The Dow Chemical Company - Water Security 2021

W0. Introduction

W0.1

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

Dow (NYSE: DOW) combines global breadth, asset integration and scale, focused innovation and leading business positions to achieve profitable growth. The Company's ambition is to become the most innovative, customer centric, inclusive and sustainable materials science company, with a purpose to deliver a sustainable future for the world through our materials science expertise and collaboration with our partners. Dow's portfolio of plastics, industrial intermediates, coatings and silicones businesses delivers a broad range of differentiated science-based products and solutions for its customers in high-growth market segments, such as packaging, infrastructure, mobility and consumer care. Dow operates 106 manufacturing sites in 31 countries and employs approximately 35,700 people. Dow delivered sales of approximately $39 billion in 2020.

Dow's major manufacturing sites are located in Argentina, Brazil, Canada, China, Germany, The Netherlands, Spain, Thailand, United Kingdom, and the United States. Our portfolio includes six global businesses which are organized into the following operating segments: Packaging & Specialty Plastics (Hydrocarbons & Energy and Packaging and Specialty Plastics), Industrial Intermediates & Infrastructure (Industrial Solutions and Polyurethanes & Construction Chemicals), and Performance Materials & Coatings (Coatings & Performance Monomers and Consumer Solutions).

The information in this report reflects the activities of Dow and its consolidated subsidiaries for the full reporting period from January 1, 2020 to December 31, 2020.

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	January 1 2020	December 31 2020

W0.3

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

Argentina
Australia
Belgium
Brazil
Canada
China
Colombia
Egypt
France
Germany
India
Indonesia
Italy
Japan
Mexico
Netherlands
Philippines
Portugal
Republic of Korea
Russian Federation
Singapore
South Africa
Spain
Sweden
Taiwan, Greater China
Thailand
Turkey
United Arab Emirates
United Kingdom of Great Britain and Northern Ireland
United States of America
Viet Nam

W0.4

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

USD

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 operational control is exercised

W0.6

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

No

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	Have not evaluated	Water quality and quantity are both vital to our direct operations. The majority of freshwater use is for cooling process operations, with a small proportion being consumed in production of products. Water consumption quantity data is collected and reported on a global basis. Each site works to ensure sufficient quantities for operations is available for reliable operation. Water quality is monitored to ensure water processing can produce required quality water. Dow's approach has been to focus on Key Water-Stressed Sites as defined by the WRI Aqueduct tool and confirmed by site. Dow is a large water user itself and has focused in improving its water resilience for its manufacturing sites. Climate impacts have triggered the need to also initiate efforts that encompass the whole value chain.
Sufficient amounts of recycled, brackish and/or produced water available for use	Vital	Have not evaluated	Water quality and quantity are both important to our operations. Water consumption quantity data is collected and reported on a global basis. Each site works to ensure sufficient quantities for operations is available for reliable operation. Water quality is monitored to ensure water processing can produce required quality water. In locations where it is economical, Dow develops recycle/reuse water sources such as municipal wastewater plant discharges and Dow site freshwater recycle sources to supplement surface freshwater supplies.

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%	All facilities are required to report on a yearly basis (as a minimum) the total volumes of water withdrawals. Measurement methods vary by facility and can include direct measurement by meters and calculated estimates.
Water withdrawals – volumes by source	100%	All facilities are required to report on a yearly basis the volumes by source. Measurement methods vary by facility and can include direct measurement by meters and calculated estimates.
Entrained water associated with your metals & mining sector activities - total volumes [only metals and mining sector]	<Not Applicable>	<Not Applicable>
Produced water associated with your oil & gas sector activities - total volumes [only oil and gas sector]	<Not Applicable>	<Not Applicable>
Water withdrawals quality	100%	Key water quality parameters with the potential of impacting operation are measured and monitored by each site
Water discharges – total volumes	76-99	All Dow sites are required to report on a yearly basis the total volume of water discharged from a wastewater treatment facility. Measurement methods vary by facility and can include direct measurement by meters and calculated estimates. This is the most material component of water discharged because of the priority of ensuring it meets or surpasses our strict quality guidance and compliance parameters. Rainwater and non-contact cooling waters are not consistently measured and monitored at all times.
Water discharges – volumes by destination	76-99	All Dow sites are required to report on a yearly basis the total volume of water discharged from a wastewater treatment facility to a known water discharge point (referred to as outfall). Measurement methods vary by facility and can include direct measurement by meters and calculated estimates. This is the most material component of water discharged because of the priority of ensuring it meets or surpasses our strict quality guidance and compliance parameters. Rainwater and non-contact cooling waters are not consistently measured and monitored at all times, although the destination is known.
Water discharges – volumes by treatment method	100%	All Dow sites are required to report on a yearly basis the total volume of water discharged from a wastewater treatment facility. Measurement methods vary by facility and can include direct measurement by meters and calculated estimates. This is the most material component of water discharged because of the priority of ensuring it meets or surpasses our strict quality guidance and compliance parameters. Rainwater and non-contact cooling waters are typically not treated, although they are monitored for quality.
Water discharge quality – by standard effluent parameters	100%	Dow abides strictly to all compliance parameters and reports any incidents.
Water discharge quality – temperature	100%	In locations where water temperature limits are set those discharges are monitored, controlled and reported. In general water discharge temperatures are routinely monitored.
Water consumption – total volume	76-99	All Dow sites are required to report on a yearly basis the total volume of water discharged from a wastewater treatment facility. Consumption is measured as the calculated difference between withdrawal and discharge. This is the most material component of water discharged because of the priority of ensuring it meets or surpasses our strict quality guidance and compliance parameters. Rainwater and non-contact cooling waters are not consistently measured AND monitored at all times.
Water recycled/reused	100%	All sites report on a yearly basis (as a minimum) an estimated value for the water recycled/reused. Measurement methods vary by facility and can include direct measurement by meters and calculated estimates.
The provision of fully-functioning, safely managed WASH services to all workers	100%	Company Environmental, Health and Safety ("EH&S ") standards require appropriate potable drinking water and washing services be available at all sites.

