Module: Introduction

Page: W0. Introduction

W0.1

Introduction

Please give a general description and introduction to your organization.

Merck is a global health care leader that is working to help the world be well. We deliver innovative health care solutions through our prescription medicines, vaccines, biologic therapies and animal health products, which we market directly and through our joint ventures.

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.

At Merck, our core values are driven by a desire to improve life, achieve scientific excellence, operate with the highest standards of integrity, expand access to our products and employ a diverse workforce that values collaboration.

Our corporate responsibility approach is aligned with the company's mission and values and articulates how we see our responsibilities in the areas of access to health, ethical and transparent business practices, environmentally sustainable operations, scientific advancement, employee wellness, and value creation for our shareholders.

In short, corporate responsibility at Merck is a daily commitment and a simple promise that is embedded in our business and informs all of our individual actions.

Merck reported total sales of $39.5 billion during 2015 with approximately 68,000 employees worldwide as of December 31, 2015. Further information is available at www.merck.com.

W0.2

Reporting year

Please state the start and end date of the year for which you are reporting data.

Period for which data is reported
Thu 01 Jan 2015 - Thu 31 Dec 2015

W0.3

Reporting boundary

Please indicate the category that describes the reporting boundary for companies, entities, or groups for which water-related impacts are reported.

Companies, entities or groups over which operational control is exercised

W0.4

Exclusions

Are there any geographies, facilities or types of water inputs/outputs within this boundary which are not included in your disclosure?

No

W0.4a

Exclusions

Please report the exclusions in the following table

Exclusion	Please explain why you have made the exclusion

Further Information

Module: Current State

Page: W1. Context

W1.1

Please rate the importance (current and future) of water quality and water quantity to the success of your organization

Water quality and quantity	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Vital for operations	Important	Fresh, clean, high-quality water is vital to the manufacture of our pharmaceutical and biological products. It is also an important resource for our external manufacturing partners, as well as our overall supply chain.
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.

W1.2

For your total operations, please detail which of the following water aspects are regularly measured and monitored and provide an explanation as to why or why not

Water aspect	% of sites/facilities/operations	Please explain
Water withdrawals- total volumes	76-100	Merck collects actual water use, consumption and discharge data for all of our global manufacturing and research sites, plus our large office buildings in order to track usage volumes. Water use for our small offices and leased space is calculated based on employee headcount data and applying standard factors for water use and discharge.
Water withdrawals- volume by sources	76-100	Merck collects actual water use, consumption and discharge data for all of our global manufacturing and research sites, plus our large office buildings in order to track usage volumes. Water use for our small offices and leased space is calculated based on employee headcount data and applying standard factors for water use and discharge.
Water discharges- total volumes	76-100	Merck collects actual water use, consumption and discharge data for all of our global manufacturing and research sites, plus our large office buildings in order to track discharge volumes. Water use for our small offices and leased space is calculated based on employee headcount data and applying standard factors for water use and discharge.
Water discharges- volume by destination	76-100	Merck collects actual water use, consumption and discharge data for all of our global manufacturing and research sites, plus our large office buildings in order to track discharge volumes. Water use for our small offices and leased space is calculated based on employee headcount data and applying standard factors for water use and discharge.
Water discharges- volume by treatment method	76-100	Merck collects actual water use, consumption and discharge data for all of our global manufacturing and research sites, plus our large office buildings in order to track discharge treatment volumes. Water use for our small offices and leased space is calculated based on employee headcount data and applying standard factors for water use and discharge.
Water discharge quality data- quality by standard effluent parameters	26-50	Merck collects actual water use, consumption and discharge data for all of our global manufacturing and research sites, plus our large office buildings in order to track discharge quality data. Water use for our small offices and leased space is calculated based on employee headcount data and applying standard factors for water use and discharge. A subset of Merck facilities collect water discharge quality data as required by regulations.
Water consumption- total volume	76-100	Merck collects actual water use, consumption and discharge data for all of our global manufacturing and research sites, plus our large office buildings in order to track consumption volumes. Water use for our small offices and leased space is calculated based on employee headcount data and applying standard factors for water use and discharge.
Facilities providing fully-functioning WASH services for all workers	76-100	Merck facilities provide fully-functioning WASH services to all workers as these services are deemed critical to the health of employees and to ensure the integrity of our operations. Water withdrawals and discharges used for WASH services are included in the overall totals collected at each site.

