

Welcome to your CDP Water Security Questionnaire 2020

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, petrochemicals and electronic devices businesses, "Homes", covering homes and construction materials businesses, and "Health Care", including pharmaceuticals business. 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, 2019	March 31, 2020

W0.3

(W0.3) Select the countries/areas for which you will be supplying data.

- China
- Germany
- Japan
- Republic of Korea
- Singapore
- Taiwan, Greater 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.

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,

			<p>producing steam, and washing. Although many of our raw materials suppliers use sea water as cooling water, 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.</p>
Sufficient amounts of recycled, brackish and/or produced water available for use	Not very important	Not very important	<p>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.</p>

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

		<p>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.</p>
Water withdrawals – volumes by source	100%	<p>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.</p>
Water withdrawals quality	100%	<p>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.</p>
Water discharges – total volumes	100%	<p>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</p>

		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	268,658	Much lower	The total withdrawals decreased by 12.5% compared to the previous fiscal year, because of the decrease in production affected by the economic slump from the latter half of fiscal 2019. Since the total withdrawals depend on the change in the production amount, so we anticipate it will not increase much next year.
Total discharges	233,328	Much lower	The total discharges decreased by 13.5%, due to the decrease of total withdrawals as a result of decrease in production. Because of the change in total discharges depends on the total

			withdrawals, we anticipate it will not increase much next year.
Total consumption	35,330	Lower	The total consumption decreased by 7.1%, due to the decrease of total withdrawals as a result of decrease in production. Since the change in total consumption depends on change in the total withdrawals, we anticipate that it will not increase much next year.

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 water-stressed 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, which is "Extremely high". 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	204,298	Much lower	Fresh surface water is relevant because many of our plants use a significant amount of good quality freshwater for cooling and washing. Because of decreased production volume, the volume of fresh surface water we withdrew in fiscal 2019 decreased by 10.2% from the previous year.
Brackish surface water/Seawater	Relevant	32,296	Much lower	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. Because of decreased production volume and pump failure, the volume of seawater we withdrew in fiscal 2019 decreased by 31.8% from the previous year.
Groundwater – renewable	Relevant	20,660	Lower	Renewable groundwater is relevant because several of our plants rely on renewable groundwater as water for cooling and washing. Because of decreased production volume, the volume of renewable groundwater we withdrew in fiscal 2019 decreased by

				6.0% from the previous year.
Groundwater – non-renewable	Not relevant			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			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	11,404	Higher	The volume of water from third party sources, mainly municipal water, we withdrew in fiscal 2019 increased by 6.3% from the previous year due mainly to an increase in production at some of our plants overseas, which rely on water from third party sources. Water from third party sources are relevant because we use it where drinkable quality water is required.

W1.2i

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
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Fresh surface water	Relevant	199,720	Much lower	<p>Fresh surface water is relevant as a wastewater destination because several of our plants discharge wastewater into the Fresh surface water.</p> <p>The volume of wastewater discharged into fresh surface water in fiscal 2019 decreased by 22.9% 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. In fiscal 2019, the former decreased year-on-year to keep pace with a decrease in the latter.</p>
Brackish surface water/seawater	Relevant	32,296	Much lower	<p>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. Because of decreased production volume and pump failure, the volume of wastewater discharged into the sea in fiscal 2019 decreased by 31.8% 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.)</p>
Groundwater	Not relevant			<p>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.</p>

Third-party destinations	Relevant	1,312	About the same	The volume of wastewater discharged into third-party destinations in fiscal 2019 decreased by 3.5% from the previous year. The change was small because the level of activities that cause wastewater discharged into third-party destinations did not significantly change year-on-year. Third-party destinations are relevant as a wastewater destination because we discharge wastewater into the sewage or other collective wastewater treatment system where it is available. It will continue to be relevant because we will need to discharge wastewater into the sewage or other collective wastewater treatment system.
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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

AN

Water intensity value (m3)

54

Numerator: water aspect

Total water withdrawals

Denominator

Ton

Comparison with previous reporting year

About the same

Please explain

We have long been exploring ways to reduce the water intensities of our products, and we now recognize that opportunities for further reduction are few, which is why the water intensity for this particular product has been almost the same for recent years. Our strategy is to continue to explore ways to reduce the water intensities of our products, thereby reducing operational costs, but we do not anticipate that the water intensity for this product will dramatically decrease in future. Please note that the data provided here are highly aggregated and are prepared solely for the purpose of responding to the CDP Information Request only. When we discuss internally the water intensities, mostly from a cost management perspective, we use more detailed and disaggregated data, which we do not intend to disclose here.

