

## W0. Introduction

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### W0.1

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

General Motors Company ("GM") is a global company committed to delivering safer, better and more sustainable ways for people to get around. With global headquarters in Detroit, Michigan, GM employs 173,000 people in over 400 facilities across six continents.

GM offers a comprehensive range of vehicles and services in more than 120 countries around the world. The largest national market for its products is China, followed by the U.S., Brazil, Canada and Mexico. Along with its strategic partners, GM produces cars and trucks, and sells and services these vehicles through the following brands: Chevrolet and Cadillac globally, and Baojun, Buick, GMC, Holden, Isuzu, Jiefang, and Wuling in certain regions or specific countries.

GM also maintains equity stakes in major joint ventures including SAIC-GM, SAIC-GM-Wuling, FAW-GM in China, and GM Korea, as well as subsidiaries such as OnStar, a recognized industry leader in vehicle safety, security, and information services, and Cruise Automation, a leader in autonomous driving technology.

GM's commitment to sustainability applies to every part of our business and creates value for customers. It underscores GM's philosophy of "Customer-Driven Sustainability" – an approach for meeting customers' needs through sustainability by making the mobile experience safer, more efficient, and better integrated with everyday life. As part of that commitment and philosophy, GM continually assesses and takes steps to reduce the environmental impact of its products and operations.

For example, GM is focusing on energy management; carbon and waste intensity reduction; resource preservation; and developing more efficient vehicles through our technological advances, global scale and employee innovation. These areas help the company reduce its environmental footprint and share best practices worldwide for broad results.

Sustainability is also an important part of GM's people and culture. The company integrates sustainability across every business function and through each level of the organization. GM is actively engaged in cross-functional efforts to seize environmental and social opportunities to improve our Company and the communities in which we operate.

GM's Guiding Environmental Commitments, within this document, are the foundation of this policy and were established from the core Environmental Principles and values that were in place for more than 25 years. GM's Guiding Environmental Commitments now serve as a guide for all GM employees worldwide. UNITED NATIONS GLOBAL COMPACT In 2015, GM became a signatory to the United Nations Global Compact, which endorses a framework of principles in the areas of human rights, labor, the environment, and anti-corruption.

GM's commitment supports the Global Compact's ten principles and the company's intent to maintain the principles and to evaluate related global best practices that may be applicable to GM. Of these ten principles, Environment is specifically tied to Principles 7, 8 and 9, which state: • UNGC Principle 7 – Businesses should support a precautionary approach to environmental challenges. • UNGC Principle 8 – Businesses should undertake initiatives to promote greater environmental responsibility. • UNGC Principle 9 – Businesses should encourage the development and diffusion of environmentally friendly technologies. APPLICABILITY This Environmental Policy applies globally to all of GM's employees and its operations, consultants, agents, sales representatives, distributors, independent contractors, and contract workers when they perform work for GM. GM's Guiding Environmental Commitments encourage environmental consciousness in both daily conduct and in the planning of future products and programs. The Guiding Environmental Commitments support and embrace GM's purpose, values and our vision of a future world with zero

crashes, zero emissions and zero congestion. We are committed to actions that restore and preserve the environment. We are dedicated to:

-responsibly using water while taking actions that preserve water quality and conservation across our operations, in our supply chain, and in the communities in which we operate, and we will act by:

- Reducing water used in our operations and being mindful of how our water use affects our communities.

- Communicating best practices on our water reduction and reuse initiatives globally.

- Listening to our employees on ways to conserve water.

-Preventing deforestation, conserving water, caring for natural resources in and around our facilities and the communities where we operate.

General Motors is reporting water security for operations where we have operational control for water use for owned and joint ventures as applicable. Our operations are managed regionally in North America, South America, and International Operations (rest of world) and will be reporting water security company wide, in our Supply Chain, and by site where applicable.

## W0.2

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**(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 2018	December 31 2018

## W0.3

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

Argentina  
Australia  
Brazil  
Canada  
Chile  
China  
Colombia  
Ecuador  
Egypt  
India  
Italy  
Mexico  
Republic of Korea  
Russian Federation  
Thailand  
United States of America  
Uzbekistan  
Viet Nam

## W0.4

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**(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?**

Yes

W0.6a

**(W0.6a) Please report the exclusions.**

Exclusion	Please explain
Small facilities with insignificant water use are excluded. Examples are remote offices with minimal water security issues and low water use.	GM has a robust utility management system operated by a third party globally with invoice verification and auto bill pay in some countries. Small facilities have minimal impact on cost and water security and are not included in the management system.

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	Direct Use: Water use in our direct operations is used for pre-treatment of vehicle bodies prior to painting as well as weld cooling, machining, and powerhouse operations making it vital for our operations. We cannot manufacture vehicles without sufficient amounts of good quality freshwater. Also, our 178,000 employees rely on sufficient good quality water for drinking and sanitation purposes. Indirect use: Our supply chain manufactures automobile parts using raw materials that require significantly more water than in our direct operations according to a life cycle analysis of auto parts in the supply chain. Painting operations at Tier 1 facilities require high quality water for welding operations use for cooling water makeup, making availability important. 85% of water use in the supply chain is at tiers 2-6 with the majority needed for electric power generation, steel production, mining, and agriculture. Additionally, supply chain employees need safe water for drinking and sanitation. Future: Freshwater dependency for both will be similar and tied to future production requirements.
Sufficient amounts of recycled, brackish and/or produced water available for use	Important	Important	Brackish and produced water are important to GM as they are not available near GM locations and the development would be extremely costly due to the high quality of water needed for GM WASH and product quality. Recycled water is important to GM: Direct Use: Recycled water is used in our operations to reduce consumption in paint pre-treatment and cooling water and is important in our operations to reduce withdrawal. Additionally, in water stressed areas, we use recycled water for all manufacturing operations with Zero Liquid Discharge process, including paint pre-treatment of vehicle bodies since water withdrawal is scarce and low quality. We do not source brackish or produced water. Indirect Use: Recycled cooling water is important to supply chain manufacturing of automobile parts for casting and welding as well as in electricity generation to reduce withdrawal of freshwater. Future: Recycled water dependency for both direct and indirect may increase in the future as more recycle water markets could develop and, with increasing scarcity, would result in an increased need for recycled water in direct and indirect operations.

**(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%	GM measures and monitors 100% of our major facilities water withdrawals using either invoices or meter data on a monthly basis. It is tracked in a global utility database and the data is verified by an independent third party annually. Some small facilities (offices) have water service included in their lease rate and we do not track the water withdrawal. Our estimate is that this represents less than 1% of our water withdrawal. As water management is integrated into our business plan, we set goals for each facility measured and track progress on a monthly scorecard at facility, region, and company level and report to senior management.
Water withdrawals – volumes from water stressed areas	100%	GM measures and monitors 100% of our major facilities, including water stressed areas, water withdrawals using either invoices or meter data on a monthly basis. It is tracked in a global utility database and the data is verified by an independent third party annually. Some small facilities (offices) have water service included in their lease rate and we do not track the water withdrawal. Our estimate is that this represents less than 1% of our water withdrawal. As water management is integrated into our business plan, we set goals for each facility measured and track progress on a monthly scorecard at facility, region, and company level and report to senior management.
Water withdrawals – volumes by source	100%	GM measures and monitors 100% of our major facilities water withdrawals by source using either invoices or meter data on a monthly basis. It is tracked in a global utility database by source and the data is verified by an independent third party annually. Some small facilities (offices) have water service included in their lease rate and we do not track the water withdrawal. Our estimate is that this represents less than 1% of our water withdrawal by source, so we measure and monitor 99% of water withdrawal by source.
Entrained water associated with your metals & mining sector activities - total volumes [only metals and mining sectors]	<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%	GM measures and monitors 100% of our major facilities water withdrawal quality either from supplier provided test results or our own lab testing on a monthly basis or more frequently as required by local regulations. Some small facilities (offices) have water service included in their lease rate and we request water quality from the supplier. Our estimate is that this represents less than 1% of our water discharge quality.
Water discharges – total volumes	100%	GM measures and monitors 100% of our major facilities water discharges using either invoices, meter data, or engineering estimates on a monthly basis. It is tracked in a global environmental database on a monthly basis. Some small facilities (offices) have water service, including discharge included in their lease rate and we do not track the water discharged. Our estimate is that this represents less than 1% of our water discharge.
Water discharges – volumes by destination	100%	GM measures and monitors 100% of our major facilities water discharges by destination using either invoices, meter data, or engineering estimates on a monthly basis. It is tracked in a global environmental database on a monthly basis. Some small facilities (offices) have water service, including discharge destination included in their lease rate and we do not track the water discharged by destination. Our estimate is that this represents less than 1% of our water discharge by destination,
Water discharges – volumes by treatment method	100%	GM measures and monitors 100% of our major facilities water discharges by treatment method from either meters, invoices, or calculations on a monthly basis. It is tracked in a global environmental database on a monthly basis. Some small facilities (offices) have water service, including discharge that are included in their lease rate and we do not track the water quality data. Our estimate is that this represents less than 1% of our water discharge by volume of treatment method.
Water discharge quality – by standard effluent parameters	100%	GM measures and monitors 100% of our major facilities water discharges by quality data from lab results on a monthly basis where required to from regulatory agencies. It is tracked in a global environmental database on a monthly basis. Some small facilities (offices) have water service, including discharge that are included in their lease rate and we do not track the water quality data. Our estimate is that this represents less than 1% of our water discharge by quality data by standard effluent parameters.
Water discharge quality – temperature	1-25	At facilities where discharge temperature is regulated, and the possibility exists for high discharge temperatures, GM measures 100% of the discharge temperature on a monthly basis. We estimate that about 2% our facilities have temperature monitoring included in their process data management parameters and the remainder are not applicable. We do not monitor temperatures where there is no possibility of elevated temperatures as is the normal case for our most of our operations.
Water consumption – total volume	100%	Water Consumption is calculated from withdrawal by source and discharge by source data for 100% of our major facilities. We monitor it on an annual basis as our focus for water security is on withdrawal. Some small facilities (offices) have water service, including discharge that are included in their lease rate and we do not track the water withdrawal or discharge data. Our estimate is that small facilities represents less than 1% of our water consumption - total volume.

