

Micron Technology, Inc. - Water 2018

W0. Introduction

W0.1

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

Micron is comprised of a team of visionaries and trailblazers, designing and building advanced semiconductor technologies. From mobile devices to connected automobiles, to supercomputers and cloud servers—our innovative memory and storage solutions are used in things that we depend on and use every day. They are foundational to the technological advancements that are changing how the world uses information. Today, we are a global leader in the semiconductor industry with a track record of innovation and industry advancement that includes over 26,000 patents. Our multinational diversity, manufacturing scale, and broad product portfolio enable us to advance new ideas and develop technologies that can transform what’s possible. Our broad portfolio of silicon-to-semiconductor solutions starts with foundational dynamic random-access memory (DRAM), NAND, and NOR Flash memory and extends to solid state drives, modules, multichip packages, and other semiconductor systems. We work with today’s leading brands and original equipment manufacturers (OEMs) to enable the world’s most innovative computing, consumer, enterprise storage, data center, mobile, embedded and automotive applications. Micron strives to build and operate sustainable world-class facilities around the world that enable excellence in safety, reliability, and cost. Through pollution prevention, reclamation, and recycling efforts, Micron strives to reduce the burden on air, water and land resources. Continuous improvement of our environmental performance is a long-term commitment. Visit micron.com/environment for more information. We take a proactive approach to environmental stewardship, occupational health and safety, and high-quality product standards. An integral part of this mission is a proactive approach to environmental compliance and protection that serves our team members, customers and communities in which we operate. Compliance with applicable environmental regulations is considered a minimum standard. Micron implements additional programs where appropriate to provide greater environmental performance and protection, demonstrating the responsibility it feels towards its local and global communities. Continuous improvement of our environmental performance is a long-term commitment of Micron’s business mission.

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.

- China
- Japan
- Malaysia
- Taiwan (Province of China)
- United States of America

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
Excluded non-manufacturing locations, including office-based activities (design, marketing, sales)	Water use is negligible (<<1%) compared to water use of our manufacturing sites.

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	Semiconductor manufacturing is water-intensive process where each wafer used to make our products goes through a series of cleaning steps, which are dependent on ultra-pure water.
Sufficient amounts of recycled, brackish and/or produced water available for use	Important	Important	As semiconductor technologies have become more complex, demand for water has grown. Micron proactively manages water consumption by identifying opportunities to increase water efficiency and reduce raw water demand. Our manufacturing sites generate ultra-pure water from a combination of recycled water from our operations and local raw water resources.

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	76-99	Water withdrawals (total volume) are tracked across all manufacturing locations (approximately 99% of total water usage), except for the non-manufacturing offices.
Water withdrawals – volumes from water stressed areas	76-99	
Water withdrawals – volumes by source	76-99	Water withdrawals by source (Municipal water, Surface Water, Ground water, Rainwater) are tracked across all manufacturing locations (approximately 99% of total water usage), except for the non-manufacturing offices.
Produced water associated with your metals & mining sector activities - total volumes	<Not Applicable>	<Not Applicable>
Produced water associated with your oil & gas sector activities - total volumes	<Not Applicable>	<Not Applicable>
Water withdrawals quality	76-99	Water withdrawals quality is tracked across all manufacturing locations (approximately 99% of total water usage), except for the non-manufacturing offices. Quality of incoming water is critical for an effective and efficient production of ultra-pure water for our manufacturing process.
Water discharges – total volumes	76-99	Water discharge volumes are tracked across all manufacturing locations (approximately 99% of total water usage), except for the non-manufacturing offices.
Water discharges – volumes by destination	76-99	Water discharge by destination (Public sewer with POTW, Public sewer w/o POTW, Water body like river, sea, etc.) is tracked across all manufacturing locations (approximately 99% of total water usage), except for the non-manufacturing offices.
Water discharges – volumes by treatment method	76-99	Water discharge volume by treatment method is regularly monitored by site-level facilities team to verify capacity and efficiency of each treatment line.
Water discharge quality – by standard effluent parameters	76-99	Water discharge quality by standard effluent parameters is regularly monitored, reported, and documented by site-level environmental engineering team to ensure that we continuously comply with applicable standards/regulations.
Water discharge quality – temperature	76-99	Temperature of water discharged is regularly monitored at all manufacturing locations (>99% of total water discharge), except for the non-manufacturing offices.
Water consumption – total volume	76-99	Water consumption (total volume) is calculated across Micron manufacturing locations (approximately 99% of total water usage) , except for the non-manufacturing offices. based on water withdrawals (total in) minus water discharges (total out).
Water recycled/reused	76-99	Water recycled and reused is regularly monitored and reported across Micron manufacturing locations (approximately 99% of total water usage)
The provision of fully-functioning, safely managed WASH services to all workers	100%	All facilities have water supply, adequate sanitation and hygiene service for all workers