Product type

Bulk organic chemicals

Product name

SM

Water intensity value (m3)

4

Numerator: water aspect

Total water withdrawals

Denominator

Ton

Comparison with previous reporting year

About the same

Please explain

We have long been exploring ways to reduce the water intensities of our products, and we now recognize that opportunities for further reduction are few, which is why the water intensity for this particular product has been almost the same for recent years. Our strategy is to continue to explore ways to reduce the water intensities of our products, thereby reducing operational costs, but we do not anticipate that the water intensity for this product will dramatically decrease in future. Please note that the data provided here are highly aggregated and are prepared solely for the purpose of responding to the CDP Information Request only. When we discuss internally the water intensities, mostly from a cost management perspective, we use more detailed and disaggregated data, which we do not intend to disclose here.

Product type

Bulk organic chemicals

Product name

PE

Water intensity value (m3)

3

Numerator: water aspect

Total water withdrawals

Denominator

Ton

Comparison with previous reporting year

About the same

Please explain

We have long been exploring ways to reduce the water intensities of our products, and we now recognize that opportunities for further reduction are few, which is why the water intensity for this particular product has been almost the same for recent years. Our strategy is to continue to explore ways to reduce the water intensities of our products, thereby reducing operational costs, but we do not anticipate that the water intensity for this product will dramatically decrease in future. Please note that the data provided here are highly aggregated and are prepared solely for the purpose of responding to the CDP Information Request only. When we discuss internally the water intensities, mostly from a cost management perspective, we use more detailed and disaggregated data, which we do not intend to disclose here.

Product type

Bulk organic chemicals

Product name

PS

Water intensity value (m3)

2

Numerator: water aspect

Total water withdrawals

Denominator

Ton

Comparison with previous reporting year

Please explain

We have long been exploring ways to reduce the water intensities of our products, and we now recognize that opportunities for further reduction are few, which is why the water intensity for this particular product has been almost the same for recent years. Our strategy is to continue to explore ways to reduce the water intensities of our products, thereby reducing operational costs, but we do not anticipate that the water intensity for this product will dramatically decrease in future. Please note that the data provided here are highly aggregated and are prepared solely for the purpose of responding to the CDP Information Request only. When we discuss internally the water intensities, mostly from a cost management perspective, we use more detailed and disaggregated data, which we do not intend to disclose here.

Product type

Specialty organic chemicals

Product name

SSBR

Water intensity value (m3)

92

Numerator: water aspect

Total water withdrawals

Denominator

Ton

Comparison with previous reporting year

About the same

Please explain

We have long been exploring ways to reduce the water intensities of our products, and we now recognize that opportunities for further reduction are few, which is why the water intensity for this particular product has been almost the same for recent years. Our strategy is to continue to explore ways to reduce the water intensities of our products, thereby reducing operational costs, but we do not anticipate that the water intensity for this product will dramatically decrease in future. Please note that the data provided here are highly aggregated and are prepared solely for the purpose of responding to the CDP Information Request only. When we discuss internally the water intensities, mostly from a cost management perspective, we use more detailed and disaggregated data, which we do not intend to disclose here.

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

1-25

% of total procurement spend

51-75

Rationale for this coverage

We understand generally 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. 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 2019, we sent out a CSR questionnaire to those suppliers covering 20% in terms of the number of suppliers and 55% 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

No other supplier engagements

Details of engagement

% of suppliers by number

% of total procurement spend

Rationale for the coverage of your engagement

We did not conduct any water-related supplier engagement activities other than requesting information from suppliers on how they were working on efficient use of water resources and wastewater management in order to understand and manage current and future risks in the supply chain.

Impact of the engagement and measures of success

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?

