

W0. Introduction

W0.1

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

The Asahi Kasei Group operates in the three business sectors of "Material", encompassing fibers & textiles, chemicals and electronic devices businesses, "Homes", covering homes and construction materials businesses, and "Health Care", including pharmaceuticals and medical devices businesses. With "contributing to life and living for people around the world" as our Group Mission, we strive to heighten resource and energy efficiency with outstanding production technology, providing products and services that meet customer needs.

W-CH0.1a

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

- Bulk organic chemicals
- Bulk inorganic chemicals
- Specialty organic chemicals
- Specialty 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 2021	March 31 2022

W0.3

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

- China
- Germany
- Japan
- Republic of Korea
- Singapore
- Taiwan, China
- Thailand
- United States of America
- Viet Nam

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?

Yes

W0.6a

(W0.6a) Please report the exclusions.

Exclusion	Please explain
Our non-manufacturing facilities such as headquarters and sales offices as well as some of our assembly/processing plants, which require a very small amount of water for production, are excluded.	Our non-manufacturing facilities such as headquarters and sales offices as well as some of our assembly/processing plants, which require a very small amount of water for production, are excluded, because their water withdrawals and wastewater discharges are considerably small, and hence their water risks are negligible.

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, an ISIN code	JP3111200006

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	Vital	Important	The availability of sufficient amounts of good quality freshwater is vital for the Asahi Kasei Group, since many of our plants use a significant amount of good quality freshwater for cooling, producing steam, and washing. Good quality freshwater is essential for most of our raw materials suppliers as cooling water and boiler feed water, in particular. We believe the availability of sufficient amounts of good quality freshwater will continue to be vital for our direct operations in future, although our dependency on freshwater might slightly diminish as we go through a structural change away from water-hungry petrochemical products production towards high value-added chemical products production. The availability of good quality freshwater will continue to be important for our suppliers in future as well, since boiler feedwater has to be good quality freshwater and certain cooling processes will continue to require freshwater.
Sufficient amounts of recycled, brackish and/or produced water available for use	Not very important	Not very important	Although we rely to some extent on recycled water, we do not use any brackish or produced water, since our plants are located where freshwater resources are abundant. We understand that our raw materials suppliers rarely use recycled, brackish or produced water. The availability of sufficient amounts of recycled, brackish or produced water is therefore not very important for the Asahi Kasei Group and our raw materials suppliers alike. We do not anticipate that we will use brackish water if we consider where we operate, and the possibility of us using any produced water in future is even much lower because we are not involved in the mining of gas, oil or metals. However, there is a possibility of us and our suppliers using more recycled water in future especially in operations where freshwater resources are expected to be scarcer.

W1.2

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

	% of sites/facilities/operations	Please explain
Water withdrawals – total volumes	100%	We regularly measure and monitor the total volume of water withdrawal at all of our plants according to our internal regulations. Each of our plants measures and monitors the volume of water withdrawal every month, with flow meters and/or based on invoices, and reports the yearly data to the Asahi Kasei headquarters once a year, using our proprietary system. The Asahi Kasei headquarters monitors the group-wide data annually.
Water withdrawals – volumes by source	100%	We regularly measure and monitor the volume of water withdrawal by sources at all of our plants according to our internal regulations. Each of our plants measures and monitors the volume of water withdrawal by source every month, with flow meters and/or based on invoices, and reports the yearly data to the Asahi Kasei headquarters once a year, using our proprietary system. The Asahi Kasei headquarters monitors the group-wide data annually.
Entrained water associated with your metals & mining sector activities - total volumes [only metals and mining sector]	<Not Applicable>	<Not Applicable>
Produced water associated with your oil & gas sector activities - total volumes [only oil and gas sector]	<Not Applicable>	<Not Applicable>
Water withdrawals quality	100%	We regularly monitor the quality of water used at all of our plants according to our internal regulations. It is principally the responsibility of each of our plants to monitor the quality of water withdrawn to ensure good quality freshwater is always available. The method and frequency of monitoring depend on individual plants' facts and circumstances such as legal requirements and types of water withdrawn. Typically, however, many of our plants continuously monitor the quality of water withdrawn with turbidity and pH meters, and periodically refer to water analysis reports obtained from public water utilities. When a plant encounters any issues concerning the quality of water withdrawn, which it cannot resolve on its own, it shall seek advice and support from the Asahi Kasei headquarters, by letting it know what has happened and is happening. The Asahi Kasei headquarters determines annually whether there have been any issues concerning the quality of water withdrawn.
Water discharges – total volumes	100%	We regularly measure and monitor the total volume of water discharge at all of our plants according to our internal regulations. Each of our plants measures and monitors the volume of water discharge every month, typically with a flow measurement weir, and reports the yearly data to the Asahi Kasei headquarters once a year, using our proprietary system. The Asahi Kasei headquarters monitors the group-wide data annually.
Water discharges – volumes by destination	100%	We regularly measure and monitor the volume of water discharge by destination at all of our plants according to our internal regulations. Each of our plants measures and monitors the volume of water discharge by destination every month, typically with a flow measurement weir, and reports the yearly data to the Asahi Kasei headquarters once a year, using our proprietary system. The Asahi Kasei headquarters monitors the group-wide data annually.
Water discharges – volumes by treatment method	100%	We regularly measure and monitor the volume of water discharge by treatment method at all of our plants according to our internal regulations. Each of our plants measures and monitors the volume of water discharge by treatment method every month, typically with a flow measurement weir, and reports the yearly data to the Asahi Kasei headquarters once a year, using our proprietary system. The Asahi Kasei headquarters monitors the group-wide data annually.
Water discharge quality – by standard effluent parameters	100%	We regularly measure and monitor the water discharge quality by standard effluent parameters at all of our plants according to our internal regulations. It is principally the responsibility of each of our plants to monitor the quality of water discharge to ensure that it complies with all applicable effluent standards or limits. Many of our plants continuously monitor parameters such as pH and COD with our own analyzers to detect any issues, and ask external laboratories to take and analyze effluent samples periodically, typically twice to four times a year, to demonstrate that we meet any effluent standards or limits. When a plant encounters any issues concerning the quality of water discharge, which it cannot resolve on its own, it shall seek advice and support from the Asahi Kasei headquarters, by letting it know what has happened and is happening. The Asahi Kasei headquarters determines annually whether there have been any issues concerning the quality of water discharge.
Water discharge quality – temperature	100%	We regularly measure and monitor the temperature of water discharge at all of our plants according to our internal regulations. It is principally the responsibility of each of our plants to monitor the temperature of water discharge to ensure that it complies with all applicable requirements. Many of our plants continuously monitor the effluent temperature with our own thermometers to detect any issues, and all the plants ask external laboratories to take and analyze effluent samples periodically, typically twice to four times a year, to demonstrate that we meet any relevant requirements. When a plant encounters any issues concerning the temperature of water discharge, which it cannot resolve on its own, it shall seek advice and support from the Asahi Kasei headquarters, by letting it know what has happened and is happening. The Asahi Kasei headquarters determines annually whether there have been any issues concerning the temperature of water discharge.
Water consumption – total volume	100%	We annually measure and monitor the total volume of group-wide water consumption, based on the water withdrawal and water discharge data collected from our plants once a year. The volume of water withdrawal is measured by flow meters or based on invoices and the volume of water discharge is measured with a flow measurement weir. The method for measurement is the simple subtraction: Water consumption = Water withdrawal - Water discharge.
Water recycled/reused	100%	We regularly measure and monitor the volume of water recycled/reused at all of our plants according to our internal regulations. Each of our plants calculates the volume of water recycled/reused, based on the readings of flow meters and some estimates, and reports the yearly data to the Asahi Kasei headquarters once a year, using our proprietary system. The Asahi Kasei headquarters monitors the group-wide data annually.
The provision of fully-functioning, safely managed WASH services to all workers	100%	We regularly monitor whether we provide fully-functioning, safely managed WASH services to all workers at all of our plants according to our internal regulations. It is principally the responsibility of each of our plants to monitor whether we provide fully-functioning, safely managed WASH services to all workers. The monitoring is done through water supply and sanitation facilities inspections conducted at each plant regularly, typically every month. However, when a plant encounters any issues concerning the provision of WASH services, which it cannot resolve on its own, it shall seek advice and support from the Asahi Kasei headquarters, by letting it know what has happened and is happening. The Asahi Kasei headquarters determines annually whether there have been any issues concerning the provision of WASH services.