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	46866	Higher	Increase as per new acquisition occurred in 2017 and now included, in addition to the overall increased capacity
Total discharges	36998	Higher	Increase as per new acquisition occurred in 2017 and now included, in addition to the overall increased capacity
Total consumption	9868	Higher	Increase as per new acquisition occurred in 2017 and now included, in addition to the overall increased capacity

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	35	About the same	WRI Aqueduct	We considered manufacturing locations in Singapore and China classified as HIGH RISK (3-4) by the WRI Aqueduct methodology

W1.2h

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	7178	Higher	Capacity increased in 2017
Brackish surface water/seawater	Not relevant	<Not Applicable>	<Not Applicable>	Source not used
Groundwater – renewable	Relevant	6807	Higher	Capacity increased in 2017
Groundwater – non-renewable	Not relevant	<Not Applicable>	<Not Applicable>	Source not used
Produced water	Not relevant	<Not Applicable>	<Not Applicable>	Source not used
Third party sources	Relevant	32882	Higher	Water provided by Municipal water supplies. Capacity increased in 2017

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	5972	Higher	Capacity increased in 2017
Brackish surface water/seawater	Not relevant	<Not Applicable>	<Not Applicable>	
Groundwater	Not relevant	<Not Applicable>	<Not Applicable>	
Third-party destinations	Relevant	31026	Higher	Total discharge to public sewer sent to further treatment at a public-owned wastewater treatment plant. Higher discharge as per increased capacity

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	51-75	About the same	Regardless our production increase in 2017, Micron was able to keep the same level of reuse/recycled water compared to previous year.

W1.4

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

Yes, our customers or other value chain partners

W1.4c

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

We recognize that our manufacturing process is water-intensive and contributes to the global environmental impact of technology. We routinely meet with our customers to understand how we are performing from their perspective. Cross-functional teams review the outcomes of those conversations, as well as written customer requirement documents, and assess opportunities for improvement. A monthly meeting of executives and senior leaders drives accountability for the improvements we undertake in response to key customer expectations and requirements. We engage in several industry organizations alongside our customers, building industry consensus across a range of social and environmental issues specific to our industry – such as conflict minerals, supply chain labor standards and climate-related matters. This is why we partner with our customers to improve our water management program by implement risk control measures and invest on water reduction-saving opportunities identified at all manufacturing locations.

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?

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

W2.2a

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

Row 1

Total number of fines

Total value of fines

% of total facilities/operations associated

Number of fines compared to previous reporting year

Higher

Comment

Micron did not receive any fines in previous reporting year CY2016 = zero fines in CY16

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 part of an enterprise risk management framework

Frequency of assessment

Six-monthly or more frequently

How far into the future are risks considered?

2 to 5 years

Type of tools and methods used

Enterprise Risk Management
International methodologies

Tools and methods used

COSO Enterprise Risk Management Framework
Environmental Impact Assessment

Comment

Enterprise Risk Management (ERM) at Micron is a comprehensive program that uses risk information to formulate strategies, processes and decisions that enable the company to achieve its objectives. ERM establishes a unified approach to risk management that helps Micron achieve a shared understanding of risks and make informed business decisions. Water risks and overall Sustainability Risks are reported and managed as part of this process.