Many countries have their version of Pollutant Release and Transfer Register (PRTR) system, by which companies are mandatory required to report on their releases and transfers of potentially hazardous chemicals. In Japan, on top of the government-specified chemicals, the Japan Chemical Industry Association has identified additional chemicals that are suspected to be hazardous. We rely on such legal and industry standards in identifying potentially hazardous chemicals that are contained in effluent from our plants. We can know which chemicals are carcinogenic, acute toxic or teratogenic, for example, from publicly available information. We therefore consider such hazardous properties of chemicals released into the public water

bodies when we assess our potential impacts on the aquatic ecosystem. We believe water-related impacts are somewhat similar between our own operations and those of our suppliers, but water-related impacts in the downstream of our value chain are quite different. For example, whereas our plants release potentially hazardous chemicals into the public water bodies, such chemicals are rarely released into the public water bodies during the use phase or in the end-of life stage of our products. Instead, there is a growing concern that microplastics in the ocean, which might result from our products, are polluting the marine ecosystems, which could in turn affect our health.

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, the Nobeoka area accidentally released 15 tons of N,N-Dimethylacetamide (DMAc), which is suspected to be carcinogenic and teratogenic, into the sea in fiscal 2017. DMAc could cause cancer and deformation when humans are directly exposed to the chemical, but when DMAc-containing effluent is discharged into the sea, even when it is discharged untreated, we could assume that the magnitude and scale of the impact will relatively be low due to the low bio-accumulation potential of DMAc in fish and other marine species we eat. Although there is no effluent quality standards for DMAc, we have	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.

		been trying to minimize the release of DMAc 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 speeding up the development of biodegradable products such as biodegradable detergent scrubs, and are 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.

Direct operations

Coverage

Full

Risk assessment procedure

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

Frequency of assessment

Annually

How far into the future are risks considered?

3 to 6 years

Type of tools and methods used

Tools on the market

Databases

Other

Tools and methods used

WRI Aqueduct

Regional government databases

Internal company methods

Other, please specify

Publicly accessible databases

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.

Supply chain

Coverage

Full

Risk assessment procedure

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

Frequency of assessment

Annually

How far into the future are risks considered?

3 to 6 years

Type of tools and methods used

Tools on the market

Databases
Other

Tools and methods used

WRI Aqueduct
Regional government databases
Other, please specify
Tsunami risk assessment

Comment

"Other" includes: Tsunami risk assessment of all of our plants and major suppliers in Japan; and CSR questionnaire.

Other stages of the value chain

Coverage

None

Comment

W3.3b

(W3.3b) Which of the following contextual issues are considered in your organization’s water-related risk assessments?

	Relevance & inclusion	Please explain
Water availability at a basin/catchment level	Relevant, always included	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. The current and future availability of water is therefore an important factor when we assess water risks. We use WRI's Aqueduct to take these factors into account in assessing water risks of our global production operations.
Water quality at a basin/catchment level	Relevant, always included	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. A supply of good quality freshwater means a lot to the stable operation of our plants because it can prevent rust and water pipe clog, for example. The quality of water has to be drinkable-level when water is used where there are direct contacts between products and water, and when it is used for drinking and bathing. The quality of water withdrawn is therefore an important factor when we assess water risks. Likewise, we need to manage the quality of our effluents so

		<p>that it does not exceed any applicable effluent standards and does not have adverse impact on the aquatic ecosystems and human health. Otherwise, our license to operate will be compromised. It is principally the responsibility of each of our plants to monitor the quality of water discharge and water discharge by referring to publicly accessible databases ("Other tool" referred to in W3.3a) or results of water quality analysis by own or external laboratories ("Internal company methods"). When a plant encounters any issues concerning the quality of water withdrawn or 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. We draw on information obtained from individual plants when we assess risks associated with the quality of water withdrawn or wastewater discharged.</p>
<p>Stakeholder conflicts concerning water resources at a basin/catchment level</p>	<p>Relevant, always included</p>	<p>The current and future water availability of water resources depends on how other water users in a same watershed are using water, since local water resources are shared with other water users, notably other companies' plants, local communities and farmers, which could create conflicts among different water users. Each of our plants keeps a close eye on how other water users are using water, by referring to publicly accessible databases ("Other tool" referred to in W3.3a), and communicating not only with other water users but also with local governments, river basin management authorities and water utilities. Based on an understanding gained, it makes projections and updates its understanding of water risks. Also, some of our plants share water infrastructure such as enclosing bunds with governments and other water users. In such cases, we discuss with governments and other water users how best to repair and renew the infrastructure in a planned manner, since the ageing degradation of infrastructure could make it hard for us to abstract water or make ourselves vulnerable to floods. When we assess water risks, we take into account the status of our water-related infrastructure.</p>
<p>Implications of water on your key commodities/raw materials</p>	<p>Relevant, always included</p>	<p>Most of our raw materials are derived from petroleum, and many of our suppliers of those petroleum-based raw materials are located in coastal areas. Although many of these suppliers use seawater as cooling water, good quality freshwater is essential for most of them as cooling water and boiler feedwater, in particular. If the operations of our suppliers are disrupted by freshwater shortages, it could</p>