W1.2a

Water withdrawals: for the reporting year, please provide total water withdrawal data by source, across your operations

Source	Quantity (megaliters/year)	How does total water withdrawals for this source compare to the last reporting year?	Comment
Fresh surface water	3919.55	Lower	Lower in 2015 primarily due to water reduction project at Cherokee, PA, US site
Brackish surface water/seawater	0.00	Not applicable	
Rainwater	0.00	Not applicable	
Groundwater - renewable	11995.11	About the same	
Groundwater - non-renewable	0.00	Not applicable	
Produced/process water	0.00	Not applicable	
Municipal supply	7759.20	About the same	
Wastewater from another organization	0.00	Not applicable	
Total	23673.85	Lower	Lower due to reasons noted above.

W1.2b

Water discharges: for the reporting year, please provide total water discharge data by destination, across your operations

Destination	Quantity (megaliters/year)	How does total water discharged to this destination compare to the last reporting year?	Comment
Fresh surface water	12821.13	Lower	Lower in 2015 primarily due to water reduction project at Cherokee, PA, US site
Brackish surface water/seawater	0.00	Not applicable	
Groundwater	0.00	Not applicable	
Municipal/industrial wastewater treatment plant	6490.67	Lower	Slight water discharge reductions across several facilities in 2015.
Wastewater for another organization	0.00	Not applicable	
Total	19311.80	Lower	Lower due to reasons noted above.

W1.2c

Water consumption: for the reporting year, please provide total water consumption data, across your operations

Consumption (megaliters/year)	How does this consumption figure compare to the last reporting year?	Comment
5040.31	About the same	

W1.3

Do you request your suppliers to report on their water use, risks and/or management?

Yes

W1.3a

Please provide the proportion of suppliers you request to report on their water use, risks and/or management and the proportion of your procurement spend this represents

Proportion of suppliers %	Total procurement spend %	Rationale for this coverage
1-25	1-25	Merck is requesting new suppliers to 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 materials Merck uses. 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 Merck's supply chain in order to determine potential next steps in Merck's overall water management strategy. If a key supplier's practice is deemed inefficient further engagement is pursued.

W1.3b

Please choose the option that best explains why you do not request your suppliers to report on their water use, risks and/or management

Primary reason	Please explain

W1.4

Has your organization experienced any detrimental impacts related to water in the reporting year?

No

W1.4a

Please describe the detrimental impacts experienced by your organization related to water in the reporting year

Country	River basin	Impact indicator	Impact	Description of impact	Length of impact	Overall financial impact	Response strategy	Description of response strategy

W1.4b

Please choose the option below that best explains why you do not know if your organization experienced any detrimental impacts related to water in the reporting year and any plans you have to investigate this in the future

Primary reason	Future plans

Further Information

Module: Risk Assessment

Page: W2. Procedures and Requirements

W2.1

Does your organization undertake a water-related risk assessment?

Water risks are assessed

W2.2

Please select the options that best describe your procedures with regard to assessing water risks

Risk assessment procedure	Coverage	Scale	Please explain
Water risk assessment undertaken independently of other risk assessments	Direct operations and supply chain	All facilities and some suppliers	All Merck facilities are assessed for water risk. Key external manufacturers and suppliers are also assessed for risk to identify areas of concern and potential engagement opportunities. We currently use the WRI Aqueduct water risk tool.

W2.3

Please state how frequently you undertake water risk assessments, what geographical scale and how far into the future you consider risks for each assessment

Frequency	Geographic scale	How far into the future are risks considered?	Comment
Annually	Facility	3 to 6 years	
Annually	Business unit	3 to 6 years	

W2.4

Have you evaluated how water risks could affect the success (viability, constraints) of your organization's growth strategy?

Yes, evaluated over the next 5 years

W2.4a

Please explain how your organization evaluated the effects of water risks on the success (viability, constraints) of your organization's growth strategy?

Merck's growth strategy includes an increased proportion of biologics in our overall product portfolio. As biologic processes can be water intensive, Merck's internal focus on "Green and Sustainable Science" includes efforts to reduce water use during process development and operations, for example, designing individual unit operations with water minimization in mind and incorporating single-use manufacturing equipment to reduce cleaning needs and overall environmental impact.

W2.4b

What is the main reason for not having evaluated how water risks could affect the success (viability, constraints) of your organization's growth strategy, and are there any plans in place to do so in the future?

Main reason	Current plans	Timeframe until evaluation	Comment

W2.5

Please state the methods used to assess water risks

Method	Please explain how these methods are used in your risk assessment

Method	Please explain how these methods are used in your risk assessment
Internal company knowledge WRI Aqueduct Other: Regulatory surveillance process	Merck 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. From a water perspective, the corporate environmental group uses the World Resources Institute (WRI) Aqueduct Water Risk Atlas tool, a regulatory surveillance process and internal knowledge to identify both facility specific and corporate level risks. These risks are included as part of the company's ERM process.

