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Merck & Co., Inc. - Water 2018

W0. Introduction

W0.1

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

For more than a century, Merck & Co., Inc. , Kenilworth, New Jersey, USA, a leading global biopharmaceutical company known as MSD outside of the United States and Canada, has been inventing for life, bringing forward medicines and vaccines for many of the world's most challenging diseases. Through our prescription medicines, vaccines, biologic therapies and animal health products, we work with customers and operate in more than 140 countries to deliver innovative health solutions. We also demonstrate our commitment to increasing access to health care through far-reaching policies, programs and partnerships. Today, our company continues to be at the forefront of research to advance the prevention and treatment of diseases that threaten people and communities around the world - including cancer, cardio-metabolic diseases, emerging animal diseases, Alzheimer's disease and infectious diseases including HIV and Ebola.

Through innovative research, ground breaking partnerships and smarter processes, we are working to advance our performance in four priority areas: Access to Health, Environmental Sustainability, Employees, and Ethics & Transparency. With a focus on these priority areas across our entire organization, we are committed to leading the future of healthcare.

Our company reported total sales of \$40.1 billion during 2017 with approximately 69,000 employees worldwide as of December 31, 2017. Further information is available at www.merck.com.

W0.2

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

	Start date	End date
Reporting year	January 1 2017	December 31 2017

W0.3

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

Australia
Austria
Belgium
Bermuda
Brazil
Bulgaria
Canada
Chile
China
China, Hong Kong Special Administrative Region
Colombia
Croatia
Cyprus
Ecuador
Czechia
Denmark
Finland
France
Germany
Greece
Guatemala
Hungary
India
Indonesia
Israel
Italy
Japan
Jordan
Kazakhstan
Latvia
Lebanon
Lithuania
Malaysia
Mexico
Morocco
Netherlands
New Zealand

Norway
Philippines
Portugal
Republic of Korea
Russian Federation
Serbia
Singapore
Slovakia
Slovenia
South Africa
Spain
Sweden
Switzerland
Taiwan (Province of China)
Thailand
Turkey
Ukraine
United Kingdom of Great Britain and Northern Ireland
Algeria
Argentina
Egypt
Estonia
Ireland
Peru
Poland
Puerto Rico
Romania
United States of America
Venezuela (Bolivarian Republic of)
Viet Nam

W0.4

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

USD

W0.5

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

Companies, entities or groups over which operational control is exercised

W0.6

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

Yes

W0.6a

(W0.6a) Please report the exclusions.

Exclusion	Please explain
Small office and leased space.	We exclude small offices and leased space because we do not have accurate measurements of water use and discharge at these facilities. Using broad assumptions, we have estimated that the amount of water used at these facilities is less than 3% of our total global water use.

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	High-quality water is a vital component in the manufacture of our pharmaceutical, biological and animal health products. It is also an important component for our external manufacturing partners, as well as our overall supply chain. Our company, and our supply chain, is expected to be even more dependent on good quality freshwater in the future as we shift to producing more biologics, which generally require more water than other types of pharmaceutical manufacturing processes.

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of recycled, brackish and/or produced water available for use	Important	Important	Recycled (cooling) water is used as a primary means for heat removal for many of our manufacturing processes. It serves an important role in our operations and those of our external manufacturing partners, as well as our overall supply chain. Our Singapore-based facilities also use "NEWater" in their operations, which is recycled wastewater. This dependency is expected to be about the same in our direct and indirect operations in the future.

W1.2

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

	% of sites/facilities/operations	Please explain
Water withdrawals – total volumes	100%	Our company measures and monitors water withdrawal volumes for all of our global manufacturing and research sites, plus our large office buildings in order to track usage volumes. We do this to ensure we maintain a good water balance and to track progress against our water use targets. Water withdrawals are required to be entered quarterly by sites into an enterprise data collection and reporting software system as part of our internal Environmental Data Collection (EDC) process. The data is reviewed at the corporate level on a quarterly basis.
Water withdrawals – volumes from water stressed areas	100%	Our company measures and monitors water withdrawals in water stressed areas for all of our global manufacturing and research sites, plus our large office buildings in order to track usage volumes. We are seeking to better manage water use in water stressed areas (see our goals - W8.1b) so tracking this data is crucial. Water withdrawals are required to be entered quarterly by sites into an enterprise data collection and reporting software system as part of our internal Environmental Data Collection (EDC) process. The data is reviewed at the corporate level on a quarterly basis.
Water withdrawals – volumes by source	100%	Our company measures and monitors water withdrawal volumes by source for all of our global manufacturing and research sites, plus our large office buildings in order to track usage volumes. We do this to ensure we maintain a good water balance. Water withdrawals are required to be entered quarterly by sites into an enterprise data collection and reporting software system as part of our internal Environmental Data Collection (EDC) process. The data is reviewed at the corporate level on a quarterly basis.
Produced water associated with your metals & mining sector activities - total volumes	<Field Hidden>	<Field Hidden>

