fresh water during indirect usage is rated as not important at all, and since air, the raw material of industrial gas, is obtained from the atmosphere in upstream operations, there are no suppliers. In downstream operations, products are supplied in three ways: by lorries (liquids), by cylinders or other containers (gases), and by pipelines (gases). Water is rarely used when the supplied products (both liquids and gases) are consumed. Moreover, the total amount of water withdrawn during the industrial gas production stage is 90% of NSHD's total water withdrawals. ◆Why is the use of fresh water important in direct operations?◆ We believe that the availability of sufficient fresh water is important in preventing a decline in production output levels. If the heat exchanger cannot be sufficiently cooled, the temperature of the industrial gas leaving the exchanger will be higher and the industrial (gas) density will be lower, thereby creating a lower product output. As global warming and rising average temperatures are expected to cause an increase in the temperature of cooling water, we believe production output levels will become an increasingly important factor of production in the future. We also believe that our water dependence will not change in the future for both direct and indirect operations.
Sufficient amounts of recycled, brackish and/or produced water available for use	Not important at all	Not important at all	◆Why is the use of recycled water not important in direct operations?◆ NSHD's manufacturing plants are located in both coastal and inland areas, but neither location uses seawater. Rotating machines that are present in the manufacturing process compress gases and, during that process, heat exchangers are essential in cooling the gases as they rise in temperature. The heat exchangers are made of steel, which means if seawater is used as a refrigerant for the heat

			exchanger, rusting or other problems may occur, leading to damage. To prevent rusting, the heat exchanger would have to be made of a sturdy material like stainless steel; however due to the high cost when compared with conventional products, it is difficult to choose stainless steel heat exchangers. For this reason, NSHD's manufacturing plants do not use seawater, but instead use fresh water to supply the heat exchangers. Furthermore, our use of fresh water is cyclical in its cooling usage reducing the necessity for recycled water from outside sources. NSHD hopes to promote freshwater recycling by increasing the frequency of our own fresh water circulation in the cooling towers present at our plants. The use of water other than fresh water, including recycled fresh water, is not expected to become more important in the future. ◆Why is the use of recycled water not important in indirect operations?◆ Regarding indirect use, as there are no upstream suppliers, we do not need to consider how our suppliers use seawater or recycled water. Similarly, we do not need to consider how our customers use seawater or recycled water downstream, because there are no heating or cooling processes involved in the use of the industrial gases we supply. For this reason, we have rated its importance as "not very important". This trend is expected to change little in the future.

W1.2

(W1.2) Across all your operations, what proportion of the following water aspects are regularly measured and monitored?

	% of sites/facilities/operations	Frequency of measurement	Method of measurement	Please explain
Water withdrawals – total volumes	100%	Continuously	Water withdrawals are regularly measured	Given the importance of water in the manufacturing process (cooling), it is recorded at 100% of our manufacturing facilities, for example, through automated measuring devices. Monthly totals are reported to site management and used to evaluate various performance characteristics of the

			using flow meters.	manufacturing industry. Once a month, the data from the automated measuring devices is reviewed and monitored.
Water withdrawals – volumes by source	100%	Continuously	Water withdrawals are regularly measured using flow meters.	Water supplied from municipal sources is constantly monitored using automated equipment to verify license requirements and water usage. We continue our monitoring efforts to assess water use efficiency at facilities where large volumes of groundwater and surface water are used. Monthly totals are reported to site managers and used to assess various performance characteristics of the manufacturing industry.
Water withdrawals quality	100%	Continuously	Water quality parameters such as turbidity, hardness, and pH are important for stable operation and product quality, so they are constantly and continuously monitored through the installation of automatic equipment and sampling at all facilities that use surface or ground water.	We monitor the water quality at each production site once a month to confirm that there are no abnormal values. For water supplied by third parties, we do not measure the water quality ourselves because the quality is usually stable. However, we do use data obtained from our supplier and monitor it regularly, usually once a month. Our suppliers also consistently and automatically measure the quality of supplied water. If we detect any anomalies in the water quality from the measurement results, we contact our supplier immediately. Thus, including this indirect monitoring, we virtually always monitor the quality of all water we take and use in our operations.
Water discharges – total volumes	100%	Monthly	Because wastewater is not continuous at our sites, it is difficult to measure the volume of wastewater using	NSHD measures 83% of total water discharge volumes. One of the characteristics of the sites that are not being measured is that the wastewater is routed through pits (ditches) rather than piping. After consulting with an outside organization, NSHD adopted this formula for [facilities that do not measure wastewater discharge] to calculate water discharge volumes. These calculations are performed once/month. Additionally, 78% of all

			instruments such as flow meters. Through test measurements of the trends in our water withdrawals and discharges in a typical production plant, we have confirmed the following formula: [water discharge = (1/3) x water withdrawal (measured continuously)]	establishments in FYE2022 discharged into existing sewage systems, while only 10% discharged directly into rivers, lakes, etc., and 1% directly into groundwater and the ocean, respectively. On the other hand, for Europe, HyCO, and others, the actual volume of wastewater discharged is automatically measured. In Europe or HyCO, the drainage route is piping and although the drainage is not continuous, it is constantly monitored because it is easy to measure with a flow meter. That data is compiled at a frequency of about once/month, together with the data from the above offices that do not actually measure the volume of wastewater discharged.
Water discharges – volumes by destination	100%	Monthly	Because wastewater is not continuous at our sites, it is difficult to measure the volume of wastewater using instruments such as flow meters. Through test measurements of the trends in our water withdrawals and discharges in a typical production plant, we have confirmed the	NSHD measures 83% of total water discharge volumes. One of the characteristics of the sites that are not being measured is that the wastewater is routed through pits (ditches) rather than piping. After consulting with an outside organization, NSHD adopted this formula for [facilities that do not measure wastewater discharge] to calculate water discharge volumes. These calculations are performed once/month. Additionally, 78% of all establishments in FYE2022 discharged into existing sewage systems, while only 10% discharged directly into rivers, lakes, etc., and 1% directly into groundwater and the ocean, respectively. On the other hand, for Europe, HyCO, and others, the actual volume of wastewater discharged is automatically measured. In Europe or HyCO, the drainage route is piping and although the drainage is not continuous, it is constantly monitored because it is easy to measure with a flow meter. That data is compiled at a frequency of about once/month, together with the data from the above offices that do not actually measure the volume of wastewater discharged.

			following formula: [water discharge = (1/3) x water withdrawal (measured continuously)]	
Water discharges – volumes by treatment method	Not relevant			Water treatments are not relevant to NSHD as there are no processes that could lead to contamination of fresh water, and therefore there is no need to have treatment methods such as an activated sludge process or other treatment facilities. Specifically, all fresh water taken in by NSHD is supplied to the cooling tower and then to the heat exchanger, a component of the rotating machine, as a refrigerant by means of a water pump. After heat exchange in the heat exchanger, the warmed fresh water is returned to the cooling tower and simultaneously cooled to a temperature equivalent to that of the atmosphere. The fresh water cooled in the cooling tower is again supplied to the heat exchanger by a water pump and returns to the cooling tower by the same route described above. Therefore, the use of fresh water in the NSHD is circulating, and there are almost no factors that would deteriorate water quality. In the cooling tower, because of the high temperature of the fresh water returned from the heat exchangers, some of the fresh water evaporates into the atmosphere and is also released into the atmosphere as droplets under the influence of the large air propellers installed in the cooling tower. Moreover, fresh water gradually decreases with each circulation around the cooling tower, and at the same time, it also concentrates due to evaporation. Thus, we do not expect any major changes in our business operations in the future, and we do not expect any changes in our current situation.
Water discharge quality – by standard effluent parameters	100%	Monthly	When discharging into the public sewage system, fresh water inside	We measure freshwater composition in the water tank inside the cooling tower, rather than through water discharges. Our freshwater circulation system is centred around cooling towers, so the fresh water discharged from the cooling tower is intermittent and not always discharged. On the other hand, the fresh

			the cooling tower is sampled and analysed by a third-party organization at least once/month as well.	water discharged from the cooling tower is discharged directly from the water tank inside the cooling tower. For that reason, water quality control inside the water tank is more effective than wastewater quality control. At least once a month, through a third-party laboratory analysis, the fresh water inside the cooling tower is sampled and monitored for COD, total nitrogen, and other regulatory parameters for the monitored areas of where wastewater is discharged to public waters. More than 78% of NSHD sites discharge wastewater into public sewers. When discharging to public sewers, fresh water inside the cooling towers is sampled and analysed by a third-party organization at least once a month.
Water discharge quality – emissions to water (nitrates, phosphates, pesticides, and/or other priority substances)	100%	Monthly	Priority substance discharges are measured with a flow meter. Toxic substances such as nitrates and phosphates are sampled by water sampling and the quality of the wastewater is monitored by a measuring company.	We measure freshwater composition in the water tank inside the cooling tower, rather than through water discharges. Our freshwater circulation system is centred around cooling towers, so the fresh water discharged from the cooling tower is intermittent and not always discharged. On the other hand, the fresh water discharged from the cooling tower is discharged directly from the water tank inside the cooling tower. For that reason, water quality control inside the water tank is more effective than wastewater quality control. At least once a month, through a third-party laboratory analysis, the fresh water inside the cooling tower is sampled and monitored for COD, total nitrogen, and other regulatory parameters for the monitored areas of where wastewater is discharged to public waters. More than 80% of NSHD sites discharge wastewater into public sewers.
Water discharge quality – temperature	100%	Continuously	Temperature is constantly monitored using an automatic measuring device installed inside the water tanks.	We measure the temperature of the fresh water in the water tank inside the cooling tower, not the wastewater. At NSHD, the freshwater circulation system is centred on the cooling tower, so the fresh water discharged from the cooling tower is intermittent and is not always discharged. On the other hand, the fresh water discharged from the cooling tower is discharged directly from the water tank inside the cooling tower. This is the reason why water temperature control inside the tank is effective in controlling wastewater quality. In the case of