W2.6

Which of the following contextual issues are always factored into your organization's water risk assessments?

Issues	Choose option	Please explain
Current water availability and quality parameters at a local level	Relevant, included	Quantity of water used at each manufacturing site is reported annually. Most of our production sites get their water supply from local municipal / private water companies.
Current water regulatory frameworks and tariffs at a local level	Relevant, included	Merck considers compliance with all regulations a foundational aspect of doing business. Continued compliance with these regulations is monitored through our regulatory surveillance and internal audit programs as well as self-assessment by site management.
Current stakeholder conflicts concerning water resources at a local level	Relevant, included	Existing or potential stakeholder issues are considered when performing facility level risk assessments.
Current implications of water on your key commodities/raw materials	Relevant, included	The impact of water-related risk on the company's operations and supply chain is considered as part of our overall assessment and includes the potential impacts of climate change. Facility-based supplier water risk assessments have not yet been included.
Current status of ecosystems and habitats at a local level	Relevant, included	Existing or potential issues related to protected habitat and/or endangered species are considered when performing Merck-owned facility level risk assessments.
Current river basin management plans	Relevant, included	Existing or potential risks at the river basin level are evaluated at some of our facilities. Merck complies with all river basin requirements and permits.
Current access to fully-functioning WASH services for all employees	Relevant, included	Merck considers access to water supply, adequate sanitation and hygiene when performing facility level risk assessments.

Issues	Choose option	Please explain
Estimates of future changes in water availability at a local level	Relevant, included	Merck considers access to water and overall water risk integral to our operations. It is considered for capital investment decisions for water and waste water infrastructure. Therefore, we continually evaluate estimates of future water availability where we operate and will incorporate potential impacts due to climate change and water use changes.
Estimates of future potential regulatory changes at a local level	Relevant, included	Merck tracks and monitors regulatory developments and includes them in facility level risk assessments.
Estimates of future potential stakeholder conflicts at a local level	Relevant, included	Existing or potential stakeholder issues are considered when performing facility level risk assessments.
Estimates of future implications of water on your key commodities/raw materials	Relevant, included	The impact of water related risk on company's operation and supply chain is considered as part of overall assessment and impact of climate change. Facility based supplier water risk assessment has not been included.
Estimates of future potential changes in the status of ecosystems and habitats at a local level	Relevant, included	Existing or potential issues related to protected habitat and/or endangered species are considered when performing Merck-owned facility level risk assessments.
Scenario analysis of availability of sufficient quantity and quality of water relevant for your operations at a local level	Not evaluated	
Scenario analysis of regulatory and/or tariff changes at a local level	Not evaluated	
Scenario analysis of stakeholder conflicts concerning water resources at a local level	Not evaluated	
Scenario analysis of implications of water on your key commodities/raw materials	Not evaluated	
Scenario analysis of potential changes in the status of ecosystems and habitats at a local level	Not evaluated	
Other	Not evaluated	

W2.7

Which of the following stakeholders are always factored into your organization's water risk assessments?

Stakeholder	Choose option	Please explain
Customers	Relevant, included	Impact to customers is a core consideration of Merck's risk assessment process. Water risk is indirectly captured via patient access to medicines and our ability to reliably supply our customers.
Employees	Relevant, included	Employees are considered in Merck's risk assessment process via employee health and safety.
Investors	Relevant, included	Investor impact is considered in Merck's risk assessment process. Water risk is indirectly captured via patient access to medicines and our ability to reliably supply our customers; both of which, directly impact company revenue.
Local communities	Relevant, included	Local community issues are considered when performing facility level risk assessments.
NGOs	Relevant, included	Merck is currently using the WRI Aqueduct Water Risk tool to assess water risk for internal sites as well as select external manufacturers and key suppliers. We are evaluating other water risk tools from NGOs as they are developed and evolve to determine if they should be included in our risk assessments.
Other water users at a local level	Relevant, not yet included	Merck will engage with other water users at a local level if and when water risks for shared resources develop.
Regulators	Relevant, included	Merck 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.
River basin management authorities	Relevant, included	Merck follows all requirements established by river basins management authorities. In addition, Merck 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	Merck does not operate in areas governed by statutory special interest groups.
Suppliers	Relevant, included	The impact of water related risk on company's operation and supply chain is considered as part of overall assessment and impact of climate change. Facility based supplier water risk assessment has not been included.
Water utilities/suppliers at a local level	Relevant, 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	Not evaluated	

W2.8

Please choose the option that best explains why your organisation does not undertake a water-related risk assessment

Primary reason	Please explain

Further Information

Module: Implications

Page: W3. Water Risks

W3.1

Is your organization exposed to water risks, either current and/or future, that could generate a substantive change in your business, operations, revenue or expenditure?