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	3099000	About the same	Total volume of water intake globally was relatively consistent in 2020 compared to 2019 as a result of the combined impact of process efficiencies, even though there have been changes in business portfolios and growth at some sites.
Total discharges	2954897	About the same	Once water has been used in Dow facilities it is typically treated at a wastewater treatment plant and discharged. The exception to that scenario would be once through cooling water which is directly discharged once it meets any discharge temperature limitations. Treated wastewater discharge in 2020 was 119 millions metric tons. The majority of the water is discharged as surface water. At a few Dow sites wastewater goes to a third party for treatment prior to discharge, typically as surface water.
Total consumption	144103	About the same	Water is used for a variety of purposes in Dow production facilities around the globe. Surface withdrawals are 68 percent freshwater and 32 percent seawater/brackish. In locations where seawater/brackish water is readily available such as at production facilities on the coast, it is used for cooling. This accounts for the high proportion of seawater/brackish water withdrawals in some locations. The majority of the freshwater intake is used for cooling and much of this water is evaporated in cooling towers. Rainwater is recovered in multiple sites and used as firewater and other purposes. Its volume compared to other intakes is relatively small. Only a small proportion of water intake ends up in product (i.e. direct consumption). Past assessment of sites with the highest freshwater intake showed that more than 85 percent of the source water was returned within the watershed at equal or better quality than at withdrawal. The total volume of water intake globally was relatively consistent in 2020 compared to 2019 as a result of the combined impact of process efficiency improvements, business portfolio changes and production volume changes.

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	26-50	About the same	WRI Aqueduct	In 2019, Dow re-assessed the key water stress sites using a WRI updated version of the Aqueduct™ Water Risk Atlas (Aqueduct 3.0) and site basin diagnostics. This 2019 evaluation confirmed the status of the six sites assessed to being classified as Key Water Stressed Sites (KWSS). In 2020 the key water stressed site total water withdrawals total approximately 43% of the corporate totals. The freshwater withdrawals at these key water stressed site was 203,000 megaliters and seawater withdrawals at these sites was 1,119,000 megaliters.

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	1826000	About the same	Total volume of global water intake, including freshwater, was relatively consistent in 2020 compared to 2019 as a result of the combined impact of process efficiencies even though there have been changes in business portfolios and growth at some sites. Available freshwater for withdrawals is relevant as most of it is used for cooling process operations.
Brackish surface water/Seawater	Relevant	1136300	About the same	Seawater is used for one pass cooling . Demand from operations using this source in 2020 was consistent with demand for the past several years.
Groundwater – renewable	Relevant	35700	About the same	Groundwater is used at very few Dow sites. Those locations who use groundwater use it as a back up to potable water or treated surface water
Groundwater – non-renewable	Not relevant	<Not Applicable>	<Not Applicable>	None of Dow sites where groundwater is used utilize non-renewable groundwater sources.
Produced/Entrained water	Not relevant	<Not Applicable>	<Not Applicable>	Dow does not use Produced/Entrained water at any of its sites.
Third party sources	Relevant	101000	About the same	Several Dow sites purchase water from third party sources in two forms - raw or treated surface water and as treated effluent wastewater. The latter source is from regional municipalities. The quantity of third party water withdrawn in 2020 was about the same is in 2019.