	% of sites/facilities/operations	Please explain
Water recycled/reused	1-25	At GM facilities where water is reused or recycled as part of the major supply, e.g. Zero-liquid discharge, we monitor the volume of recycled water. Where we recycle at a local process, e.g. phosphate tank in paint shop, metering is not always used as the volume is not an important parameter, just that we reuse 100% of water from the stage that has higher quality vs. lower quality. We estimate that about 2% of our facilities measure reuse or recycle water on a monthly basis.
The provision of fully-functioning, safely managed WASH services to all workers	100%	100% of our facilities provide clean water for drinking, sanitation, cooking and cleaning purposes to our 178,000 employees at 288 facilities globally to the best of our knowledge. WASH is monitored on a monthly basis using water quality information to verify that clean water supply is provided to employees. GM has policies and procedures for WASH at all of our global facilities.

## 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	35792.7	Lower	Vehicle production volume was 5% lower in 2018 vs. 2017 and with water efficiency and conservation resulted in lower withdrawal. We expect carryover in withdrawal for future years due to anticipated production volume increases resulting in water use that will be offset with conservation and water reuse activities.
Total discharges	34100	Lower	Vehicle production volume was 5% lower in 2018 vs. 2017 and water efficiency and conservation resulted in lower discharge. We expect carryover in discharge for future years due to anticipated production volume increases resulting in water use that will be offset with conservation and water reuse activities.
Total consumption	10737.8	Lower	Vehicle production volume was 5% lower in 2018 vs. 2017 and water efficiency and conservation resulted in lower withdrawal and consumption. We expect carryover in consumption for future years due to anticipated production volume increases resulting in water use that will be offset with conservation and water reuse activities. Consumption is calculated using measured and engineering calculations from water balances conducted at various assembly plants and applied to all of GM's water consumption. Using the standard formula of Withdrawal minus Discharge is misleading for consumption due to the large amount of groundwater infiltration into water discharge meter data. Some years we would have shown negative consumption, which is not an accurate representation of consumption. This year the simple calculation shows only 1,693 ML consumption; whereas, our estimate is over 600% higher and more realistic.

## W1.2d

**(W1.2d) Provide the proportion of your total withdrawals sourced from water stressed areas.**

	% withdrawn from stressed areas	Comparison with previous reporting year	Identification tool	Please explain
Row 1	14	Lower	WRI Aqueduct	GM uses global water withdrawal data and location coordinates to assess water stress using the WRI Aqueduct model. Both WRI Aqueduct and local knowledge identified 3 GM Assembly plant sites in China (Qingdao, Dongyue, and Liuzhou) and one GM Assembly plant site in Silao, MX as water stressed. The WRI Aqueduct model identified (3) GM Assembly plant sites - Dongyue, China, Liuzhou, China, and Silao, MX as High-risk overall and Qingdao, China was added to the high-risk category based local company knowledge of previous drought history by the local site utility manager (SUM). The other (3) were also confirmed as water stressed based on local company knowledge. Lower vehicle volumes in 2018 compared to 2017, efficiency, and, conservation provided lower water use at these (4) water stressed areas. We expect carryover in the near future and increased production will be offset with conservation.

## 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	Not relevant	<Not Applicable>	<Not Applicable>	GM facilities have minimal withdrawal of rainwater, water from wetlands, rivers, and lakes is due to GM locations not being in close proximity to these sources. Additionally, GM Assembly plant paint shops require high quality water and treatment costs are excessive for surface water use. Due to proximity and quality issues, we do not expect this source to be relevant in the future.
Brackish surface water/Seawater	Not relevant	<Not Applicable>	<Not Applicable>	We have no sites near sources of Brackish/seawater. Additionally, GM Assembly plant paint shops require high quality water and treatment costs are excessive for brackish/sea water use. Due to proximity and quality issues, we do not expect this source to be relevant in the future. water sources.
Groundwater – renewable	Relevant	2102.9	Lower	Groundwater water - renewable is relevant based on GM manufacturing plant locations that can provide significant cost savings for groundwater-renewable compared to potentially more expensive third party supplied water. Groundwater-renewable use was 5% lower in 2018 vs. 2017 due to reduced production volume and water efficiency and conservation resulted in lower withdrawal. We expect carryover use in the future based on increased production volume offset with water conservation.
Groundwater – non-renewable	Relevant	1308	Lower	Groundwater water - non-renewable is relevant based on GM manufacturing plant locations that can provide significant cost savings for groundwater-non-renewable compared to potentially more expensive third party supplied water. Groundwater-non-renewable use was 5% lower in 2018 vs. 2017 due to reduced production volume and water efficiency and conservation resulted in lower withdrawal. We expect carryover use in the future based on increased production volume offset with water conservation.
Produced/Entrained water	Not relevant	<Not Applicable>	<Not Applicable>	GM facility locations are not in close proximity to sources of Produced/Entrained water. Additionally, GM Assembly plant paint shops require high quality water and treatment costs are excessive for Produced/Entrained water use. Due to proximity and quality issues, we do not expect this source to be relevant in the future.
Third party sources	Relevant	32585.3	Lower	Third party water sources are relevant to GM based on GM manufacturing plant locations being near third party sources that can provide significant cost savings compared to other sources. In many instances, Third party sources have higher quality levels providing cost savings for reduced pre-treatment costs. Third party water source use was 5% lower in 2018 vs. 2017 due to reduced production volume and water efficiency and conservation resulted in lower withdrawal. We expect carryover use in the future based on increased production volume offset with water conservation.

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	11500	Lower	Fresh water discharge is relevant to GM based on some manufacturing plant locations with no third-party sewer nearby that can provide significant cost savings for Surface water discharge compared to potentially more expensive third-party discharge options. Fresh Water discharge was 5% lower in 2018 vs. 2017 due to reduced production volume and water efficiency and conservation resulted in lower discharge. We expect carryover discharge in the future based on increased production volume offset with water conservation.
Brackish surface water/seawater	Not relevant	<Not Applicable>	<Not Applicable>	We have no sites in close proximity of Brackish/sea water for the possibility to discharge as a cost-effective method. Additionally, treatment costs are excessive for discharges to brackish/seawater use. Due to proximity and pre-treatment costs, we do not expect this source to be relevant in the future.
Groundwater	Relevant	100	Lower	Groundwater discharge is relevant to GM based on some GM manufacturing plant locations with water reuse that require solar ponds to treat / dry the effluent that has high salt content. Solar ponds or Groundwater discharge can provide significant cost savings compared to potentially more expensive discharge treatment options. Groundwater discharge was 5% lower in 2018 vs. 2017 due to reduced production volume and water efficiency and conservation resulted in lower discharge. We expect carryover discharge in the future based on increased production volume offset with water conservation.
Third-party destinations	Relevant	2250	Lower	Third party discharge is relevant to GM based on the majority of GM manufacturing plant locations being in close proximity to Third party sewer nearby that can provide significant cost savings compared to potentially more expensive Surface Water or other discharge options. Third Party discharge was 5% lower in 2018 vs. 2017 due to reduced production volume and water efficiency and conservation resulted in lower discharge. We expect carryover discharge in the future based on increased production volume offset with water conservation.

**W1.2j**

**(W1.2j) What proportion of your total water use do you recycle or reuse?**

	% recycled and reused	Comparison with previous reporting year	Please explain
Row 1	26-50	Lower	Water balances and Engineering estimates are used to quantify water that is reused and recycled in most cases. GM maximizes reuse of water back into the process as it reduces water stress by reduced withdrawal. Examples include, reusing rinse water from high purity vehicle body rinse zones to lower quality rinse zones (cascading), wet scrubber water at one foundry is treated and reused, as well as treatment and reuse in Zero liquid discharge systems. In our San Luis Potosi, Mexico Assembly and Transmission plants we use a Zero liquid discharge system for 100% of our water use needs. The amount of water recycled is about the same when compared to last year with -1% reduction from reduced production and water conservation activities. As recycle water helps reduce our withdrawal, we expect to increase its use in the future. At our Silao Mexico facility we engineered an expansion of the water reuse system and will increase reuse in the future. We expect water reuse to be 5% lower in 2018 vs. 2017 due to water efficiency and conservation resulting in lower recycled water volumes.

**W1.4**

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

- Yes, our suppliers
- Yes, our customers or other value chain partners

**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**

76-100

**Rationale for this coverage**

In order to build the most valuable automotive company, we must recognize that our impacts go beyond the walls of GM to include suppliers. - Water consumption in our supply chain is important to understand the magnitude and at which tier and industry that it occurs so we can develop a long term reduction plan. - Water intensity is 50 times greater in SC and 87% is outside of tier one in steel and agriculture -We selected a combination of high life cycle analysis (LCA) water users and largest spend group (90%) to focus on Water security in SC. The large impact group is comprised of strategic suppliers with the majority of spend and we performed a water consumption LCA on all suppliers and included the top users that were not included in top spend. High water consumption from the LCA and spend provided a list of 338 suppliers asked to respond to CDP SC. GM engages our 18,000 suppliers collaboratively through AIAG & CSR Europe to provide practical guidance on water related issues.

**Impact of the engagement and measures of success**

GM gathers CDP SC information to measure continuous improvement of our suppliers and identify any significant risks & opportunities. GM engages our supply chain in water related areas collaboratively through AIAG and CSR Europe to provide practical guidance on water quality and consumption in a joint Sustainability guidance statement. GM, AIAG, and CSR Europe emphasized the importance of water security. This guidance extends to 18,000 GM suppliers in the industry. Also, GM is a member of CDP Supply Chain - Water and sent requests to 338 suppliers to respond. Our measure of success is continuous improvement in response to key performance indicators: KPI improvement (2018/2017 %) -Water accounting (75%/67%) - Water policy (47%/45%) - Targets (81%/58%) - Risk assessment in operations (67%/54%) - Risk assessment in Supply Chain (25%/19%) Overall 2018 showed continuous improvement in KPIs by an average of 27%.