W1.2b

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

	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Total withdrawals	271084	Higher	The total withdrawals increased by 4.97% compared to the previous fiscal year, because of the economic recovery. Since the total withdrawals mainly depend on the change in the production amount, we anticipate it will increase next year with further economic recovery.
Total discharges	238548	Higher	The total discharges increased by 5.46%, due to the increase of total withdrawals as a result of increase in production in addition to our challenge to use water efficiently. Because of the change in total discharges depends on the total withdrawals, we anticipate it will increase next year with further economic recovery.
Total consumption	32536	About the same	The total consumption increased by 1.52%, due to the increase of total withdrawals as a result of increase in production with the economic recovery in 2021 in addition to our challenge to use water efficiently. Since the change in total consumption depends on change in the total withdrawals, we anticipate that it will increase next year with further economic recovery.

W1.2d

(W1.2d) Indicate whether water is withdrawn from areas with water stress and provide the proportion.

	Withdrawals are from areas with water stress	% withdrawn from areas with water stress	Comparison with previous reporting year	Identification tool	Please explain
Row 1	Yes	Less than 1%	About the same	WRI Aqueduct	We understand that those plants that are located in water stressed areas are the two of our plants in Jurong Island, Singapore. Singapore is a waterstressed country because it is surrounded by the sea and relies hugely on water supplied from Malaysia. It is also evident from the baseline water stress for Singapore indicated in WRI Aqueduct. This is how we have determined that these plants in Singapore are located in a water stressed area. The volume of water withdrawn at these plants represents only a tiny fraction of the Asahi Kasei Group's total water withdrawals, but the plants have been striving to reduce their water use. This has contributed to the year-on-year decrease in the volume of water withdrawn at these plants.

W1.2h

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	209227	Higher	Fresh surface water is relevant because many of our plants use a significant amount of good quality freshwater for cooling and washing. Mainly because of increased production volume by the booming economic throughout the fiscal 2021, the volume of fresh surface water we withdrew in fiscal 2021 increased by 9.10% from the previous year.
Brackish surface water/Seawater	Relevant	32077	About the same	Brackish surface is not relevant since our plants are located where freshwater resources are abundant. Seawater is relevant because several our plants in Japan rely on seawater as water for cooling. The volume of seawater we withdrew in fiscal 2021 decreased by 1.22% from the previous year.
Groundwater – renewable	Relevant	19996	About the same	Renewable groundwater is relevant because several of our plants rely on renewable groundwater as water for cooling and washing. Mainly because of increased production volume affected by the economic recovery from the latter half of fiscal 2020, the volume of renewable groundwater we withdrew in fiscal 2021 increased by 2.30% from the previous year.
Groundwater – non-renewable	Not relevant	<Not Applicable>	<Not Applicable>	Non-renewable groundwater is not relevant because none of our plants are located where it is available and has to be relied on. It will continue to be irrelevant for us unless we set up a plant where non-renewable groundwater is available and has to be relied on.
Produced/Entrained water	Not relevant	<Not Applicable>	<Not Applicable>	Produced water is not relevant because we are not involved in the mining of gas, oil or metals. It will continue to be irrelevant for us unless we enter into any mining business.
Third party sources	Relevant	9784	Much lower	Water from third party sources are relevant because we use it where drinkable quality water is required. The volume of water from third party sources, mainly municipal water, we withdrew in fiscal 2021 decreased by 32.29% from the previous year.

W1.2i

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water	Relevant	177292	About the same	Fresh surface water is relevant as a wastewater destination because several of our plants discharge wastewater into the Fresh surface water. The volume of wastewater discharged into fresh surface water in fiscal 2021 increased by 3.00% from the previous year. The volume of wastewater discharged into fresh surface water tends to increase or decrease in tandem with the volume of fresh surface water withdrawals.
Brackish surface water/seawater	Relevant	30277	Lower	Seawater is relevant as a wastewater destination because several of our plants use seawater as non-contact cooling water and discharge it directly into the sea. The volume of wastewater discharged into the sea in fiscal 2021 decreased by 6.76% from the previous year. The change rate was as same as the change in the volume of sea water withdrawals. (The volume of wastewater discharged into the sea is exactly the same as the volume of water withdrawn from the sea, because there is no evaporation in indirect cooling systems using seawater.)
Groundwater	Not relevant	<Not Applicable>	<Not Applicable>	Groundwater is and will continue to be irrelevant as a wastewater destination because none of our plants discharge and will not need to discharge wastewater into groundwater.
Third-party destinations	Relevant	30979	Much higher	The volume of wastewater discharged into third-party destinations in fiscal 2021 increased by 43.45% from the previous year.

W1.2j

(W1.2j) Within your direct operations, indicate the highest level(s) to which you treat your discharge.

	Relevance of treatment level to discharge	Volume (megaliters/year)	Comparison of treated volume with previous reporting year	% of your sites/facilities/operations this volume applies to	Please explain
Tertiary treatment	Relevant	130317	Higher	51-60	The amount processed increased by 10.58% compared to the previous year.
Secondary treatment	Relevant	27625	Much lower	11-20	The amount processed decreased by 30.47% compared to the previous year.
Primary treatment only	Relevant	9307	Much higher	1-10	The amount processed increased by 82.24% compared to the previous year.
Discharge to the natural environment without treatment	Relevant	40320	About the same	11-20	The amount processed decreased by 3.82% compared to the previous year.
Discharge to a third party without treatment	Relevant	30979	Much higher	11-20	The amount processed increased by 43.45% compared to the previous year.
Other	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	

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
Row 1	2461300 000000	271293	9072478.83284 862	Total water withdrawal efficiency is expected to improve certainly due to the introduction of updated high-efficiency equipment and technology like water treatment/purification membranes for wastewater which can recycle the waste water more efficient, and water saving activities throughout the company.

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 organic chemicals

Product name

Chemical Monomer 1

(We think we shouldn't answer the water intensity per each production name because it is confidential information.)

Water intensity value (m3)

48.48

Numerator: water aspect

Total water withdrawals

Denominator

Ton

Comparison with previous reporting year

Lower

Please explain

We use water unit (m3/t) as one of the parameters for productivity improvement. In the near future, we are actively working to improve water unit, as water shortages and rising water prices are expected and the impact of water on commodity manufacturing costs is expected to be greater than it is now. Compared to the previous year, the water intensity (m3/t) of Chemical Monomer 1 improve by 16%. The reason is that production volume was increased by 5% and production efficiency improved significantly. Large-size chemical plants can't be stopped once they are put into operation. Therefore, to be honest, it is very tough for us to improve the water intensity of the specific product listed here in a short period except to rebuild the plant itself. However, we are devoting ourselves to improving the water intensity and working diligently on an ongoing basis. Specific our approaches to improve the water intensity of the products include the introduction of updated IT technology that enables optimization of plant operation according to production volume, high-efficiency pumps, and measures against water leakage mainly due to pipe deterioration. Our strategy is to continue to aggressively seek ways and measures to improve the water intensity of each product from all aspects. It is expected that the forecast of water units in the future will be gradually improved by implementing the above measures.

Product type

Bulk organic chemicals

Product name

Chemical Monomer 2

(We think we shouldn't answer the water intensity per each production name because it is confidential information.)

Water intensity value (m3)

4.38

Numerator: water aspect

Total water withdrawals

Denominator

Ton

Comparison with previous reporting year

About the same

Please explain

We use water unit (m3/t) as one of the parameters for productivity improvement. In the near future, we are actively working to improve water unit, as water shortages and rising water prices are expected and the impact of water on commodity manufacturing costs is expected to be greater than it is now. Compared to the previous year, the water unit (m3/t) of Chemical Monomer 2 worsen by 9%. The reason is that production decreased by 14% and production efficiency deteriorated. Large-size chemical plants can't be stopped once they are put into operation. Therefore, to be honest, it is very tough for us to improve the water intensity of the specific product listed here in a short period except to rebuild the plant itself. However, we are devoting ourselves to improving the water intensity and working diligently on an ongoing basis. Specific our approaches to improve the water intensity of the products include the introduction of updated IT technology that enables optimization of plant operation according to production volume, high-efficiency pumps, and measures against water leakage mainly due to pipe deterioration. Our strategy is to continue to aggressively seek ways and

measures to improve the water intensity of each product from all aspects. It is expected that the forecast of water units in the future will be gradually improved by implementing the above measures.