				NSHD, on the other hand, there are almost no establishments that discharge directly into public waters, and more than 78% discharge into existing sewers, etc. The temperature is constantly monitored by automatic measuring devices installed inside the water tank.
Water consumption – total volume	100%	Monthly	Because wastewater is not continuous at our sites, it is difficult to measure the volume of wastewater using instruments such as flow meters. Through test measurements of the trends in our water withdrawals and discharges in a typical production plant, we have confirmed the following formula: [water discharge = (1/3) x water withdrawal (measured continuously)]	After consulting with an outside organization, NSHD adopted this formula for [facilities that do not measure wastewater discharge] to calculate water discharge volumes. These calculations are performed once/month. Additionally, 78% of all establishments in FYE2022 discharged into existing sewage systems, while only 10% discharged directly into rivers, lakes, etc., and 1% directly into groundwater and the ocean, respectively. On the other hand, for Europe, HyCO, and others, the actual volume of wastewater discharged is automatically measured. In Europe or HyCO, the drainage route is piping and although the drainage is not continuous, it is constantly monitored because it is easy to measure with a flow meter. The data is compiled at a frequency of about once/month, together with the data from the above offices that do not actually measure the volume of wastewater discharged. Usage is tabulated monthly to identify any anomalies. In cases where water discharge volumes are low and not constantly measured (e.g., offices), water withdrawals and water discharges are assumed to be the same and water consumption is set to zero.
Water recycled/reused	100%	Monthly	As an alternative to standard measurement method, we prioritize two factors. The first is to	Since the only use of fresh water at NSHD is circulatory in coolant systems, centred in the cooling towers, all of the facilities that use a circulation system fall under the category of freshwater recycling facilities. In order to improve water, use efficiency, future efforts will be made to increase water recovery and recycling. However, it is extremely difficult to accurately determine the

			compare the behaviour of past withdrawals with actual withdrawals. The second is to observe the properties of concentration. Based on these two factors, we determine whether the recycled volumes are being maintained within an appropriate range and monitor appropriately. It is therefore very important to accumulate data on water withdrawal and concentration patterns.	volumes of water recycled. The reason for this is that it is extremely difficult to quantitatively determine the amount of evaporation and droplet volume, which fluctuates with temperature. Data is compiled at a frequency of about once/month. In the future, we believe it is important to optimize the type and frequency of injected chemicals in order to slow the degree by which concentration increases, which would result in the further promotion of water withdrawal reduction activities.
The provision of fully-functioning, safely managed WASH services to all workers	100%	Yearly	Safe water and sanitation facilities are present at all business locations at all times. The condition of safe water and sanitation facilities is monitored and reported	Safe water is supplied by a third party, who constantly monitors safety levels. If there is a problem with the monitored data, the third party is required to immediately stop supplying said water and report to us.

			annually through employee health care performance monitoring.	

W1.2b

(W1.2b) What are the total volumes of water withdrawn, discharged, and consumed across all your operations, how do they compare to the previous reporting year, and how are they forecasted to change?

	Volume (megaliters/year)	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Five-year forecast	Primary reason for forecast	Please explain
Total withdrawals	44,952	About the same	Increase/decrease in business activity	Lower	Increase/decrease in efficiency	[Comparison with Previous Year] NSHD uses the following criteria to evaluate changes in water quantity. Deviation of: ±5% = about the same, ±5-10% = higher/lower, and ±10% or more = significantly higher/lower. In FYE2022, water withdrawals were 45,911 ML; in the reporting year, they were 44,952 ML. Since this is a decrease of approximately 2%, we rate it as "about the same" as the previous year. We believe that the main reasons for the change are the stabilization of industrial gas production since FYEE2022 and the result of our water withdrawal reduction activities. Going forward, we expect water withdrawals to decrease due to NSHD's water conservation activities.
Total discharges	28,518	About the same	Increase/decrease in business activity	About the same	Increase/decrease in	[Comparison with Previous Year] NSHD uses the following criteria to evaluate changes in water quantity.

					efficiency	Deviation of: ±5% = about the same, ±5-10% = higher/lower, and ±10% or more = significantly higher/lower. In FYE2022, the volume of water discharged was 29,885 ML; in FYE2023, the volume was 28,518 ML. Since this is a decrease of approximately 5%, we rate this as "about the same" as the previous year. The main reason for this can be attributed to the increased evaporation of water to the atmosphere, which reduced the amount of water going to wastewater, resulting in a decrease in total wastewater discharge. Since our use of water will not change significantly in the future, it is likely that the volume of wastewater will remain about the same.
Total consumption	16,434	About the same	Increase/decrease in business activity	About the same	Increase/decrease in efficiency	[Comparison with Previous Year] NSHD uses the following criteria to evaluate changes in water quantity. Deviation of: ±5% = about the same, ±5-10% = higher/lower, and ±10% or more = significantly higher/lower. In FYE2022, total consumption was 16,026 ML; in FYE2023, total consumption was 16,434 ML. Since this is an increase of approximately 3%, we rate it as "about the same" as the previous year. The main reason for this is a characteristic of our business activities: water consumption in production plants is mainly due to water evaporation in cooling towers. Since our use of water will not change significantly in the future, consumption is expected to remain at about the same amount.

W1.2d

(W1.2d) Indicate whether water is withdrawn from areas with water stress, provide the proportion, how it compares with the previous reporting year, and how it is forecasted to change.

	Withdrawals are from areas with water stress	% withdrawn from areas with water stress	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Five-year forecast	Primary reason for forecast	Identification tool	Please explain
Row 1	Yes	1～10	About the same	Increase/decrease in business activity	Lower	Increase/decrease in efficiency	WRI Aqueduct	FYE2023 used WRI Aqueduct's [Aqueduct Water Risk Atlas] to screen water stress at sites representing 99% of NSHD's total water withdrawals. One of the primary reasons we chose the WRI Aqueduct is its simple usage as the person in charge of each site is responsible for performing that sites water risk assessment. In the WRI Aqueduct, the risk levels are divided into 5 levels, with 0 being low risk and 5 being extremely high. We assessed 130 sites, and at water intake sites with high water risk, are conducting interviews as well. While we could not identify any sites in Japan with "extremely high" water risk, we surveyed overseas sites and found that overall, 16 sites had "high" water risk. Through the above process, 16 sites were identified as potentially exposed to water risk. These 16 sites were categorized by region as follows. 5 sites in the United States; Albuquerque, Irving, Masa, Odessa, and Vernon

								7 sites in Europe; Pint, Lommel, Ravenna, Pontinia, San Salvo, Castelnuovo, and Rapolano 3 sites in Asia and Oceania; Chakan, Lamphun 5, Lamphun 6 These 16 sites account for 4% of the total water withdrawal. Based on a comprehensive evaluation of the scale of water withdrawal, our own assessment of Physical Risks Quantity, and the results of interviews with local residents, we did not find any areas that were assessed to be at risk of water stress.

W1.2h

(W1.2h) Provide total water withdrawal data by source.

Source	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	24,440	About the same	Increase/ decrease in efficiency	[Comparison with Previous Year] NSHD uses the following criteria to evaluate changes in water quantity. Deviation of: ±5% = about the same, ±5-10% = higher/lower, and ±10% or more = significantly higher/lower. Surface water use for FYE2023 was 24,440 ML and FYE2022 was 25,582 ML, a decrease of 4.5%.

Brackish surface water/Sea water	Not relevant				NSHD has been completely free of seawater and brackish water at all of its facilities worldwide since FYE 2020. We expect this trend to continue because we will never use seawater or brackish water. The trend of not using seawater or brackish water at all is expected to continue, because we will never use seawater or brackish water.
Groundwater – renewable	Relevant	2,366	Much lower	Increase/ decrease in efficiency	[Comparison with Previous Year] NSHD uses the following criteria to evaluate changes in water quantity. Deviation of: ±5% = about the same, ±5-10% = higher/lower, and ±10% or more = significantly higher/lower. Groundwater use in FYE2023 was 2,366 ML and in FYE2022 was 2,710 ML, a decrease of 12.7%.
Groundwater – non-renewable	Not relevant				While our plants are not designed to use water on a large-scale, for sustainability purposes, we do not rely on acyclic water resources. Although the survey was not conducted separately from renewable groundwater, we do not believe it is currently being used and should not be used in the future.
Produced/ Entrained water	Not relevant				The use of stable quality fresh water is essential for our plants as it correlates to stable operations. Furthermore, produced water is not common today and we believe should not be used in the future. However, even at present, we cannot rule out the possibility that facilities located in water stressed areas might have to provisionally accept fresh water in the event of a drought. That possibility further indicates the need to use this water source effectively, as fresh water may be steadily depleted in the future.
Third party sources	Relevant	18,146	About the same	Increase/ decrease in efficiency	[Comparison with Previous Year] NSHD uses the following criteria to evaluate changes in water quantity.