Yes, direct operations and supply chain

W3.2

Please provide details as to how your organization defines substantive change in your business, operations, revenue or expenditure from water risk

Merck's annual report (form 10-K) defines "substantial" 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/

At the facility / supply chain level, "substantial" would be any impact that could disrupt, delay or inhibit the supply of our product to the patients.

W3.2a

Please provide the number of facilities* per river basin exposed to water risks that could generate a substantive change in your business, operations, revenue or expenditure and the proportion this represents of total operations company-wide

Country	River basin	Number of facilities exposed to water risk	Proportion of total operations (%)	Comment
Belgium	Other: Scheldt River Basin	1	1-5	
Brazil	Parana	1	1-5	
Mexico	Panuco	1	1-5	
Puerto Rico	Other: GHAASbasin 1835	1	1-5	
Indonesia	Brantas	1	1-5	
Singapore	Other: Singapore	2	6-10	
United States of America	Susquehanna River	1	1-5	
United States of America	Potomac River	1	1-5	
United States of America	Hudson River	2	1-5	

W3.2b

Please provide the proportion of financial value that could be affected at river basin level associated with the facilities listed in W3.2a

Country	River basin	Financial reporting metric	Proportion of chosen metric that could be affected within the river basin	Comment
Belgium	Other: Scheldt River Basin	% global production capacity	1-5	
Brazil	Parana	% global production capacity	1-5	
Mexico	Panuco	% global production capacity	1-5	
Puerto Rico	Other: GHAASbasin 1835	% global production capacity	1-5	
Indonesia	Brantas	% global production capacity	1-5	

Country	River basin	Financial reporting metric	Proportion of chosen metric that could be affected within the river basin	Comment
Singapore	Other: Singapore	% global production capacity	6-10	
United States of America	Susquehanna River	% global production capacity	1-5	
United States of America	Potomac River	% global production capacity	1-5	
United States of America	Hudson River	Other: R&D Hub & Corporate Headquarters.		

W3.2c

Please list the inherent water risks that could generate a substantive change in your business, operations, revenue or expenditure, the potential impact to your direct operations and the strategies to mitigate them

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
Belgium	Other: Schelde	Physical-Projected water stress	Higher operating costs	Higher cost of water and associated impact with mandated water use reductions into the permitting process	4-6 years	Probable	Low	Infrastructure investment	Low	Investment in infrastructure to increase recycle/reuse of grey water in non-potable applications.
Brazil	Parana	Physical-Ecosystem	Loss of license to	Operating permits	4-6 years	Probable	Medium	Infrastructure investment	Low	Work with local authorities and

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
		vulnerability	operate	would not be granted by local authorities						invest in wastewater infrastructure to meet internal and external effluent discharge standards.
Mexico	Panuco	Physical-Increased water stress	Higher operating costs	Higher cost of water associated impact with mandated water use reductions into the permitting process	4-6 years	Highly probable	Low	Infrastructure investment	Low	Investment in infrastructure to increase recycle/reuse of grey water in non-potable applications at the request of the regulators.
Puerto Rico	Other: GHAASbasin	Physical-Increased water stress	Higher operating costs	Higher cost of water associated impact with mandated water use reductions into the permitting process	4-6 years	Probable	Low	Infrastructure investment	Low	Investment in infrastructure to increase recycle/reuse of grey water in non-potable applications
Singapore	Other: Singapore	Regulatory-Regulation of discharge quality/volumes leading to	Loss of license to operate	Operating permits would not be granted by local	Current-up to 1 year	Probable	Medium	Infrastructure investment	Low-medium	Work with local authorities and invest in wastewater infrastructure

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
		higher compliance costs		authorities						to meet internal and external effluent discharge standards.
United States of America	Susquehanna River	Physical-Flooding	Supply chain disruption	Flood would cause property damage and shut-down operations for a period of time.	4-6 years	Probable	Medium	Other: Management Planning	Low - medium	Our site management and emergency services groups address, plan for, and react to immediate physical risks caused by flooding.
United States of America	Potomac River	Physical-Flooding	Supply chain disruption	Flood would cause property damage and shut-down operations for a period of time	4-6 years	Probable	Medium	Other: Management Planning	Low - medium	Our site management and emergency services groups address, plan for, and react to immediate physical risks caused by flooding.
United States of America	Hudson River	Physical-Increased water stress	Higher operating costs	Higher cost of water supply	4-6 years	Probable	Low	Infrastructure investment	Low	Investment in infrastructure to increase recycle/reuse

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										of grey water in non-potable applications
Indonesia	Brantas	Physical-Flooding	Supply chain disruption	Flood would cause property damage and shut-down operations for a period of time	4-6 years	Probable	Low	Other: Management Planning	Low - medium	Our site management and emergency services groups address, plan for, and react to immediate physical risks caused by flooding.