**Comment**

GM believes that awareness drives success and with 84% supplier reporting quantifiable targets, 75% are accounting for withdrawal metrics, and 25 of our suppliers suggested collaborative opportunities. An LCA is performed using EPA environmental economic input output model. Additionally, CDP Supply Chain Water response data also helps us calibrate LCA data.

**W1.4b**

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

**Type of engagement**

Innovation & collaboration

**Details of engagement**

<Not Applicable>

**% of suppliers by number**

<Not Applicable>

**% of total procurement spend**

<Not Applicable>

**Rationale for the coverage of your engagement**

GM understands that water security in our supply chain is an auto industry wide issue, common to all auto suppliers. GM is member of Automotive Industry Action Group (AIAG) with over 2000 members. CSR Europe is the leading European business network for Corporate Social Responsibility with a network of corporate members and National CSR Organisations reaching over 10,000 companies. GM engages the members of AIAG and CSR Europe supply chain in water related areas collaboratively with a joint Sustainability guidance statement. The guidance is related to ESG with specific language regarding water guidance that is related to UN SDG 6 - " Companies are expected to effectively reduce, reuse, and recycle water with responsible treatment of wastewater discharges to protect the environment and improve overall water quality, as well, the guide contains practical guidance on water security, quality, and consumption.

**Impact of the engagement and measures of success**

<Not Applicable>

**Comment**

<Not Applicable>

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**W1.4c**

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**(W1.4c) What is your organization's rationale and strategy for prioritizing engagements with customers or other partners in its value chain?**

GM engages with elementary students that are future potential customers in locations near our facilities in US and Canada for more than 20 years, working with Earth Force, that has operated GM Global Rivers Environmental Education Network (GREEN), a program to empower youth to understand their impacts on local watersheds and foster a sense of environmental stewardship. Students engage in outdoor activities such as stream water sampling, stream flow testing and species identification to assess watershed health. GM employees volunteer and serve as mentors to directly support students. GM GREEN now operates at all US facilities and 11 GM locations across Canada. Our Environmental Engineers enjoy getting into local streams with young students and teaching them how to assess the health of watersheds as well as classroom exercises.

GM GREEN is the longest-running conservation education program by any automaker, impacting 150,000 young people through hands-on learning since its inception in 1989.

The partnership provides GM with goodwill for future customers and hands on information about the health of local streams and tributaries surrounding our facilities.

**W2. Business impacts**

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**W2.1**

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

Yes

## W2.1a

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

**Country/Region**

Mexico

**River basin**

Panuco

**Type of impact driver**

Technology

**Primary impact driver**

Transitioning to water efficient and low water intensity technologies and products

**Primary impact**

Impact on company assets

**Description of impact**

Increases in the frequency of drought conditions can further depress water availability for production in water-stressed areas. GM has production facilities in Mexico, an area that was hit hard by drought in 2018, and there is a risk that increases in the frequency of such events could disrupt production due to lack of water availability. Mexico accounts for approximately 7% of GM's global production. 7% of GM's sales and revenues = \$10.3 billion and a one-month disruption due to water scarcity would create a potential risk of loss of \$858,000,000 in revenue. The risk for Mexico facilities on a site basis is substantial and required mitigation to ensure continuance of production.

**Primary response**

Adopt water efficiency, water re-use, recycling and conservation practices

**Total financial impact**

19000000

**Description of response**

GM integrated water management into its annual business planning process and set targets for each facility to reduce water use intensity by 15% by 2020. Reduction methods are implemented at a facility level and include conservation with behavioral activities, improving equipment efficiency to reduce, and reuse. When plants are located in water-stressed areas, special consideration is given to water treatment technologies. Zero Liquid water discharge (ZLD) equipment installed to reuse water in the process, reduce withdrawal from deep, non-renewable wells, and reduce the risk of lack of water for production. The cost to install ZLD was \$12M USD and the ongoing operating cost is \$200k per year. Additionally, at Silao, non-renewable wells showed signs of stress and we have installed similar water reuse equipment at a cost of \$7M USD.

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## W2.2

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**(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

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

**Row 1**

**Total number of fines**

2

**Total value of fines**

7290

**% of total facilities/operations associated**

1

**Number of fines compared to previous reporting year**

Lower

**Comment**

GM has a stringent corrective action planning process for non-conformance of operating parameters. All corrective actions were implemented related to the fines.

**W3. Procedures**

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**W3.3**

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

Yes, water-related risks are assessed

**W3.3a**

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**(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**

Six-monthly or more frequently

**How far into the future are risks considered?**

>6 years

**Type of tools and methods used**

Tools on the market  
Enterprise Risk Management  
Databases

**Tools and methods used**

WRI Aqueduct  
Other, please specify (Internal Company Methods and IBAT - IBAT is "Integrated Biodiversity Assessment Tool")

**Comment**

Using water risk evaluation tool - WRI Aqueduct out to 2025 provides a comparison of risks in 2018 to those in 2025. Comparing future growth in our 6-year business plan, shows that the risks are getting worse in the water stressed areas in China. Based on our current mitigation plan, future manufacturing planning will incorporate additional measures related to water efficiency and conservation. We use similar activities for our supply chain using life cycle analysis for the high water-users.

## Supply chain

### Coverage

Full

### Risk assessment procedure

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

### Frequency of assessment

Six-monthly or more frequently

### How far into the future are risks considered?

3 to 6 years

### Type of tools and methods used

Tools on the market

Enterprise Risk Management

Other

### Tools and methods used

WRI Aqueduct

Other, please specify (Internal Company Methods, Life Cycle Analysis (LCA) of water consumption using environmental economic input output analysis by a third-party for our entire supply chain of 18,000 suppliers.)

### 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

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**(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	Water availability at river basin level is important to our operations in locations where the water supply to our manufacturing facilities could be affected due to potential shortfall of available water for operations. Local water availability assessment is a local management responsibility. Each GM manufacturing site has a site utility manager (SUM) that provides internal company methods to monitor water supply availability and water quality of supply and discharge water to provide risk management analysis and mitigation. SUM regularly reviews sampling reports from water utility companies and discusses water availability. An example of this process in action was at our Assembly plant in Adelaide, Australia. The SUM was notified by the local utility that due to drought conditions the local aquifer could experience stress. The plant increased water conservation and began planning a contingency plan. Fortunately, the drought ended, and the contingency plan did not have to be implemented which would have resulted in considerable cost.
Water quality at a basin/catchment level	Relevant, always included	Water quality at river basin level is important to our operations in locations where the water supply to our manufacturing facilities could be affected due to employee water sanitation and hygiene (WASH) requirements and product quality. Local water quality assessment requires local management. Each GM manufacturing site has an Environmental leader that provides internal company methods to monitor water quality and to provide risk management analysis and mitigation. The Environmental Leader regularly reviews sampling reports from water utility companies to ensure compliance with safe drinking standards. Each facility has a 3rd party Chemical Manager that looks at water quality for each critical process. An example of this process is at Flint Engine plant where the city decided to switch water supplies and, through regular testing GM determined that the quality was not sufficient for engine production and requested that the city change the water supply back to the original supply.
Stakeholder conflicts concerning water resources at a basin/catchment level	Relevant, always included	Stakeholder conflicts at river basin level are important to our operations in locations where the water supply to our manufacturing facilities could be affected due to potential shortfall of available water for operations. Management of site conflicts requires local management actions. Each GM manufacturing site has a site utility manager (SUM) and an environmental engineer (EE) who provide internal company methods to monitor and resolve conflicts of water resources at a local level. These local resources monitor local external stakeholder conflicts with community residents, non-governmental organizations, and other stakeholders involving water resources using newswires and monitoring social media. An example of this was during the Flint water crisis, GM monitored local stakeholder feedback to see if GM could provide any assistance. Water resource scarcity is also part of GM's Business Continuity Planning process that includes a "Peril" list identifying water risks. Stakeholder conflicts can cause physical risks, but likely are a reputational risk that GM wants to mitigate as in the case at Flint. GM employees voluntarily participated with local communities to provide bottled water during the crisis.
Implications of water on your key commodities/raw materials	Relevant, always included	Water issues are important to our operations as the quality of our products could be affected if water in sufficient quantities and of sufficient quality is not available due to high quality requirements in our painting operations. GM conducted water life cycle analysis and risk modelling using WRI models at a part and supplier level for auto components suppliers so that we could identify the major users of water and quantify current and future risk implications in our supply chain. GM uses LCA and risk models to quantify water risk in the supply chain for commodities and raw materials. We recently began using a supply chain visibility and mapping tool that provides a visualization of GM's entire footprint, including our own facilities, our Tier I suppliers, and many of our Tier II suppliers. Using this map as a base and internal company methods we can get answers to questions about supply chain risk by superimposing information like geopolitical events, hurricanes, water scarcity and other possible disruptions. With more than 200 incidents disrupting our supply chain every year, from earthquakes and floods to civil unrest and regulatory actions, robust tracking and visibility tools are essential to GM's operations.
Water-related regulatory frameworks	Relevant, always included	Water-related regulatory frameworks are important to our operations in locations where the water supply or quality for our manufacturing facilities could be affected due to WASH, production requirements, cost, or product quality. Local regulatory frameworks and tariff assessment are a GM local management responsibility to assess and mitigate. Each GM manufacturing site has an environmental engineer (EE) and a site utility manager (SUM) who provide internal company methods to monitor current regulatory frameworks and tariffs to provide risk management. Through monthly monitoring of water invoices, the SUM identifies changes in tariffs and requests to be informed about future changes by local municipalities. The EE monitors regulatory news feeds to identify any current or future changes to regulations. An example of this is at GM Detroit Assembly plant where the storm water tariff increased to such a degree that a water reuse project became financially viable and was implemented to drastically reduce storm water discharges at the site. In this case the risk was financial as stormwater discharge fees became a significant budget issue compared to previous year's cost.
Status of ecosystems and habitats	Relevant, always included	The status of ecosystems is important to our operations in all locations because of our Environmental principles which are implemented at every GM facility and especially at locations with certified wildlife habitats that could be adversely impacted. Local potential future changes in the status of ecosystems and habitats requires local management actions. Each GM manufacturing site has an environmental engineer (EE) who provides internal company methods to monitor future potential changes in wildlife habitats to assist in risk management. GM applied the WRI Aqueduct tool to all of our major manufacturing facility locations which projects risk to 2025. Additionally, the Integrated Biodiversity Assessment Tool (IBAT) is used at GM to access on-line maps which offer information about protected areas, the location and importance of priority sites for conservation (key biodiversity areas) and threatened species. This is used as a basis to plan for wildlife habitats at GM sites with a goal of having one at each site by the end of 2020.
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	Access to WASH services for all employees is important to our operations. GM has a policy of providing WASH to all employees. Each GM manufacturing site has a site utility manager (SUM) and an environmental engineer (EE) who provide internal company methods to monitor and manage WASH services for all employees. As water for personal use as well as production is essential to our facility operations, our global facilities teams plans for sufficient water for building occupants. The SUM regularly reviews sampling reports from water utility companies and discusses water availability with local authorities and may result in mitigating actions. The EE receives water quality reports from the utility provider or has well water sampled to ensure safe drinking water quality. An example of this is at GM's San Luis Potosi Assembly and Transmission plant in Mexico where a Zero Liquid Discharge water system was installed at additional cost to ensure adequate supply of water for the industrial process and for the building occupants for WASH. This system is continuously operated and is monitored on a regular basis.
Other contextual issues, please specify	Please select	