					Deviation of: ±5% = about the same, ±5-10% = higher/lower, and ±10% or more = significantly higher/lower. Third-party water usage in FYE2023 was 18,146 ML, compared to 17,619 ML in FYE2022, an increase of 3.0%. 754 ML increased due to the addition of Continental Carbonic Products, Inc. and Western International Gas & Cylinders, Inc. from the U.S. beginning in FYE2023. Cylinders, Inc. were added to the scope of consolidation from FYE2023, resulting in an increase of 754 ML.

W1.2i

(W1.2i) Provide total water discharge data by destination.

Source	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Primary reason for comparison with previous reporting year	Please explain
Fresh surface water	Relevant	21,815	Lower	Increase/decrease in efficiency	[Comparison with Previous Year] NSHD uses the following criteria to evaluate changes in water quantity. Deviation of: ±5% = about the same, ±5-10% = higher/lower, and ±10% or more = significantly higher/lower. fresh water discharged to surface water in FYE2023 was 21,815 ML and in FYE2022 was 23,685 ML, a decrease of 7.9%.
Brackish surface water/seawater	Relevant	64	About the same	Increase/decrease in efficiency	[Comparison with Previous Year] NSHD uses the following criteria to evaluate changes in water quantity. Deviation of: ±5% = about the same, ±5-10% = higher/lower, and ±10% or more = significantly higher/lower. Brackish water discharged to surface water/sea water in FYE2023 was 64 ML and in FYE2022 was 62 ML, an increase of 2.2%.

Ground water	Relevant	134	Much lower	Increase/decrease in efficiency	[Comparison with Previous Year] NSHD uses the following criteria to evaluate changes in water quantity. Deviation of: ±5% = about the same, ±5-10% = higher/lower, and ±10% or more = significantly higher/lower. FYE2023 discharged 134 ML to groundwater, while FYE2022 discharged 154 ML, a 12.9% decrease.
Third-party destinations	Relevant	6,504	Higher	Increase/decrease in efficiency	[Comparison with Previous Year] NSHD uses the following criteria to evaluate changes in water quantity. Deviation of: ±5% = about the same, ±5-10% = higher/lower, and ±10% or more = significantly higher/lower. The volume of wastewater discharged to third-party dischargers in FYE2023 was 6,504 ML and in FYE2022 was 5,983 ML, an increase of 8.7%. 471 ML increased due to the addition of Continental Carbonic Products, Inc. of the U.S. and Western International Gas & Cylinders, Inc. were added to the scope of consolidation starting in FYE2023, resulting in an increase of 471 ML.

W1.2k

(W1.2k) Provide details of your organization's emissions of nitrates, phosphates, pesticides, and other priority substances to water in the reporting year.

	Emissions to water in the reporting year (metric tonnes)	Category(ies) of substances included	Please explain
Row1	3	Nitrates Phosphates	Since NSHD uses water mainly for indirect cooling, we do not consider this to be a significant burden on water quality. Among certain Japanese subsidiaries and Taiyo Nippon, there are five operations that are subject to regulations on the concentration of hazardous substances (phosphate, nitrate, etc.) in wastewater. The total emissions of hazardous substances for those five

			operations as a whole are less than one ton each. Nitrate nitrogen is decomposed into nitrogen and oxygen by anaerobic microorganisms in the degassing layer, adjusted to a pH of 5.8-8.6, and discharged into seawater.

W1.3

(W1.3) Provide a figure for your organization's total water withdrawal efficiency.

	Revenue	Total water withdrawal volume (megaliters)	Total water withdrawal efficiency	Anticipated forward trend
Row1	1,187,000,000	44,952	26,405.9441181705	In the industrial gas production process (direct use), fresh water used as coolant for heat exchangers (components of equipment in various manufacturing plants) built into rotating machines and other equipment. As a result, there is a perfect proportional relationship between industrial gas production and total water withdrawals. Therefore, as sales increase, the total withdrawals will also increase proportionally, and thus our total water withdrawal efficiency is expected to remain consistent.

W-CH1.3

(W-CH1.3) Do you calculate water intensity for your activities in the chemical sector?

Yes

W-CH1.3a

(W-CH1.3a) For your top five products by production weight/volume, provide the following water intensity information associated with your activities in the chemical sector.

Product type

Bulk inorganic chemicals

Product name

oxygen

Water intensity value (m3/denominator)

0.93

Numerator: water aspect

Freshwater withdrawals

Denominator

Other, please specify (KNm3)

KNm3

Comparison with previous reporting year

About the same

Please explain

The water used per unit of oxygen in FYE2023 was 0.9, while the water used per unit of oxygen in FYE2022 was 0.9. Water intensity is calculated as [water withdrawals required to produce oxygen (m3) ÷ oxygen production (kNm3)]. This means that the amount of fresh water required to produce 1.0 kNm3 of oxygen is 0.9 m3. Generally, it can be assumed water consumption is essentially proportional to product flow rate. As the unit value is nearly the same as the previous year, this indicates that there has been no significant change in production efficiency, with respect to water, and production activities have been carried out smoothly.

Water intensity can be used as a strategic indicator for reducing water withdrawal. Accordingly, it is desirable to monitor water intensity as a KPI (Key Performance Indicator) at production sites and use it as a reference point for activities such as reducing water withdrawals.

Product type

Bulk inorganic chemicals

Product name

Nitrogen

Water intensity value (m3/denominator)

2.3

Numerator: water aspect

Freshwater withdrawals

Denominator

Other, please specify (KNm3)

KNm3

Comparison with previous reporting year

About the same

Please explain

The water used per unit of nitrogen in FYE2023 was 2.3, while the water used per unit of oxygen in FYE2022 was 2.5. Water intensity is calculated as [water withdrawals required to produce nitrogen (m3) ÷ nitrogen production (kNm3)]. This means that the amount of fresh water required to produce 1.0 kNm3 of nitrogen is 2.3 m3. Generally, it can be assumed water consumption is essentially proportional to product flow rate. As the unit value is nearly the same as the previous year, this indicates that there has been no significant change in production efficiency, with respect to water, and production activities have been carried out smoothly.

Water intensity can be used as a strategic indicator for reducing water withdrawal. Accordingly, it is desirable to monitor water intensity as a KPI (Key Performance Indicator) at production sites and use it as a reference point for activities such as reducing water withdrawals.

Product type

Bulk inorganic chemicals

Product name

Argon

Water intensity value (m3/denominator)

1.2

Numerator: water aspect

Freshwater withdrawals

Denominator

Other, please specify (KNm3)

Comparison with previous reporting year

About the same

Please explain

The water used per unit of argon in FYE2023 was 1.2, while the water used per unit of argon in FYE2022 was 1.2. Water intensity is calculated as [water withdrawals required to produce argon (m3) ÷ argon production (kNm3)]. This means that the amount of fresh water required to produce 1.0 kNm3 of argon is 1.2 m3. Generally, it can be assumed water consumption is essentially proportional to product flow rate. As the unit value is nearly the same as the previous year, this indicates that there has been no significant change in production efficiency, with respect to water, and production activities have been carried out smoothly.

Water intensity can be used as a strategic indicator for reducing water withdrawal. Accordingly, it is desirable to monitor water intensity as a KPI (Key Performance Indicator) at production sites and use it as a reference point for activities such as reducing water withdrawals.

Product type

Bulk inorganic chemicals

Product name

Hydrogen

Water intensity value (m3/denominator)

2.3

Numerator: water aspect

Freshwater withdrawals

Denominator

Other, please specify (KNm3)

Comparison with previous reporting year

About the same

Please explain

The water used per unit of hydrogen in FYE2023 was 2.3, while the water used per unit of hydrogen in FYE2022 was 2.1. Water intensity is calculated as [water withdrawals required to produce hydrogen (m3) ÷ hydrogen production (kNm3)]. This means that the amount of fresh water required to produce 1.0 kNm3 of hydrogen is 2.3 m3. Generally, it can be assumed water consumption is essentially proportional to product flow rate. As the unit value is nearly the same as the previous year, this indicates that there has been no significant change in production efficiency, with respect to water, and production activities have been carried out smoothly.

Water intensity can be used as a strategic indicator for reducing water withdrawal. Accordingly, it is desirable to monitor water intensity as a KPI (Key Performance Indicator) at production sites and use it as a reference point for activities such as reducing water withdrawals.

Product type

Bulk inorganic chemicals

Product name

Carbon monoxide

Water intensity value (m3/denominator)

7.7

Numerator: water aspect

Freshwater withdrawals

Denominator

Other, please specify (KNm3)

Comparison with previous reporting year

About the same

Please explain

The water used per unit of carbon monoxide in FYE2023 was 7.7, while the water used per unit of hydrogen in FYE2022 was 7.3. Water intensity is calculated as [water withdrawals required to produce carbon monoxide (m3) ÷ carbon monoxide production (kNm3)]. This means that the amount of fresh water required to produce 1.0 kNm3 of carbon monoxide is 7.7 m3. Generally, it can be assumed water consumption is essentially proportional to product flow rate. As the unit value is nearly the same as the previous year, this indicates that there has been no significant change in production efficiency, with respect to water, and production activities have been carried out smoothly.

Water intensity can be used as a strategic indicator for reducing water withdrawal. Accordingly, it is desirable to monitor water intensity as a KPI (Key Performance Indicator) at production sites and use it as a reference point for activities such as reducing water withdrawals.

W1.4

(W1.4) Do any of your products contain substances classified as hazardous by a regulatory authority?