	% of sites/facilities/operations	Please explain
Produced water associated with your oil & gas sector activities - total volumes	<Field Hidden>	<Field Hidden>
Water withdrawals quality	26-50	Our facilities measure withdrawal quality where necessary in our operations. Typically, a site will not measure water quality coming from municipal sources.
Water discharges – total volumes	100%	Our company measures and monitors water discharge volumes for all of our global manufacturing and research sites, plus our large office buildings in order to track usage volumes. We do this to ensure we maintain a good water balance. Water discharges are required to be entered quarterly by sites into an enterprise data collection and reporting software system as part of our internal Environmental Data Collection (EDC) process. The data is reviewed at the corporate level on a quarterly basis.
Water discharges – volumes by destination	100%	Our company measures and monitors water discharge volumes by destination for all of our global manufacturing and research sites, plus our large office buildings in order to track usage volumes. We do this to ensure we maintain a good water balance. Water discharges are required to be entered quarterly by sites into an enterprise data collection and reporting software system as part of our internal Environmental Data Collection (EDC) process. The data is reviewed at the corporate level on a quarterly basis.
Water discharges – volumes by treatment method	100%	Our company measures and monitors water discharge volumes by treatment method for all of our global manufacturing and research sites, plus our large office buildings in order to track usage volumes. This data is maintained at the operating sites and is monitored on an ongoing basis.
Water discharge quality – by standard effluent parameters	76-99	A subset of our facilities measure and monitor water discharge quality data as required by regulations.
Water discharge quality – temperature	51-75	Discharge temperature is only measured at a subset of sites where it is deemed critical to monitor or if required by permit or regulation.
Water consumption – total volume	100%	Our company measures and monitors water consumption volumes for all of our global manufacturing and research sites, plus our large office buildings in order to track usage volumes. We do this to ensure we maintain a good water balance. Water consumption is required to be entered quarterly by sites into an enterprise data collection and reporting software system as part of our internal Environmental Data Collection (EDC) process. The data is reviewed at the corporate level on a quarterly basis.
Water recycled/reused	100%	Our company measures and monitors water recycled/reused for all of our global manufacturing and research sites, plus our large office buildings in order to track usage volumes. We do this to ensure we maintain a good water balance. Water recycled/reused is required to be entered quarterly by sites into an enterprise data collection and reporting software system as part of our internal Environmental Data Collection (EDC) process. The data is reviewed at the corporate level on a quarterly basis.

	% of sites/facilities/operations	Please explain
The provision of fully-functioning, safely managed WASH services to all workers	100%	Our facilities provide fully-functioning WASH services to all workers as these services are deemed critical to the health of employees, the quality of our products, and the integrity of our operations. Water withdrawals and discharges used for WASH services are included in the overall totals collected at each site.

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	19496	About the same	Our reported water withdrawals includes the amount that is measured and monitored (i.e. all of our global manufacturing and research sites, plus our large office buildings): 18,966 megaliters; and the estimated amount withdrawn from our small offices and leased facilities, which is calculated based on employee headcount data and applying standard assumptions for water use and discharge: 530 megaliters. "Comparison with previous reporting year" is rated as "about the same" if it is within 10% of the prior year. It is rated as "lower/higher" if it is different by 11-20% . It is rated as "much lower/much higher" if it is different by 20% or more. Withdrawal totals may have been impacted by interruptions to our operations that occurred due to a cyber event in 2017. The difference attributable to this event has not been determined. We expect that our water withdrawals will increase due to growth in our internal manufacturing network in the coming years. We are committed to maintaining our global water use/withdrawals at or below 2015 levels through 2015
Total discharges	16642	About the same	Our reported water discharge includes the amount that is measured and monitored (i.e. all of our global manufacturing and research sites, plus our large office buildings): 16,112 megaliters; and the estimated amount discharged from our small offices and leased facilities, which is calculated based on employee headcount data and applying standard assumptions for water use and discharge: 530 megaliters. "Comparison with previous reporting year" is rated as "about the same" if it is within 10% of the prior year. It is rated as "lower/higher" if it is different by 11-20% . It is rated as "much lower/much higher" if it is different by 20% or more. Discharge totals may have been impacted by interruptions to our operations that occurred due to a cyber event in 2017. The difference attributable to this event has not been determined. We expect that our water discharge will increase due to growth in our internal manufacturing network in the coming years.