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

	Relevance & inclusion	Please explain
Customers	Relevant, always included	The linkage of a GM customer's fuel or electric supply to water security is a water-related risk that can affect GM vehicle sales. Fuel and/or electric supply is critical to our customers in order to operate the vehicles they purchase from GM. Water is a key component in fuel production, for either gasoline or ethanol, and to generate electricity from fossil fuels, as well as for some renewable electric energy sources. Water in the life cycle of the use phase of GM automobiles is an order of magnitude more intensive than our own manufacturing use or 22% of our total water footprint. Based upon our annual production in 2018, the majority of water use in the use phase is for fuel production for use in GM vehicles. Achievement of GM's climate change public goals to reduce vehicle emissions by improving fuel economy will help to reduce the water consumption in the vehicle use phase. Chevrolet uses customer engagement as a method to engage customers and provide information to customers specifically on Fuel Economy. Chevrolet maintains a website that describes the fuel economy features of GM vehicles like the Bolt EV with "Regen on demand" braking, "One-pedal driving", and "Energy Usage Score" provided on the touch screen display - <a href="https://www.chevrolet.com/fuel-economy">https://www.chevrolet.com/fuel-economy</a> The life cycle analysis included all 9 Million customers' use of vehicles, with fuel production and car washing being the major water consumption for customers. The majority of customers have not experienced water risk yet, except for those in extremely water stressed areas, like Nairobi City, Kenya where extreme water stress resulted in customers experiencing closure of car wash facilities in 2017.
Employees	Relevant, always included	Employees are essential to our risk assessment as we rely on them to plan and implement our business plan. As water management is integrated into GM's business plan, along with safety, quality, and cost at a facility level, employees are involved in the plans and metrics as a normal course of business. Employees are engaged at each major facility that has a site utility manager (SUM) dedicated to water management and team members that are engaged in the planning process including water conservation measures on business plans, and associated goals, objectives, metrics, and countermeasures if the target is not achieved. On a monthly basis, GM reports performance to water target (M3/Vehicle) which is reviewed at each site globally to ensure that the goal is met and if not then countermeasures are developed to meet the goal. Also, GM conducts employee engagement activities, such as "Treasure hunts" at our facilities to help train employees about how they can identify energy and water efficiency opportunities and implement them.
Investors	Relevant, always included	Many of GM's institutional investors are CDP members, and they request GM to participate in CDP Water response indicating they are important stakeholders. GM uses the CDP Water report to inform investors and others on our water stress, management practices, and performance. The assessment includes life cycle analysis of water use in direct and indirect operations coupled with WRI Aqueduct assessment of current and future risks. Risks are presented in CDP Water report to inform investors and the public. GM made public our CDP Water report in 2018 to inform our investors and the public of our actions related to water security activities. Additionally, GM's annual 2018 Corporate Sustainability Report (page 100) informs investors and others about water security. An example, of water risk assessment disclosed in the CDP Water and CSR is reusing stormwater for process water at the GM Detroit Hamtramck Assembly plant. The savings equate to nearly \$2 million per year for GM. The savings also benefit the City of Detroit. By creating an oversized pond to collect stormwater, we reduce the stormwater discharge to the Detroit River which experiences stress during storms as the City's sewer system is a combined sanitary and storm.
Local communities	Relevant, always included	Since we share the water sources with our local communities, they are always included as stakeholders. Water risk assessments at a facility level are performed using life cycle analysis in direct and indirect operations coupled with the WRI Aqueduct assessment of current and future risks. Local communities are considered in the risk based on water availability in the WRI Aqueduct model coupled with local company methods. We have developed long-standing partnerships among our employees, local watershed groups, and schools, all focused on watershed education through the Global Rivers Environmental Education Network (GREEN) program, now in its 26th year. GM mentors over 17,000 students annually. GM employees use engagement with local schools to inform communities about water risk in local rivers and tributaries using hands-on education, including water sampling. A potential risk was identified at our San Luis Potosi Assembly and Transmission facility in Mexico. The local community shared the deep well non-renewable aquifer with the plant, and based on water scarcity risk, GM installed Zero Liquid Discharge equipment and operates it to reuse water and greatly reduce withdrawal providing more water supply for the local community.
NGOs	Relevant, always included	NGOs provide feedback about GM's water management making them an important external stakeholder. The assessment includes life cycle analysis of water use in direct and indirect operations coupled with WRI Aqueduct assessment of current and future risks. Risks are presented in the CDP Water report to NGOs and the public. GM uses CDP Water Report to inform NGOs about our water stress, management practices, and performance. We partner with groups like WRI on water-related issues to ensure our engagement meets NGO expectations. As an example, GM partnered with WRI and Dow to conduct a water risk workshop for internal and external stakeholders. Including NGOs in the workshop provided external stakeholder input and collaboration, this also reduces GM's reputational risk as NGOs were involved in the process.
Other water users at a basin/catchment level	Relevant, always included	Since GM shares water sources with other commercial users, GM participates with community groups at a local level including other users as stakeholders to better understand water supply, quality, and risks for direct operations at the local level. The assessment uses internal company methods with environmental leaders (EL) at sites in conjunction with the assistance of subject matter experts (SME) at the company level. Risks are identified based on current and potential future issues that arise with other users in basins. An example is where GM is working with Michigan Manufacturers Association (MMA) along with other commercial water dischargers to Michigan basins on a collaborative effort to engage with regulators on methods to enhance water quality in the state. GM engages with MMA and other users in regular monthly meetings that include regulators to better understand current developments in pending legislation so that potential dischargers can be prepared for future regulations. GM is actively participating with MMA in monthly discussions along with other water users and regulators.