Product type

Bulk organic chemicals

Product name

Chemical Polymer 1

(We think we shouldn't answer the water intensity per each production name because it is confidential information.)

Water intensity value (m3)

3.1

Numerator: water aspect

Total water withdrawals

Denominator

Ton

Comparison with previous reporting year

About the same

Please explain

We use water unit (m3/t) as one of the parameters for productivity improvement. In the near future, we are actively working to improve water unit, as water shortages and rising water prices are expected and the impact of water on commodity manufacturing costs is expected to be greater than it is now. Compared to the previous year, the water unit (m3/t) of Chemical Polymer 1 worsen by 6%. The reason is that production decreased by 16% and production efficiency deteriorated. Large-size chemical plants can't be stopped once they are put into operation. Therefore, to be honest, it is very tough for us to improve the water intensity of the specific product listed here in a short period except to rebuild the plant itself. However, we are devoting ourselves to improving the water intensity and working diligently on an ongoing basis. Specific our approaches to improve the water intensity of the products include the introduction of updated IT technology that enables optimization of plant operation according to production volume, high-efficiency pumps, and measures against water leakage mainly due to pipe deterioration. Our strategy is to continue to aggressively seek ways and measures to improve the water intensity of each product from all aspects. It is expected that the forecast of water units in the future will be gradually improved by implementing the above measures.

Product type

Bulk organic chemicals

Product name

Chemical Polymer 2

(We think we shouldn't answer the water intensity per each production name because it is confidential information.)

Water intensity value (m3)

2.24

Numerator: water aspect

Total water withdrawals

Denominator

Ton

Comparison with previous reporting year

Lower

Please explain

We use water unit (m3/t) as one of the parameters for productivity improvement. In the near future, we are actively working to improve water unit, as water shortages and rising water prices are expected and the impact of water on commodity manufacturing costs is expected to be greater than it is now. Compared to the previous year, the water unit (m3/t) of Chemical Polymer 2 improved by 14%. The reason is that production volume was increased by 10% and production efficiency improved significantly. Large-size chemical plants can't be stopped once they are put into operation. Therefore, to be honest, it is very tough for us to improve the water intensity of the specific product listed here in a short period except to rebuild the plant itself. However, we are devoting ourselves to improving the water intensity and working diligently on an ongoing basis. Specific our approaches to improve the water intensity of the products include the introduction of updated IT technology that enables optimization of plant operation according to production volume, high-efficiency pumps, and measures against water leakage mainly due to pipe deterioration. Our strategy is to continue to aggressively seek ways and measures to improve the water intensity of each product from all aspects. It is expected that the forecast of water units in the future will be gradually improved by implementing the above measures.

Product type

Specialty organic chemicals

Product name

Chemical Polymer 3

(We think we shouldn't answer the water intensity per each production name because it is confidential information.)

Water intensity value (m3)

93.28

Numerator: water aspect

Total water withdrawals

Denominator

Ton

Comparison with previous reporting year

About the same

Please explain

We use water unit (m3/t) as one of the parameters for productivity improvement. In the near future, we are actively working to improve water unit, as water shortages and rising water prices are expected and the impact of water on commodity manufacturing costs is expected to be greater than it is now. Compared with the previous year, the water unit (m3/t) of Chemical Polymer 3 improved by 6%. The reason is that production volume was increased by 16% and production efficiency improved. Large-size chemical plants can't be stopped once they are put into operation. Therefore, to be honest, it is very tough for us to improve the water intensity of the specific product listed

here in a short period except to rebuild the plant itself. However, we are devoting ourselves to improving the water intensity and working diligently on an ongoing basis. Specific our approaches to improve the water intensity of the products include the introduction of updated IT technology that enables optimization of plant operation according to production volume, high-efficiency pumps, and measures against water leakage mainly due to pipe deterioration. Our strategy is to continue to aggressively seek ways and measures to improve the water intensity of each product from all aspects. It is expected that the forecast of water units in the future will be gradually improved by implementing the above measures.

W1.4

(W1.4) Do you engage with your value chain on water-related issues?

Yes, our suppliers

W1.4a

(W1.4a) What proportion of suppliers do you request to report on their water use, risks and/or management information and what proportion of your procurement spend does this represent?

Row 1

% of suppliers by number

51-75

% of total procurement spend

76-100

Rationale for this coverage

We understand that, the higher the share of our procurement spend is, the higher the risk of our operations being affected by a water-related adverse event at a supplier could be, and that it is very effective and efficient to work together with our supply chain members in order to solve global water issues. That is why we send out a CSR questionnaire to our major suppliers from which we procure a significant amount of products. Specifically, in fiscal 2021, we sent out a CSR questionnaire to those suppliers covering 68% in terms of the number of suppliers and 81% in terms of procurement spend. Information obtained from suppliers is used not only to assess water risks in our supply chain, but also to encourage suppliers to make improvements by providing them with feedback. We believe this functions as an incentive for our suppliers to respond to a questionnaire.

Impact of the engagement and measures of success

We ask them about how they work on efficient use of water resources and wastewater management in order to understand and manage current and future risks in the supply chain. Information obtained from suppliers is used not only to assess water risks in our supply chain, but also to encourage suppliers to make improvements by providing them with feedback. We measure the success mainly by the response rate.

Comment

W1.4b

(W1.4b) Provide details of any other water-related supplier engagement activity.

Type of engagement

Innovation & collaboration

Details of engagement

Educate suppliers about water stewardship and collaboration

% of suppliers by number

Less than 1%

% of total procurement spend

Less than 1%

Rationale for the coverage of your engagement

The Asahi Kasei Group has set "coexistence with the environment" as a group vision, and positions the challenge of global environmental measures as the most important issue. In particular, the Asahi Kasei Group's policy on global environmental measures stipulates "conservation of water resources" and pledges to contribute to the conservation of water resources worldwide through our business and products. In relation to the business of recycled cellulosic fiber (trade name "BEMBERG"), Asahi Kasei Corporation has been implementing initiatives such as technical and educational support and community development (including purification projects for contaminated rivers) for stakeholders involved in the final product from the procurement of raw materials (cotton linters) in India. This business model also includes improvement of wastewater purification system for industrial use which is indispensable for the sustainable development of textile industry considering the global environment. Specifically, the company is implementing initiatives with dyeing manufacturers and other stakeholders aimed at achieving zero wastewater at dyeing plants by using the hollow fiber membrane Microza developed by the company for wastewater treatment generated during fabric dyeing.

Impact of the engagement and measures of success

Asahi Kasei Corp. has been exporting recycled cellulose (cupro textile, trade name "BEMBERG"), which is used as a raw material for sarly, a traditional females's clothing in India, since 1976.

As of 2021, Asahi Kasei had contracts with about 10 dyeing plants and about 60 garment factories, and the volume of cupro textile handled was about 6,000 tons. Asahi Kasei Corp. started the challenge of the construction of the wastewater purification system for the industry considering the global environment, which is indispensable for the sustainable development of the textile industry, while aiming at the business expansion of "BEMBERG" and hollow fiber membrane "Microza" in India. Specifically, it aims to achieve zero wastewater in dyeing plants by using "Microza" for wastewater treatment generated during dough dyeing. This will enable us to conserve valuable natural water resources through environmental conservation and water reuse around our plants and to contribute to the expansion of our business. By 2023 cumulative amount of 40,000m3/day textile dyeing effluent will be treated and recycled back to their own textile dyeing process, which is equivalent to saving daily water access to natural water resources for approx. 25,000 households.

Comment

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?

No

W3. Procedures

W-CH3.1

(W-CH3.1) How does your organization identify and classify potential water pollutants associated with its activities in the chemical sector that could have a detrimental impact on water ecosystems or human health?