	Products contain hazardous substances	Comment
Row 1	No	

W1.5

(W1.5) Do you engage with your value chain on water-related issues?

Value chain stakeholder	Engagement	Primary reason for no engagement	Please explain
Suppliers	No	We are planning to do so within the next two years	Although water security is included the NSHD environmental policy, for example water resource efficiency activities, water-related supplier engagement activities have yet to yield substantial results. The reason for this is that NSHD closely checks the parameters of the cooling water circuit at its plants and adjusts water treatment accordingly to minimize water disposal to the sewage system and optimize water usage. Currently, we do not conduct water-related engagement with suppliers and customers, as our own efforts alone are sufficient to handle the situation. However, as part of our environmental activities, there is a requirement in our procurement policy that we strive to reduce our environmental burden. Therefore, we plan to incorporate water-related surveys, including topics such as water intake and water risk, into

			our supplier engagement in the future, and use the information gained from the dialogue to help suppliers better manage water issues. The content of the survey is still under consideration but will be conducted within the next two years. The inclusion of the following items is being discussed: (1) Drought risk (2) Water quality (3) Administrative regulations (4) River flood risk
Other value chain partners (e.g., customers)	No	We are planning to do so within the next two years	Although NSHD's environmental policy includes water security, such as water resource efficiency activities, water-related customer engagement activities have yet to yield substantial results. The reason for this is that NSHD closely checks the parameters of the cooling water circuit at its plants and adjusts water treatment accordingly to minimize water disposal to the sewage system and optimize water usage. Currently, we do not conduct water-related engagement with suppliers and customers, as our own efforts alone are sufficient to handle the situation. However, as part of our environmental activities, we have a requirement in our procurement policy to strive to reduce the environmental burden and will consider water-related engagement activities with our customers in the future.

W2. Business impacts

W2.1

(W2.1) Has your organization experienced any detrimental water-related impacts?

No

W2.2

(W2.2) In the reporting year, was your organization subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations?

	Water-related regulatory violations	Fines, enforcement orders, and/or other penalties
Row 1	No	<not applicable>

W3. Procedures

W3.1

(W3.1) Does your organization identify and classify potential water pollutants associated with its activities that could have a detrimental impact on water ecosystems or human health?

	Identification and classification of potential water pollutants	How potential water pollutants are identified and classified
Row 1	Yes, we identify and classify our potential water pollutants	NSHD identifies and classifies water pollutants whose chemical manufacturing activities may adversely affect water ecosystems and human health in accordance with the following policies and rationale. [Group Policy/Rationale] In accordance with the NSHD Group Environmental Policy, NSHD complies with the relevant laws and regulations of each country and region (such as water pollution control laws), respects international norms, and conducts its business in full consideration of the environment. NSHD does not violate any regulations in the products it manufactures, the manufacturing process of those products, or the consumption or disposal of those products. In addition, only after measuring pH, phosphorus, COD, nitrates etc., is our water discharged. Currently, NSHD has determined that there is no significant risk of hazardous substances leaking to customers or the natural environment. Currently, NSHD has determined that there is no significant risk of hazardous substances leaking to customers or the natural environment. Additionally, as a mechanism to prevent leakage of hazardous substances, NSHD's use of fresh water is designed to be recycling-oriented. As for the specific mechanism, all fresh water withdrawn by NSHD is supplied to cooling towers, and then to the heat exchanger, which is a component of the rotating machine, as a refrigerant by means of a water pump. After heat exchange in the heat exchanger, the warmed fresh water returns to the cooling tower and is cooled to a temperature equivalent to that of the atmosphere. The fresh water cooled in the cooling tower is again supplied to the heat exchanger by a water pump and returns to the cooling tower by the same route as described above. Thus, the fresh water is used in a cyclical manner, and we believe that there is almost no factor that would deteriorate the water quality.

W3.1a

(W3.1a) Describe how your organization minimizes the adverse impacts of potential water pollutants on water ecosystems or human health associated with your activities.

Water pollutant category

Inorganic pollutants

Description of water pollutant and potential impacts

NSHD identifies the following substances as water pollutants and recognizes their potential impacts as follows:

-Nitric acid and nitrate compounds: High levels of nitrate and nitrite nitrogen in drinking water and other sources can cause methemoglobinemia, which interferes with the oxygen-carrying capacity of the blood and may be harmful to human health.

-Fluorine and fluorine compounds: May accumulate in the environment and be carcinogenic.

-Hexavalent chromium: Highly toxic heavy metal and carcinogenic.

-Boron and boron compounds: Serious eye damage or eye irritation, etc.

-Ammonium compounds: High levels of nitrate and nitrite nitrogen in drinking water can cause methemoglobinemia, which interferes with the oxygen-carrying capacity of the blood and may be harmful to human health.

Value chain stage

Direct operations

Actions and procedures to minimize adverse impacts

Assessment of critical infrastructure and storage condition (leakages, spillages, pipe erosion etc.) and their resilience

Please explain

For risk management, NSHD manages wastewater quality to ensure that wastewater quality standards are not violated and that these substances are not spilled, extracted, or leaked. Wastewater is stored in a liquid waste tank and taken away as industrial waste by a specialized company, preventing external leaks. Compliance with the regulations preventing liquid waste discharge, and ensuring it is treated by a third party, is carefully controlled and verified at each site. Contaminants are also monitored by observing the quality of the wastewater. Moreover, as a measure to prevent contaminant spills, we monitor the presence of spills visually with equipment and sensors, and regularly monitor the wastewater to ensure that it does not contain contaminants more than the standards set by local authorities.

We use the fact that contaminants in wastewater are contained within the standard values as a criterion for evaluating success and are consistently working to prevent leakage accidents and outflows of chemical substances. As an example, the effluent standard under the Water Pollution Prevention Act is "within the range of pH 5.0 or higher to 9.0 or lower," and the control values within NSHD are set at "pH 6.3 or lower and pH 8.1 or higher". A system has been established in facilities that comply with this standard where the janitor of the facility records the pH of the integrated septic tank daily, and in the unlikely event that it shows a pH of 6.3 or below or pH 8.1 or above, notifies the Operations Section of the facility to an emergency situation. From there, the Operations Section cuts off the drinking water supply and applies a pH adjuster to adjust the water's pH. This is evaluated on an annual basis at Technological Risk Management Committee.

W3.3

(W3.3) Does your organization undertake a water-related risk assessment?

Yes, water-related risks are assessed

W3.3a

(W3.3a) Select the options that best describe your procedures for identifying and assessing water-related risks.

Value chain stage

Direct operations

Supply chain

Coverage

Full

Risk assessment procedure

Water risks are assessed as part of an established enterprise risk management framework

Frequency of assessment

Annually

How far into the future are risks considered?

3 to 6 years

Type of tools and methods used

Tools on the market
Databases

Tools and methods used

WRI Aqueduct

Contextual issues considered

Water availability at a basin/catchment level
Water quality at a basin/catchment level
Impact on human health
Water regulatory frameworks Status of ecosystems and habitats
Access to fully-functioning, safely managed WASH services for all employees

Stakeholders considered

Customers
Employees
Investors
Local communities
Suppliers
Water utilities at a local level
Other water users at the basin/catchment level

Comment

Value Chain Stage - "Supply Chain";

This covers air separation units that produce our core products nitrogen, oxygen, and argon.

W3.3b

(W3.3b) Describe your organization's process for identifying, assessing, and responding to water-related risks within your direct operations and other stages of your value chain

	Rationale for approach to risk assessment	Explanation of contextual issues considered	Explanation of stakeholders considered	Decision-making process for risk response
Row 1	NSHD uses the WRI Aqueduct tool to assess water stress for all production sites. In the WRI Aqueduct it is possible to search	[Amount of Water Resources Available for Withdrawal in River Basins/Catchment Areas] NSHD uses fresh water in the cooling water circulation system,	[Customer] Many of NSHD's customers are manufacturers, and like us, their use of water is essential to business. What	[Process Details] The selection and evaluation of significant company-wide risks at NSHD and the deliberation of measures to address

	for water risk, water stress, drought risk, etc., making it easy to conduct water risk assessments for each of our production sites around the world. Recognizing the importance of understanding local characteristics, each NSHD production site conducts its own water risk assessment. In the WRI Aqueduct, the risk level itself is divided into five levels, with "0" being low risk and "5" being extremely high. We surveyed the stress at 119 sites and conducted interviews at production sites with high water risk to ascertain the amount of water withdrawn from the site. We could not identify any sites in Japan with "high" or "extremely high" water risk, but we surveyed overseas sites and found 19 sites with overall "high" or "extremely high" water risk.	mainly in the cooling towers in the manufacturing process at the plant. Although freshwater use is limited, it is essential to the operation of the business, so the WRI Aqueduct was used to survey sites representing 99% of total water withdrawals. As a result, 16 sites, representing 4% of total water withdrawals, were identified as being exposed to water risk. Based on the results of the survey and based on an overall assessment of the scale of water withdrawals, our own Physical Risks Quantity assessment, and the results of interviews with the sites, we did not find any particular areas that were assessed as being at risk of water stress. [Water Quality in River Basins/Catchments] While high quality fresh water is not required, there is a risk that a significant drop in freshwater quality could lead to adverse effects on production efficiency and damage to equipment. In particular, NSHD recognizes that a temporary shutdown of production facilities due to equipment damage could result in a loss of	NSHD can do for customers is to provide them with products produced with efficient use of water, in the quantities they need, when they need them. Therefore, it is important that we do the following on a daily basis to ensure efficient water use. -The number of rotary machines in operation should be optimized to meet the ever-changing demand for products. -Thoroughly circulate water in the cooling tower system. -Enhance maintenance activities to reduce breakdowns of rotating machines. To this end, we hold meetings with customers about once a month to obtain information on the expected demand for NSHD's products. The production and supply system are then examined based on the expected demand volume, and the number of equipment to be operated determined. [Employees]	them are centralized in the Global Risk Management Committee, which meets once a year. Climate change risks are also among the risks considered in the meeting. Risks that may have an impact, whether short-, medium-, or long-term, are discussed, and the discussion results are reported to the Board of Directors. The identified risks are then reflected in business strategies through the Global Strategy Review Meeting. The Global Strategy Review Meeting is held once a year to review the strategies of each operating company in preparation for the following year's budget. During this meeting, each operating company reports their sustainability strategies based on their identified risks, among which includes climate change issues. The results of the above meeting are then reported to the Board of Directors in the form of a budget proposal. As for risk response, the Technical Risk Liaison Committee is in