	Relevance & inclusion	Please explain
Regulators	Relevant, always included	Regulatory frameworks provide the operating guidance for water supply and discharge operations that are critical to our business continuity for our operations. Regulatory risk for water withdrawal and water discharge is determined using life cycle analysis GM has a team of environmental engineers at GM's central office , in the GM group "Sustainable Workplaces" (SW), and an environmental engineer (EE) at each major facility focused on Environmental compliance and sustainability who engage with regulators at the local, state, and federal levels. The EE has regular contact with regulators about compliance matters and upcoming regulations. Regulators are a key stakeholder as they drive compliance requirements for our facilities. SW engineers and the EE regularly interact with local, state and federal regulators on water quality issues at GM's facilities globally. The engagement is usually on an ad-hoc basis and depends on current or pending regulations related to water supply or quality. An example of risk assessment and mitigation was the pro-active water reuse project at our Detroit Hamtramck Assembly plants that was identified by the local plant working with regulators at the local water utility. The SUM identified a cost issue with water discharge and worked with regulators to find a solution. In the end GM spent funds to build a stormwater reuse system to reduce the impact to the City of Detroit and in turn GM received a green tariff for stormwater discharge for a positive business case.
River basin management authorities	Relevant, always included	River basin management is critical to the business continuity of our operations related to water supply and discharge. GM has a team of engineers at GM's central office, "Sustainable Workplaces" team (SW), and an environmental engineer (EE) at each major facility focused on Environmental compliance and sustainability and a site utility manager (SUM) focused on water management. Local company methods by SUM and EE using input from newswire feeds, information from River basin authorities, and regular meetings and communications with river basin managers are used in the risk assessment. River basin authorities are a key stakeholder as they drive compliance requirements and economic rates for water use and discharge at some of our facilities as applicable. GM engages with River basin management authorities at the local level through regular communications and meetings as needed with the EE and the SUM leading the effort. As an example, GM negotiated with the City of Detroit Water and Sewer department to develop a green tariff that GM uses for storm water discharge based on our storm water reuse project at Detroit Hamtramck Assembly plant that significantly reduced GM's cost and reduced the volume of water discharged to the Detroit River for an environmental benefit.
Statutory special interest groups at a local level	Relevant, always included	Statutory special interest groups at a local level could influence regulatory and water basin management which could adversely affect GM's water supply or discharge requirements from a cost, quality, or supply perspective. Since we share the water sources with the local communities, special interest groups are always included as stakeholders. Local GM resources, including environmental engineers (EE) and GM public relations monitor local issues to keep engaged with special interest groups. The Flint Water crisis, where GM has operations was deemed to be a reputational risk. The method of engagement varies based on the circumstance, in the Flint water crisis example, the response by GM's employees was to donate money and provide volunteer services. An example of engagement is during the Flint water crisis hundreds of GM's United Auto Workers volunteered to deliver water bottles to a local community center and The General Motors Foundation donated \$50,000 to the local United Way chapter for the purchase of water filters for city residents. Participating in local aid to the community in Flint MI, where GM has 3 facilities that manufacture vehicles and parts, reduces GM's reputational risk as we were viewed as supporting the interests of the community during the Flint water crisis.
Suppliers	Relevant, always included	GM conducted a life cycle analysis (LCA) of water use in our supply chain and found that the water use was significantly higher with 50 times the use when compared to our own operations. Water stress risk to GM Supply chain could result in interruption of our business operations and it is therefore included in our risk assessment. Using life cycle analysis for our top 100 suppliers' water use coupled with WRI Aqueduct model revealed the potential overall risk for 4 suppliers in Mexico and China. GM's local company methods identified these as being mitigated. GM became a member of CDP Water Supply Chain in 2014 and continued in 2015-2018. We included high risk suppliers in our comprehensive water management strategy. Engagement with suppliers through the CDP Water Supply Chain provides us with risk and management information to aid in the assessment, along with internal company methods. According to our LCA, the vehicle interior is the major area of water use with electric power generation as the major industry using water to manufacture auto parts. Based on tier analysis, our tier 1 suppliers are only 4% of the total water use, indicating that we also need to look further downstream in the supply chain for solutions.
Water utilities at a local level	Relevant, always included	Local water utilities are critical to our business continuity for our operations related to the quality of water supply and discharge. GM has a team of engineers at GM's central office, "Sustainable Workplaces" team (SW), and a local site utility manager (SUM) and an environmental engineer (EE) at each major facility that engage with local water utilities through regular meetings and communications. As suppliers to many facilities of water and wastewater services, Water Utilities are key stakeholder to GM. An example involves our Detroit Hantramck Assembly plant. The SUM identified a risk of high cost related to stormwater discharge. The SUM and SW met with the Water Utility to work out a solution that was agreeable to both parties. GM needed cost savings and the Detroit Water Utility needed to reduce stormwater in its combined sanitary and storm system. GM negotiated with the City of Detroit Water and Sewer department to develop a green tariff that GM uses for storm water discharge based on our storm water reuse project at GM's Detroit-Hamtramck Assembly plant. The green tariff provides relief from the sewer fee that had been based on acreage, GM installed additional storm water ponds and filtration equipment and is reusing the stormwater in its cooling towers as make up water and in the manufacturing processes.
Other stakeholder, please specify	Please select	

### 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.**

Water use in our direct operations is used for pre-treatment of vehicle bodies prior to painting and also for weld cooling, machining, and powerhouse operations making it vital for our operations as well as in our supply chain as identified using LCA. Water availability and quality thus requires identification and mitigation of risk in our own operations and in our supply chain to ensure continued production and parts supply. GM's water risk assessment begins with tracking internal water use information using a global system called GM2100 that monitors water use on a monthly basis. The next step is to evaluate the water supply to ensure that it is adequate to meet the demand and quality requirements. If there are any deficiencies, an action plan is developed and if funds are needed, they are included in our financial plan. Implementation of the corrective action to address any such deficiencies is done at the local plant level.

Water use data in the supply chain at tiers 1-6 is provided by Life Cycle assessment (LCA) using USEPA's EEIO database based on the input spend of over 18,000 suppliers. The analysis is performed bi-annually by Climate Earth providing consumption at supplier, tiers 1-6, and by industry levels. The next step is modelling to identify risk. GM uses WRI Aqueduct models that provide a screening tool to identify potential water stressed areas globally in direct operations and prioritized by top 10 supply chains. GM uses LCA for supply chain water use data since it includes water use in all tiers. We use WRI models to provide global risk analysis of water for manufacturing in our own operations and in the supply chain. The time horizons for the assessment are current year and 2025.

Internal company methods are used at each GM site to review water risk and provide mitigation methods. Each GM site has a site utility manager that is responsible for assessing water risks and implementing mitigation methods, if needed. Using a supply chain visibility and mapping tool that provides a visualization of GM's entire footprint, including our own facilities, our Tier I suppliers, and many of our Tier II suppliers we can get answers to questions about supply chain risk by superimposing information like geopolitical events, hurricanes, water scarcity and other possible disruptions.

## W4. Risks and opportunities

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### W4.1

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**(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

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

For direct operations and in our supply chain, GM defines substantive change in its business to be when more than 20% of operating production could be impacted at a company level for ongoing operations (for example an impact to 2 million vehicles of production). The Chief Risk Officer of GM is our Chairman and CEO. The Risk Committee of the Board is responsible for overseeing GM's management of enterprise-level risks. Additionally, during new construction planning, the site planning team considers inadequate water supply for direct operations to meet 100% design operating production volumes as a substantive risk.

While the risks related to water at any individual GM facility are not substantive to GM in total, our operations in Mexico at San Luis Potosi were identified as substantive during the site planning phase because the non-renewable wells that are 600 meters deep were not adequate to supply high quality water in sufficient amounts to sustain plant WASH and operations. Therefore, corrective action plans were developed to mitigate the water risks and were implemented prior to the start of production. This included additional spending for water reuse to meet production water supply requirements and the installation of Zero Liquid Discharge to minimize the impact to GM's operations and the local community.

For supply chain operations, GM has performed life cycle analysis of water consumption of all suppliers and used water consumption information to identify the top 100 suppliers by overall risk using WRI Aqueduct model. Although 4% showed high risk, our experience with current operations shows that there is not a substantive risk due to water for these suppliers.

To engage these high risk and other strategic suppliers, GM joined CDP Water supply chain in 2014, continuing in 2018 and invited the high consumption suppliers with significant GM spend by to engage in water security management through CDP Water Supply Chain.

**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	4	1-25	Using WRI Aqueduct high risk overall category, 4 GM direct operation facilities indicated substantive site risk for water stress. One is located in Mexico and 3 are in our joint venture plants in China. The Silao Mexico Assembly facility uses deep non-renewable wells that are showing signs of stress and mitigation efforts with near zero liquid discharge are being planned for the site. The risk at Silao was identified using internal company methods by the site utility manager. The risks in the 2 GM JV Assembly plants in northern China are drought related that have recently been mitigated by the use of an alternate water supply and the one GM JV Assembly plant in southern China was related to river basin contamination that has since been mitigated.

**W4.1c**

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

**Country/Region**

Mexico

**River basin**

Santiago

**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**

1-25

**Comment**

The Gm Silao Mexico Assembly plant is experiencing depletion of non-renewable wells. Plans are being made to implement near zero liquid discharge to preserve the wells as well as other water efficiency and conservation measures. Engineering began in 2016-7 and implementation was started in 2018 and will be completed in 2019.

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**Country/Region**

China

**River basin**

Huang He (Yellow River)

**Number of facilities exposed to water risk**

2

**% company-wide facilities this represents**

1-25

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

**% company's total global revenue that could be affected**

1-25

**Comment**

GM is part of a joint venture with two at risk GM JV Assembly facilities in the Huang He Basin: Qingdao and Dongyue. This basin experiences a high projected water stress and possible pollution. Both sites are therefore installing rain harvesting and wastewater treatment reuse devices. The Chinese government built an alternate water supply to mitigate the lack of water during 10-year droughts.

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**Country/Region**

China

**River basin**

Xi Jiang - Bei Jiang

**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**

1-25

**Comment**

GM is part of a joint venture in one at risk GM JV Assembly facility in the Xi Jiang river basin: Liuzhou Assembly and Global Propulsion. This basin experiences a high projected water stress and possible pollution of the water source. This site has therefore installed a wastewater recovery system to save water and the Chinese government mitigated the contamination from the river basin affected.

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**W4.2**

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**(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/Region**

Mexico

**River basin**

Panuco

**Type of risk**

Physical

**Primary risk driver**

Increased water stress

**Primary potential impact**

Upfront costs to adopt/deploy new practices and processes

**Company-specific description**

The only available water source in the area of San Luis Potosi, Mexico where GM San Luis Potosi Assembly plant is located, is from deep non-renewable wells. Water stress risk from 600 -meter-deep wells was identified by GM's local company method by surveying the area for available water sources as it was determined that the only source was deep non-renewable wells, indicating a potential for water scarcity that could limit GM's vehicle assembly operations capabilities. The code name for the project was "Cactus," indicating the need for water reuse, water efficiency, and conservation. Mexico accounts for approximately 7% of GM's global production. 7% of GM's sales and revenues = \$10.3 billion and a one month disruption due to water scarcity would = \$858,000,000. The original construction project included a Zero liquid discharge facility for water that reuses the majority of water in the process and has no liquid wastewater discharge from the site. Concentrated salts are dried in solar ponds with evaporation losses being the only make up water requirement for the site. These measures have mitigated the risk to date. Zero liquid discharge equipment and operations are required to maintain the supply of water for direct operations. The initial capital investment at San Luis Potosi was \$12M USD and at Silao it is \$7M USD with annual operating cost is estimated at \$200,000 USD.

**Timeframe**

Current up to 1 year

**Magnitude of potential impact**

Medium-high

**Likelihood**

Virtually certain

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

858000000

**Potential financial impact figure - minimum (currency)**

<Not Applicable>

**Potential financial impact figure - maximum (currency)**

<Not Applicable>

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### Explanation of financial impact

Mexico accounts for approximately 7% of GM's global production. 7% of GM's sales and revenues = \$10.3 billion and a one month disruption due to water scarcity would = \$858,000,000.