In accordance with the following policies and supports, the Asahi Kasei Group identifies and classifies water pollutants whose chemical manufacturing activities could adversely affect water ecosystems and human bodies.

[Activity Policy] Based on the Asahi Kasei Group Quality Policy established in 2016, the Asahi Kasei Group discloses risk information on product safety through its life cycle (development, procurement, production, distribution, marketing, use, disposal, and recycling), and cooperates with stakeholders to minimize the impact on human health, safety, and the environment.

[Identified and classification] Asahi Kasei Group classifies chemicals, based on the type and scope of hazards, according to international standards, such as REACH (Registration, Evaluation, Authorization, Restriction and Chemicals) and GHS (Globally Harmonized System of Classification and Labelling of Chemicals) classifications.

Regarding hazardous substances in water systems, in Japan, 28 substances with high toxicity to living organisms and the environment are regulated as hazardous substances in accordance with the Water Pollution Prevention Act.

We recognize that the substances regulated by the Water Pollution Prevention Act need to be managed and reduced as the top priority substances for water pollution prevention worldwide.

The Asahi Kasei Group takes great care in handling the chemical substances used in product manufacturing. In addition, since we have taken thorough measures to completely prevent the outflow of chemical substances even in the event of an unexpected accident, no violations of laws and regulations have occurred for years. [Value Chain] The Asahi Kasei Group considers such leaks of hazardous substances as one of its water issues and constantly considers whether there are any leak risks in the value chain. Specifically, we communicate our environmental protection, product safety, and quality assurance policies to suppliers of raw materials, intermediate materials, and parts. At the same time, we thoroughly prevent the inclusion of substances whose use is restricted by laws and regulations in our products.

With regard to the transmission of information on chemical substances contained in products in the supply chain, we participated as a representative of an upstream company in the Article Management Promotion Council (JAMP) and are actively working to revise the list of substances subject to management and promote the dissemination of chemSHERPA (Scheme for Communication of Chemical Substances Contained in Products).

W-CH3.1a

(W-CH3.1a) Describe how your organization minimizes adverse impacts of potential water pollutants on water ecosystems or human health. Report up to ten potential pollutants associated with your activities in the chemical sector.

Potential water pollutant	Value chain stage	Description of water pollutant and potential impacts	Management procedures	Please explain
Potentially hazardous chemicals	Direct operations	Our plants release potentially hazardous chemicals into the public water bodies, some of which are suspected to be carcinogenic and/or teratogenic. For example, if the Nobeoka area accidentally released N,N-Dimethylacetamide (DMAc), which is suspected to be carcinogenic and teratogenic, into the sea, DMAc could cause cancer and deformation when humans are directly exposed to the chemical, which we assume the rare case. Although there is no effluent quality standards for DMAc, we have been trying to minimize the release of DMAc into the environment.	Measures to prevent spillage, leaching, and leakages	The Nobeoka area collects the wastewater containing DMAc and separate DMAc from water with three distillation towers, which is then recovered and reused. The recovery rate is nearly 100% but we need to take out some of the reflux liquid in the distillation towers and release it into the sea in order to prevent condensation. This is how we are trying to minimize the amount of DMAc that is released into the sea, thereby reducing its potential impact on the aquatic ecosystems. We measure and evaluate the success of our efforts based on the amount of potentially hazardous chemicals released into the environment.
Microplastics	Direct operations Product use	There is a growing concern that microplastics in the ocean attract persistent organic pollutants (POPs) such as polychlorinated biphenyls (PCBs), are picked up by plankton, which is then eaten by fish, and finally end up in human food chain, affecting our health. It is feared that these POPs are carcinogenic and endocrine-disrupting, but the complexity of the behavior of microplastics in the environment and how POPs are accumulated in marine species makes it challenging to estimate the scale and magnitude of the impact. That said, if a lot of POPs contaminated microplastics end up in human food chain, its impact on our health could be huge, given the high bio-accumulation potential of POPs. Microplastics could result from chemical plants and from inappropriate disposal of end-of-life plastic products. The Asahi Kasei Group is trying to tackle this issue as a producer of plastic products.	R&D into less harmful alternative products	The Asahi Kasei Group is trying to tackle this issue within our sphere of responsibility and influence. Specifically, we are trying to minimize our impact both as a producer of plastic products and as a generator of plastic waste. We, for example, are actively working to reduce single-use plastics, promoting the 3Rs (Reduce, Reuse, Recycle) activities in all of our business areas, and also trying to eliminate landfill of plastic waste. How successful our efforts are will principally be evaluated based on the status of development of such products and the amount of plastic waste landfilled.

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

Coverage

Full

Risk assessment procedure

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

Frequency of assessment

More than once a year

How far into the future are risks considered?

More than 6 years

Type of tools and methods used

Tools on the market
Databases
Other

Tools and methods used

WRI Aqueduct
Regional government databases
Internal company methods
External consultants
Other, please specify (Publicly accessible databases)

Contextual issues considered

Water availability at a basin/catchment level
Water quality at a basin/catchment level
Stakeholder conflicts concerning water resources at a basin/catchment level
Water regulatory frameworks
Access to fully-functioning, safely managed WASH services for all employees

Stakeholders considered

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

Comment

External consultants: Risk analyses were conducted at approximately 40 domestic and overseas bases for seven hazard items, including water disasters, storm surges, and storm disasters (typhoons), from three perspectives of human injury, the environment, and property damage. "Other" includes: Publicly accessible databases; Information and data provided by governments; Information obtained from individual plants; Case examples of other plants or other companies; Communication with other water users, local governments, river basin management authorities and water utilities; River basin development/management plans; Results of water supply and sanitation facilities inspection; Tsunami risk assessment; CSR questionnaire.

Value chain stage

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?

More than 6 years

Type of tools and methods used

Tools on the market
Databases
Other

Tools and methods used

WRI Aqueduct
Regional government databases
External consultants
Other, please specify (Tsunami risk assessment)

Contextual issues considered

Water availability at a basin/catchment level
Water quality at a basin/catchment level
Implications of water on your key commodities/raw materials
Water regulatory frameworks

Stakeholders considered

Customers
Employees
Local communities
Regulators
Suppliers
Water utilities at a local level

Comment

"Other" includes: Publicly accessible databases; Information and data provided by governments; Information obtained from individual plants; Case examples of other plants or other companies; Communication with other water users, local governments, river basin management authorities and water utilities; River basin development/management plans; Results of water supply and sanitation facilities inspection; Tsunami risk assessment; CSR questionnaire.

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.

We first use WRI Aqueduct to obtain an overall picture of which facilities in the Asahi Kasei Group are potentially exposed to water risks. We not only assess water risks now with Aqueduct but also look up projected changes in water stress in 2030 and 2040 with Aqueduct. We use WRI Aqueduct because it is an easy-to-use tool that can be used to assess various types of water risks associated with operations globally. Assessment results (risk levels) of Aqueduct are given with 5 levels: Low, Low to medium, Medium to high, High and Extremely high, but we do not use the assessment results of Aqueduct as they are. We adjust them with information obtained from individual plants to arrive at final assessment results. As for water risks in our supply chain, we send out a CSR questionnaire to our major suppliers and ask them about how they work on efficient use of water resources and wastewater management in order to understand and manage current and future risks in the supply chain. It is hard to conceive that any of the Asahi Kasei Group's plants will be severely hit by a drought in the foreseeable future, but if we should find ourselves in a situation in 2040 and beyond where a sufficient amount of good quality freshwater is no longer available where we operate, as a result of global population and economic growth, there could be a possibility of us being forced to revise our business strategy. When such water risks become foreseeable, we will first discuss the issue within our Responsible Care (RC) Committee. If the Committee determines that the issue could affect the Asahi Kasei Group's business strategy, the Strategic Management Council will deliberate the issue, the results of which will then be reflected on our strategy, as necessary.

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?