	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Total consumption	4405	About the same	Our reported water consumption includes the amount that is measured and monitored (i.e. all of our global manufacturing and research sites, plus our large office buildings). We do not estimate consumption at our small offices and leased facilities as it is deemed to be negligible. "Comparison with previous reporting year" is rated as "about the same" if it is within 10% of the prior year. It is rated as "lower/higher" if it is different by 11-20% . It is rated as "much lower/much higher" if it is different by 20% or more. Consumption totals may have been impacted by interruptions to our operations that occurred due to a cyber event in 2017. The difference attributable to this event has not been determined. We expect that our water consumption will increase due to growth in our internal manufacturing network in the coming years.

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	31	About the same	WRI Aqueduct	Water withdrawn from areas rated by WRI Aqueduct Water Risk Atlas as being in areas of "High" or "Extremely High" Baseline Water stress are considered being from stressed areas. "Comparison with previous reporting year" is rated as "about the same" if it is within 10% of the prior year. It is rated as "lower/higher" if it is different by 11-20% . It is rated as "much lower/much higher" if it is different by 20% or more.

W1.2h

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	2729	Lower	Our company measures and monitors all of the fresh surface water we use as inputs to our processes as well as for heating/cooling and other utilities. "Comparison with previous reporting year" is rated as "about the same" if it is within 10% of the prior year. It is rated as "lower/higher" if it is different by 11-20% . It is rated as "much lower/much higher" if it is different by 20% or more. It is not known if withdrawal totals were impacted by interruptions to operations due to a cyber event that occurred in 2017. Internal manufacturing is projected to grow in coming years which may increase withdrawals.
Brackish surface water/seawater	Not relevant	<Field Hidden>	<Field Hidden>	We do not utilize brackish surface water/seawater and do not expect to in the future.
Groundwater – renewable	Relevant	10196	About the same	Our company measures and monitors all of the renewable groundwater we use as inputs to our processes as well as for heating/cooling and other utilities."Comparison with previous reporting year" is rated as "about the same" if it is within 10% of the prior year. It is rated as "lower/higher" if it is different by 11-20% . It is rated as "much lower/much higher" if it is different by 20% or more. It is not known if withdrawal totals were impacted by interruptions to operations due to a cyber event that occurred in 2017. Internal manufacturing is projected to grow in coming years which may increase withdrawals.
Groundwater – non-renewable	Not relevant	<Field Hidden>	<Field Hidden>	We do not utilize non-renewable groundwater and do not expect to in the future.
Produced water	Not relevant	<Field Hidden>	<Field Hidden>	We do not utilize produced water and do not expect to in the future.
Third party sources	Relevant	6571	About the same	Our company measures and monitors all of the third party water we use as inputs to our processes as well as for heating/cooling and other utilities."Comparison with previous reporting year" is rated as "about the same" if it is within 10% of the prior year. It is rated as "lower/higher" if it is different by 11-20% . It is rated as "much lower/much higher" if it is different by 20% or more. It is not known if withdrawal totals were impacted by interruptions to operations due to a cyber event that occurred in 2017. Internal manufacturing is projected to grow in coming years which may increase withdrawals.

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	10561	About the same	Our company measures and monitors all of our discharges to fresh surface water. "Comparison with previous reporting year" is rated as "about the same" if it is within 10% of the prior year. It is rated as "lower/higher" if it is different by 11-20% . It is rated as "much lower/much higher" if it is different by 20% or more. It is not known if discharge totals were impacted by interruptions to operations due to a cyber event that occurred in 2017. Internal manufacturing is projected to grow in coming years which may increase discharges.
Brackish surface water/seawater	Not relevant	<Field Hidden>	<Field Hidden>	We do not discharge to brackish surface water/seawater and do not expect to in the future.
Groundwater	Not relevant	<Field Hidden>	<Field Hidden>	We do not discharge to groundwater and do not expect to in the future.
Third-party destinations	Relevant	6081	About the same	Our company measures and monitors all of our discharges to third-party destinations, such as municipal treatment plants. "Comparison with previous reporting year" is rated as "about the same" if it is within 10% of the prior year. It is rated as "lower/higher" if it is different by 11-20% . It is rated as "much lower/much higher" if it is different by 20% or more. It is not known if discharge totals were impacted by interruptions to operations due to a cyber event that occurred in 2017. Internal manufacturing is projected to grow in coming years which may increase discharges.