Supply chain

Coverage

None

Risk assessment procedure

<Not Applicable>

Frequency of assessment

<Not Applicable>

How far into the future are risks considered?

<Not Applicable>

Type of tools and methods used

<Not Applicable>

Tools and methods used

<Not Applicable>

Comment

Micron has identified water risks during this reporting year, starting from risks connected to our manufacturing sites under its operational control.

Other stages of the value chain

Coverage

None

Risk assessment procedure

<Not Applicable>

Frequency of assessment

<Not Applicable>

How far into the future are risks considered?

<Not Applicable>

Type of tools and methods used

<Not Applicable>

Tools and methods used

<Not Applicable>

Comment

W3.3b

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

	Relevance & inclusion	Please explain
Water availability at a basin/catchment level	Relevant, always included	Semiconductor manufacturing is water-intensive process where each wafer used to make our products goes through a series of cleaning steps, which are dependent on ultra-pure water.
Water quality at a basin/catchment level	Relevant, always included	Incoming water quality is an important control spec to generate ultra-pure water and to support mechanical systems correct operation.
Stakeholder conflicts concerning water resources at a basin/catchment level	Not relevant, explanation provided	As of now, there are no significant conflicts with other stakeholders concerning water source at each relevant manufacturing location.
Implications of water on your key commodities/raw materials	Not considered	As mentioned earlier, we have not considered water risks in our supply chain
Water-related regulatory frameworks	Relevant, always included	Applicable regulations are always considered while assessing risks
Status of ecosystems and habitats	Not relevant, explanation provided	Status of ecosystems and habitats is not considered relevant at this point in time. Our manufacturing sites are not located in sensitive or protected areas.
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	Access to fully-functioning, safely managed WASH services for all employees is a minimum requirement for all Micron locations.
Other contextual issues, please specify	Not relevant, explanation provided	There are no additional contextual issues other than the above ones.

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	Micron takes into account customers expectations and determines related compliance obligations where applicable and feasible.
Employees	Relevant, always included	in Micron water availability and quality for employees use is a minimum requirement
Investors	Relevant, always included	Investors are key stakeholders and always considered as contextual issue
Local communities	Relevant, always included	Local communities needs ad expectations are one of our contextual issues
NGOs	Not relevant, included	NGOs needs ad expectations are a potential contextual issues. As of now, NGOs have never interacted or communicated with Micron on water risks.
Other water users at a basin/catchment level	Not relevant, explanation provided	As of now, there are no significant conflicts with other users of the water source at relevant manufacturing locations.
Regulators	Not relevant, explanation provided	Regulators needs and expectations (beyond regulatory requirement) are always considered when formally communicated. As of now, Regulators have never interacted or communicated with Micron on water risks beyond what required by law.
River basin management authorities	Not relevant, explanation provided	River basin authorities needs and expectations are always considered when formally communicated. As of now, they have never interacted or communicated with Micron on water risks beyond what required by law.
Statutory special interest groups at a local level	Not relevant, explanation provided	Not applicable
Suppliers	Relevant, not included	Supply Chain risks are not currently included
Water utilities at a local level	Relevant, always included	Water supply systems are always considered
Other stakeholder, please specify	Not relevant, explanation provided	No additional stakeholders have been identified besides the ones mentioned above

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.

Micron estimates water use projections at least once a year or more frequently as needed (e.g. major acquisitions, constructions,...). This estimate is compared against water availability, contract limits, physical limits (e.g., infrastructure) and political limitations (e.g., public commitments, goals, etc.) and actions are defined to ensure an appropriate support to our operations.