W1.2i

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water	Relevant	119000	About the same	All Dow sites are required to report on a yearly basis the total volume of water discharged from a wastewater treatment facility to a known water discharge point (referred to as outfall). This is the most material component of water discharged because of the priority of ensuring it meets or surpasses our strict quality guidance and compliance parameters. The total waste water discharged in 2020 is 119 million metric tons. Rainwater and non-contact cooling waters are not consistently measured AND monitored at all times although the destination is known.
Brackish surface water/seawater	Relevant	1136300	About the same	Seawater is used for one pass cooling. Demand from operations using this source in 2020 was consistent with the values reported in 2019 and several prior years. Our total use of Seawater was 1,136,300 megalitres in 2020.
Groundwater	Not relevant	<Not Applicable>	<Not Applicable>	Dow does not make any material discharges to groundwater.
Third-party destinations	Relevant	12674	About the same	Dow sends 12% of its wastewater to third parties for treatment

W1.2j

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

	Relevance of treatment level to discharge	Volume (megaliters/year)	Comparison of treated volume with previous reporting year	% of your sites/facilities/operations this volume applies to	Please explain
Tertiary treatment	Relevant but volume unknown	<Not Applicable>	<Not Applicable>	<Not Applicable>	All Dow wastewater is treated to meet effluent standards required by permit. Those requirements can require tertiary or secondary levels of treatment and the appropriate treatment requirements are applied to meet those standards.
Secondary treatment	Relevant but volume unknown	<Not Applicable>	<Not Applicable>	<Not Applicable>	All Dow wastewater is treated to meet effluent standards required by permit. Those requirements can require tertiary or secondary levels of treatment and the appropriate treatment requirements are applied to meet those standards.
Primary treatment only	Relevant but volume unknown	<Not Applicable>	<Not Applicable>	<Not Applicable>	Effluents such as non-contact cooling water and rainfall are generally monitored to ensure compliance with parameters such as temperature but are not treated.
Discharge to the natural environment without treatment	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	Waters discharged to the natural environment without treatment are limited to one pass cooling waters and rainwater volumes. In these cases the discharged water is subject to monitoring and is not discharged unless it meets permit requirements for those discharges.
Discharge to a third party without treatment	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	Waters discharged to a third party treatment without treatment are done so under wastewater quality agreements that define the characteristics of the water such that the receiving party can be knowledgeable of the water quality and their ability to treat the water sufficiently to meet eventual discharge requirements.
Other	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	

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

Please select

Product name

Dow's 2025 Freshwater Intake Intensity goal is tracked for our six identified key water-stressed sites. The water intensity for individual products is not calculated. Individual sites calculate a water intensity value from freshwater intake and overall production that is rolled up to calculate the value for the six key water-stressed sites and determine progress towards the 2025 target.

Water intensity value (m3)

10.6

Numerator: water aspect

Freshwater withdrawals

Denominator

Other, please specify (lbs/lbs)

Comparison with previous reporting year

Lower

Please explain

Freshwater intake intensity is tracked for Dow's six key water-stressed sites. In 2020, the freshwater intake intensity at these sites was 10.63, nearly equal to the 2015 baseline while many conservation and recycling efforts have occurred. Roughly 80% of Dow's freshwater intake at our six key water-stressed sites is at our largest manufacturing site in Freeport, Texas. Additional efforts were completed in 2020 to improve the accuracy of the freshwater intake at that site including: • Installation of water meters: The Freeport site is located along the Brazos River, a seasonally stressed river where both extreme rainfalls and drought co-exist.

W2. Business impacts

W2.1

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

Yes

W2.1a

(W2.1a) Describe the water-related detrimental impacts experienced by your organization, your response, and the total financial impact.

Country/Area & River basin

Thailand	Not known

Type of impact driver & Primary impact driver

Physical	Drought

Primary impact
Increased operating costs

Description of impact
Added operational cost to procure back-up source of water.

Primary response
Develop drought emergency plans

Total financial impact
30000

Description of response
Site procured back-up source of water in anticipation of drought condition causing water shortage for operations.

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?
Yes, fines, enforcement orders or other penalties but none that are considered as significant

W2.2a

(W2.2a) Provide the total number and financial value of all water-related fines.

Row 1

Total number of fines
5

Total value of fines
23422

% of total facilities/operations associated
100

Number of fines compared to previous reporting year
About the same

Comment

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?

Dow, as a Responsible Care(R) Company, is continually engaged in waste reduction and pollution prevention efforts in our operations, including those linked to water ecosystems. It is Dow's policy to adhere to a waste management hierarchy that minimizes the impact of wastes and emissions on the environment. First, Dow works to eliminate or minimize the generation of waste and emissions at the source through research, process design, plant operations and maintenance. Second, Dow finds ways to reuse and recycle materials. Finally, unusable or non-recyclable hazardous waste is treated before disposal to eliminate or reduce the hazardous nature and volume of the waste. Dow has specific requirements for waste that is transferred to non-Dow facilities, including the periodic auditing of these facilities. Dow has goals to educe emissions of chemical emissions to water and to reduce freshwater intake intensity at our six key water-stressed sites that are reported on an annual basis. Potential pollutants are also identified as part of discharge authorizations. Wastewater quality is strictly governed by local regulations and governed by the respective environmental agency for each watershed. Dow abides by these local regulations and authorizations. Audits/ risk assessments are performed at each site on a regular basis. In addition, Dow has strict and audited management systems in place for many years that address the potential discharge of water pollutants from operation activities. The management programs are in place to adhere to authority mandated discharge limits including toxic effect to aquatic testing to ensure no effect on the environment.