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	2-10	About the same	"Comparison with previous reporting year" is rated as "about the same" if it is within 10% of the prior year. It is rated as "lower/higher" if it is different by 11-20% . It is rated as "much lower/much higher" if it is different by 20% or more. Recycling/reusing water reduced our dependence on fresh water sources and also potentially reduces waste water treatment costs. Our recycle/reuse % will likely increase in the future as we implement our water stewardship programs at selected sites.

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

Less than 1%

% of total procurement spend

26-50

Rationale for this coverage

Our company has a 2018 target to collect water use data from at least 90% of our strategic suppliers with the highest environmental impacts. As members of the Pharmaceutical Supply Chain Initiative (PSCI), we are working with other pharmaceutical companies in this effort to obtain water use data from our suppliers. We surveyed 224 suppliers in 2017, which covers ~37% of our procurement spend, even though this subset makes up less than 1% of our total number of suppliers.

Impact of the engagement and measures of success

In 2017, we achieved a 87% response rate from our supplier water use survey, which was deemed a success as this was the first year data was collected.

Comment

W1.4b

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

Type of engagement

Onboarding & compliance

Details of engagement

Other, please specify (Collecting water data from new suppliers)

% of suppliers by number

1-25

% of total procurement spend

Less than 1%

Rationale for the coverage of your engagement

Our company is requesting that new suppliers complete a self-assessment questionnaire to determine if they track their water use, as it is a key input to our manufacturing processes and in the materials we use.

Impact of the engagement and measures of success

New suppliers are also asked if they have a water reduction goal in place. This information is being collected in order to determine where potential water risks may be in our supply chain in order to determine potential next steps in our overall water management strategy. If a key supplier's practice is deemed inefficient further engagement is pursued.

Comment

W1.4c

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

Our company contributes to efforts surrounding water availability and quality in the areas in which we operate, consistent with being a signatory to the UN CEO Water Mandate. These efforts impact local communities, employees, as well as customers in these areas. They also work towards improving water availability and quality for our operations over the long term. Measurement of success in these efforts is somewhat intangible. Positive partner, community and employee feedback is an important indicator as to the success of this program. Our 2017 contribution of \$100,000 to the Nature Conservancy's Atchafalaya River Basin Initiative near our Baton Rouge, Louisiana, facility will help protect a critically important freshwater system that supplies drinking water for the area and also provides flood protection for millions of Americans.

W2. Business impacts

W2.1

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

No

W2.2

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

No

W3. Procedures

W3.3

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

Yes, water-related risks are assessed

W3.3a

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

Direct operations

Coverage

Full

Risk assessment procedure

Water risks are assessed as a standalone issue

Frequency of assessment

Annually

How far into the future are risks considered?

2 to 5 years

Type of tools and methods used

Tools on the market

Tools and methods used

Ecolab Water Risk Monetizer

WRI Aqueduct

WWF-DEG Water Risk Filter

Comment

All of our facilities are assessed for water risk. We currently use the WRI Aqueduct Water Risk Atlas as our primary tool to assess internal risk. Our primary focus is on the Aqueduct water risk indicator "Baseline Water Stress." We also use the WWF Water Risk Filter as a secondary source to provide water stress data for all of our internal sites. A subset of sites have been analyzed using the Ecolab Water Risk Monetizer.

Supply chain

Coverage

Partial

Risk assessment procedure

Water risks are assessed as a standalone issue

Frequency of assessment

Annually

How far into the future are risks considered?

2 to 5 years

Type of tools and methods used

Tools on the market

Tools and methods used

WRI Aqueduct

Comment

Key external manufacturers and suppliers are assessed for risk to identify areas of concern and potential engagement opportunities. We currently use the WRI Aqueduct Water Risk Atlas as our primary tool to assess supply chain risk. Our primary focus is on the Aqueduct water risk indicator "Baseline Water Stress."