Yes, both in direct operations and the rest of our value chain

W4.1a

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

We understand that "substantive financial or strategic impact on our business" means to us any significant impact on our plants' operations, financial performance or the relationship between us and our stakeholders. For example, if a severe drought or flood should hit an Asahi Kasei plant or any of our major suppliers, our operations could be disrupted, which might significantly affect our financial performance, and if any of our plants should release hazardous substances into rivers or the sea, affecting people's health or fishery production, it could significantly damage our relationship with stakeholders. Therefore, the definition not only applies to impact resulting from our own operations but also impact resulting from suppliers' operations. It is not always easy to estimate in advance the magnitude and probability of such adverse events, and it is almost impossible to quantify the impact of a decline in stakeholder trust. But because an issue with potential loss of certain billion yen or more shall be discussed at the Board of Directors, that could be thought of as a threshold that indicates substantive change. At the Asahi Kasei Group, each of our plants has individually assessed water risks by monitoring trends in laws and regulations applicable to water issues, and communicating with local stakeholders such as local communities, farmers, fishermen and local governments, for example. Apart from this, we conduct a group-wide water risk assessment using WRI's Aqueduct. Assessment results (risk levels) of Aqueduct are given with 5 levels: Low, Low to medium, Medium to high, High and Extremely high, but we do not use the assessment results of Aqueduct as they are. We adjust them with information obtained from individual plants to arrive at final assessment results. Therefore, we basically use the adjusted risk levels (Low, Low to medium, Medium to high, High and Extremely high) as an indicator, and we understand that there is a high possibility that substantive impact will likely occur when the adjusted risk level is High or Extremely high.

W4.1b

(W4.1b) What is the total number of facilities exposed to water risks with the potential to have a substantive financial or strategic impact on your business, and what proportion of your company-wide facilities does this represent?

	Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
Row 1	2	1-25	

W4.1c

(W4.1c) By river basin, what is the number and proportion of facilities exposed to water risks that could have a substantive financial or strategic impact on your business, and what is the potential business impact associated with those facilities?

Country/Area & River basin

Singapore	Other, please specify (The two plants are situated in Jurong Island, which is an artificial island, and there is no "river basin".)
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Number of facilities exposed to water risk

2

% company-wide facilities this represents

1-25

Production value for the metals & mining activities associated with these facilities

<Not Applicable>

% company's annual electricity generation that could be affected by these facilities

<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities

<Not Applicable>

% company's total global revenue that could be affected

1-10

Comment

W4.2

(W4.2) Provide details of identified risks in your direct operations with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Country/Area & River basin

Singapore	Other, please specify (The two plants are situated in Jurong Island, which is an artificial island, and there is no "river basin".)
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Type of risk & Primary risk driver

Regulatory	Increased difficulty in obtaining withdrawals/operations permit
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Primary potential impact

Reduction or disruption in production capacity

Company-specific description

Products produced at our two plants in Singapore are essential building blocks of the 'Materials' field in our pursuit of the portfolio of high-profitability and high value-added businesses, which is set forth in our Medium-term management initiative "Cs+ for Tomorrow 2021" released on 29 May 2019. Therefore, the operational stability of the two plants in Singapore means a certain deal to the Asahi Kasei Group's business plan. Chemical plants require a lot of water especially for cooling, but Singapore chronically suffers from water shortages because of its small land area with no large rivers. Good quality water is being supplied from neighboring Malaysia, but a change in political or other circumstances could lead to instability in water supply. Lobbying activities might become more important and much more care will have to be taken when choosing location for further expansion of plants.

Timeframe

More than 6 years

Magnitude of potential impact

Low

Likelihood

Exceptionally unlikely

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure - minimum (currency)

10000000

Potential financial impact figure - maximum (currency)

400000000

Explanation of financial impact

In calculating the financial impact, we assumed a hypothetical situation where the supply of industrial water to Jurong Island is completely halted due to a change in political or other circumstances and the operations of our two plants on the island are suspended for one month. We also used unit prices for all the products included in relevant businesses for confidential reasons. Our estimation of the impact is about 0.2% of the Asahi Kasei Group's sales.

Primary response to risk

Improve monitoring

Description of response

To collect information and intelligence is always the first step in running a good business, regardless of whether it is about water risks or not. We understand that Singapore is a country where environmental regulations are likely to be strengthened quickly. The carbon tax introduced in Singapore in 2019 is just one such example. We recognize collecting and analyzing information and intelligence is the basics in detecting and minimizing water risks. Specifically, we offer Microsa, a hollow fiber filtration membrane for water treatment, to the Changgi New Water Plant, Singapore's largest sewage recovery plant. Based on such achievements, it has a deep pipe with the Ministry of the Environment in Singapore, and it is able to obtain information on water administration in Singapore (such as water price trends, water self-sufficiency rate improvement plans, and trends in Malaysia, which is a water import destination) in a timely manner. It also monitors information on the Ministry of the Environment's website and external information providers at all times. In addition, with regard to water-related regulations, lobbying activities are carried out domestically and overseas through JCIA (Japan Chemical Industry Association).

Cost of response

0

Explanation of cost of response

No observable cost is incurred in collecting information and intelligence because it is inseparable from what we do in the normal course of business. Any attempt to separate it would be nonsense, we believe.

W4.2a

(W4.2a) Provide details of risks identified within your value chain (beyond direct operations) with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Country/Area & River basin

Japan	Other, please specify (Ocean pollution (Worldwide))
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Stage of value chain

Other, please specify (End-of-Life Treatment phase)

Type of risk & Primary risk driver

Reputation & markets	Changes in consumer behavior
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Primary potential impact

Reduced demand for products and services

Company-specific description

There is a growing concern that microplastics in the ocean attract persistent organic pollutants (POPs) such as polychlorinated biphenyls (PCBs), are picked up by plankton, which is then eaten by fish, and finally end up in human food chain, affecting our health. It is feared that these POPs are carcinogenic and endocrine-disrupting, but the complexity of the behavior of microplastics in the environment and how POPs are accumulated in marine species makes it challenging to estimate the scale and magnitude of the impact. That said, if a lot of POPs contaminated microplastics end up in human food chain, its impact on our health could be huge, given the high bio-accumulation potential of POPs. Microplastics could result from chemical plants and from inappropriate disposal of end-of-life plastic products. Changes in consumer awareness and behavior towards microplastics or plastics in general could have an impact on our sales, since certain percentage of our sales comes from businesses related to plastic dust, single use plastics and plastic beads, which are thought to be the main contributors to a microplastics issue.

Timeframe

1-3 years

Magnitude of potential impact

Low

Likelihood

Likely

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure - minimum (currency)

10000000

Potential financial impact figure - maximum (currency)

100000000000

Explanation of financial impact

The estimate range given was calculated based on the sales from our products related to plastic dust, single use plastics and plastic beads, which are thought to be the main contributors to a microplastics issue, and the magnitude and likelihood of the changes in consumer awareness/behavior affecting the sales from such products. The upper end of the range was calculated assuming the maximum magnitude, which we understand is very unlikely to occur. Even if such a tail risk event should occur, we understand that the financial impact from it on our business will be limited, because a sizeable portion of our sales comes from the Homes and Health Care businesses.

Primary response to risk

Direct operations	Develop new products and/or markets
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Description of response

The Asahi Kasei Group is trying to tackle this issue within our sphere of responsibility and influence. Specifically, we are trying to minimize our impact both as a producer of plastic products and as a generator of plastic waste. We are speeding up the development of both chemical recycling technology for plastic waste and material one in collaboration with other companies and academia. As for polyethylene material recycle, for exmple, we have been developing recycled toiletries bottles in an industry-academia collaboration project funded by NEDO. In addition, we are also establishing a platform to manage and visualize the supply chain based on blockchain technology with an IT company.

Cost of response

800000000000

Explanation of cost of response

This is the total projected amount for capital expenditure for the FY2019–FY2021 3-year period in the Asahi Kasei Group's medium-term management initiative released on 29 May 2019. We will allocate funds from this budget for the tackling of this issue.

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

Increased sales of existing products/services

Company-specific description & strategy to realize opportunity

The global market for microfiltration (MF) and ultrafiltration (UF) systems is growing by some 10% annually, driven by serious environmental water quality issues and water shortages, as well as increasingly stringent wastewater regulations throughout the world. Microza holds the leading share of the US market for membrane-process water clarification systems, the world's largest market for such systems. We consider this opportunity strategic because the adoption of Microza has been growing firmly in many countries which face water shortages and growing needs for improved water quality. In fact, we are trying to shift our focus away from the traditional Japanese and US market towards countries that face water shortages such as China, Korea, Singapore, Thailand, Indonesia, and Middle Eastern countries. For example, in 2017, Microza was selected for desalination plant in Kuwait, whose treatment capacity is scheduled to be 610,000 tons per day, representing the largest hollow-fiber filtration membrane order received by Asahi Kasei. Asahi Kasei has contributed, and will continue to contribute, to solutions for a wide range of environmental problems related to water resources by achieving further growth in orders for large-scale water-treatment facilities throughout the world, particularly in Asian countries where the number and scale of such projects is forecasted to increase steadily.