		<p>significantly affect the Asahi Kasei Group's operations as well. Therefore, we send out a CSR questionnaire ("Other tool" referred to in W3.3a) 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. Information obtained from suppliers by CSR questionnaires 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.</p>
Water-related regulatory frameworks	Relevant, always included	<p>When effluent standards or other water-related regulations get more stringent, it will certainly affect our operations, and it could occasionally require capital investments for us to keep compliant with applicable regulations. Current and future water-related regulations are therefore an important factor when we assess water risks. Especially in China, where environmental regulations, including those related to effluent standards and restrictions on water withdrawal, have become even tougher in recent years, we expect the trends will persist for a while. Each of our plants in China assess how environmental regulations will be developing in future, by referring to publicly accessible databases ("Other tool" referred to in W3.3a), communicating with local authorities, and collecting case examples of other plants or other companies, since sometimes it is too late to take measures after instructions are formally given by the government. Our plants in other countries are also monitoring the development of environmental regulations, to varying degrees, in similar ways. Water tariffs are also an important factor because a rise in water tariff will affect our production cost. Each of our plants is monitoring the trends in water tariffs through communications with water utilities. The global headquarters is watching carefully the trends in environmental regulations and water tariffs.</p>
Status of ecosystems and habitats	Relevant, always included	<p>Since some of our plants discharge effluent into the public water bodies, including the semi-enclosed sea, there is risk of causing impact on the local aquatic ecosystem. At some of our plants, effluent is discharged into waterways and ends up as irrigation water. In such a case, we understand we are also responsible for supplying water that is safe for agricultural use. This is why the Asahi Kasei Group regularly updates its understanding of which plants discharge what amount of effluent into where. When we become aware that a plant discharges effluent into the public water bodies, it looks into potential impact on the aquatic life on an</p>

		individual basis, based on publicly accessible databases ("Other tool" referred to in W3.3a), and Regional government databases. When we do this, we take into account possible changes in the local ecosystem so that we can assess risks into the future, not only the current risks.
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	Since water is used in our plants not only as drinking water, bathing water and toilet water, but also for safety purposes as showering water for body and eyes, we need to ensure that safe water and sanitation are always accessible to employees so as to safeguard their health and safety as well as to provide them with decent working environment. If we fail to provide safe water and sanitation, that will pose great risk to the health and safety of our employees. We therefore use "Internal company methods" and "Other tool" (referred to in W3.3a) to assess WASH-related risks. For example, the results of water supply and sanitation facilities inspection conducted at each of our plants, where it inquires whether there is any ageing degradation or corrosion of water pipes and sanitation facilities are in good condition. If a plant has some WASH-related risks, they will be shared with the global headquarters through capital investment plans or other means, and the global headquarters provide support as necessary. Also, employees dispatched to the Asian region, in particular, receive interviews every two years by an employment medical advisor sent from Japan, and asked about the accessibility to safe, clean water and sanitation at each locality.
Other contextual issues, please specify	Not considered	

W3.3c

(W3.3c) Which of the following stakeholders are considered in your organization's water-related risk assessments?

	Relevance & inclusion	Please explain
Customers	Not relevant, explanation provided	We produce no products for which a fair amount of water is consumed during the use phase. We use a significant amount of water as part of our production operations, but it is unavoidable for a chemicals company like us, and as such, we do not think that being a big water user alone cannot damage our reputation among customers, and we do not think we will be exposed to such reputation risk as a result of any water issues in foreseeable future, even if we take into account the shift of