Other stages of the value chain

Coverage

None

Risk assessment procedure

<Field Hidden>

Frequency of assessment

<Field Hidden>

How far into the future are risks considered?

<Field Hidden>

Type of tools and methods used

<Field Hidden>

Tools and methods used

<Field Hidden>

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

	Relevance & inclusion	Please explain
Water availability at a basin/catchment level	Relevant, always included	A sufficient amount of water is critical to the manufacture of pharmaceuticals. This is also true for our suppliers, who provide many of the raw materials and precursors for our products. Current and emerging water availability issues are included in our assessment. The WRI Aqueduct Water Atlas and the WWF Water Risk Filter are used for this assessment.
Water quality at a basin/catchment level	Relevant, always included	High quality water is critical to the manufacture of pharmaceuticals, and it often needs to be purified further to meet the quality standards expected for our products. Water discharge quality is also relevant and our company complies with all local regulations in this regard. Attention to water quality for withdrawals and discharge also applies to our suppliers, who provide many of the raw materials and precursors for our products. Current and emerging water availability issues are included in our assessment. The WRI Aqueduct Water Atlas and the WWF Water Risk Filter are used for this assessment.
Stakeholder conflicts concerning water resources at a basin/catchment level	Relevant, always included	Access to high quality water is crucial to the manufacture of our products, therefore any stakeholder conflict that could jeopardize supply is taken seriously. Existing or potential stakeholder issues are considered when performing facility level risk assessments. We are currently not experiencing any stakeholder conflicts.
Implications of water on your key commodities/raw materials	Relevant, always included	Lack of high quality water can potentially impact the availability of key commodities and raw materials, so it is relevant to our internal and supply chain risk assessment. Both existing and emerging issues are considered.
Water-related regulatory frameworks	Relevant, always included	Water-related regulatory frameworks have the potential to impact access to high quality water, so are factored into our internal and supply chain risk assessments. We do regulatory surveillance to make sure we understand site-level issues. Both existing and emerging regulatory frameworks are considered. The WRI Aqueduct Water Atlas is used for this assessment.

	Relevance & inclusion	Please explain
Status of ecosystems and habitats	Relevant, always included	Our company seeks to minimize any impact on local ecosystems and habitats. Existing or potential issues related to protected habitat and/or endangered species are considered when performing Merck-owned facility level risk assessments. Both existing and emerging issues are considered.
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	Access to WASH services is crucial to the manufacture of high quality pharmaceuticals, in our facilities and in those of our suppliers. Our company considers access to water supply, adequate sanitation and hygiene when performing facility level risk assessments. Both existing and emerging issues are considered.
Other contextual issues, please specify	Not considered	Not considered

W3.3c

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

	Relevance & inclusion	Please explain
Customers	Relevant, always included	Impact to customers is a core consideration of our risk assessment process. Water risk is indirectly captured via patient access to medicines and our ability to reliably supply our customers.
Employees	Relevant, always included	Employees are considered in our risk assessment process via employee health and safety. Our employees live in the areas in which we operate therefore attention to water risk is warranted to ensure a healthy workforce.
Investors	Relevant, always included	Investor impact is considered in our risk assessment process. Investor expectations are rising with respect to how companies manage their approach to limited natural resources, like water. Access to water is included in our materiality assessment and goals are set to manage our use and risk.
Local communities	Relevant, always included	Our company strives to be a good corporate citizen in the areas in which we operate. This ensures our licence to operate. Local community issues are considered when performing facility level risk assessments.
NGOs	Relevant, always included	Our company is currently using tools from NGOs, such as the WRI Aqueduct Water Risk Atlas and the WWF Water Risk Filter, to assess water risk for internal sites as well as select external manufacturers and key suppliers. We interact with these stakeholders at the water-related conferences we attend, and include their feedback in our approach to managing water risk.
Other water users at a basin/catchment level	Relevant, not included	Our company will engage with other water users at a local level if and when water risks for shared resources develop. We will also engage with other local water users as needed as we pursue our new water risk commitment to develop water management plans at our facilities in high water risk locations.
Regulators	Relevant, always included	Our company considers compliance with all local regulations a foundational aspect of doing business. Continued compliance with these regulations is monitored through our internal audit program as well as self-assessment by site management.