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)

9900000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact

The global market for MF/UF systems has reached about USD 450 Million in 2020. Asahi Kasei is the world's leading supplier of MF/UF membranes, with its Microza membranes used at over 1,000 plants worldwide, enjoying a market share of over 20%. Assuming the same market share, the scale of our MF/UF systems business will be around USD 90 Million, or JPY 9,900,000,000.

W5. Facility-level water accounting

W5.1

(W5.1) For each facility referenced in W4.1c, provide coordinates, water accounting data, and a comparison with the previous reporting year.

Facility reference number

Facility 1

Facility name (optional)

Country/Area & River basin

Singapore	Other, please specify (Jurong Island)
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Latitude

1.3

Longitude

103.7

Located in area with water stress

Yes

Primary power generation source for your electricity generation at this facility

<Not Applicable>

Oil & gas sector business division

<Not Applicable>

Total water withdrawals at this facility (megaliters/year)

90

Comparison of total withdrawals with previous reporting year

About the same

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

0

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

90

Total water discharges at this facility (megaliters/year)

89.99

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

89.99

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

0.01

Comparison of total consumption with previous reporting year

About the same

Please explain

Since the plant is very strictly operated, unless there is any significant change in production volume or any significant accident, the volumes of water withdrawal, water discharge and water consumption tend to be stable.

Facility reference number

Facility 2

Facility name (optional)

Country/Area & River basin

Singapore	Other, please specify (Jurong Island)
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Latitude

1.3

Longitude

103.7

Located in area with water stress

Yes

Primary power generation source for your electricity generation at this facility

<Not Applicable>

Oil & gas sector business division

<Not Applicable>

Total water withdrawals at this facility (megaliters/year)

630.87

Comparison of total withdrawals with previous reporting year

About the same

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

0

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

630.87

Total water discharges at this facility (megaliters/year)

630.86

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

630.86

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

0.01

Comparison of total consumption with previous reporting year

About the same

Please explain

The plant succeeded in reducing the volumes of water withdrawal and water discharge as a result of an energy efficiency project. The volume of water consumption did not change because it is already very small.

W5.1a

(W5.1a) For the facilities referenced in W5.1, what proportion of water accounting data has been third party verified?

Water withdrawals – total volumes

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain

Water withdrawals – volume by source

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain

Water withdrawals – quality by standard water quality parameters

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain

Water discharges – total volumes

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain

Water discharges – volume by destination

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain

Water discharges – volume by final treatment level

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain

Water discharges – quality by standard water quality parameters

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain

Water consumption – total volume

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain

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	Company-wide	<p>Description of business dependency on water</p> <p>Description of business impact on water</p> <p>Description of water-related performance standards for direct operations</p> <p>Description of water-related standards for procurement</p> <p>Reference to international standards and widely-recognized water initiatives</p> <p>Company water targets and goals</p> <p>Commitment to align with public policy initiatives, such as the SDGs</p> <p>Commitments beyond regulatory compliance</p> <p>Commitment to water-related innovation</p> <p>Commitment to water stewardship and/or collective action</p> <p>Commitment to safely managed Water, Sanitation and Hygiene (WASH) in the workplace</p> <p>Acknowledgement of the human right to water and sanitation</p> <p>Recognition of environmental linkages, for example, due to climate change</p>	<p>Our Responsible Care Policy includes a statement "We give full consideration to the global environment, and make efforts to reduce the environmental burden of all operations". For the Asahi Kasei Group, "efforts to reduce the environmental burden" naturally means efforts to pursue the effective use of water resources and reduction of impact in the form of effluent. We also explicitly uphold "ensuring safe and comfortable workplace environments" in our Code of Conduct and promise to strive to prevent occupational accidents, build comfortable workplace environments and maintain and improve employee health. We take it as our responsibility to safeguard employees' access to safe water and sanitation as a human right, which we believe is indispensable to ensure safe and comfortable workplace environments. Our RC Policy and Code of Conduct apply to the entire Asahi Kasei Group since we believe it is essential for us to approach water-related issues consistently across the Group.</p> <p>sustainability_report2021e.pdf</p>

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	Please explain
Chief Executive Officer (CEO)	<p>In our group, water-related business is one of the most important management issues in terms of risks and opportunities for our business. In terms of risk, many of our Group's plants are located in areas with abundant water resources, but some factories have the risk of depleting water resources, which could have a major impact on factory operations when risks materialize. We recognize that not only current factory responses, but also decisions on future locations are important management issues. In addition, the Board of Directors is also discussing analyses and responses based on TCFD framework, such as considering necessary responses, assuming the possibility of flooding and the leakage of hazardous materials as weather disasters become more severe due to climate change. On the other hand, from an opportunity perspective, we are considering measures to contribute as a business in anticipation of a shortage of water resources and the increasing uneven distribution of water resources worldwide. These are reflected in the content of the medium-term management plan and the annual management plan that the CEO takes the lead in formulating.</p>

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 Overseeing acquisitions and divestiture Overseeing major capital expenditures Reviewing and guiding business plans Reviewing and guiding major plans of action Reviewing and guiding corporate responsibility strategy Reviewing innovation/R&D priorities Setting performance objectives	The Environmental Safety and Quality Assurance Committee deliberates RC (Responsible Care) plans and results, which include those related to water issues, in annual RC meetings. The Secretary of the Environmental Safety and Quality Assurance Committee reports the outcomes of the Committee to the Management Council once a year. Most decisions are made within annual RC meetings and/or the Management Council, but if something comes up that shall be discussed and approved by the Board of Directors, e.g. water-related issues relating to acquisitions and major capital investments as well as important issues relating to water membranes business, a person in charge of the issue explains it to the Board. Apart from this, Director in charge of RC activities reports the progress of the Group's RC activities to the President twice a year. We believe this multi-layered governance system enables the management and the Board of Directors to concentrate on water-related matters with high priority.

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	Primary reason for no board-level competence on water-related issues	Explain why your organization does not have at least one board member with competence on water-related issues and any plans to address board-level competence in the future
Row 1	Yes	The chairman was the chairman of the Keidanren Environmental Committee for years. Through that experience, he has a wealth of knowledge about the environment, especially climate change and water, and a strong communication path that can convey corporate opinions to the government in formulating environmental policies.	<Not Applicable>	<Not Applicable>

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)

Responsibility

Assessing future trends in water demand
Assessing water-related risks and opportunities
Managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

Annually

Please explain

The Environmental Safety and Quality Assurance Committee is a corporate organ under the direct authority of the President of Asahi Kasei. It is chaired by the President and consists of Director in charge of RC (Responsible Care) activities and RC managers. It deliberates RC plans and results, which include those related to water issues, in annual RC meetings. The Secretary of the Committee reports the outcomes of the Committee to the Management Council once a year. Most decisions are made within annual RC meetings and/or the Management Council, but if something comes up that shall be discussed and approved by the Board of Directors, e.g. water-related issues relating to acquisitions and major capital investments as well as important issues relating to water membranes business, a person in charge of the issue explains it to the Board. Apart from this, Director in charge of RC activities reports the progress of the Group's RC activities to the President twice a year.

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	Yes	

W6.4a

(W6.4a) What incentives are provided to C-suite employees or board members for the management of water-related issues (do not include the names of individuals)?