		our focus of business. We see opportunities in the water treatment membranes market, for example, but we cannot think of any water risk factors in relation to customers now and in future.
Employees	Relevant, always included	Since water is used in our plants not only as drinking water, bathing water and toilet water, but also for safety purposes as showering water for body and eyes, we need to ensure that safe water and sanitation are always accessible to employees so as to safeguard their health and safety as well as to provide them with decent working environment. If we fail to provide safe water and sanitation, that will pose great risk to the health and safety of our employees. We therefore use the results of water supply and sanitation facilities inspection conducted at each of our plants, where it inquires whether there is any ageing degradation or corrosion of water pipes and sanitation facilities are in good condition, for example, to assess WASH-related risks. If a plant has some WASH-related risks, they will be shared with the global headquarters through capital investment plans or other means, and the global headquarters provide support as necessary. Also, employees dispatched to the Asian region, in particular, receive interviews every two years by an employment medical advisor sent from Japan, and asked about the accessibility to safe, clean water and sanitation at each locality.
Investors	Relevant, sometimes included	We believe that it is important for us to make investors understand how the Asahi Kasei Group deals with water issues and take into account feedback from investors in our water risk assessment. If we do not provide them with decision-useful information and cannot make them understand our water risk profiles and water-related initiatives, we might be misunderstood by some investors. As such, we are working hard to disclose non-financial information that is relevant to investors via Asahi Kasei Report, which is a report intended for investors, and Sustainability Report. We also report how we deal with water issues by responding to the CDP Water Security Questionnaire. In addition, we also try to raise investors' understanding by inviting them to our plants and explain to them how we treat wastewater, for example. In Nobeoka, where Asahi Kasei founded itself, we invite them to, and provide them with a detailed explanation about, our tsunami evacuation tower and hydroelectric power plants. We take into account any feedback obtained from investors when we consider water risks arising from investors' perception on our water-related initiatives.

Local communities	Relevant, always included	<p>Since our plants share local water resources with local communities, we believe we need not only to reduce water usage but also to build confidence among them, by understanding their issues and concerns and providing them with accurate information in a timely manner, irrespective of whether the information is positive or not. Otherwise, we will lose our stakeholders' trust and our social license to operate will be seriously compromised. We take into account any feedback gained from local communities, both through informal daily interactions with them as well as formal public meetings, when we assess water risks. For example, in Suzuka, where groundwater contamination was discovered in 2006, we disclosed the fact and have kept providing information on the progress while cleaning up contamination. Local communities' recognition of local water issues are a critical factor in our water risk assessment.</p>
NGOs	Not relevant, explanation provided	<p>We understand that concerns raised by NGOs are important to us because they often voice concerns about existing or emerging issues on behalf of local communities, but we have thus far not received any concerns about water-related issues from NGOs. We have so far dealt with and solved local water issues through direct discussions with local communities, we do not think we need to collect, and take into account, views from NGOs, when we assess water risks. We do not expect we will need to consider views from NGOs when we assess water risks, since we believe direct communication with local communities will be most effective, as our experiences, for example the one in the groundwater contamination incident in Suzuka, suggest.</p>
Other water users at a basin/catchment level	Relevant, sometimes included	<p>The current and future availability of water resources depends on how other water users in a same watershed are using water, since local water resources are shared with other water users, notably other companies' plants, local communities and farmers, which could create conflicts among different water users. If we do not understand properly how other water users in a same watershed are using water, we might find ourselves ignorant of diminishing water availability. As such, each of our plants keeps a close eye on how other water users are using water, by referring to publicly accessible databases, and communicating not only with other water users but also with local governments, river basin management authorities and water utilities. Based on an understanding gained, it makes projections and updates its understanding of water risks. Also, some of our plants share water infrastructure such as enclosing bunds with governments and other water users. In such cases,</p>

		<p>we discuss with governments and other water users how best to repair and renew the infrastructure in a planned manner, since the ageing degradation of infrastructure could make it hard for us to abstract water or make ourselves vulnerable to floods. When we assess water risks, we take into account the status of our water-related infrastructure.</p>
Regulators	Relevant, sometimes included	<p>When effluent standards or other water-related regulations get more stringent, it will certainly affect our operations, and it could occasionally require capital investments for us to keep compliant with applicable regulations. Current and future water-related regulations are therefore an important factor when we assess water risks. Especially in China, where environmental regulations, including those related to effluent standards and restrictions on water withdrawal, have become even tougher in recent years, we expect the trends will persist for a while. Each of our plants in China is working hard to understand how environmental regulations will be developing in future, by referring to publicly accessible databases, participating in explanatory meetings held by local authorities, communicating with local authorities, and collecting case examples of other plants or other companies, since sometimes it is too late to take measures after instructions are formally given by the government. Our plants in other countries are also monitoring the development of environmental regulations, to varying degrees, in similar ways.</p>
River basin management authorities	Relevant, always included	<p>Since the availability of water and vulnerability to floods in a river basin depend on the river basin development/management plan, we refer to river basin management/development plans available from authorities and take them into account when we assess water risks. Especially, saltwater intrusion is a serious issue for our plants in Nobeoka, Japan, which are located in coastal areas and use a significant amount of river water. Therefore, we have been asking relevant authorities to develop infrastructure that can control saltwater intrusion. Also, some of our plants share water infrastructure such as enclosing bunds with governments and other water users. In such cases, we discuss with governments and other water users how best to repair and renew the infrastructure in a planned manner, since the ageing degradation of infrastructure could make it hard for us to abstract water or make ourselves vulnerable to floods. Since the repairing and upgrading of infrastructure are, in most cases, of public goods nature, it is common for us to discuss the river basin development/management plan with relevant authorities, including river basin management authorities.</p>