### Primary response to risk

Adopt water efficiency, water re-use, recycling and conservation practices

### Description of response

GM integrated water management into its annual business planning process and set targets for each facility to reduce water use intensity by 15% by 2020. Reduction methods are implemented at a facility level and include conservation with behavioral activities, improving equipment efficiency to reduce water use, and reuse treated water in the process. When plants are located in water-stressed areas, special consideration is given to water treatment technologies. Zero Liquid water discharge equipment is installed to reuse water in the process, reduce withdrawal from deep wells, and reduce the risk of lack of water for production. As an example, at San Luis Potosi, MX (project code named Cactus) the identified risk was mitigated by the installation of Zero Liquid Discharge equipment. At GM Silao Assembly plant in Mexico, the ongoing operations have experienced stress in 300-meter wells and additional water reuse equipment is being installed.

### Cost of response

19200000

### Explanation of cost of response

Zero liquid discharge equipment and operations are required to maintain the supply of water for direct operations. The initial capital investment at San Luis Potosi was \$12M USD and at Silao it is \$7M USD with annual operating cost is estimated at \$200,000 USD.

## W4.2c

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

	Primary reason	Please explain
Row 1	Risks exist, but no substantive impact anticipated	WRI Aqueduct model identified 4 high risk suppliers for overall water risk in auto parts manufacturing, plastics, and casting industries. GM's experience with uninterrupted delivery from these 4 suppliers demonstrates that water risk is not substantive as their manufacturing operations have not been disrupted and they are meeting reliable supply requirements as a result of mitigating water risks. This assessment will be completed annually to assure continued reliability. Additionally, to ensure that there is no substantive risk due to water scarcity or other potential supply interruptions for these 4 suppliers and other supply chains, multiple suppliers are sourced for similar parts. We recently began using a supply chain visibility and mapping tool that provides a visualization of GM's entire footprint, including our own facilities, our Tier I suppliers, and many of our Tier II suppliers. Using this map as a base, we can get answers to questions about supply chain risk by superimposing information like geopolitical events, hurricanes, water scarcity, and other possible disruptions. With more than 200 incidents disrupting our supply chain every year, from earthquakes and floods to civil unrest and regulatory actions, it's easy to see why robust tracking and visibility tools are essential.

## 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**

Efficiency

**Primary water-related opportunity**

Cost savings

**Company-specific description & strategy to realize opportunity**

GM is committed to finding ways to not only reduce water used in our operations, but to extend the benefits of more efficient processes to others. For example, GM identified an opportunity to reduce water stress in the City of Detroit at our Detroit Hamtramck Assembly plant and to reduce our operating cost. Based on water stress in the City during storm events due to combined sanitary and storm drains and the high cost to GM for discharging to the City combined sanitary and storm water system, GM decided to take action and increased the storm water storage capacity to treat and reuse the rainwater back into the process. We recently finished our first full year reusing storm water for process water at the Assembly plant. The savings equate to nearly \$2 million per year for GM. The project also benefits the city of Detroit. By creating a pond to collect storm water, we reduce storm water discharge to the City which reduces water stress during storm events. The collected water is treated and used in cooling towers and for other plant uses. GM is looking to replicate this concept at other sites with similar environmental and economic conditions.

**Estimated timeframe for realization**

1 to 3 years

**Magnitude of potential financial impact**

Low

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

2000000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

<Not Applicable>

**Explanation of financial impact**

Cost savings in water and sewer cost through the reuse of storm water in direct operations.

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**W5. Facility-level water accounting**

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**W5.1**

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

**Facility reference number**

Facility 1

**Facility name (optional)**

Silao Vehicle Assembly and Global Propulsion

**Country/Region**

Mexico

**River basin**

Santiago

**Latitude**

20.952169

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**Longitude**

-101.426697

**Primary power generation source for your electricity generation at this facility**

<Not Applicable>

**Oil & gas sector business division**

<Not Applicable>

**Total water withdrawals at this facility (megaliters/year)**

861.2

**Comparison of withdrawals with previous reporting year**

Higher

**Total water discharges at this facility (megaliters/year)**

536.2

**Comparison of discharges with previous reporting year**

Higher

**Total water consumption at this facility (megaliters/year)**

258.63

**Comparison of consumption with previous reporting year**

Higher

**Please explain**

The GM Assembly plant in Silao, MX is in process of a model change accompanied by replacement of the pre-treatment and electro-deposition facility and the body shop. As operations continue, both the old and new shops are operated simultaneously, the new one in pre-production mode and the old one in standard production. This causes a short-term increase in water use, discharge, and consumption, which puts added stress on the non-renewable wells. GM is in the process of increasing the amount of water reuse by installing additional equipment.

---

**Facility reference number**

Facility 2

**Facility name (optional)**

JV 1 Dongyue

**Country/Region**

China

**River basin**

Huang He (Yellow River)

**Latitude**

37.413322

**Longitude**

121.373842

**Primary power generation source for your electricity generation at this facility**

<Not Applicable>

**Oil & gas sector business division**

<Not Applicable>

**Total water withdrawals at this facility (megaliters/year)**

1099.9

**Comparison of withdrawals with previous reporting year**

Lower

**Total water discharges at this facility (megaliters/year)**

628.3

**Comparison of discharges with previous reporting year**

Lower

**Total water consumption at this facility (megaliters/year)**

330

**Comparison of consumption with previous reporting year**

Lower

**Please explain**

Reduced vehicle production resulted in lower withdrawal, discharge, and consumption at Dongyue.

---

**Facility reference number**

Facility 3

**Facility name (optional)**

JV 2 Qingdao

**Country/Region**

China

**River basin**

Huang He (Yellow River)

**Latitude**

35.595509

**Longitude**

120.101662

**Primary power generation source for your electricity generation at this facility**

<Not Applicable>

**Oil & gas sector business division**

<Not Applicable>

**Total water withdrawals at this facility (megaliters/year)**

1064.7

**Comparison of withdrawals with previous reporting year**

Higher

**Total water discharges at this facility (megaliters/year)**

470

**Comparison of discharges with previous reporting year**

Higher

**Total water consumption at this facility (megaliters/year)**

319.4

**Comparison of consumption with previous reporting year**

Higher

**Please explain**

Increased vehicle production resulted in higher water withdrawal, discharge, and consumption.

---

**Facility reference number**

Facility 4

**Facility name (optional)**

JV 3 Liuzhou

**Country/Region**

China

**River basin**

Xi Jiang - Bei Jiang

**Latitude**

37.25818

**Longitude**

122.0536

**Primary power generation source for your electricity generation at this facility**

<Not Applicable>

**Oil & gas sector business division**

<Not Applicable>

**Total water withdrawals at this facility (megaliters/year)**

4856

**Comparison of withdrawals with previous reporting year**

Higher

**Total water discharges at this facility (megaliters/year)**

876

**Comparison of discharges with previous reporting year**

Higher

**Total water consumption at this facility (megaliters/year)**

1456.8

**Comparison of consumption with previous reporting year**

Higher

**Please explain**

Increased vehicle production resulted in higher withdrawal, discharge, and consumption.

---

**W5.1a**

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**(W5.1a) For each facility referenced in W5.1, provide withdrawal data by water source.**

**Facility reference number**

Facility 1

**Facility name**

Silao Assembly and Global Propulsion

**Fresh surface water, including rainwater, water from wetlands, rivers and lakes**

0

**Brackish surface water/seawater**

0

**Groundwater - renewable**

0

**Groundwater - non-renewable**

861.2

**Produced/Entrained water**

0

**Third party sources**

0

**Comment**

---

**Facility reference number**

Facility 2

**Facility name**

JV 1 DY

**Fresh surface water, including rainwater, water from wetlands, rivers and lakes**

0

---



**Brackish surface water/seawater**

0

**Groundwater - renewable**

0

**Groundwater - non-renewable**

0

**Produced/Entrained water**

0

**Third party sources**

1099.9

**Comment**

---

**Facility reference number**

Facility 3

**Facility name**

JV 2 Q

**Fresh surface water, including rainwater, water from wetlands, rivers and lakes**

0

**Brackish surface water/seawater**

0

**Groundwater - renewable**

0

**Groundwater - non-renewable**

0

**Produced/Entrained water**

0

**Third party sources**

1064.7

**Comment**

---

**Facility reference number**

Facility 4

**Facility name**

JV 3 LZ

**Fresh surface water, including rainwater, water from wetlands, rivers and lakes**

0

**Brackish surface water/seawater**

0

**Groundwater - renewable**

0

**Groundwater - non-renewable**

0

**Produced/Entrained water**

0

**Third party sources**

4856

**Comment**

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## W5.1b

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(W5.1b) For each facility referenced in W5.1, provide discharge data by destination.

**Facility reference number**

Facility 1

**Facility name**

Silao Assembly and Global Propulsion

**Fresh surface water**

0

**Brackish surface water/Seawater**

0

**Groundwater**

18

**Third party destinations**

518.2

**Comment**

Water reuse system uses solar ponds (groundwater discharge) for final small volume effluent to dry minerals from water.

---

**Facility reference number**

Facility 2

**Facility name**

JV 1 DY

**Fresh surface water**

0

**Brackish surface water/Seawater**

0

**Groundwater**

0

**Third party destinations**

875.6

**Comment**

---

**Facility reference number**

Facility 3

**Facility name**

JV 2 Q

**Fresh surface water**

0

**Brackish surface water/Seawater**

0

**Groundwater**

0

**Third party destinations**

628.3

**Comment**

---

**Facility reference number**

Facility 4

---

**Facility name**

JV 3 LZ

**Fresh surface water**

0

**Brackish surface water/Seawater**

0

**Groundwater**

0

**Third party destinations**

470

**Comment**

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**W5.1c**

---

**(W5.1c) For each facility referenced in W5.1, provide the proportion of your total water use that is recycled or reused, and give the comparison with the previous reporting year.**

**Facility reference number**

Facility 1

**Facility name**

Silao Assembly and Global Propulsion

**% recycled or reused**

51-75%

**Comparison with previous reporting year**

<Not Applicable>

**Please explain**

Wastewater is treated and reused in the process. Based on increased use due to product launch, reuse also increased. Equipment is being installed at a cost of \$7M USD to increase the amount of reuse water to reduce stress on wells.