	Role(s) entitled to incentive	Performance indicator	Please explain
Monetary reward	Director on board	Reduction of water withdrawals Reduction in consumption volumes Improvements in efficiency - direct operations Improvements in waste water quality - direct operations	Performance-linked remuneration, which constitutes a part of remuneration for executive directors, shall be calculated based on the degree of achievement of the Group's consolidated financial indicators, such as net sales, operating income, and ROA, as well as a comprehensive judgment based on the degree of achievement of individually established targets, including the promotion of sustainability (ex. water-related measures). Specifically, it is calculated by multiplying the standard amount by position by a coefficient that comprehensively considers the degree of achievement of financial indicators and the degree of achievement of non-financial targets. The above policy on director compensation is disclosed in our corporate governance.
Non-monetary reward	Other, please specify (Employees in non-managerial positions)	Reduction of water withdrawals Reduction in consumption volumes Improvements in efficiency - direct operations Improvements in efficiency - supply chain Improvements in efficiency - product-use Improvements in waste water quality - direct operations Improvements in waste water quality - supply chain Improvements in waste water quality - product-use Implementation of employee awareness campaign or training program Supply chain engagement Increased access to workplace WASH Implementation of water-related community project	We present awards every year to those who have made an outstanding contribution to increased productivity and/or cost reduction, including water efficiency improvement. Different grades are awarded depending on the economic value added (EVA) a project has created. For example, a special award is given to those who have created certain level of EVA.

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?

When public comments are invited on proposed regulations on the environment such as effluent, air pollutants and soil contamination, which we find scientifically ungrounded, too excessive, or inconsistent with existing regulations, we submit our comments individually or collectively through the industry association. When we submit our comments individually, we carefully examine and review our comments internally over and over again in the sense of our water policy, before they are submitted to the government, so that they are fair, balanced, and consistent with our existing policies. If any unfairness, lack of balance or inconsistency is found, it should be rectified in this process. When we submit our comments through the industry association, we follow the same steps to prepare our comments, but we then take part in a discussion within the Japan Chemical Industry Association (JCIA) to prepare the JCIA's comments. No single company can control the outcome of the discussion, but we make every effort to have our opinions reflected in the JCIA's comments. The JCIA's comments are often submitted through the Federation of Economic Organizations.

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	11-15	The Asahi Kasei Group's Vision claimed for "the pursuit of healthy and comfortable lifestyles" and "coexistence with the environment". "The Cs+ (seeds-plus) for Tomorrow 2021", a three-year medium-term management plan launched in fiscal 2019, expresses the Group's stance of contributing to the sustainable development of people and the planet in the future as "Care for People, Care for Earth (thinking about people and the planet)." This is an indication of the Asahi Kasei Group's approach to sustainability. Based on this belief, the Asahi Kasei Group has identified "Promotion of Environment-Contributing Businesses" and "Prevention of Water Pollution" as materiality and is implementing various initiatives. For example, we aim to promote the recycling of sewerage and factory wastewater using hollow fiber membrane filters and the UVC (deep UVC)-LEDs, which we have recently developed as an environmentally friendly device to replace Hg lamps, through our business in China and India, where industrialization is accelerating, or in the Asian region, where the population is rapidly increasing. In this way, we believe that providing state-of-the-art technology and providing clean and safe water to people living in areas where there are concerns about deteriorating water quality will lead to the realization of our Group Vision.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	11-15	According to OECD Environmental OUTLOOK2050 Report, if countries around the world do not engage in more ambitious environmental measures, the number of people suffering from severe water shortages will increase by 2.3 billion in 2050 (approximately 40% of the world's population). In addition, global water demand is reported to increase by 55% for industrial use. In addition, according to another report, the world membrane market is expected to grow by CAGR9.0% through 2019 and 2024 in. By region, the Asia-Pacific region, which is experiencing rapid economic growth (particularly China, India, Indonesia, etc.), is a promising market. We have already formulated a business strategy based on the above trends, and believe that we can enjoy the long-term business benefits of being a hollow fiber filter top company.
Financial planning	Yes, water-related issues are integrated	11-15	According to ASDreports's report "UV Sterilization Market, Global Forecast to Year 2023", the UV fungicide market will grow by an CAGR13 of 7% in 2017-2023 to reach \$4.27 billion in 2023 due to rising demand for safe drinking water in developing countries and increased demand for environmentally friendly fungicidal systems. Under such circumstances, we have newly developed a deep UV UVC-LED "Klaran" that can emit light at wavelengths around 265nm with high power, which can be sterilized most effectively. Using this device, drinking-water can be fungilized more easily, saving people suffering from water in developing countries and elsewhere. In addition, since this device does not use any mercury, it can also respond to international mercury use regulations, and it is highly expected to be a light source in place of mercury lamps. Research, application development, and sales expansion costs for this business expansion have already been reflected in financial planning. The Asahi Kasei Group as a whole has prepared a budget of 800 billion yen for investment including this device business expansion.

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?

Row 1

Water-related CAPEX (+/- % change)

35.4

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

15

Water-related OPEX (+/- % change)

4.4

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

5

Please explain

CAPEX:

2021 Capital Investment in Water-Related Business

Capital investment related to water was significantly increased compared to the previous year.

In the next fiscal years, the water purification business using UVC (deep UV)-LEDs is also expected to expand, and the amount of R&D investment is expected to increase.

OPEX:

Most of the operating expenses in 2021 were for water quality analysis of wastewater discharged directly into public waters, such as rivers and the sea, and the cost of its neutralizing agents, many of which were used to comply with laws and regulations. As there were no major changes in the number of business establishments analyzed for water quality, the change compared to the previous year was 4.4%.

We expect the next fiscal year to be about the same.

W7.3

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

	Use of scenario analysis	Comment
Row 1	Yes	We currently use the TCFD framework to determine the risks and opportunities of our company and how those could have substantive financial or strategic impact on us. We suppose two scenarios for the climate change and relevant social change, meaning +4°C scenario and +1.5°C scenario. In +4°C scenario, the temperature will rise sharply in accordance with the strengthening Typhoon of heavier rain and stronger wind. In +1.5°C scenario, the temperature will rise modestly with more strict regulations on CO2 emission and promoting policy of more climate- friendly things, such as electric vehicles. We have discussed the impact of both risks and opportunities, among the people from our core three business unit, Material, Houses and Healthcare and corporate division. After those discussion, we had more comprehensive discussion at the corporate strategy committee and the board meeting to determine the risks and opportunities including water related issues.

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	Influence on business strategy
Row 1	Climate-related	According to the IPCC’s SSP1-2.6 scenarios, drought conditions attributable to climate change will become increasingly common in all regions of our planet in the future. For example, water shortages will become so commonplace in China that during periods of scarcity, local governments will order manufacturing facilities to shut down operations. Conversely, these conditions present a business opportunity for goods and services that contribute to water conservation. The Asahi Kasei Group is competitive in the field of manufacturing technology for filtration/purification membranes “Microza” that incorporate its own proprietary technologies.	Increased revenues resulting from increased demand for products and services: Sales of material segments including filtration membranes will be aimed at 1,650 (billion yen) in FY 2025 from 1,004 (billion yen) in FY 2015. This figure is calculated assuming that the high-functional product is doubled from 79.1 billion yen to 140 billion yen and the operating income margin is targeted at 8.5% in 2025. This numerical value is disclosed in IR materials at the business explanatory meeting of the material segment.	The global market for microfiltration (MF) and ultrafiltration (UF) systems is growing by some 10% annually, driven by serious environmental water quality issues and water shortages, as well as increasingly stringent wastewater regulations throughout the world. Microza holds the leading share of the US market for membrane-process water clarification systems, the world’s largest market for such systems. We consider this opportunity strategic because the adoption of Microza has been growing firmly in many countries which face water shortages and growing needs for improved water quality. In fact, we are trying to shift our focus away from the traditional Japanese and US market towards countries that face water shortages such as China, Korea, Singapore, Thailand, Indonesia, and Middle Eastern countries. Asahi Kasei has contributed, and will continue to contribute, to solutions for a wide range of environmental problems related to water resources by achieving further growth in orders for large-scale water-treatment facilities throughout the world, particularly in Asian countries where the number and scale of such projects is forecasted to increase steadily.

W7.4

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

Row 1

Does your company use an internal price on water?

No, but we are currently exploring water valuation practices

Please explain

Participation in various workshops and seminars deepened understanding of the costs of plumbing water. For example, we learned that many of the water we use at our sites is costly to treat chemical substances during overheating, cooling, and wastewater, so the cost is up to 40 times higher per m3. We also learned that when water costs are underestimated, it is difficult to see the benefits of water conservation measures and investment.