		revenue for NSHD. To avoid risk, NSHD conducts water quality checks on the quality of fresh water in the coolant circulation systems once/month. [Conflicts Among Stakeholders related to Water Resources in River Basins/Catchments Areas] In the event of a natural disaster such as drought or typhoon, the water supply needed for NSHD to continue operations may be reduced or stopped. For these reasons, NSHD seeks to reduce risk by communicating with local residents and asking for their direct input. Specifically, NSHD participates in organizations such as drought and typhoon response councils organized by local governments in the watershed area if such organizations exist. [Water-related Regulatory Framework] We believe that changes in the regulation of water quality in wastewater is one of the major water risks. In response to water pollution, we follow the regulations of each region and measure necessary control items such as COD and total	Proper management of water intake and wastewater discharge is extremely important for the stable operation of NSHD's plants. Therefore, as part of our environmental education, we provide training on the need for water conservation, reduction of environmentally hazardous substances in water bodies, and regulations related to water quality standards, including laws and regulations. The target audience for this education is our employees. The foundation of proper water management is the daily management by employees, which accumulates day by day. We cannot deny the possibility that problems such as wastewater contamination may occur if an employee makes a wrong decision. Therefore, we believe it is essential to assess water risks that could stem from by employees. Assessment of water	charge. Based on the results of the Global Strategy Review Meeting, NSHD and each operating company discuss risks, including climate change issues, individually to resolve the risks. The Technical Risk Liaison Meeting is held at least twice a year for each operating company, and risk countermeasures, including climate change issues, are deployed throughout the company.

		nitrogen to comply with the laws and regulations. If laws and regulations become even stricter in the future, we believe it will be necessary to respond in terms of both water facilities and management, and we will continue to optimally balance water quality improvement and cost. Overseas, regulations regarding water pollution issues are already being tightened, especially in developing countries, and it is important to address these risks appropriately. [Ecosystem and Animal and Plant Habitat Conditions] Air is the raw material for NSHD's flagship air separation units, which produce nitrogen, oxygen, and argon, and the units themselves handle few substances that have a significant impact on biodiversity. However, we believe that activities to reduce any possible impact on biodiversity are very important, and we will promote business actions that contribute to biodiversity conservation, in accordance with the Nippon Sanso Holdings Group Environmental Policy, and strive to avoid negative impacts.	risks is especially important at production sites. In accordance with the High-Pressure Gas Safety Act, each plant conducts periodic "safety training" sessions. We use these training sessions to educate employees on the importance of efficient water use. The main points of the educational activities are the necessity of water conservation, reduction of discharge of environmentally hazardous substances into water bodies, laws, and regulations regarding water quality standards. [Investors] Because NSHD provides solutions to water issues, inadequate disclosure of water-related initiatives could lead to reputational risk. This investor-driven reputational risk alone is sufficient enough to trigger additional customer-related reputation risks, and we therefore believe it is	

		We believe that any damage to biodiversity poses a reputational risk to NSHD and to the operation of our sites. As an overall philosophy, we believe that negative impacts on biodiversity can be avoided to a certain degree through environmentally conscious operations such as through the protection of forests and the habitats of plants and animals or working with local environmental societies on a project basis. For that reason, we will continue to promote biodiversity activities. [All Employees have Access to Fully Managed Water, Sanitation, and Hygiene (WASH) Services] The health and safety of our employees is very important to us. In the event issues related to health and safety were to arise, we cannot rule out the possibility of a direct impact on our employee's trust, which could in turn lead to a higher employee turnover rate. With this in mind, we have enhanced WASH services at all of our sites around the world to improve the workplace environment, which is the cornerstone	essential to assess investor-induced water risk. Our investor's report provides information on the expansion of the water-related area of each segment's business. [Local community] Certain plants issue periodic reports. These reports always include a description of issues related to matters of interest to the community. We also have the opportunity to obtain feedback on the activities of our business sites through discussions with local residents and communicate about any concerns they may have about water. Deterioration in the quality of wastewater can undeniably lead to risks such as lawsuits by local communities, especially those involved in the fishing industry. If such litigation were to occur, the resulting reputational risk to NSHD would be substantially increased. For this reason, it is important to assess	

		of occupational health and safety. NSHD's plants are located where water is convenient, and we have had no problems with water, sanitation, or hygiene (WASH).	the water risk to the local community. As part of our environmental preservation activities, we are also actively working to protect the water bodies around our plants by cleaning up the rivers and beaches around our plants together with our neighbours. We believe these activities contribute to establishing and maintaining a relationship of trust with community members.	

W4. Risks and opportunities

W4.1

(W4.1) Have you identified any inherent water-related risks with the potential to have a substantive financial or strategic impact on your business?

No

W4.1a

(W4.1a) How does your organization define substantive financial or strategic impact on your business?

NSHD defines the impact of water risk in five levels. Level 1 is when the amount of damage from water risk is less than 100 million and does not affect business operations; Level 2 is when the amount of damage is between ¥100 million and ¥2 billion and has a minor impact on business operations; Level 3 is when the amount of damage from water security is between ¥2 billion and ¥5 billion and affects business operations; and Level 4 is when the amount of loss is between ¥5 billion and ¥10 billion and in addition has a significant impact on business operations. Level 4 is a loss of 5 to 10 billion yen and a significant impact on business operations. Level 5, the most serious level, is defined as a loss of 10 billion yen or more and a significant impact on business operations.

.W4.2b

(W4.2b) Why does your organization not consider itself exposed to water risks in its direct operations with the potential to have a substantive financial or strategic impact?

	Primary reason	Please explain
Row 1	Risks exist, but no substantive impact anticipated	For our water risk assessment, we use the WRI Aqueduct to evaluate flooding, water risk, and water stress to analyse water-related risks in NSHD's direct operations. Each risk is evaluated in terms of probability of occurrence, financial impact, and impact on business strategy, and if the financial impact is 10 billion yen or more, the risk is considered to have a significant impact on the company. Specifically, in FYE 2022 used WRI Aqueduct's [Aqueduct Water Risk Atlas] to screen water stress at sites representing 99% of NSHD's total water withdrawals. The sites we identified as being at risk were Vernon in the U.S. and Ravenna in Italy. Ravenna tends to be drier from June through August. WRI's Aqueduct physical risk ratings of 4.3 for Vernon and 4.0 for Ravenna indicate that water risk is in the low end of the "high" range. These facilities use fresh water primarily as coolant in circulation systems, primarily cooling towers, and while their water withdrawals are relatively high compared to our group, they do not account for a large portion — only 1.5% of the total water withdrawals for the NSHD group as a whole. Since we have never faced water risks in Vernon and Ravenna before, we have decided not to consider them as water risks for the NSHD Group based on our overall assessment of the results of interviews with the local communities and other factors.

W4.2c

(W4.2c) Why does your organization not consider itself exposed to water risks in its value chain (beyond direct operations) with the potential to have a substantive financial or strategic impact?

	Primary reason	Please explain

Row 1	Risks exist, but no substantive impact anticipated	Our water risk assessment uses WRI Aqueduct to evaluate flooding, water risk, and water stress to analyse water-related risks in NSHD's value chain. Each risk is evaluated in terms of probability of occurrence, financial impact, and impact on business strategy. If the financial impact is 10 billion yen or more, the risk is considered to have a significant impact on NSHD's operations. There are also criteria that divide the "degree of impact" into five levels, and risks that are Level 5 under these criteria are defined as having a significant impact. Based on a survey of NSHD's value chain using the above Levels, we have determined that there are no significant water risks at this time. In addition, the raw material for industrial gas is air, and NSHD does not face any water risk in the procurement of raw materials. We also do not use large amounts of water in many of our products, such as the water used to make $^{18}0$ PET bottles, or the water used in fish farming. Therefore, the water risk in our value chain, while present, is considered to be small.

W4.3

(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes, we have identified opportunities, and some/all are being realized

W4.3a

(W4.3a) Provide details of opportunities currently being realized that could have a substantive financial or strategic impact on your business.

Type of opportunity

Products and services

Primary water-related opportunity

Sales of new products/services

Company-specific description & strategy to realize opportunity

[Description of Strategic Opportunity]

Global demand for seafood is increasing. On the other hand, due to the effects of climate change in recent years, fish catches have been decreasing worldwide, making food supply a major issue. NGE, our European gas business, supplies high-purity oxygen for salmon farming. In Norway, we have installed two air separation units to meet that demand for oxygen. As global demand for seafood increases, Norwegian farmed salmon production is expected to expand at an average growth rate of 6%.