---

**Facility reference number**

Facility 2

**Facility name**

JV 1 DY

**% recycled or reused**

1-10%

**Comparison with previous reporting year**

<Not Applicable>

**Please explain**

Water is reused within the paint shop pre-treatment area by cascading water from high quality rinses to lower quality rinses.

---

**Facility reference number**

Facility 3

**Facility name**

JV 2 Q

**% recycled or reused**

1-10%

**Comparison with previous reporting year**

<Not Applicable>

**Please explain**

Water is reused within the paint shop pre-treatment area by cascading water from high quality rinses to lower quality rinses. The amount is higher this year due to increased production.

---

**Facility reference number**

Facility 4

**Facility name**

JV 3 LZ

**% recycled or reused**

1-10%

**Comparison with previous reporting year**

<Not Applicable>

**Please explain**

Water is reused within the paint shop pre-treatment area by cascading water from high quality rinses to lower quality rinses.

---

**(W5.1d) For the facilities referenced in W5.1, what proportion of water accounting data has been externally verified?**

**Water withdrawals – total volumes**

**% verified**

76-100

**What standard and methodology was used?**

The verification was conducted in accordance with ISO 14064:3, the AA1000 AccountAbility Principles Standard (2008) and Stantec's Standard Operating Procedures developed for accreditation to ISO 14065

**Water withdrawals – volume by source**

**% verified**

Not verified

**What standard and methodology was used?**

Not applicable

**Water withdrawals – quality**

**% verified**

Not verified

**What standard and methodology was used?**

Not applicable

**Water discharges – total volumes**

**% verified**

Not verified

**What standard and methodology was used?**

Not applicable

**Water discharges – volume by destination**

**% verified**

Not verified

**What standard and methodology was used?**

Not applicable

**Water discharges – volume by treatment method**

**% verified**

Not verified

**What standard and methodology was used?**

Not applicable

**Water discharge quality – quality by standard effluent parameters**

**% verified**

Not verified

**What standard and methodology was used?**

Not applicable

**Water discharge quality – temperature**

**% verified**

Not verified

**What standard and methodology was used?**

Not applicable

**Water consumption – total volume**

**% verified**

Not verified

**What standard and methodology was used?**

Not applicable

**Water recycled/reused**

**% verified**

Not verified

**What standard and methodology was used?**

Not applicable

**W6. Governance**

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**W6.1**

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

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

**W6.1a**

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

Row	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 Commitment to water-related innovation Commitment to stakeholder awareness and education Commitment to water stewardship and/or collective action Acknowledgement of the human right to water and sanitation Recognition of environmental linkages, for example, due to climate change	GM operates under a water policy that provides clean water for all occupants of our facilities globally as well as sanitation. As we operate in various countries, some without standards, we set maximum contaminant levels in potable water to provide clean water to all. In countries without standards or with lower standards than GM's standards, GM operates under GM standards. Additionally, consistent with UN Sustainable Development Goal 6, to ensure availability and sustainable management of water and sanitation, GM operates under Environmental Principles as stated in section W0.1. We are dedicated to: -responsibly using water while taking actions that preserve water quality and conservation across our operations, in our supply chain, and in the communities in which we operate and we will act by: - Reducing water used in our operations and being mindful of how our water use affects our communities. - Communicating best practices on our water reduction and reuse initiatives globally. - Listening to our employees on ways to conserve water. -Preventing deforestation, conserving water, caring for natural resources in and around our facilities and the communities where we operate Consistent with UN Goal 6, GM has integrated water management into its business plan, developed a public goal for water intensity reduction of our direct operations, and implemented water efficiency projects and conservation measures at our facilities. As GM's Environmental Principles require conserving resources, including water at every stage of the product life cycle. Our policy is publicly available and extends to all GM operations, Performance standards are established monthly to ensure that we achieve the goals. For our supply chain, GM formally supports the guiding principles of Automotive Industry Action Group (AIAG) guiding principles for environmental sustainability that includes an expectation that suppliers will reduce water consumption.

**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
Board-level committee	<p>GM's Board Committee, "Governance and Corporate Responsibility" is committed to overseeing the company's integration of environmental, social and governance ("ESG") principles, including water, throughout the enterprise. The oversight includes frequent ESG strategic discussions by the Board's Governance and Corporate Responsibility Committee. GM is fortunate that several of its Board members have extensive business experience in managing ESG and climate-related issues, such as transitioning from high- to low-carbon-emitting technologies and managing environmental impacts within the supply chain. The Board is committed to elevating GM's leadership profile and reputation among investors, policymakers and others on ESG issues and practices and believes GM has a unique opportunity to address these important issues. The Governance and Corporate Responsibility Committee (GCRC) of the GM Board of Directors is comprised of three independent directors. The Committee selects members of the Board; provides leadership in shaping GM's corporate governance which is important for long-term environmental, social and corporate governance "ESG" success; and oversees GM's policies and strategies related to Sustainability which is achieved through a standing agenda item for ESG related activities including water-related updates. The members of this committee have extensive leadership and strategy experience gained at companies respected for their ESG performance. Their input is valuable as GM further integrates sustainability into its business strategy and addresses climate change on its drive toward a future of zero emissions. The committee is responsible for addressing all substantive risks, including water-related risks.</p>

**W6.2b**

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**(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 - all meetings	Monitoring implementation and performance Overseeing acquisitions and divestiture Overseeing major capital expenditures Providing employee incentives Reviewing and guiding annual budgets Reviewing and guiding business plans Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding strategy Reviewing and guiding corporate responsibility strategy Reviewing innovation/R&D priorities Setting performance objectives	The Governance and Corporate Responsibility Committee (GCRC) of the Board of Directors of General Motors assists the board in its oversight of the Company's governance structures, programs, and policies.. It brings to the attention of the Board and management as appropriate, current and emerging global political, social, and policy issues that may affect the business operations, profitability, or public image or reputation of the Company. The GCRC oversees global public policy matters as well as specific functions of the Company, as appropriate, including strategy, action plans, and risk management, including climate change and water related substantive risks. Company functions reviewed by the GCRC include Legal, Global Public Policy, sustainability including climate change, corporate social responsibility, and philanthropic activities. GCRC receives regular reports from the Strategic Risk Management (SRM) team, led by an executive director with dedicated resources, has risk management responsibility and is supported by the Risk Advisory Council (RAC)—executives who directly report to the Senior Leadership Team (SLT). The Executive Vice President for Global Manufacturing reports to the CEO and is a member of the SLT. The Executive VP leads the Manufacturing Leadership Team (MLT) comprised of Manufacturing VPs for all global regions. Responsibility for strategic water related issues resides in MLT as the team has overall responsibility for business continuity and water security for GM's direct operations and in the supply chain. Water subject matter expertise resides within Sustainable Workplaces (SW) team. The VP of SW is a member of the MLT and reports monthly on performance to water targets. The MLT meets monthly and a standard agenda item is reviewing achievement of GM's public water withdrawal goal in cubic meters of water per vehicle for each region as presented by the VP of SW. If a target is not met, countermeasures are presented to ensure there is a plan to meet the targets. Additionally, business continuance and risk management are part of the team's responsibilities, including capital allocation. All of the support functions - HR, Finance, Purchasing, Quality, Safety, and Sustainable Workplaces are represented on the team.

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 C-Suite Officer, please specify (Executive Vice President Manufacturing)

**Responsibility**

Both assessing and managing water-related risks and opportunities

**Frequency of reporting to the board on water-related issues**

More frequently than quarterly

**Please explain**

The Executive VP, reports to the CEO, is a member of the Senior Leadership Team (SLT) and manages the Manufacturing Leadership team (MLT) comprised of regional VPs of manufacturing, leadership from finance, HR, purchasing, Risk Management, legal, and other functions that provide services to manufacturing. The VP of Sustainable Workplaces (SW) reports to Executive VP of Manufacturing. On a monthly basis GM's performance to its public water goals are reviewed by the Manufacturing Leadership Team, led by the Executive VP of Global Manufacturing. If targets are not on the pathway, countermeasures are developed and reviewed by the MLT. Strategic plans for facilities and equipment and tactical measures related to risk mitigation are managed by the members of the MLT, including water supply and water discharge risks. The subject matter experts work in SW, so the MLT has access to resources that can quickly respond to risks, including Plant Directors that also report to the MLT.

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**W6.5**

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**(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

**W6.5a**

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**(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?**

Engagement with policy makers is done appropriately at the local level by our site Environmental Leaders (EL) who are part of a central team, Sustainable Workplaces (SW). Since SW is aware of global activities and is charged with supporting our environmental principles, there is consistency in activities to influence policy with local municipal entities by our ELs. Site ELs report to the VP of Sustainable Workplaces and identify any inconsistencies in activities related to our water policy and company environmental commitments for guidance and corrective action. Corrective action plans are tracked in a GM workflow system managed by Reliance to ensure implementation. An example is if a GM facility receives a notice of violation for water discharge, a corrective action plan is developed, tracked, and has regular follow-up actions until resolved.