Statutory special interest groups at a local level	Relevant, sometimes included	Some of our plants are located adjacent to fishing ports used by members of fisheries cooperatives. These plants pay a great deal of attention to their effluent discharged into the sea so that it does not have any adverse impact on fishing operations. They have regular meetings with fisheries cooperatives and collect fishermen's concerns and recognition of issues, because it is of significant importance to obtain from them an understanding of their efforts. Otherwise, we will lose their trust and our social license to operate will be seriously compromised. We take into account fishermen's concerns and recognition of issues when we assess water risks
Suppliers	Relevant, sometimes included	Most of our raw materials are derived from petroleum, and many of our suppliers of those petroleum-based raw materials are located in coastal areas. Although many of these suppliers use seawater as cooling water, good quality freshwater is essential for most of them as cooling water and boiler feedwater, in particular. If the operations of our suppliers are disrupted by freshwater shortages, it could significantly affect the Asahi Kasei Group's operations as well. Therefore, 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. 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.
Water utilities at a local level	Relevant, always included	Water tariffs are also an important factor because a rise in water tariff will affect our production cost. That is why we are watching carefully the trends in water tariffs by closely communicating with individual plants. Each of our plants is in turn monitoring the trends in water tariffs through communications with water utilities, and especially where the difference between the unit cost of industrial water and that of drinking water is significant, some of our plants have introduced a system for purifying industrial water so as to reduce water spend.
Other stakeholder, please specify	Not considered	

W3.3d

(W3.3d) 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".

Number of facilities exposed to water risk

2

% company-wide facilities this represents

1-25

% 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".

Type of risk & Primary risk driver

Physical

Dependency on water intensive energy sources

Primary potential impact

Reduction or disruption in production capacity

Company-specific description

Products produced at our two plants in Singapore include solution-polymerized styrene-butadiene rubber (S-SBR), which enables the production of tires that provide greater fuel efficiency, and light-weight plastic materials. These products 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 great deal to the Asahi Kasei Group's business plan. Petrochemical 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)

Potential financial impact figure - minimum (currency)

10,000,000

Potential financial impact figure - maximum (currency)

4,000,000,000

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.

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)

Stage of value chain

Other, please specify
End-of-Life Treatment phase

Type of risk & Primary risk driver

Reputation & markets
Changes in consumer behavior

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

Virtually certain

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure - minimum (currency)

10,000,000

Potential financial impact figure - maximum (currency)

200,000,000,000

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

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 biodegradable products, and are also trying to eliminate landfill of plastic waste. For example, we have already placed on the market plastic cups made from bioplastics, and are also working hard on the development and marketing of non-plastic detergent scrubs.

Cost of response

800,000,000,000

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)

9,900,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact

The global market for MF/UF systems is expected to reach USD 450 Million by 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)

APS

Country/Area & River basin

Singapore

Other, please specify

Jurong Island

Latitude

1.259786

Longitude

103.695877

Located in area with water stress

Yes

Total water withdrawals at this facility (megaliters/year)

117.79

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

117.79

Total water discharges at this facility (megaliters/year)

117.78

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

117.78

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)

AKSS

Country/Area & River basin

Singapore

Other, please specify

Jurong Island

Latitude

1.27

Longitude

103.66

Located in area with water stress

Yes

Total water withdrawals at this facility (megaliters/year)

605.89

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

605.89

Total water discharges at this facility (megaliters/year)

605.88

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

605.88

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 externally verified?