Meanwhile, Taiyo Nippon Sanso has a lineup of high-efficiency oxygen dissolution equipment that can solve problems in aquaculture ponds. They enable high-density

aquaculture of eel, trout, flatfish, shrimp, and other farmed fish, as well as the prevention of farmed fish diseases, thereby increasing fish catches at low cost. Taiyo Nippon Sanso's high-efficiency oxygen dissolvers for aquaculture can help solve the global problem of declining fish catches.

Control of the amount of dissolved oxygen (DO value) in rearing water is important for the healthy growth of the fish. The upper limit of the amount of oxygen that can dissolve into the water varies greatly depending on the water temperature and salinity as well as the strength of the aeration. The highly efficient oxygen dissolution system for aquaculture efficiently dissolves oxygen in water to achieve the ideal amount of dissolved oxygen (DO value) for fish rearing, thereby making it possible to improve productivity. By introducing this equipment and enriching the rearing water with oxygen, high-density aquaculture, accelerated growth, and reduction of wastewater volume will be realized.

Taiyo Nippon Sanso has a proven track record in the cultivation of a wide range of fish species, including eels, trout, and flatfish, while NGE is engaged in salmon farming. Based on this know-how, we will propose the optimal oxygen supply method after actually visiting the customer's site.

[Strategy to Realize Opportunity]

The NSHD Group's strategy is to sell high-efficiency oxygen dissolution equipment for aquaculture and to introduce air separation equipment, portable liquefied oxygen containers (LGCs), and liquefied oxygen storage tanks (CEs) to customers, and to receive exclusive orders for oxygen gas and supply systems.

[Countermeasures]

After FYE2022, Taiyo Nippon Sanso will continue to accumulate the necessary know-how as a manufacturer of highly efficient oxygen dissolution systems for aquaculture, while contributing to the high operational efficiency of the highly efficient oxygen dissolution systems for aquaculture and is considering expanding its business worldwide. As a result of FYE2017-2020, Taiyo Nippon Sanso has increased 1.3 times from 29 companies to 38 companies. Considering the recent food problems, we believe that sales of oxygen from aquaculture will increase in the future, and we plan to acquire up to 57 customers by FYE2026.

Estimated timeframe for realization

1 to 3 years

Magnitude of potential financial impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

450,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact

TNSC has increased 1.3 times from 29 companies to 38 companies as of FYE2017-2020. Considering recent food issues, we believe that oxygen sales from aquaculture will increase in the future, and we plan to acquire up to 57 customers by FYE2026.

We believe that by continuing to grow the demand for oxygen gas for aquaculture, sales of the division that manages these products could reach approximately 450 million yen in a single year by FYE2026

W6. Governance

W6.1

(W6.1) Does your organization have a water policy?

Yes, we have a documented water policy that is publicly available

W6.1a

(W6.1a) Select the options that best describe the scope and content of your water policy.

	Scope	Content	Please explain
Row 1	Companywide	Description of business dependency on water Description of business impact on water Commitment to align with international frameworks, standards, and widely-recognized water initiatives Commitment to prevent, minimize, and control pollution Commitment to reduce or phaseout hazardous substances Commitment to reduce water withdrawal	In addition to providing products and services with minimal environmental impact, NSHD is committed to the conservation of water resources in accordance with the NSHD Group Environmental Policy. We are making company-wide efforts to prevent the pollution of water resources by monitoring water withdrawals and improving the efficiency of water use. Because NSHD does not use seawater at all, and the only fresh water we use is as coolant in our circulation system, primarily in cooling towers, the possibility of polluting the fresh water we use is negligible. However, NSHD considers the conservation of water resources to be one of our most important environmental preservation activities and we make efforts to confirm that there are no discharges of hazardous substances. We also monitor COD levels every year to ensure that there is no impact on the

		and/or consumption volumes in direct operations Commitment to reduce water withdrawal and/or consumption volumes in supply chain Commitment to safely managed Water, Sanitation and Hygiene (WASH) in the workplace Commitments beyond regulatory compliance Reference to company water related targets Recognition of environmental linkages, for example, due to climate change	environment in addition to compliance with regulations. Furthermore, NSHD has signed the United Nations Global Compact proposed by the United Nations and is registered as a signatory member as of 2022. The United Nations Global Compact is a voluntary initiative for companies and organizations to achieve sustainable growth through responsible and creative leadership. Signatories are required to adhere to and practice 10 principles in the four areas of human rights, labour, environment, and anti-corruption, and to develop their business activities toward the realization of a healthy global society. The principles of "support a precautionary approach to environmental issues", "assume greater responsibility for the environment", and "promote the development and diffusion of environmentally friendly technologies" are specified in the principles. By signing the UN Global Compact, the NSHD Group is clearly expressing our corporate stance and further promoting efforts to further contribute to a sustainable society.

W6.2

(W6.2) Is there board level oversight of water-related issues within your organization?

Yes

W6.2a

(W6.2a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for water-related issues.

Position of individual or committee	Responsibilities for water-related issues
Chief Executive Officer (CEO)	NSHD has established the NSHD Group Environmental Policy by resolution of the Board of Directors, which states, "Under the direction of top management, we will strive to harmonize our business activities with the environment and reduce our environmental impact, thereby contributing to the development of a sustainable society through technology and a recycling-oriented society." As stated in this policy, the President (CEO) of NSHD is responsible for addressing climate change-related issues, including water withdrawal and water resources, as delegated by the Board of Directors. The CEO chairs the Global Strategy Review Committee and the Global Risk Management Committee in accordance with the rules and regulations established by the Board of Directors, and is responsible for

	determining the Group's overall business strategy and ensuring the effectiveness of the NSHD Group's risk management in the former. Through these meetings, the President (CEO) considers NSHD's specific responses to climate change-related issues. As an example of the CEO's resolution, commissioned by the Board of Directors in FYE 2022, the CEO announced the Sustainable Water Program (SWP) under the promotion of sustainability management in the mid-term management plan released on May 11, 2022. Effective use of water resources is a must, and through efficient use of water, we aim to conserve water resources in our corporate activities, identify water risks, and implement measures for high-risk business sites. Specifically, we conduct a water stress survey using Aqueduct, a water risk assessment tool developed by the World Resources Institute (WRI), to identify production plants (ASU and HyCO plants) in high-risk areas. In addition, production plants in high-risk areas will work to reduce water withdrawal and consumption by increasing cyclical water usage among other measures. The SWP is promoted by the CEO, who is responsible for responses to issues stemming from climate change.

W6.2b

(W6.2b) Provide further details on the board's oversight of water-related issues.

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - some meetings	Monitoring implementation and performance Monitoring progress towards corporate targets Overseeing and guiding scenario analysis Overseeing the setting of corporate targets Reviewing and guiding annual budgets Reviewing and guiding risk management policies Reviewing and guiding strategy	The Global Strategy Review Committee is held once a year to review the strategies of each operating company in the formulation of the budget for the next fiscal year. At the meeting, the operating companies report on their strategies for sustainability, including their impact on other environmental impacts, including water resources and climate change issues. The results of the meeting are reported to the Board of Directors in the form of a budget proposal. The Global Risk Management Committee is a body that deliberates on the selection of the NSHD Group's key risks and measures to address them and meets once a year. Other risks that may affect environmental impact, including water resources and climate change issues, are also included in the risks to be considered by the meeting, and the results of the meeting are reported to the Board of Directors.

			The Executive Committee deliberates on the formulation and monitoring of mid-term management plans and investment projects. While formulating the medium-term management plan, the NSHD Group's efforts to address climate change issues during the period of the medium-term management plan and the setting of targets is discussed. In addition, the impact of each investment on other environmental burdens, including climate change issues, is discussed during the deliberation of individual investment projects. Medium-term management plans and investment projects are proposed to the Board of Directors after deliberation by the Executive Committee. Once a year, MOS Indices reports to the Board of Directors the targets for reducing GHG emissions and other environmental impacts, as well as the targets for the next fiscal year and the results of the previous year with respect to quality, safety, and security, and the Board of Directors discusses the contents of these reports.

W6.2d

(W6.2d) Does your organization have at least one board member with competence on water-related issues?

	Board member(s) have competence on water-related issues	Criteria used to assess competence of board member(s) on water-related issues
Row 1	Yes	The company comprehensively evaluates the applicant's qualifications, such as having served as a manager responsible for environment-related management for at least two years. The Group has a Global Strategy Review Committee to determine the Group's overall business strategy and a Global Risk Management Committee to determine the Group's overall risk management policy. Specifically, in the former committee, the Chief Sustainability Officer (CSO), who is responsible for the Group's sustainability activities, reports on the results of the Group's sustainability activities during the year, including GHG emissions reductions, and targets for the following year are set. In the latter Global Risk Management Committee, business risks the Groups faces are evaluated through the formula of financial impact on strategy or finances x frequency, after which countermeasures are discusses based on the results. As the decisions made in these two committees

		are reported to the Board of Directors, who then determine the Group's strategy on climate change issues, we consider a director who has been in charge of environmental management, including these committee, for more than two years to be a director with expertise in environmental issues, including water-related ones.

W6.3

(W6.3) Provide the highest management-level position(s) or committee(s) with responsibility for water-related issues (do not include the names of individuals).