**W6.6**

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

No, but we plan to do so in the next two years

**W7. Business strategy**

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**W7.1**

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

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	11-15	Strategic planning for facilities includes evaluation of water security in the local areas where new facilities are being planned. Along with other planning activities, water availability and quality are considered. If an area has water stress, then the business plan will include additional capital for water reuse, e.g. Zero Liquid Discharge or other reuse technologies to reduce the stress on local water supplies as needed. Similarly, for existing facilities that discover water stress issues, capital planning will include mitigation for water reuse. An example is at our Assembly plant in Silao, Mexico that is served by deep non-renewable wells where wells began showing stress and a plan was developed and is currently being implemented to increase the amount of water reuse to relieve the stress on the wells. The long term horizons coincide with GM's long term planning cycles for facilities and our future water goal planning will be to 2030.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	11-15	GM's water intensity reduction goals are long term (2010-2020) and are integrated into our long-term objectives. Targets are established for regions and sites and progress is evaluated monthly as water withdrawal per unit of production metrics are integrated into our Global Management System (GMS). We implemented targets at all of our global manufacturing facilities for water. If targets are not met, countermeasures are developed to meet the targets and reviewed by management regularly. An example is in North America, where some facilities did not meet their targets and using root cause analysis, countermeasures were developed including employee activities, such as water treasure hunts, repairing leaks and exploring additional water reuse. The long-term horizons coincide with GM's long-term planning cycles for facilities. Also, our future water goal planning will be to 2030.
Financial planning	Yes, water-related issues are integrated	11-15	As facilities plans reveal a need for capital investment for water security, including water scarcity, quality, and discharge at facilities, the required funds are included in our 5-year portfolio spending plans. An example is at our Assembly plant in Silao Mexico that is served by deep non-renewable wells where wells began showing stress a plan was developed and included in our portfolio plan to spend 7 million USD on water reuse to reduce water stress on the non-renewable wells. The long term planning horizons coincide with GM's long term planning cycles for facilities, which last for 15 or more years.

**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)**

263

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

-50

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

599

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

-50

**Please explain**

Based on water stress at our Silao MX plant, two water related projects were 50% of our total water related spend in 2018 for expanding the water reuse system and installing additional deep wells. We expect a large reduction (50%) in 2019 on water related spending.

**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	The integration of sustainability and climate change into our business continues to be a focus. As an example of this, we recently addressed climate change risks and opportunities through a scenario planning workshop. The workshop was based on a key assumption that the world is on a path by 2030 to limit emissions so that temperatures increase no more than 2 degrees Celsius. Sponsored by GM's Corporate Secretary and the head of GM's product portfolio planning. Goals included developing and understanding a range of different world scenarios; identifying risks, opportunities and success factors for GM; and making recommendations for GM to analyze, prepare, adapt and act. The group considered four different scenarios in a maximum 2-degree warmer world and walked through a three-step process. The first step was to explore uncertainties and then to define success in this future world. The final step involved an analysis to determine what GM should be doing now to influence its future.

**W7.3a**

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

No

**W7.4**

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**(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**

GM considers the "True cost of water" when evaluating a business case for water. The True cost includes water supply, energy cost to pump and heat, disposal costs, maintenance, infrastructure, and risk factor cost. We are participating with other companies in a project with The Water Environment & Reuse Foundation to develop water reuse specifications and tools. One of the tools being developed is an ROI water calculator that will incorporate a shadow price of water for business case evaluations. An example using a total cost of water was at a recent Water Treasure Hunt workshop at our GM Korea Assembly site in Bupyeong, South Korea. We justified water efficiency using Total cost of water and the added heat savings added was enough to meet our project hurdle rate for approvals.

**W8. Targets**

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**W8.1**

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

	Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
Row 1	Company-wide targets and goals Business level specific targets and/or goals Site/facility specific targets and/or goals	Targets are monitored at the corporate level Goals are monitored at the corporate level	One of GM's Environmental Principles is to conserve resources as stated in our 2018 Corporate Sustainability Report, page 134 - "Water Conservation and Quality - We are committed to responsibly using water while taking actions that preserve water quality and conservation across our operations, in our supply chain and in the communities in which we operate". GM has publicly committed to reduce Water withdrawal intensity (M3/Vehicle), including all manufacturing and non-manufacturing facility water withdrawal (municipal, surface, well), normalized by vehicle production by 15% from 2010 baseline to 2020. The goal was set based on consideration of the previous 10-year reduction of over 40% (2000-2010). A straight-line extrapolation would equate to 100% reduction by 2022, which is not feasible. We used aggressive, but reasonable estimates of reduction based on the law of diminishing return to set the 2020 goal. Targets are set each year to meet the 2020 goal at global, regional, and site levels. We are currently on track to meet the pathway by 2020 with 11.3% reduction in 2018 since 2010. With our aggressive 2019 target, we will be within striking range of the goal in 2020. Another water related public goal was set by GM to improve biodiversity at our global facilities with a baseline in 2010 to 2020. The goal is to improve wildlife habitats by having a Wildlife Habitat Certification (or equivalent) at each GM manufacturing site where feasible by 2020. The goal was established to support one of our environmental principles " We are committed to actions to restore and preserve the environment." We added 4 new certified wildlife habitats during 2018, thanks to the commitment and enthusiasm of our manufacturing employees and leadership. We are currently at 85 percent of our goal.

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**

Product water intensity

**Level**

Company-wide

**Primary motivation**

Reduced environmental impact

**Description of target**

We measure and manage resources, including water use, at all manufacturing locations, engineering centers, parts distribution centers and, proving ground sites around the world. The target is to reduce water withdrawal intensity (M3/Vehicle) at all global facilities by 15% from 2010 to 2020. Our strategy across these facilities, however, has common attributes: -It's holistic, in that we approach resource conservation from a systems perspective to develop optimal strategies. -It's heavily reliant on innovation, using as much creativity and out-of-the-box thinking in our conservation efforts as we do in innovating new vehicle technologies. In fact, we often work across functions, such as manufacturing and vehicle development, as we work to realize new resource efficiencies. - Water conservation and efficiency is integrated into our business plan with dedicated resources, funding, and monthly scorecard monitoring and countermeasures requirements for non-conformance.

**Quantitative metric**

% reduction per product

**Baseline year**

2010

**Start year**

2010

**Target year**

2020

**% achieved**

75.3

**Please explain**

GM has reduced water intensity by 12% since 2010 with water efficiency projects, water reuse, and conservation activities. We are well on our pathway to achieving our target by 2020 with 75% performance to goal. With aggressive 2019 targets, Water Treasure Hunts, and efficiency projects planned, we will meet our 2020 goal.

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**W8.1b**

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**(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**

Reduced environmental impact

**Description of goal**

The goal is to improve wildlife habitats by having a Wildlife Habitat Certification (or equivalent) at each GM manufacturing site, where feasible by 2020 from a baseline of 2010. The goal was set to support one of our Environmental Principles " We are committed to actions to restore and preserve the environment." Setting a global goal provides each facility the opportunity to demonstrate our commitment. Many studies show the direct relationship of protecting wildlife habitats and water quality. One paper published by Purdue University shows the positive impact on water quality with land use conservation and habitats-"There are three main strategies in the Planning ... for communities to use as they plan their future use and protection of vital and critical drinking water, farmlands, forests, and recreation areas. They are: 1) Plan to protect critical natural resources in your community while still accommodating growth through natural resource-based planning. 2) Minimize the impact to initial natural resources resulting from land use change through appropriate site designs and use of best management practices. (Wildlife Habitats) 3) Mitigate the negative impacts to critical natural resources or loss of open space Each major GM manufacturing facility has an Environmental Leader (EL) that is responsible to implement methods and objectives on the business plan related to the environment, including Wildlife Habitats.

**Baseline year**

2010

**Start year**

2011

**End year**

2020

**Progress**

We added 4 new certified wildlife habitats during 2018, thanks to the commitment and enthusiasm of our manufacturing employees and leadership. We are currently at 85 percent of our goal with a total of 76 wildlife habitats, compared to a goal of 90 wildlife habitats. We use Wildlife Habitat Council to provide advice and use their conservation certification as the metric to track performance to our target. Our Biodiversity goal aligns with our water withdrawal target to improve our water security.

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**W9. Linkages and trade-offs**

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**W9.1**

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**(W9.1) Has your organization identified any linkages or tradeoffs between water and other environmental issues in its direct operations and/or other parts of its value chain?**

Yes

**W9.1a**

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**(W9.1a) Describe the linkages or tradeoffs and the related management policy or action.**

**Linkage or tradeoff**

Tradeoff

**Type of linkage/tradeoff**

Increased energy use

**Description of linkage/tradeoff**

Increased GHG emissions are acceptable at facilities with high water stress for water reuse to ensure sustainability efforts in areas where growth is needed due to market demand, as GHG emissions increases due to water reuse are extremely small when compared to total Company emissions. For the San Luis Potosi plant, the water reuse system emits only 1% of the total plant GHG emissions.

**Policy or action**

GM's Sustainable Workplaces policy is to reuse water at sites with extreme water stress to ensure reliable water supply for production and employee water, sanitation, and hygiene. An example of this is at GM's Assembly plant in San Luis Potosi, Mexico where Zero Liquid Discharge equipment provides water reuse and business continuity but results in increased energy use and carbon emissions. This allows GM to manufacture in that local area using water reuse and conserving the water from non-renewable wells to protect the natural resource for the local community. Although the water reuse has increased in 2018 due to production increases, the percentage of tradeoff is estimated at 1% increase in GHG emissions at the site with minimal impact compared to the benefit to water security. A cost/benefit analysis determined that the increase in GHG is insignificant compared to the benefit of continued business operations.

**W10. Verification**

**W10.1**

**(W10.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1d)?**

Yes

**W10.1a**

**(W10.1a) Which data points within your CDP disclosure have been verified, and which standards were used?**

Disclosure module	Data verified	Verification standard	Please explain
W8. Targets	Water withdrawal at GM operations globally using AA1000 standards	AA1000AS	GM contracted with an independent third party to verify water withdrawal at our global operations.
W8. Targets	Water withdrawal year over year reduction at GM operations globally using AA1000 standards	AA1000AS	GM contracted with an independent third party to verify water withdrawal reduction year over year at our global operations to confirm continuous improvement.

**W11. Sign off**

**W-FI**

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