W3.2d

Please list the inherent water risks that could generate a substantive change in your business operations, revenue or expenditure, the potential impact to your supply chain and the strategies to mitigate them

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
India	Ganges-	Physical-	Supply	Increased	1-3 years	Probable	Medium	Engagement	Minimal	We have recently

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
	Brahmaputra	Increased water stress	chain disruption	water stress could curtail manufacturing for indirect and key direct suppliers, including external manufacturers.				with suppliers Greater due diligence Other: Data collection strategy	administrative costs	revised our Business Partner Code of Conduct to include an expectation of all suppliers to conserve natural resources, quantify the amount of water used in their operations, and reduce their water usage. Merck is also a member of the Pharmaceutical Supply Chain Initiative (PSCI) and adheres to the Pharmaceutical Industry Principles for Responsible Supply Chain Management. Under these principles, suppliers are expected to operate in an environmentally responsible and efficient manner to minimize adverse impacts on the environment,

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										including water resources.
India	Krishna	Physical-Increased water stress	Supply chain disruption	Increased water stress could curtail manufacturing for indirect and key direct suppliers, including external manufacturers.	1-3 years	Probable	Medium	Engagement with suppliers Greater due diligence Other: Data collection strategy	Minimal administrative costs	We have recently revised our Business Partner Code of Conduct to include an expectation of all suppliers to conserve natural resources, quantify the amount of water used in their operations, and reduce their water usage. Merck is also a member of the Pharmaceutical Supply Chain Initiative (PSCI) and adheres to the Pharmaceutical Industry Principles for Responsible Supply Chain Management. Under these principles, suppliers are expected to operate in an environmentally responsible and

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										efficient manner to minimize adverse impacts on the environment, including water resources.
United States of America	Mississippi River	Physical-Increased water stress	Supply chain disruption	Increased water stress could curtail manufacturing for indirect and key direct suppliers, including external manufacturers.	1-3 years	Probable	Medium	Engagement with suppliers Greater due diligence Other: Data collection strategy	Minimal administrative costs	We have recently revised our Business Partner Code of Conduct to include an expectation of all suppliers to conserve natural resources, quantify the amount of water used in their operations, and reduce their water usage. Merck is also a member of the Pharmaceutical Supply Chain Initiative (PSCI) and adheres to the Pharmaceutical Industry Principles for Responsible Supply Chain Management. Under these principles, suppliers are

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										expected to operate in an environmentally responsible and efficient manner to minimize adverse impacts on the environment, including water resources.

W3.2e

Please choose the option that best explains why you do not consider your organization to be exposed to water risks in your direct operations that could generate a substantive change in your business, operations, revenue or expenditure

Primary reason	Please explain

W3.2f

Please choose the option that best explains why you do not consider your organization to be exposed to water risks in your supply chain that could generate a substantive change in your business, operations, revenue or expenditure

Primary reason	Please explain

W3.2g

Please choose the option that best explains why you do not know if your organization is exposed to water risks that could generate a substantive change in your business operations, revenue or expenditure and discuss any future plans you have to assess this

Primary reason	Future plans

Further Information

Page: W4. Water Opportunities

W4.1

Does water present strategic, operational or market opportunities that substantively benefit/have the potential to benefit your organization?

Yes

W4.1a

Please describe the opportunities water presents to your organization and your strategies to realize them

Country or region	Opportunity	Strategy to realize opportunity	Estimated timeframe	Please explain
United States of America	Cost savings	Reduce once-thru cooling water demand.	Current-up to 1 year	Our Danville, Pennsylvania site in the US recently completed a water reduction project that will save approximately 1 billion gallons of water per year while reducing operating costs by 600,000 USD annually. The project included reducing the use of once-through cooling water, installing an upgraded closed-loop cooling system, and fitting cooling water distribution pumps with variable frequency drives. Our Elkton, Virginia site in the US recently completed a water reduction project that saves approximately 465 million gallons of water per year, generates 40 kWh of recovered energy and saves 500,000 USD annually.
Company-wide	Carbon management	Consideration of water use in energy projects	Current-up to 1 year	Our Energy Center of Excellence includes the total cost of water in energy project evaluations which adds to the economic attractiveness of potential energy conservation and carbon reduction projects.
Singapore	Improved water efficiency	Use reclaimed water from utilities in operations	Current-up to 1 year	A facility in Singapore uses “NEWater” from the public utility company, which is treated, used water that has been reclaimed for non-potable use in industrial and cooling applications.
Company-wide	Improved water efficiency	Reuse water through closed-loop systems and reclaiming "reject water"	Current-up to 1 year	Closed-loop cooling systems are employed at more than half our facilities worldwide and reduce our freshwater use by more than 500 million gallons annually. Reverse osmosis (RO) “reject water” is reused for non-potable and non-process applications such as cooling-tower feed water and fire water.