Name of the position(s) and/or committee(s)

Chief Executive Officer (CEO)

Water-related responsibilities of this position

Assessing future trends in water demand
Assessing water-related risks and opportunities
Managing water-related risks and opportunities
Conducting water-related scenario analysis
Setting water-related corporate targets Integrating water-related issues into business strategy
Managing annual budgets relating to water security

Frequency of reporting to the board on water-related issues

Quarterly

Please explain

The CEO is the top level of management for the Nippon Sanso Holdings Group. This is further exemplified in the "Nippon Sanso Holdings Group Environmental Policy", where it is stipulated that the CEO is the person with the highest responsibility for environmental issues. The CEO chairs the Global Risk Management Committee, the Global Strategy Review Committee, and the Executive Committee.
<Responsibility Details>
The CEO is responsible for all aspects of the Group's management. The Nippon Sanso Holdings Group Environmental Policy stipulates that by striving to harmonize our business activities with the environment, the CEO should lead the Group’s contribution to the development of a sustainable society through technology that adds to resource-recycling and reduces our environmental impact. Matters related to water risks that are considered by the Global Strategy Review Committee are reported to the Board of Directors, who then review the contents and instruct the CEO on any necessary measures to be taken. The Sustainable Water Program (SWP) was reviewed during FYE2022 and announced in May 2022. Effective use of water resources is essential, and through efficient use of water, we aim to conserve water resources in our corporate activities, identify water risks, and implement measures for high-risk business sites.

Specifically, we conduct a water stress survey using the “WRI Aqueduct”, a water risk assessment tool developed by the World Resources Institute (WRI), to identify production plants (ASU and HyCO plants) in high-risk areas. At such sites, measures to reduce water withdrawals and consumption, such as increasing circulated freshwater coolant volumes, are introduced. The SWP is generally promoted by the CEO, who is responsible for climate change response issues.
<Monitoring Method>
In the Global Strategy Review Committee, the CSO reports on environmental impacts and progress, such as reductions in GHG emissions or water usage.

W6.4

(W6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

	Provide incentives for management of water-related issues	Comment
Row 1	No, not currently but we plan to introduce them in the next two years	

W6.5

(W6.5) Do you engage in activities that could either directly or indirectly influence public policy on water through any of the following?

Yes, direct engagement with policy makers

Yes, trade associations

W6.5a

(W6.5a) What processes do you have in place to ensure that all of your direct and indirect activities seeking to influence policy are consistent with your water policy/water commitments?

The Chief Sustainability Officer (CSO) is responsible for all water-related activities, including planning and overseeing their implementation. The Technological Risks Liaison Committee also ensures alignment with strategies and activities that may affect water public policy. If an inconsistency is identified, it is promptly noted in the minutes of the meeting to verify whether the source of the inconsistency is strategy-derived, activity-derived, or related to some other factor. Countermeasures based on the results of the subsequent verification will then be developed and discussed with the CSO. These activities are repeated to ensure that there is always consistency between strategies and activities.

W6.6

(W6.6) Did your organization include information about its response to water-related risks in its most recent mainstream financial report?

Yes (you may attach the report - this is optional)

W7. Business strategy

W7.1

(W7.1) Are water-related issues integrated into any aspects of your long-term strategic business plan, and if so how?

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	5-10	The NSHD Group believes that the issue of global water stress will become increasingly important in the future. We analysed "physical climate scenarios" utilizing the global warming scenario (RCP8.5) from the UN's Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (released in 2014), with the period between 2030-2050 as the long-term. Several theories suggest that climate change will increase the frequency of natural disasters, which will increase risk exposure. Global warming increases the risk of localized heavy rains and flooding from typhoons and storm surges due to rising sea levels, and consequently natural disasters increase the risk of plant closures for days or weeks. To reduce damages from these risks, we will promote disaster countermeasures and the use of insurance as part of our long-term efforts. In addition, NSHD's medium-term management plan, which started in FYE2022, launched the Sustainable Water Program (SWP), and water stress surveys using Aqueduct, a water risk assessment tool developed by the World Resources Institute (WRI), will be used to assess production in high-risk areas. We will identify and continuously monitor production plants (ASU and HyCO plants) located in high-risk areas using the Aqueduct, a water risk assessment tool developed by the World Resources Institute (WRI), and work to reduce water withdrawals and consumption by increasing water circulation at production plants in high-risk areas. Effective use of water resources is a must, and we aim to conserve water resources in our corporate activities through great resource efficiency.
Strategy for achieving	Yes, water-related issues are integrated	5-10	The NSHD Group believes that the issue of global water stress will become increasingly important in the future.

long-term objectives			We analysed "physical climate scenarios" utilizing the global warming scenario (RCP8.5) from the UN's Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (released in 2014), with the period between 2030-2050 as the long-term. Several theories suggest that climate change will increase the frequency of natural disasters, which will increase risk exposure. Global warming increases the risk of localized heavy rains and flooding from typhoons and storm surges due to rising sea levels, and consequently natural disasters increase the risk of plant closures for days or weeks. To reduce damages from these risks, we will promote disaster countermeasures and the use of insurance as part of our long-term efforts. Additionally, NSHD's medium-term management plan, which started in FYE2022, launched the Sustainable Water Program (SWP), and water stress surveys using Aqueduct, a water risk assessment tool developed by the World Resources Institute (WRI), will be used to assess production in high-risk areas. We will identify and continuously monitor production plants (ASU and HyCO plants) located in high-risk areas using the Aqueduct, a water risk assessment tool developed by the World Resources Institute (WRI), and work to reduce water withdrawals and consumption by increasing water circulation at production plants in high-risk areas. Effective use of water resources is a must, and we aim to conserve water resources in our corporate activities through great resource efficiency.
Financial planning	Yes, water-related issues are integrated	5-10	The NSHD Group believes that the issue of global water stress will become increasingly important in the future. We analysed "physical climate scenarios" utilizing the global warming scenario (RCP8.5) from the UN's Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (released in 2014), with the period between 2030-2050 as the long-term. Several theories suggest that climate change will increase the frequency of natural disasters, which will increase risk exposure. Global warming increases the risk of localized heavy rains and flooding from typhoons and storm surges due to rising sea levels, and consequently natural disasters increase the risk of plant closures for days or weeks. To reduce damages from these risks, we will promote disaster countermeasures

			and the use of insurance as part of our long-term efforts. Additionally, NSHD's medium-term management plan, which started in FYE2022, launched the Sustainable Water Program (SWP), and water stress surveys using Aqueduct, a water risk assessment tool developed by the World Resources Institute (WRI), will be used to assess production in high-risk areas. We will identify and continuously monitor production plants (ASU and HyCO plants) located in high-risk areas using the Aqueduct, a water risk assessment tool developed by the World Resources Institute (WRI), and work to reduce water withdrawal and consumption by increasing water circulation at production plants in high-risk areas. Effective use of water resources is a must, and we aim to conserve water resources in our corporate activities through great resource efficiency.

W7.2

(W7.2) What is the trend in your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) for the reporting year, and the anticipated trend for the next reporting year?

Row1

Water-related CAPEX (+/- % change)

-50

Anticipated forward trend for CAPEX (+/- % change)

2,171

Water-related OPEX (+/- % change)

35

Anticipated forward trend for OPEX (+/- % change)

11

Please explain

In FYE2021, Taiyo Nippon Sanso renewed a large air separation unit that uses cooling water, added three air separation units for gas and liquid production, and idled the old facility,
The large capital investments that began in FYE2019 were mostly completed by FYE2021, and there were no capital investments of note for FYE2023.
However, in FYE2024, we are planning to invest in two new air separation units to accommodate the relocation and aging of our manufacturing facilities, and construction has begun on site since FYE2023. As for the capital expenditure forecast for the next reporting year, we plan to replace the air separation equipment at JFE Oxygen Centre Fukuyama.

As for operation expenses, in the medium-term management plan, a subcommittee for "production plants" was established, and the Remote Operation Centre (ROC) was established in April 2023 to realize "automatic operation of production plants" by FYE2031, mainly through the use and promotion of DX. The ROC was established in April 2023 and started remote operation of production plants.
Although the cost of electricity for operations has been increasing due to soaring fuel costs caused by the recent social situation, we will continue to promote the aforementioned initiatives with the goal of improving productivity.
We believe that higher productivity will lead to more efficient operations, which in turn will lead to lower operating costs.

W7.3

(W7.3) Does your organization use scenario analysis to inform its business strategy?

	Use of scenario analysis	Comment
Row 1	Yes	With the implementation of the Paris Agreement, there is an urgent need to reduce global emissions of greenhouse gases to mitigate climate change. Industrial gases such as oxygen, nitrogen, and argon consume large amounts of electricity during production, which means that they emit corresponding levels of GHGs. Therefore, we need to take proactive steps to reduce GHG emissions and establish a mechanism to continue our business.NSHD has formulated a Medium-term Management Plan starting in FYE2023 and will work to reduce GHG emissions by 18% in FYE2026 and 32% in FYE2031 compared to FYE2019 levels, with the goal of achieving carbon neutrality in FYE2051.

W7.3a

(W7.3a) Provide details of the scenario analysis, what water-related outcomes were identified, and how they have influenced your organization's business strategy.