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
BOD/TOC	Direct operations	Excessive organic content in effluent can have detrimental effects to water body	Compliance with effluent quality standards Measures to prevent spillage, leaching, and leakages	Each operating site accountable for meeting effluent requirements and have monitoring capability in place to meet these limits
TSS	Direct operations	High levels of TSS can impair water quality and impact aquatic life.	Compliance with effluent quality standards	Each operating site accountable for meeting permit discharge limits and have monitoring capability in place to meet these limits
pH	Direct operations	pH outside of permit ranges can impair water quality and impact aquatic life.	Compliance with effluent quality standards	Each operating site accountable for meeting permit discharge limits and have monitoring capability in place to meet these limits
Other Potential Pollutants Specifically Identified in Permit authorizations	Direct operations	Dependent on the pollutant, the pollutant could impair water quality and impact aquatic and human health.	Compliance with effluent quality standards	Each operating site accountable for meeting permit discharge limits and have monitoring capability in place to meet these limits. In addition, the company has subject matter experts in environmental and technology to support each operating site in meeting the mandated discharge limits.

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
Every three years or more

How far into the future are risks considered?
More than 6 years

Type of tools and methods used
Tools on the market

Tools and methods used
WRI Aqueduct
Other, please specify (local process knowledge and models Dow has strict and audited management systems in place for many years that address the potential discharge of water pollutants from operation activities.)

Comment
Dow systematically tracks production facility water intake and discharge and reports data in our annual ESG report. Dow worked with Water Resources Institute (WRI) to identify production sites in water stressed areas. Analysis identified 6 key water-stressed sites where water stress could impact operations. Potential pollutants are also identified as part of discharge authorizations. Wastewater quality is strictly governed by local regulations and governed by the respective environmental agency for each watershed

Supply chain

Coverage
None

Risk assessment procedure
<Not Applicable>

Frequency of assessment
<Not Applicable>

How far into the future are risks considered?
<Not Applicable>

Type of tools and methods used
<Not Applicable>

Tools and methods used
<Not Applicable>

Comment

Other stages of the value chain

Coverage
None

Risk assessment procedure
<Not Applicable>

Frequency of assessment
<Not Applicable>

How far into the future are risks considered?
<Not Applicable>

Type of tools and methods used
<Not Applicable>

Tools and methods used
<Not Applicable>

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	Each site is accountable for determining its water supply risks and developing strategies to ensure adequate water supplies for operations are reliably available.
Water quality at a basin/catchment level	Relevant, sometimes included	Water quality at each location is monitored and process adjustments in water treatment processes are used to ensure water quality requirements are met.
Stakeholder conflicts concerning water resources at a basin/catchment level	Relevant, sometimes included	At key water-stressed sites and other locations where water risk is an issue, contacts at the site keep track of the stakeholders with the greatest interest in water management. Contacts at those sites are engaged in both internal and external organizations where they can develop operational plans to meet water needs of all stakeholders. The company manages potential water stakeholder conflicts by actively engaging with stakeholders early.
Implications of water on your key commodities/raw materials	Not considered	
Water-related regulatory frameworks	Relevant, always included	Each site is responsible for monitoring and taking action to meet any water-related regulatory issues.
Status of ecosystems and habitats	Relevant, always included	The management programs are in place to adhere to authority mandated discharge limits including toxic effect to aquatic testing to ensure no effect on the environment.
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	Company EH&S standards require appropriate services on all sites.
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	Relevant, sometimes included	In locations where Dow manages an industrial park facility and supplies water to tenants on the site these tenants water supply and treatment needs are assessed.
Employees	Relevant, always included	Water-related risk assessments are performed by involving employees from many functions that help assess water-related risk from analysis of pollutants, to permitting, to site employees responsible for safe operation, to environmental technology center subject matter experts to improve water treatment facilities, regulatory specialist staying abreast of new requirements
Investors	Relevant, sometimes included	Dow engages investors to understand their expectations related to water management primarily through sustainability and ESG ratings assessments and rankings. From these, we can assess the level of priority that investors place on Dow's performance and practices related to water.
Local communities	Relevant, always included	Dow partners with local community organizations to address water needs within the communities along with its industrial requirements.
NGOs	Relevant, sometimes included	Engaged The nature Conservancy to help define Dow's water strategy
Other water users at a basin/catchment level	Relevant, always included	Each site works cooperatively with other water users within their basin to ensure that as much as possible there is optimum use of water resources in a given basin/catchment.
Regulators	Relevant, sometimes included	In most basins water use/consumption is regulated along with water quality requirements. Dow engages with regulators to evaluate requirements within these basins.
River basin management authorities	Relevant, sometimes included	River basin management authorities are considered a stakeholder in basin water management and each site partners with authorities for the optimum use of water resources.
Statutory special interest groups at a local level	Relevant, sometimes included	
Suppliers	Not considered	
Water utilities at a local level	Relevant, sometimes included	Work with water utilities to look for alternative sources of water in water stress basins achieving a sustainable level of water circularity. Examples include Evides partnership for Terneuzen site in T?he Netherlands; Chennai, India site working with city to install state of the art treatment of city effluent to use as water intake to industrial park; other examples are Tarragona, Spain and Freeport, Texas.
Other stakeholder, please specify	Relevant, sometimes included	Hired consultants to perform in-depth water risk assessment; external collaborators (ex. CEO Water Mandate); Aquaspice (Academics/ Europe); Earth Genome in Freeport, Texas.