W4.1b

Please choose the option that best explains why water does not present your organization with any opportunities that have the potential to provide substantive benefit

Primary reason	Please explain

W4.1c

Please choose the option that best explains why you do not know if water presents your organization with any opportunities that have the potential to provide substantive benefit

Primary reason	Please explain

Further Information

Module: Accounting

Page: W5. Facility Level Water Accounting (I)

W5.1

Water withdrawals: for the reporting year, please complete the table below with water accounting data for all facilities included in your answer to W3.2a

Facility reference number	Country	River basin	Facility name	Total water withdrawals (megaliters/year) at this facility	How does the total water withdrawals at this facility compare to the last reporting year?	Please explain
Facility 1	Belgium	Other: Scheldt	Heist	146.10	About the same	
Facility 2	Brazil	Parana	Campinas	60.85	About the same	
Facility 3	Mexico	Panuco	Xochimilco	56.73	About the	

Facility reference number	Country	River basin	Facility name	Total water withdrawals (megaliters/year) at this facility	How does the total water withdrawals at this facility compare to the last reporting year?	Please explain
					same	
Facility 4	Puerto Rico	Other: GHAASbasin	Las Piedras	140.82	About the same	
Facility 5	Indonesia	Brantas	Pandaan	47.46	About the same	
Facility 6	Singapore	Other: Singapore	Singapore South	112.10	About the same	
Facility 7	Singapore	Other: Singapore	Singapore West	566.11	About the same	
Facility 8	United States of America	Susquehanna River	Cherokee	3074.15	Lower	The site recently completed a water reduction project which included reducing the use of once-through cooling water, installing an upgraded closed-loop cooling system, and fitting cooling water distribution pumps with variable frequency drives.
Facility 9	United States of America	Potomac River	Elkton	9731.07	About the same	
Facility 10	United States of America	Hudson River	Kenilworth	670.76	About the same	
Facility 11	United States of America	Hudson River	Rahway	1412.15	About the same	

Further Information

Page: W5. Facility Level Water Accounting (II)

W5.1a

Water withdrawals: for the reporting year, please provide withdrawal data, in megaliters per year, for the water sources used for all facilities reported in W5.1

Facility reference number	Fresh surface water	Brackish surface water/seawater	Rainwater	Groundwater (renewable)	Groundwater (non-renewable)	Produced/process water	Municipal water	Wastewater from another organization	Comment
Facility 1	0.00	0.00	37.76	0.00	0.00	0.00	108.34	0.00	
Facility 2	15.82	0.00	1.43	0.00	0.00	0.00	43.60	0.00	
Facility 3	0.00	0.00	0.00	0.00	0.00	0.00	56.73	0.00	
Facility 4	0.00	0.00	19.63	60.87	0.00	0.00	60.32	0.00	
Facility 5	0.00	0.00	0.00	47.46	0.00	0.00	0.00	0.00	
Facility 6	0.00	0.00	0.00	0.00	0.00	0.00	112.10	0.00	
Facility 7	0.00	0.00	0.00	0.00	0.00	0.00	566.11	0.00	
Facility 8	2900.65	0.00	96.72	76.79	0.00	0.00	0.00	0.00	
Facility 9	0.00	0.00	0.00	9731.07	0.00	0.00	0.00	0.00	
Facility 10	0.00	0.00	0.00	89.37	0.00	0.00	581.39	0.00	
Facility 11	0.00	0.00	45.09	166.51	0.00	0.00	1200.55	0.00	

W5.2

Water discharge: for the reporting year, please complete the table below with water accounting data for all facilities included in your answer to W3.2a

Facility reference number	Total water discharged (megaliters/year) at this facility	How does the total water discharged at this facility compare to the last reporting year?	Please explain