W4. Risks and opportunities

W4.1

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

Yes, only within our direct operations

W4.1a

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

Micron uses a standard ERM process to ensure risks, including water-related risks, can be incorporated into decision-making. The ERM process is aligned with Micron’s Strategic and Business Planning Process to ensure appropriate priorities are set and company strategic objectives are met. This creates a unified approach to identify, assess, prioritize, treat, monitor and report risks across the company. As part of the strategic planning process and day-to-day management of the business, internal and external risks that may affect the achievement of our objectives are identified. Water-related risks and overall sustainability risks spanning a 2-6 year time period are identified, assessed, prioritized, and managed as part of this ERM process. Information and communication channels are in place to make the organization aware of risks that fall into their area of responsibility.

Micron risk management personnel and subject matter experts assess these risks through their expertise, formal assessments and analysis of business intelligence and trends. Risks and opportunities are then prioritized based upon the overall risk exposure, considered as a function of likelihood (how likely is the risk to occur without treatment) and impact of the occurrence (how impactful is the risk without treatment). Micron leaders are accountable for managing risks affecting their area of responsibility. Risk management personnel are responsible for maintenance and governance of the ERM program, and support the identification, assessment, and reporting of risks to leadership for recommended actions. Each business unit and function communicates identified risks and associated treatments to their leadership teams. The leaders of these functions develop plans and direction for their organization to effectively align the treatment support to the objectives and priorities of the organization. Micron personnel are empowered to make decisions to prioritize risk treatments that is are within their span of control. However, all risks are elevated through the ERM process to identify themes across product lines, sites, and assets. This allows prioritization of risks across multiple locations and functions to receive appropriate attention and review by the Risk Committee on a quarterly basis or more frequently as needed.

Micron considers substantive financial impact as having the potential for severe and/or irreversible negative impact to Micron’s assets, credit liquidity, and/or share price. Water-related risks and opportunities are identified and prioritized by considering the following criteria: business continuity, impact to brand/reputation, relevance to regional operations, alignment with Micron business strategy, impact to communities, and compliance considerations.

One example of our risk/opportunity identification and management process includes the risk of enhanced reporting obligations. The likelihood of this occurring and how impactful it would be without treatment is evaluated to determine the inherent risk and then treatment details, including who, what, and when are determined and tracked to closure. The treatments for this example includes monitoring water-related regulations and policy to understand and evaluate impacts to, and opportunities for, our business, customers, and the communities where we operate. When applicability is determined, an action plan is developed and monitored through execution.

W4.1b

(W4.1b) What is the total number of facilities exposed to water risks with the potential to have a substantive financial or strategic impact on your business, and what proportion of your company-wide facilities does this represent?

	Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
Row 1	5	26-50	Considered manufacturing facilities in countries/areas classified at HIGH RISK (3-4) as per the WRI Aqueduct Map. 4 sites in Singapore and 1 site in China.

W4.1c

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

(W4.2) Provide details of identified risks in your direct operations with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Country/Region

Singapore

River basin

Other, please specify (NewWater basin in Singapore)

Type of risk

Physical

Primary risk driver

Rationing of municipal water supply

Primary potential impact

Reduction or disruption in production capacity

Company-specific description

Water is a critical input to our manufacturing process, particularly wafer fabrication, and any reduction in quantity or quality levels would cause a disruption to our manufacturing process, by either reducing capacity or even suspend operation. Singapore is identified as high-risk area by the Aqueduct Water Risk map where Micron owns four manufacturing sites. The size of Micron manufacturing capacity in Singapore and potential impact drives the magnitude of potential impact. Reduced quality and quantity of incoming water might create disruption to our operation and in severe cases a reduction or suspension of production. We could not identify a specific water basin applicable to Singapore

Timeframe

4 - 6 years

Magnitude of potential impact

High

Likelihood

Likely

Potential financial impact

0

Explanation of financial impact

Micron realizes that there is potential for financial impact. Potential financial impact is under review.