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.

Dow's Corporate Water Strategy defines best practices and technology advances while aligning business strategies and operation needs to meet water demands in concert with an understanding of each local water basin and key stakeholders. The Corporate Water Strategy is built to help drive the current programs and water-based goals within Dow's 2025 Sustainability Goals with four goals directly connected to water: World Leading Operations, Advancing a Circular Economy, Leading the Blueprint and Valuing Nature. At Dow's six key water-stressed sites, recycling and reuse have been emphasized to reduce the water footprint, and the freshwater intake intensity with a clearly defined goal of 20% reduction based on a 2015 base year. We systematically track and map our plant water usage with a comprehensive water tool (e.g. WBCSD water tool) taking into account local water stress. Dow sites implement a water quality and quantity tracking program from a current and long-term perspective in response to their level of risk and specific water source. Dow facilities operate and maintain water intake infrastructures that treat the source water to meet the water quality standards required by each manufacturing site. Changes in water quality can also be the lead indicator in changes in water availability. For example, in Freeport, Texas, engineers monitor the flow and trends in flow of the river on a daily basis along with water quality data such as chloride concentration that can indicate water availability issues. The Key Water Stressed sites also have in place a water sourcing contingency plan that can go in effect should a shortage or water quality issue occur.

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, only within our direct operations

W4.1a

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

In general, Dow defines a substantive risk or opportunity as one that has the potential to impact Dow at a level of $50 million USD or more. Dow uses a number of tools to identify and prioritize risk that bring a range of financial and strategic risks to the table for discussion, and whether or not a risk or opportunity is determined to be substantive is also dependent on other factors such as where in the value chain the impact may be felt, and the likelihood, magnitude, and duration of impact.

Description of the quantifiable indicators used to define substantive impact:

We use a number of tools to identify and prioritize risks and opportunities, including a sustainability materiality assessment, a stakeholder engagement process, and our Enterprise Risk Management process. When assessing climate related risks and opportunities, the quantifiable indicators include, but are not limited to: potential impact on cost of raw materials, impact on operating cost (e.g. costs of complying with regulation), cost of investment in new technology, impact to the price at which products can be sold, impact as a result of potential lost sales, or in the case of opportunities, market share gained, etc. In addition, there could be impacts that need to be considered that are not yet able to be quantified in a concrete manner (for example, reputational impact of certain risks are more difficult to quantify), but could still be important for discussion due to a variety of factors.

An example of a substantive impact on our business that has been assessed is the availability of water. Several of Dow's production facilities are located in water-scarce areas and water shortages could impact normal production. Changes in average precipitation could have an impact on the availability and price of water. The Company has engineered susceptible facilities, particularly on the U.S. Gulf Coast, to better withstand severe weather and rising sea levels, and continues to study the long-term implications of changing climate parameters on water availability, plant siting issues and other impacts.

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	6	1-25	The Company has identified six of our manufacturing sites as key water-stressed sites. These sites are designated based on a number of factors: their location in a water stressed-watershed; water quality; competition among users of the same watershed; local experience at the site; and long-term projections.

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

United States of America	Brazos River

Number of facilities exposed to water risk
1

% company-wide facilities this represents
1-25

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Please select

Comment

Country/Area & River basin

United States of America	Other, please specify (Guadalupe RIver)

Number of facilities exposed to water risk
1

% company-wide facilities this represents
1-25

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Please select

Comment

Country/Area & River basin

Argentina	Other, please specify (Sauce River)

Number of facilities exposed to water risk
1

% company-wide facilities this represents
1-25

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Please select

Comment

Country/Area & River basin

Germany	Other, please specify (River Weisee Elster)

Number of facilities exposed to water risk
1

% company-wide facilities this represents
1-25

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
<Not Applicable>

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

<Not Applicable>

% company's total global revenue that could be affected
Please select

Comment

Country/Area & River basin

Spain	Ebro

Number of facilities exposed to water risk
1

% company-wide facilities this represents
1-25

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Please select

Comment

Country/Area & River basin

Netherlands	Other, please specify (Rivers Rhine and Meuse)