Facility reference number	Total water discharged (megaliters/year) at this facility	How does the total water discharged at this facility compare to the last reporting year?	Please explain
Facility 1	119.38	About the same	
Facility 2	43.90	About the same	
Facility 3	36.95	About the same	
Facility 4	61.48	About the same	
Facility 5	15.55	About the same	
Facility 6	112.10	About the same	
Facility 7	205.18	About the same	
Facility 8	3006.39	Lower	The site recently completed a water reduction project which included reducing the use of once-through cooling water, installing an upgraded closed-loop cooling system, and fitting cooling water distribution pumps with variable frequency drives.
Facility 9	7764.06	About the same	
Facility 10	443.97	About the same	
Facility 11	1174.92	About the same	

W5.2a

Water discharge: for the reporting year, please provide water discharge data, in megaliters per year, by destination for all facilities reported in W5.2

Facility reference number	Fresh surface water	Municipal/industrial wastewater treatment plant	Seawater	Groundwater	Wastewater for another organization	Comment
Facility 1	0.00	119.38	0.00	0.00	0.00	
Facility 2	14.25	29.65	0.00	0.00	0.00	
Facility 3	0.00	36.95	0.00	0.00	0.00	
Facility 4	0.00	61.48	0.00	0.00	0.00	

Facility reference number	Fresh surface water	Municipal/industrial wastewater treatment plant	Seawater	Groundwater	Wastewater for another organization	Comment
Facility 5	15.55	0.00	0.00	0.00	0.00	
Facility 6	1.25	87.21	0.00	0.00	0.00	
Facility 7	3.86	201.33	0.00	0.00	0.00	
Facility 8	2991.46	14.93	0.00	0.00	0.00	
Facility 9	7764.06	0.00	0.00	0.00	0.00	
Facility 10	0.00	443.97	0.00	0.00	0.00	
Facility 11	0.00	1174.92	0.00	0.00	0.00	

W5.3

Water consumption: for the reporting year, please provide water consumption data for all facilities reported in W3.2a

Facility reference number	Consumption (megaliters/year)	How does this compare to the last reporting year?	Please explain
Facility 1	26.50	About the same	
Facility 2	16.97	About the same	
Facility 3	19.92	About the same	
Facility 4	79.26	About the same	
Facility 5	32.17	About the same	
Facility 6	0.00	Much lower	The API facilities and utilities were sold in Nov 2014. The cooling towers where evaporation occurs are no longer under Merck control, hence there is no consumption of water via evaporation recorded for 2015.
Facility 7	350.31	About the same	
Facility 8	59.08	About the same	
Facility 9	1714.61	About the same	

Facility reference number	Consumption (megaliters/year)	How does this compare to the last reporting year?	Please explain
Facility 10	226.80	Higher	Consumption is higher in 2015 vs 2014 because the site began tracking evaporation as a component of consumptive use in 2015
Facility 11	237.22	About the same	

W5.4

For all facilities reported in W3.2a what proportion of their water accounting data has been externally verified?

Water aspect	% verification	What standard and methodology was used?
Water withdrawals- total volumes	76-100	ISO 14064-3
Water withdrawals- volume by sources	76-100	ISO 14064-3
Water discharges- total volumes	76-100	ISO 14064-3
Water discharges- volume by destination	Not verified	
Water discharges- volume by treatment method	Not verified	
Water discharge quality data- quality by standard effluent parameters	Not verified	
Water consumption- total volume	Not verified	

Further Information

Module: Response

Page: W6. Governance and Strategy

W6.1

Who has the highest level of direct responsibility for water within your organization and how frequently are they briefed?

Highest level of direct responsibility for water issues	Frequency of briefings on water issues	Comment
Board of individuals/Sub-set of the Board or other committee appointed by the Board	Scheduled-annual	The Executive Vice-President and General Council is directly responsible for Merck's water related goals. This position is a direct report of the CEO/Chairman and one of ten (10) Executive Committee members. Progress against goals is measured and reported at least annually.

W6.2

Is water management integrated into your business strategy?

Yes

W6.2a

Please choose the option(s) below that best explain how water has positively influenced your business strategy

Influence of water on business strategy	Please explain
Establishment of sustainability goals	Merck has established water use reduction goals as an integral part of our environmental sustainability strategy. The company included environmental sustainability as one of only four aspects in its corporate responsibility strategy, along with access to medicines, ethics and transparency and employees. The environmental strategy commits Merck to develop a supply chain of partners who share

Influence of water on business strategy	Please explain
	our values related to water and the environment.
Investment in staff/training	Merck created the Environmental Sustainability Center of Excellence to focus on updating, strengthening and tracking progress towards Merck's corporate sustainability strategy. This work focused and consolidated the environmental sustainability segment of the corporate responsibility strategy that was developed by Merck leadership in 2010.
Other:	In 2011, Merck established a $116 million capital fund to invest in the company's water and wastewater infrastructure with the goal of reducing water demand, improving water quality, strengthening our compliance position, improving operational efficiency and addressing the discharge of active pharmaceutical compounds from our manufacturing plants. To date, over 50 projects have been chartered and $91 million committed.
Tighter operational performance standards	Merck has in place a Corporate Water Standard which establishes core requirements and expectations for our facilities with regard to water supply, discharge, storm water management, spill control and continuous improvement.