Water withdrawals – total volumes

% verified

Not verified

Water withdrawals – volume by source

% verified

Not verified

Water withdrawals – quality

% verified

Not verified

Water discharges – total volumes

% verified

Not verified

Water discharges – volume by destination

% verified

Not verified

Water discharges – volume by treatment method

% verified

Not verified

Water discharge quality – quality by standard effluent parameters

% verified

Not verified

Water discharge quality – temperature

% verified

Not verified

Water consumption – total volume

% verified

Not verified

Water recycled/reused

% verified

Not verified

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	Description of business dependency on water Description of business impact on water Description of water-related performance standards for direct operations Description of water-related standards for procurement Reference to international standards and widely-recognized water initiatives Company water targets and goals Commitment to align with public policy initiatives, such as the SDGs Commitments beyond regulatory compliance	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>Commitment to water-related innovation</p> <p>Commitment to water stewardship and/or collective action</p> <p>Acknowledgement of the human right to water and sanitation</p> <p>Recognition of environmental linkages, for example, due to climate change</p>	
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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
Director on board	<p>Representative Director in charge of the Asahi Kasei Group's Responsible Care (RC) activities is responsible for water-related issues. He supervises RC audit of business units, Asahi Kasei Group companies and 6 production plants, where the Group's management and performance of environmental and safety matters are evaluated. So, his responsibility naturally includes the identification of, and responses to, water-related risks. He ensures that management support and resources will be available to solve any water-related issues identified, and reports on important matters to the President in the RC Committee.</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 Responsible Care (RC) Committee deliberates RC plans and results, which include those related to water issues, in annual RC meetings. The Secretary of the RC 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.
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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)

Other committee, please specify
Responsible Care Committee

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

Annually

Please explain

The RC 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 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 RC 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 Improvements in waste water quality - direct operations	Asahi Kasei introduced in 2017 a new stock-based incentive system for the Company's Directors, on top of the existing system comprising basic remuneration and performance-linked remuneration reflecting consolidated financial results and individual performance. The new remuneration system is designed to enhance the motivation of Directors to contribute to greater business performance and corporate value of the Company over the medium-to-long term. The system would reinforce the common interest between Directors and shareholders, including both the benefits of share price increases and the risk associated with share price decreases. We understand that the share price of Asahi Kasei is becoming increasingly sensitive to how well we approach and handle environmental issues, including how we have reduced water withdrawals and how we have controlled effluent quality, as investors' concern about environmental (and particularly water-related) issues grow. So, this new remuneration system provides Directors with incentives for the management of water-related issues.

<p>Non-monetary reward</p>	<p>Other, please specify Employees in non-managerial positions</p>	<p>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</p>	<p>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 JPY 150 million or more of EVA.</p>
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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, 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)

 annual securities report 2020 (Japanese).pdf

W7. Business strategy

W7.1

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

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	5-10	The Asahi Kasei Group's approach to water issues are two-fold. Firstly, water issues mean a lot to our microfiltration (MF) and ultrafiltration (UF) systems business. The global market for MD and 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. Therefore, we reflect

			<p>water issues in our long-term business objectives by taking into account how water shortages and water quality issues could play out in future. Secondly, as a chemicals producer, we particularly put a lot of efforts in controlling the quality of effluent since, if we should pollute the aquatic environment, it will greatly affect our operations, license to operate and reputation. Therefore, it is the utmost importance for us to strictly control the effluent and minimize the impact on the aquatic environment, and this focus will not change in future. Our plants have been developing and implementing plans to reduce water-borne pollutants. Some of our plants are even trying to reduce the volume of effluent itself. For example, our Fuji Area plans to apply our distillation and activated carbon technologies to reduce its effluent.</p>
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	5-10	<p>The Asahi Kasei Group's approach to water issues are two-fold. Firstly, water issues mean a lot to our microfiltration (MF) and ultrafiltration (UF) systems business. The global market for MD and 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. Therefore, we reflect water issues in our strategy for achieving long-term business objectives by taking into account how water shortages and water quality issues could play out in future. Secondly, as a chemicals producer, we particularly put a lot of efforts in controlling the quality of effluent since, if we should pollute the aquatic environment, it will greatly affect our operations, license to operate and reputation. Therefore, it is the utmost importance for us to strictly control the effluent and minimize the impact on the aquatic environment, and this focus will not change in future. Our plants have been developing and implementing plans to reduce water-borne pollutants. Some of our plants are even trying to reduce the volume of effluent itself. For example, our Fuji Area plans to apply our distillation and activated carbon technologies to reduce its effluent.</p>
Financial planning	Yes, water-related issues are integrated	5-10	<p>The Asahi Kasei Group's approach to water issues are two-fold. Firstly, water issues mean a lot to our microfiltration (MF) and ultrafiltration (UF) systems business. The global market for MD and UF systems is growing by some 10% annually, driven by serious</p>