Number of facilities exposed to water risk
1

% company-wide facilities this represents
1-25

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Please select

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

United States of America	Brazos River

Type of risk & Primary risk driver

Physical	Other, please specify (seasonal drought and flooding)

Primary potential impact
Impact on company assets

Company-specific description

Timeframe
More than 6 years

Magnitude of potential impact
Please select

Likelihood

Please select

Are you able to provide a potential financial impact figure?
Please select

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure - minimum (currency)
<Not Applicable>

Potential financial impact figure - maximum (currency)
<Not Applicable>

Explanation of financial impact

Primary response to risk
Please select

Description of response

Cost of response

Explanation of cost of response

Country/Area & River basin

United States of America	Other, please specify (Guadalupe RIver)

Type of risk & Primary risk driver

Physical	Other, please specify (Seasonal drought and flooding)

Primary potential impact
Impact on company assets

Company-specific description

Timeframe
Please select

Magnitude of potential impact
Please select

Likelihood
Please select

Are you able to provide a potential financial impact figure?
Please select

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure - minimum (currency)
<Not Applicable>

Potential financial impact figure - maximum (currency)
<Not Applicable>

Explanation of financial impact

Primary response to risk
Please select

Description of response

Cost of response

Explanation of cost of response

Country/Area & River basin

Argentina	Other, please specify (Sauce River)

Type of risk & Primary risk driver

Physical	Declining water quality

Primary potential impact
Increased operating costs

Company-specific description

Timeframe
Please select

Magnitude of potential impact
Please select

Likelihood
Please select

Are you able to provide a potential financial impact figure?
Please select

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure - minimum (currency)
<Not Applicable>

Potential financial impact figure - maximum (currency)
<Not Applicable>

Explanation of financial impact

Primary response to risk
Please select

Description of response

Cost of response

Explanation of cost of response

Country/Area & River basin

Germany	Other, please specify (River Weisee Elster)

Type of risk & Primary risk driver

Physical	Other, please specify (water stress quantity)

Primary potential impact
Increased operating costs

Company-specific description

Timeframe
Please select

Magnitude of potential impact
Please select

Likelihood
Please select

Are you able to provide a potential financial impact figure?
Please select

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure - minimum (currency)
<Not Applicable>

Potential financial impact figure - maximum (currency)
<Not Applicable>

Explanation of financial impact

Primary response to risk
Please select

Description of response

Cost of response

Explanation of cost of response

Country/Area & River basin

Spain	Ebro

Type of risk & Primary risk driver

Physical	Other, please specify (seasonal variability of water demand)

Primary potential impact
Please select

Company-specific description

Timeframe
Please select

Magnitude of potential impact
Please select

Likelihood
Please select

Are you able to provide a potential financial impact figure?
Please select

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure - minimum (currency)
<Not Applicable>

Potential financial impact figure - maximum (currency)
<Not Applicable>

Explanation of financial impact

Primary response to risk
Please select

Description of response

Cost of response

Explanation of cost of response

Country/Area & River basin

Netherlands	Other, please specify (Rivers Rhine and Meuse)

Type of risk & Primary risk driver

Physical	Other, please specify (water quality (salinity of local water))

Primary potential impact
Please select

Company-specific description

Timeframe
Please select

Magnitude of potential impact
Please select

Likelihood
Please select

Are you able to provide a potential financial impact figure?
Please select

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure - minimum (currency)
<Not Applicable>

Potential financial impact figure - maximum (currency)
<Not Applicable>

Explanation of financial impact

Primary response to risk
Please select

Description of response

Cost of response

Explanation of cost of response

W4.2c

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

	Primary reason	Please explain
Row 1	Not yet evaluated	

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

Resilience

Primary water-related opportunity

Other, please specify (PRESERVING SHARED RESOURCES THROUGH CIRCULAR WATER)

Company-specific description & strategy to realize opportunity

At our Terneuzen site in The Netherlands, progress continues in achieving 100% water circularity by 2024. This would eliminate withdrawals of fresh river water from the Biesbosch area near the confluence of the Rhine and Meuse rivers, which is also the location of a Ramsar wetland (#197). As part of this long-term plan, Dow is piloting a project initiated in partnership with Evides and the regional water board, owners of Terneuzen's wastewater treatment facility ("WWTF"), to process various sources of water. These sources include Dow's private wastewater treatment plant and Terneuzen's municipal WWTF. The pilot is running through August 2021. Full-scale implementation is planned for the end of 2024. In June 2020, Dow, Evides, U Gent and HZ University of Applied Sciences (Vlissingen, The Netherlands) launched a new EU Horizon 2020 project entitled AquaSPICE. This project involves 29 partners throughout Europe who aim to materialize circular water use in European process industries, foster awareness in resource efficiency and deliver solutions for industrial applications. Two of Dow's sites will be participating: Dow Terneuzen and Böhlen (Germany). Böhlen and Terneuzen are striving to reduce their freshwater intake intensity by: • Enhancing the internal recycle of various process streams, including cooling tower blowdown and dilution steam blowdown streams • Creating a next level of site water management by using smart monitoring algorithms and control on raw water, discharge and recycle streams.