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	Primary reason for not classifying any of your current products and/or services as low water impact	Please explain
Row 1	Yes	The Asahi Kasei Group defines products that contribute to the improvement of the environment over the entire life cycle when compared with products considered to be the standard in the current market and products that contribute to the improvement of the environment when compared with our existing products as Environmental Contribution Products. The Group has conducted Life Cycle Assessments (LCA) for its products to assess their environmental impact over their entire life cycle, and has defined and certified as products that can contribute to water reduction at the stage of product use as "Environmental Contribution Products".	<Not Applicable>	Our water-related "Environmental Contribution Products" are as follows. Microza UF/MF : Microza UF and MF hollow fiber products are providing the most advanced membrane filtration technology for water processing, separations and purifications in a global market. Eutec TM: Eutec TM is a filtration system developed by Asahi Kasei using microfilament nonwoven material. Eutec filter systems can meet your needs, for example, oil-water separation, solid-liquid separation etc.

W8. Targets

W8.1

(W8.1) Describe your approach to setting and monitoring water-related targets and/or goals.

	Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
Row 1	Company-wide targets and goals Business level specific targets and/or goals Site/facility specific targets and/or goals	Targets are monitored at the corporate level Goals are monitored at the corporate level	The Asahi Kasei Group believes that the pursuit of "healthy and comfortable lifestyles" and "coexistence with the environment" as outlined in the Group Vision will lead to a "sustainable society." The "Cs+ (Seeds Plus) for Tomorrow 2021," a three-year medium-term management plan launched in fiscal 2019, expresses the Group's stance of continuing to contribute to the sustainable development of people and the planet as "Care for People, Care for Earth (thinking about people and the planet's future)." This is an indication of the Asahi Kasei Group's approach to sustainability. For this reason, water-related target are established to realize the Group Vision. When establishing water-related target, we first ascertain our own materiality. In fiscal 2020, we reviewed materiality. At the beginning, we anticipated what the world would be in the target year of 2050, and summarized what we would realize through our products and services by 2050, and identified materiality by adding components such as the trend toward decarbonization, concerns over water shortages and the expansion of water-contaminated areas, and changes in values and the management environment due to the impact of the Corona Virus. Among the identified materiality items, particularly those related to water are "Promotion of Environmental Contribution Business" and "Prevention of Water Pollution." Targets related to these items have been established. One of our goals is for the volume of water treatment using the hollow fiber membrane filter "Microza", and we have set 2025 as the first milestone because it is anticipated that the sewerage and factory wastewater recycling businesses will rapidly expand in the future. The progress of the established targets is monitored regularly by the Responsible Care Committee, which is chaired by the president and composed of executives in charge of each division and senior executives, and decisions are made as necessary, such as reviews and the implementation of additional measures.

W8.1a

(W8.1a) Provide details of your water targets that are monitored at the corporate level, and the progress made.

Target reference number

Target 1

Category of target

Water recycling/reuse

Level

Business

Primary motivation

Sales of new products/services

Description of target

With "contributing to life and living for people around the world" as our Group Mission, we strive to heighten resource and energy efficiency with outstanding production technology, providing products and services that meet customer needs. The global market for microfiltration (MF) and ultrafiltration (UF) systems is growing by some 10% annually, driven by serious environmental water quality issues and water shortages, as well as increasingly stringent wastewater regulations throughout the world. Microza holds the leading share of the US market for membrane-process water clarification systems, the world's largest market for such systems. We consider this opportunity strategic because the adoption of Microza has been growing firmly in many countries which face water shortages and growing needs for improved water quality. Under this circumstance, we set a new business target to increase the water treatment volume with Microza from 540 M ton / year in 2015 to 840 M ton / year in 2025.

Quantitative metric

Other, please specify (Amount of water treatment by own product goods (Microza))

Baseline year

2015

Start year

2019

Target year

2025

% of target achieved

66.8

Please explain

The accumulated water treatment volume with Microza from the base year 2015 to 2021 is 5.07 billion tons. Since the accumulated water treatment volume by the target year 2025 is 7.59 billion tons, the current progress rate is $5.07 / 7.59 \times 100 = 66.8\%$.

Target reference number

Target 2

Category of target

Water pollution reduction

Level

Company-wide

Primary motivation

Reduced environmental impact

Description of target

We are a major chemical manufacturer and handle large volumes of chemical substances, chemicals and water. As a result, we believe that ensuring water sustainability in the future is a prerequisite for business continuity and our mission to social. In the unlikely event that there is a violation of laws or disposals involving wastewater discharged from manufacturing facilities into rivers or the sea, there is a risk of administrative sanctions, such as shutting down operations, which could have a significant adverse effect on our business.

For this reason, "zero environmental accidents and serious problems" is set out in the company-wide Responsible Care annual targets. Regarding water, we are continuously striving to eliminate violations of relevant laws and regulations. We have established voluntary wastewater standards (generally about 5-10% stricter) that are more stringent than local regulations and manufacturing facilities, and strictly control the quality of discharged water.

Quantitative metric

Other, please specify (Presence or absence of legal violations (annual))

Baseline year

2020

Start year

2021

Target year

2022

% of target achieved

100

Please explain

Target achievement is based on the existence of violations of water-related environmental laws and regulations.

No breaches or penalties occurred during the period from 1 April 2021 to 31 March 2022 related to the emission standards of Japan's Water Pollution Control Law and the regional regulations in which manufacturing facilities exist.

W8.1b

(W8.1b) Provide details of your water goal(s) that are monitored at the corporate level and the progress made.

Goal

Watershed remediation and habitat restoration, ecosystem preservation

Level

Company-wide

Motivation

Water stewardship

Description of goal

We have a company-wide water-related goal, which is to help realize the diverse public-good functions of forests, including those related to the replenishment of water resources. We recognize the importance of improving the general health of water source forests, particularly because well-managed forests retain water and slowly filter it through the ground, providing us with a good quality freshwater that is indispensable to our operations. That is why, it is so important for us to help realize the diverse public-good functions of forests. Based on this understanding, our plants and offices are undertaking a variety of initiatives to preserve biodiversity in each location, as the Asahi Kasei Group-wide initiative, and we encourage each of our plants and offices to undertake initiatives that best cater to local needs. In the Nobeoka area, for example, we have supported a reforestation program in Hinokage and Takachiho, Miyazaki, Japan with an aim to help protect the communities from natural disasters such as floods as well as to maintain forests' diverse public-good functions. Specifically, we have been working to renew forests which were left bare after cedar and cypress had been harvested with those with broad-leaf trees and other trees native to the area.

Baseline year

2016

Start year

2019

End year

2021

Progress

Since the ultimate goal of the activities is to fully realize the diverse public-good functions of forests, including those related to the replenishment of water resources, we believe whether the goal has been achieved or not should ideally be evaluated against that criterion. It is, however, not easy to evaluate the achievement of the Group's goal as a whole, because individual plants and offices are undertaking the initiatives with different targets and goals. Therefore, rather than setting a single indicator or a single threshold to assess the progress towards this goal, we first evaluate the progress of each of the individual plants/offices and then assess the overall achievement of the Group's goal as a whole qualitatively. For example, we planted trees in a forest area near Kitakata ETO Land owned by Nobeoka city from May 2016. We completed planting trees on 3 ha of land by April 2019 as planned in 2017. We have also started "Town Woods" Program in 2019. This is an initiative to install a "Town Woods Pots" at operating sites in order to increase the employees' understanding and awareness of biodiversity and to understand the public benefit function of forests. "Town Woods Pots" is a new item of landscaping that combines four layers of plants (Tall, medium, short, and groundcover) with different heights in consideration of local vegetation. We already installed the "Town Woods Pots" at all our 41 operating sites until 2021.

W9. Verification

W9.1

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

No, we do not currently verify any other water information reported in our CDP disclosure

W10. 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.

W10.1

(W10.1) Provide details for the person that has signed off (approved) your CDP water response.

	Job title	Corresponding job category
Row 1	Senior Managing Executive Senior General Manager, Sustainability Strategy	Environment/Sustainability manager

W10.2

(W10.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate's Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].

Yes