W6.2b

Please choose the option(s) below that best explains how water has negatively influenced your business strategy

Influence of water on business strategy	Please explain
No measurable influence	Water has not negatively influenced Merck's business strategy to date as Merck and our suppliers have been able to secure the water needed for operations. Targeted water reduction projects at our sites have decreased the need for water. As water scarcity is expected to worsen due to population growth, climate change and watershed competition, Merck will continue to monitor water risk for our operations and those of our suppliers.

W6.2c

Please choose the option that best explains why your organization does not integrate water management into its business strategy and discuss any future plans to do so

Primary reason	Please explain

W6.3

Does your organization have a water policy that sets out clear goals and guidelines for action?

Yes

W6.3a

Please select the content that best describes your water policy (tick all that apply)

Content	Please explain why this content is included
Publicly available Company-wide Performance standards for direct operations Incorporated within group environmental, sustainabiilty or EHS policy	Merck is a global healthcare leader working to help the world be well. Merck's approach to Environment, Health and Safety (EHS) is guided by one simple principle – We demonstrate respect and care for the health and well-being of people and the environment in everything we do. 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

W6.4

How does your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) during the most recent reporting year compare to the previous reporting year?

Water CAPEX (+/- % change)	Water OPEX (+/- % change)	Motivation for these changes
-86	0	Merck spent approximately $3 million in 2015 as part of an overall $116 million commitment to water infrastructure improvements, which is less than the amount spent in 2014. Operational expense related to water are negligible related to our total materials and production spending in 2015.

Further Information

Page: W7. Compliance

W7.1

Was your organization subject to any penalties, fines and/or enforcement orders for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations in the reporting year?

No

W7.1a

Please describe the penalties, fines and/or enforcement orders for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations and your plans for resolving them

Facility name	Incident	Incident description	Frequency of occurrence in reporting year	Financial impact	Currency	Incident resolution

W7.1b

What proportion of your total facilities/operations are associated with the incidents listed in W7.1a

W7.1c

Please indicate the total financial impacts of all incidents reported in W7.1a as a proportion of total operating expenditure (OPEX) for the reporting year. Please also provide a comparison of this proportion compared to the previous reporting year

Impact as % of OPEX	Comparison to last year

Further Information

Page: W8. Targets and Initiatives

W8.1

Do you have any company wide targets (quantitative) or goals (qualitative) related to water?

Yes, targets only

W8.1a

Please complete the following table with information on company wide quantitative targets (ongoing or reached completion during the reporting period) and an indication of progress made

Category of target	Motivation	Description of target	Quantitative unit of measurement	Base-line year	Target year	Proportion of target achieved, % value
Absolute reduction of water withdrawals	Water stewardship	Reduce total water withdrawals by 15% in 2015 and 25% in 2020 from the 2009 baseline year. Water is Merck's most material environmental issue and is a key component of Merck's environmental strategy.	Other: % reduction of water from all sources	2009	2020	100%

W8.1b

Please describe any company wide qualitative goals (ongoing or reached completion during the reporting period) and your progress in achieving these

Goal	Motivation	Description of goal	Progress

W8.1c

Please explain why you do not have any water-related targets or goals and discuss any plans to develop these in the future

Further Information

Module: Linkages/Tradeoff

Page: W9. Managing trade-offs between water and other environmental issues

W9.1

Has your organization identified any linkages or trade-offs between water and other environmental issues in its value chain?

Yes

W9.1a

Please describe the linkages or trade-offs and the related management policy or action

Environmental issues	Linkage or trade-off	Policy or action
Energy use	Linkage	Reducing water use at our facilities can also mean a reduction in energy use and associated greenhouse gas emissions, another Merck environmental target. A significant energy and water use reduction capital project, representing a $7.4 million investment, was recently executed at the Merck 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.

Further Information

Module: Sign Off

Page: Sign Off

W10.1

Please provide the following information for the person that has signed off (approved) your CDP water response

Name	Job title	Corresponding job category
Danielle Menture	Vice President, Global Safety and the Environment	Environment/Sustainability manager

W10.2

Please select if your organization would like CDP to transfer your publicly disclosed response strategy from questions W1.4a, W3.2c and W3.2d to the CEO Water Mandate Water Action Hub.

No

Further Information

CDP 2016 Water 2016 Information Request