	Type of scenario analysis used	Parameters, assumptions, analytical choices	Description of possible water-related outcomes	Description of possible water-related outcomes
Row 1	Water-related Climate-related	The industrial gas production processes (direct use), NSHD Group's core business, water is used as cooling water in cooling water circulation systems,	Water availability is an important consideration in determining a location for a plant. Most of our plant are located in areas with easy access to water.	In order to reduce the damage caused by the risk of severe and frequent natural disasters, NSHD launched the Sustainable Water Program (SWP) in our medium-term management

		primarily in cooling towers. As a result, water availability is an important consideration in plant siting decisions, and plants are located in areas with easy access to water. Some scenarios suggest that climate change will increase the frequency of natural disasters, which will increase risk exposure. Global warming increases the risk of localized heavy rains and flooding from typhoons and storm surges due to rising sea levels, and consequently natural disasters increase the risk of factory closures for days or weeks. In addition, as temperatures rise due to global warming, the temperature of cooling water supplied to cooling towers will also rise. In this case, the temperature of the industrial gas coming out of the cooling tower will also increase, resulting in a smaller density of the industrial gas (gases) and worsening the intensity. To prevent this, it is necessary to increase the flow rate of fresh water for cooling, which will increase water consumption.	The RCP 8.5 scenario suggests that climate change will increase the frequency of natural disasters, which will increase risk exposure. The analysis suggests that the risk of localized heavy rains due to a global rise in temperature and flooding due to typhoons and storm surges due to sea level rise will increase, and as a result, natural disasters will increase the risk of plant closures for NSHD's coastal installations for days to weeks. Among them, Nippon Sanso Ingasco, Clark in the Philippines and Nippon Sanso Vietnam Joint Stock Company Hung Yen are assessed to be at higher risk of flooding than at present. In addition, water use may increase due to rising global warming temperatures. We recognize that these are matters that increase water-related risks.	plan that started in FYE2022. The SWP will identify and continuously monitor production plants in high-risk areas through water stress surveys using Aqueduct, a water risk assessment tool developed by the World Resources Institute (WRI), and at production plants in high-risk areas, we will work to reduce water intake and consumption by increasing water circulation and replacing with high-efficiency plants. As a concrete plan, we will complete the identification of production plants in high-risk areas by 2025 and begin implementing specific measures. In addition, as a long-term initiative, we will promote disaster countermeasures and the use of insurance by 2050. Effective use of water resources is a must, and through efficient use of water, we aim to conserve water resources in our corporate activities.

		We recognize that these are matters that increase water-related risks.		

W7.4

(W7.4) Does your company use an internal price on water?

Row1

Does your company use an internal price on water?

No, but we are currently exploring water valuation practices

Please explain

Plant operating areas are scattered around the world and the sources and uses of water are so diverse that implementing uniform pricing is very difficult. For example, the value of 1 t of water in Japan, was determined not to be equal to the value of 1 t of water in Indonesia. First and foremost, a method for monitoring how large of a risk exists based on the source and water usage needs to be established.

W7.5

(W7.5) Do you classify any of your current products and/or services as low water impact?

	Products and/or services classified as low water impact	Definition used to classify low water impact	Please explain
Row 1	Yes	Products and services that have no negative impact on water quality or use less water than usual are defined as a low impact on water.	NSHD sells air separation equipment, which improves the efficiency of gas-liquid contact. By installing energy-efficient air separation equipment, water usage for cooling is reduced and at the same time water intake is also reduced.

W8. Targets

W8.1

(W8.1) Do you have any water-related targets?

Yes

W8.1a

(W8.1a) Indicate whether you have targets relating to water pollution, water withdrawals, WASH, or other water-related categories.

	Target set in this category	this category Please explain
Water pollution	Yes	
Water withdrawals	Yes	
Water, Sanitation, and Hygiene (WASH) service	No, but we plan to within the next two years	Management of water resources is a key issue in the NSHD Group's environmental policy. Our current environment-related activities include a sustainable water program, and we are working to conserve water resources. However, we have not set specific targets for WASH services in Japan because of the inherent responsibility for clean and accessible WASH services. However, we believe that some of our global factories may not be providing 100% WASH service, so we will investigate the WASH service status of our overseas factories and consider setting a target for them.
Other	Please select	

W8.1b

(W8.1b) Provide details of your water-related targets and the progress made.

Target reference number

Target 1

Category of target

Water pollution

Target coverage

Company-wide (direct operations only)

Quantitative metric

Reduction in water discharges per revenue

Year target was set

2022

Base Year

2019

Base year figure

10

Target year

2026

Target year figure

10

Reporting year figure

30

% of target achieved relative to base year

Target status in reporting year

Underway

Please explain

The global shortage of available fresh water is increasing, and our business is expected to contribute to alleviating water shortages. The targets are monitored once a year, and if the water consumption rate is below the water consumption rate target set by each operating company by FYE2026, the target is considered to have been achieved. The relevant target was set in FYE2022 and began in FYE2023.Under the Sustainable Water Program, we have set a target of 10% reduction in water use intensity at our European operating companies. The reduction in water use will also reduce emissions of water pollutants.
In addition, NSHD identifies and classifies water pollutants whose chemical manufacturing activities could adversely affect water ecosystems and human health in accordance with the following policies and rationale. NSHD complies with all applicable laws and regulations of each country and region, respects international norms, and conducts its business with due consideration for the
environment in accordance with the Nippon Sanso Holdings Group Environmental Policy. All fresh water withdrawn by NSHD is supplied to cooling towers and then to heat exchangers, a component of rotating machines, as a refrigerant. After heat exchange in the heat exchanger, the warmed fresh water is returned to the cooling tower and cooled to a temperature equivalent to that of the atmosphere. The fresh water cooled in the cooling tower is again supplied to the heat exchanger by a water pump and returns to the cooling tower by the same route as described above. Therefore, NSHD's freshwater applications are circulatory, and there are few factors that would degrade water quality. NSHD does not violate any regulations in the products it manufactures, the manufacturing process of those products, or the consumption and disposal stages of those products. In addition, only after measuring pH, phosphorus, COD, nitrates etc., is our water discharged. Currently, NSHD has determined that there is no significant risk of hazardous substances leaking to customers or the natural environment.

Water-related targets are discussed at the Global Strategy Review Committee, followed by deliberation by the Board of Directors before a decision is made. In terms of MOS Indices, NSHD has set a KPI for the number of environmental accidents based on the Water Pollution Prevention Act and the Air Pollution Control Law. The relevant target was set in FYE2022 and began in FYE2023.

Target reference number
Target 2

Category of target
Water withdrawals

Target coverage
Company-wide (direct operations only)

Quantitative metric
Reduction in withdrawals per revenue

Year target was set
2022

Base year
2019

Base year figure
10

Target year
2026

Target year figure
10

Reporting year figure
30

% of target achieved relative to base year

Target status in reporting year
Underway

Please explain
A global shortage of available fresh water is increasing, but our business is expected to contribute to alleviating water shortages. The targets are monitored once a year, and if the water consumption rate is below the water consumption rate target set by each operating company by FYE2026, the target is considered to have been achieved. The relevant target was set in FYE2022 and began in FYE2023.
Under the Sustainable Water Program, our European operating companies have set a target of 10% reduction in water consumption rate.

W9. Verification

W9.1

(W9.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1a)?

Yes

W9.1a

(W9.1a) Which data points within your CDP disclosure have been verified, and which standards were used?

Disclosure module	Data verified	Verification standard	Please explain
W1 Current state	Total freshwater withdrawals and total wastewater discharges	ISAE 3000	NSHD's performance data for FYE2020 has been verified by a third party, and we are currently in the process of verifying the data for FYE2023.

W10. Plastics

W10.1

(W10.1) Have you mapped where in your value chain plastics are used and/or produced?

	Plastics mapping	Please explain
Row 1	Not mapped – and we do not plan to within the next two years	

W10.2

(W10.2) Across your value chain, have you assessed the potential environmental and human health impacts of your use and/or production of plastics?

	Risk exposure	Please explain
Row 1	Not assessed – but we plan to within the next two years	

W10.3

(W10.3) Across your value chain, are you exposed to plastics-related risks with the potential to have a substantive financial or strategic impact on your business? If so, provide details.

	Risk exposure	Please explain

Row 1	Not assessed – but we plan to within the next two years	

W10.4

(W10.4) Do you have plastics-related targets, and if so what type?

	Target in place	Please explain
Row 1	No – but we plan to within the next two years	

W10.5

(W10.5) Indicate whether your organization engages in the following activities.

Activity	Activity applies	Comment
Production of plastic polymers	No	
Production of durable plastic components	No	
Production / commercialization of durable plastic goods (including mixed materials)	No	
Production / commercialization of plastic packaging	No	
Production of goods packaged in plastics	No	
Provision / commercialization of services or goods that use plastic packaging (e.g., retail and food services)	Yes	

W10.8

(W10.8) Provide the total weight of plastic packaging sold and/or used, and indicate the raw material content.

	Total weight of plastic packaging sold / used during the reporting year (Metric tonnes)	Raw material content percentages available to report	% virgin fossil based content	Please explain
Plastic packaging used	1.03	% virgin fossil-based content	100	Use of plastic materials as packaging material for pharmaceutical products

W10.8a

(W10.8a) Indicate the circularity potential of the plastic packaging you sold and/or used.

	Percentages available to report for circularity potential	Please explain
Plastic packaging used	None	Used plastics are effectively utilized as raw materials for thermal recycling.

W11. Sign off

W-FI

(W-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

W11.1

(W11.1) Provide details for the person that has signed off (approved) your CDP water response.

	Job title	Corresponding job category
Row 1	President	Chief Executive Officer (CEO)