Estimated timeframe for realization

4 to 6 years

Magnitude of potential financial impact

Medium-high

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact

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.

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 water-related performance standards for direct operations Company water targets and goals	Developing sustainable water management practices is critical to our business. Establishing a long-term vision for water is also a key part of our water management strategy and is reflected in the connection to water in several of our 2025 Dow Sustainability Goals.

W6.2

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

No

W6.2c

(W6.2c) Why is there no board-level oversight of water-related issues and what are your plans to change this in the future?

	Primary reason	Board level oversight of water-related issues will be introduced in the next two years	Please explain
Row 1	Water supply and water related issues are a local issue.	No	Each site is accountable for having a water supply strategy and communicating that strategy including any related capital plans to upper management.

W6.3

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

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

Chief Sustainability Officer (CSO)

Responsibility

Assessing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

As important matters arise

Please explain

The corporation has water intensity goals that are the responsibility of the CSO. These goals are tracked and reported in the annual ESG Report. It is through this mechanism that board level communication is completed.

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	Annual compensation reviews for senior leaders with management oversight of water-related issues include a review of progress made during the year as it relates to elements like: progress towards 2025 Sustainability Goals, execution of projects with significant impact to water performance, and management of water related risks and opportunities. In 2020, the Performance Awards for all Dow employees were based not only on financial performance, but on progress towards our 2025 Sustainability Goals via an Environmental Stewardship index, which includes our freshwater intake intensity target, and is part of our World Leading Operations Index metric.

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	Chief Executive Officer (CEO) Chief Financial Officer (CFO) Chief Sustainability Officer (CSO) Other, please specify (All employees)	Improvements in efficiency - direct operations	In 2020, annual Performance Awards for C-suite and all employees included an ESG component that included targets based on the indices measured for our World Leading Operations 2025 Sustainability Goal (Freshwater intake intensity at our key water-stressed sites reduction target is one of the elements of those indices). We made the decision to add ESG metrics in our Executive Compensation and employee Performance Award programs to support ESG accountability across the Company. In 2020, the ESG component of the Performance Award was 20% of the targeted award.
Non-monetary reward	Please select	Please select	

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
Yes, funding research organizations

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?

Dow's current water policy is captured in the publicly available Water Blue Print document developed and owned by Corporate Sustainability. Any policy efforts and water commitments are also initiated by Corporate Sustainability working with the Public Affairs function. Sign off process from both functions ensures consistency.

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)
2020 Dow ESG Report.pdf
Dow 2020 Form 10-K.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	16-20	Each site where water represents a critical long-term issue is accountable for developing strategies for water supply and consumption that will meet business needs and corporate sustainability targets.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	16-20	Water related strategies are part of a site responsibility and are developed by site leadership at a site level driven by corporate sustainability targets with site and business responsibility to meet the objectives.
Financial planning	Yes, water-related issues are integrated	16-20	Water related issues are integrated in financial planning process in both growth strategy and site capital allocation driving water resilience improvements projects planning.+

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)
2

Anticipated forward trend for CAPEX (+/- % change)
5

Water-related OPEX (+/- % change)
1

Anticipated forward trend for OPEX (+/- % change)
2

Please explain
This increased from last year due to major infrastructure projects. Overall changes are driven by infrastructure improvement and lifetime extension efforts coupled with growth projects.

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	Yes , the physical risk associated with impact on water availability (too much/too little), water quality and cooling capacity have been studied. Dow is working with The Nature Conservancy ("TNC"), True Cost and other public and private organizations to evaluate climate-related risks and identify cost-effective and systemic solutions to climate risk in and around coastal areas. To tackle physical climate risks associated with water reliability, Dow and TNC will be working with, in and around our most water-stressed sites – starting with the U.S. Gulf Coast – to identify and implement watershed-level projects aimed at improving both water quality and water quantity in the region.

W7.3a

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

W7.3b

(W7.3b) What water-related outcomes were identified from the use of climate-related scenario analysis, and what was your organization's response?

	Climate-related scenarios and models applied	Description of possible water-related outcomes	Company response to possible water-related outcomes
Row 1	Please select		

W7.4

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

Row 1

Does your company use an internal price on water?
Yes

Please explain
Each location has a water pricing strategy that is specific to that site that incorporates raw water cost, treatment cost and capital requirements for water treatment facilities. For water stressed facilities such as Freeport, Texas, the projected future price of water has been used to justify water conservation projects

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	Targets are monitored at the corporate level Goals are monitored at the corporate level	Dow has set corporate goals for water use on an intensity basis, setting a target of a 20% reduction in water intensity by 2025. These targets have been set and progress is reported on annual basis in corporate ESG Report. Parameters related to this goal such as water intake and consumption are monitored internally through a corporate reporting system. Projects and associated capital expenditures have been defined.