		<p>environmental water quality issues and water shortages, as well as increasingly stringent wastewater regulations throughout the world. Therefore, we reflect water issues in our financial planning for implementing our strategy for MD and UF systems business by taking into account how water shortages and water quality issues could play out in future. Secondly, as a chemicals producer, we particularly put a lot of efforts in controlling the quality of effluent since, if we should pollute the aquatic environment, it will greatly affect our operations, license to operate and reputation. Our plants have been developing and implementing plans to reduce water-borne pollutants, which are reflected in our financial planning. Some of our plants are even trying to reduce the volume of effluent itself. For example, our Fuji Area plans to apply our distillation and activated carbon technologies to reduce its effluent.</p>
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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)

-7.61

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

5

Water-related OPEX (+/- % change)

11.38

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

10

Please explain

The decrease in CAPEX resulted from postponed capital investment in wastewater treatment facilities at some of our plants due to severe economic condition. On the other hand, the increase in OPEX was due mainly to cost of repair at many of our plants, which was high in fiscal 2019. We anticipate a continued increase in CAPEX, since we believe we need to prepare for more stringent regulations on wastewater in future, for example absolute effluent limits. This will require us further capital investments to go beyond simply meeting the requirements.

W7.3

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

	Use of climate-related scenario analysis	Comment
Row 1	Yes	<p>Our business covers multiple areas such as materials, housing, healthcare, and electronics, it is necessary to analyze different scenario for each business segment.</p> <p>This scenario analysis result is also included in strategic measures to achieve the mid-term management plan (Cs+ for tomorrow 2021) for 2025, "Further strengthening business with competitive advantage", "Strengthening manufacturing infrastructure "and" Execution of strategic mergers and acquisitions ".</p> <p>Scenario analysis also greatly affects long-term investment plans including mergers and acquisitions. Our business, automobile-materials field, energy sector, sanitary materials, housing business, global health care business are easily affected by risks and opportunities of climate change transition, physical risks and opportunities.</p>

W7.3a

(W7.3a) Has your organization identified any water-related outcomes from your climate-related scenario analysis?

No

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, and we do not anticipate doing so within the next two years

Please explain

We recognize that only the two of our plants in Singapore are located in water-stressed area, and we do not believe it is worthwhile introducing internal water pricing just for these two plants.

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 Activity level specific targets and/or goals	Targets are monitored at the corporate level Goals are monitored at the corporate level	We have a product specific water-related target, which is to increase the 'water treatment volume', calculated by adding up the total quantity of water clarified and recycled by customers up to 840 million tons / year by 2025. The idea behind this quantitative target is to drive the expansion of our water filtration membrane business, thus contributing to increasing people's access to safe and clean water. The target level was set so that it is challenging but still achievable. We also 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. The goal is purposefully high-level because our intention is to motivate individual plants and offices to undertake initiatives that best cater to local needs. Apart from these, each of our plants also has its own site-level target(s) and/or goal(s) related to water, many of which are to reduce its own water withdrawal and to control the quality of effluent so that it meets applicable effluent limits. All the above targets and goals are monitored at the corporate level.

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

Increased revenue

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

% increase in water use met through recycling/reuse

Baseline year

2015

Start year

2019

Target year

2025

% of target achieved

45.3

Please explain

The accumulated water treatment volume with Microza from the base year 2015 to 2019 is 3.44 billion tons. Since the accumulated water treatment volume by the target year 2025 is 7.59 billion tons, the current progress rate is $344 / 759 \times 100 = 45.3\%$.

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

2016

End year

2019

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 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. In 2019, we installed the

"Town Woods Pots" at 22 operating sites, and plan to have installed at all 42 operating sites by 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	Representative Director and Vice-Presidential Executive Officer	Board/Executive board

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)].

No