	Relevance & inclusion	Please explain
River basin management authorities	Relevant, always included	Our company follows all requirements established by river basins management authorities. In addition, We will engage with river basin management authorities if and when water risks for shared resources develop.
Statutory special interest groups at a local level	Not relevant, included	Our company does not operate in areas governed by statutory special interest groups.
Suppliers	Relevant, sometimes included	The impact of water-related risk on our company's operations and our key suppliers is considered as part of our risk management programs.
Water utilities at a local level	Relevant, always included	We evaluate water supply and wastewater treatment capacity and capability of local municipalities and service providers servicing our sites as part of facility risk assessment.
Other stakeholder, please specify	Not considered	Not considered

W3.3d

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

Our company uses an Enterprise Risk Management (ERM) process whereby risks are identified by the facilities, corporate functions and business operations. The risks are assessed both quantitatively and qualitatively. Prioritization is based on potential impact and likelihood of occurrence. In this manner, the company's risks are brought together across all operations and the highest risks move forward and are identified in our Annual Report (Form 10-K), section 1.A. Risk Factors. These risks are included as part of the company's ERM process. From a water perspective, the corporate environmental group uses the WRI Aqueduct Water Risk Atlas tool (on an annual basis), a regulatory surveillance process and internal knowledge to identify both facility specific and corporate level risks. We also use the WWF Water Risk Filter and the Ecolab Water Monetizer to augment our data set. We use the identified tools because they are considered to be the leading ones for water risk assessment based on the conversations we have had with stakeholders. Water withdrawals, discharges and consumption are required to be entered quarterly by sites into an enterprise data collection and reporting software package as part of our Environmental Data Collection (EDC) process. The data is reviewed on a quarterly basis to allow us to see if water use trends are changing so they can be addressed in a timely manner.

W4. Risks and opportunities

W4.1

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

No

W4.1 a

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

Our annual report (form 10-K) defines "substantive" risks as those that could materially adversely impact the Company's business, financial condition, results of operations or prospects. Risks that rise to this level are captured and discussed in our 10-K in section 1.A, Risk Factors. For more information see <http://www.merck.com/investors/>

W4.2b

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

	Primary reason	Please explain
Row 1	Risks exist, but no substantive impact anticipated	Although we do operate facilities in areas of high water stress, as determined by the WRI Aqueduct Water Risk tool, supply interruptions at these sites has not been deemed to have a substantive financial or strategic impact on the company. We are currently assessing sites located in high water stress areas more fully, and have a goal to develop water conservation plans at sites where they are needed.

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	Although we have identified suppliers that operate facilities in areas of high water stress, as determined by the WRI Aqueduct Water Risk tool, supply interruptions at these sites has not been deemed to have a substantive financial or strategic impact on the company. Our company is currently assessing information provided by suppliers located in high water stress areas, and has a long-term goal to engage with our key suppliers to set water use reduction targets.

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

Improved water efficiency in operations

Company-specific description & strategy to realize opportunity

We have used the WRI Aqueduct Water Risk Filter to assess baseline water stress at our facilities and determined that some of our facilities are located in areas of high water stress, where improved water efficiency could be especially beneficial. We are investigating key sites in these areas further, and have set a goal to develop water management plans, where needed, by 2020

Estimated timeframe for realization

4 to 6 years

Magnitude of potential financial impact

Unknown

Potential financial impact

Explanation of financial impact

This effort is being undertaken to help avoid supply interruptions due to restrictions on water use or poor water quality. Although the degree of the potential financial impact is not known

at this time, it could be substantive for certain production and/or manufacturing locations.

W6. Governance

W6.1

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

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

W6.1 a

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

	Scope	Content	Please explain
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	Scope	Content	Please explain
Row 1	Company-wide	Commitment to stakeholder awareness and education Commitments beyond regulatory compliance Commitment to water-related innovation Commitment to water stewardship and/or collective action Description of business dependency on water Description of business impact on water Description of water-related performance standards for direct operations Commitment to align with public policy initiatives, such as the SDGs	Our current water policy (for reporting year 2017) is being updated and is scheduled for public release in 2018. We expect that the updated content will cover everything in column 2, as our understanding of the impacts of water use both internally and externally has evolved significantly over the last year. Water is critical to the health of people, the planet and our business. We are committed to achieving sustainable water management within our operations and our supply chain, and through our core business, partnerships, advocacy and employees, to reduce the impact of water-borne illness globally as part of our overall efforts to improve global health.