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 use efficiency

Level
Company-wide

Primary motivation
Water stewardship

Description of target
Dow has set a target to reduce Water Intensity at 6 key water-stressed sites by 20% by 2025 from a base year of 2015.

Quantitative metric
Other, please specify (percentage reduction in water intensity)

Baseline year
2015

Start year
2015

Target year
2025

% of target achieved

Please explain
Freshwater intake intensity is tracked for the six defined key water-stressed sites described above. The 2020 water intensity was similar to the 2015 baseline year, down from the 2019 value. Roughly 80% of Dow's freshwater intake at our six key water-stressed sites is at our largest manufacturing site in Freeport, Texas. Additional efforts were completed in 2020 to reduce freshwater intake at that site, including: • Installation of water meters: two new water meters will be installed in order to distinguish water losses associated with weather and actual water used by our own manufacturing assets and other water users. • Assessing external opportunities to conserve water: Most of the easily identifiable and executed water conservation opportunities at the site have been completed. The Freeport team is completing a technological assessment to gain further understanding of external opportunities.

W8.1b

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

Goal
Other, please specify (Reduce Water Intensity at 6 key water-stressed sites by 20% by 2025 from a base year of 2015. The six key water stress sites are Bahia Blanca, Argentina; Böhlen, Germany; Freeport, Texas; Seadrift, Texas; Tarragona, Spain; Terneuzen, The Netherlands)

Level
Other, please specify (Specific 6 key water stressed sites)

Motivation
Other, please specify (Water-resilient practices are embedded into our water management approach. Businesses such as Dow depend on having abundant fresh water to ensure the continued safe operation of our manufacturing facilities worldwide.)

Description of goal
Dow has set a target to reduce Water Intensity at 6 key water stressed sites by 20% by 2025 from a base year of 2015. The six key water-stressed sites are Bahia Blanca, Argentina; Böhlen, Germany; Freeport, Texas; Seadrift, Texas; Tarragona, Spain; Terneuzen, The Netherlands

Baseline year
2015

Start year
2015

End year
2025

Progress
In 2020, we continued to prioritize water conservation and reuse investments based on site-specific water risks – keeping our focus on reducing freshwater intake at key water-stressed sites by 20%. In 2020 we engaged in development of capability for our key water-stressed sites to begin reporting freshwater intake on a monthly basis while also aligning with water GRI categories and definitions of the Water and Effluents 2018 GRI 303. This process uncovered a key water-stressed site reporting third-party recycled water as virgin fresh water and historical data was adjusted accordingly. Roughly 80% of Dow's freshwater intake at our six key water-stressed sites is at our largest manufacturing site in Freeport, Texas. Additional efforts were completed in 2020 to reduce freshwater intake at that site, including: • Installation of water meters: The Freeport site is located along the Brazos River, a seasonally stressed river where both extreme rainfalls and drought co-exist. In 2021, two new water meters will be installed in order to distinguish water losses associated with weather and actual water used by our own manufacturing assets and other water users. • Assessing external opportunities to conserve water: Most of the easily identifiable and executed water conservation opportunities at the site have been completed. The Freeport team is completing a technological assessment to gain further understanding of external opportunities.

W9. Verification

W9.1

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

W9.1a

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

Disclosure module	Data verified	Verification standard	Please explain
W1 Current state	Total water withdrawals (W1.2b), Fresh surface water withdrawal, including rainwater, water from wetlands, rivers, and lakes (W1.2h), Groundwater - non-renewable (W1.2h), Third party sources (W1.2h), Fresh surface water discharge (W1.2i)	Other, please specify (attestation standards established by the American Institute of Certified Public Accountants (AICPA) in AT-C section 105, Concepts Common to All Attestation Engagements, and AT-C section 210, Review Engagements.)	Dow engaged Deloitte & Touche LLP to perform a review in accordance with the attestation standards established by the American Institute of Certified Public Accountants (AICPA) of management's assertion that the ESG disclosures referenced or included within the Global Reporting Initiative Content Index ("GRI Index"), included within the Dow 2020 Environmental, Social and Governance Report as of, and for the year ended December 31, 2020 (the "2020 ESG Report") are presented in accordance with the Global Reporting Initiative Sustainability Reporting Standards under its Comprehensive option. The data verified (as converted) relates to the GRI Standard disclosures that were subject to Deloitte & Touche LLP's review are related to GRI standard 303: Water and Effluents 2018. The disclosures are presented on pages 73 and 74 of the 2020 Environmental, Social and Governance Report. https://corporate.dow.com/documents/about/066-00338-01-2020-esg-report.pdf

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	Vice President and Chief Sustainability Officer	Chief Sustainability Officer (CSO)

W10.2

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

Yes