W6.2

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

No

W6.2c

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

	Primary reason	Board level oversight of water-related issues will be introduced in the next two years	Please explain
Row 1	Water related issues are not considered a priority haven;t risen to a level that needs to be reviewed by board	No	There have been no water-related issues that have risen to board-level priority thus far. Board-level oversight may be required if water scarcity grows in the areas in which we operate or if potential flooding threatens our operations and/or supply chain.

W6.3

(W6.3) Below board level, provide the highest-level management position(s) or committee(s) with responsibility for water-related issues.

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

Safety, Health, Environment and Quality committee

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

As important matters arise

Please explain

The Environmental Health and Safety (EHS) Council, composed of senior-level executives representing all business units, is responsible for overall EHS governance, as well as leading and driving enterprise-wide excellence in EHS management and performance. The Council's responsibilities include: - Establishing EHS strategy, policy and standards - Providing company-wide oversight of environmental and employee safety issues, risk mitigation and control strategies - Monitoring performance, establishing continuous-improvement targets, and recognizing and promoting EHS excellence - Allocating resources and/or sponsoring projects to address specific EHS concerns This EHS Council approved the current Environmental Sustainability goals and strategy and oversees that these policies are being followed within their business units.

W6.5

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

Yes, direct engagement with policy makers

Yes, trade associations

W6.5a

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

All direct and indirect activities surrounding water-related policy, such as around pharmaceuticals in the environment (PIE), are reviewed by members of the EHS Council, who are aware of our water policy and commitments.

W7. Business strategy

W7.1

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

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	No, water-related issues were not reviewed and there are no plans to do so	<Field Hidden>	There have been no water-related issues thus far that have risen to the level of actual or potential severity that necessitates their inclusion in our long-term (i.e. greater than 5 year) business objective planning.
Strategy for achieving long-term objectives	No, water-related issues were not reviewed and there are no plans to do so	<Field Hidden>	There have been no water-related issues thus far that have risen to the level of actual or potential severity that necessitates their inclusion in our long-term (i.e. greater than 5 year) strategic planning.
Financial planning	No, water-related issues were not reviewed and there are no plans to do so	<Field Hidden>	There have been no water-related issues thus far that have risen to the level of actual or potential severity that necessitates their inclusion in our long-term (i.e. greater than 5 year) financial planning.

W7.2

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

	Water-related CAPEX (+/- % change)	Anticipated forward trend for CAPEX (+/- % change)	Water-related OPEX (+/- % change)	Anticipated forward trend for OPEX (+/- % change)	Please explain
Row 1	-79	0	0	0	Over the past several years, we have committed \$119.6 million of our \$120.6 million water-infrastructure-improvement fund to install API-treatment technology and reduce water use at our facilities. The remainder of this water fund is expected to be committed by the end of 2018. Operational expenses related to water are negligible related to our total materials and production spending in 2017.

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	

W7.3a

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

Yes

W7.3b

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

	Climate-related scenario(s)	Description of possible water-related outcomes	Company response to possible water-related outcomes
Row 1	Other, please specify (Internal methodology)	Our company is working to understand what is involved in performing a comprehensive climate-related scenario analysis; however, select areas of our business have been subject to a review. Many of the effects of climate change have been analyzed as part of our general risk analysis or have been broken out into smaller studies such as the evaluation of water risk to our plant sites and our supply chain, and the potential effects of sea level rise on our coastal sites. We have conducted a risk analysis on our warehousing operations in our second largest market, Japan. The scenarios included extreme weather events such as flooding and tsunamis.	We have upgraded existing facilities in Japan and have built new facilities there as a result of our analysis.

W7.4

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

Row 1

Does your company use an internal price on water?

No, but we are currently exploring water valuation practices

Please explain

We are evaluating using the Ecolab Water Risk Monetizer to provide a better estimate for the true cost of water at our sites that are potentially located in high risk areas .

W8. Targets

W8.1

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

	Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
Row 1	Company-wide targets and goals Site/facility specific targets and/or goals Other, please specify (Supply Chain)	Targets are monitored at the corporate level Goals are monitored at the corporate level	Our aim is to decouple water use from growth and to maintain our global water use at or below 2015 levels. We also have a goal to implement specific water management plans at the site/facility level in areas of elevated water stress. Modeling has shown that the majority of our water footprint is in our supply chain; therefore, we have instituted goals in this area as well.

W8.1 a

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

Target reference number

Target 1

Category of target

Water withdrawals

Level

Company-wide

Primary motivation

Water stewardship

Description of target

By 2025, we will maintain global water use at or below 2015 levels to ensure water security

Quantitative metric

% reduction in total water withdrawals

Baseline year

2015

Start year

2016

Target year

2025

% achieved

100

Please explain

We have achieved an 18% reduction of water withdrawals in 2017 versus the baseline year of 2015, therefore we are 100% on target.

W8.1b

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

Other, please specify (Manage water use in stressed areas)

Level

Site/facility

Motivation

Water stewardship

Description of goal

By 2020, we will develop water conservation plans for our sites in “high water risk” locations. Water stress is localized in nature due the contextual factors encountered there, and so we will develop plans on a site- by-site basis, rather than a corporate one. We expect that achieving this goal will reduce our overall water use and will also reduce risk for individual facilities. We will perform water audits at selected sites with the help of consultants in order to develop tailored plans based on the identified opportunities.

Baseline year

2016

Start year

2016

End year

2020

Progress

Prospective sites for engagement have been identified based on available tools such as the WRI Aqueduct Water Risk Atlas and the WWF Water Risk Filter, along with internal data. We are currently evaluating which consultant we will use to conduct water audits. Progress will be measured by the number of sites that have water management plans in place, as well as the % reduction of water use at those sites.

Goal

Engagement with suppliers to help them improve water stewardship

Level

Company-wide

Motivation

Water stewardship

Description of goal

By 2018, we will collect water use data from at least 90% of our strategic suppliers with the highest environmental impacts. As stated above, modeling has shown that the majority of our water footprint is in our supply chain; therefore, we have instituted goals in this area. This goal will reduce overall water use and will also reduce risk in our supply chain. We are participating in the Pharmaceutical Supply Chain Initiative (PSCI) with other companies in this effort to get supply chain data.

Baseline year

2016

Start year

2016

End year

2018

Progress

We surveyed 224 suppliers in 2017, which covers ~37% of our procurement spend, even though this subset of suppliers make up less than 1% of our total suppliers.

Goal

Engagement with suppliers to help them improve water stewardship

Level

Company-wide

Motivation

Water stewardship

Description of goal

By 2020, we will engage with those suppliers and request them to identify water use reduction opportunities. As stated above, modeling has shown that the majority of our water footprint is in our supply chain; therefore, we have instituted goals in this area. This goal will reduce overall water use and will also reduce risk in our supply chain.

Baseline year

2016

Start year

2016

End year

2020

Progress

Not started yet

Goal

Engagement with suppliers to help them improve water stewardship

Level

Company-wide

Motivation

Water stewardship

Description of goal

By 2025, at least 90% of our strategic suppliers with the highest environmental impacts will set their own water use reduction targets. As stated above, modeling has shown that the majority of our water footprint is in our supply chain; therefore, we have instituted goals in this area also. This goal will reduce overall water use and will also reduce risk in our supply chain.

Baseline year

2016

Start year

2016

End year

2025

Progress

Not started

W9. Linkages and trade-offs

W9.1

(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

W9.1 a

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

Linkage or tradeoff

Linkage

Type of linkage/tradeoff

Decreased energy use

Description of linkage/tradeoff

Reducing water use at our facilities can also mean a reduction in energy use and associated greenhouse gas emissions, another one of our environmental targets.

Policy or action

A significant energy and water use reduction capital project, representing a \$7.4 million investment, was recently executed at the Cherokee plant, located in Riverside, PA. The project resulted in an annual electrical energy use reduction of approximately 6.5 million Kilo-Watt hours in addition to a 60% reduction in site water use.

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

Disclosure module	Data verified	Verification standard	Please explain
W1. Current state	Total withdrawals, Total discharges, Withdrawals from third party sources	Other, please specify (ISO 14065)	WSP conducted a limited assurance review in its capacity as an independent third party in accordance with the ISO 14065 International Standard, Greenhouse gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition.

W11. Sign off

W-FI

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

W11.1

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

	Job title	Corresponding job category
Row 1	Vice President, Global Safety and the Environment	EHS manager

W11.2

(W11.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate's Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].

No

Submit your response

In which language are you submitting your response?

English

Please confirm below

I have read and accept the applicable Terms



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