Primary response to risk

Adopt water efficiency, water re-use, recycling and conservation practices (Green design and system upgrade)

Description of response

AAccess to clean water sources is a human right recognized by the United Nations and it is also one of the primary resources used in the manufacture of semiconductors. Micron looks proactively for opportunities to manage water consumption in manufacturing operations globally on an ongoing basis. Our intent is to minimize the impact to this precious resource and maximize our business resilience as global water supply becomes increasingly constrained. Particularly in Singapore, Micron has been incorporating water-saving measures at the design stage of the new buildings and industrial processes, and at the same time investing resources to improve the water use efficiency at the existing factories.

Cost of response

7800000

Explanation of cost of response

Micron invested resources to improve water systems efficiency of sites in Singapore in CY17 and the cost reported above reflects cost of implementation of such water saving measures.

Country/Region

China

River basin

Huang He (Yellow River)

Type of risk

Physical

Primary risk driver

Rationing of municipal water supply

Primary potential impact

Reduction or disruption in production capacity

Company-specific description

Water is a critical input to our manufacturing process, particularly wafer fabrication, and any reduction in quantity or quality levels would cause a disruption to our manufacturing process, by either reducing capacity or even suspend operation. China region where Micron's site is located is classified as high-risk area by the Aqueduct Water Risk map. Compared to Singapore sites, the operation in China is less water-dependent, thus driving a lower severity.

Timeframe

More than 6 years

Magnitude of potential impact

Medium

Likelihood

Likely

Potential financial impact

0

Explanation of financial impact

Micron realizes that there is potential for financial impact. Potential financial impact has not yet been determined

Primary response to risk

Adopt water efficiency, water re-use, recycling and conservation practices (Implement water saving/reuse/recycle)

Description of response

Access to clean water sources is a human right recognized by the United Nations and it is also one of the primary resources used in the manufacture of semiconductors. Micron looks proactively for opportunities to manage water consumption in manufacturing operations globally on an ongoing basis. Water is a key resource for our manufacturing process and Micron looks at water saving opportunities, starting from improving process efficiency to increasing the water recycle rate globally and particularly at locations with stressed water resources. Micron implemented several water saving measures in China to increase the water recycle rate by 20% between end of CY16 and CY17.

Cost of response

750000

Explanation of cost of response

Micron routinely monitors conditions and potential impacts to, and opportunities for, our business, customers, and the communities where we operate. Micron implemented additional water saving measures at its site in China to increase the water recycle rate by 20% between end of CY16 and CY17 and the cost reported above reflects cost of implementation.

W4.2c

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

	Primary reason	Please explain
Row 1	Not yet evaluated	Impact of Water risks in the Supply Chain has not been evaluated yet

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

Over the past few years, Micron has implemented several projects to improve water use efficiency of the manufacturing process and of the facilities supporting systems (UPW plant, cooling tower, ...). For new constructions, Micron has been incorporating water-saving measures in the design stage for new buildings and industrial processes, at the same time Micron has made significant investments to improve the water use efficiency at the existing factories. By improving water efficiency we also reduce operational costs, particularly in countries where water price is increasing.

Estimated timeframe for realization

1 to 3 years

Magnitude of potential financial impact

Medium

Potential financial impact

0

Explanation of financial impact

Micron realizes that there is potential for financial impact. Potential financial impact is under review.

W6. Governance

W6.1

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

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

W6.1a

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

	Scope	Content	Please explain
Row 1	Company-wide	Description of business dependency on water Description of water-related performance standards for direct operations Company water targets and goals Commitments beyond regulatory compliance Commitment to water-related innovation	Water Management program published in the Sustainability Report publicly available on the external website www.micron.com

W6.2

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

Yes

W6.2a

(W6.2a) Identify the position(s) of the individual(s) on the board with responsibility for water-related issues.

Position of individual	Please explain
Chief Operating Officer (COO)	Senior VP of Operation

W6.2b

(W6.2b) Provide further details on the board's oversight of water-related issues.

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - some meetings	Monitoring implementation and performance Overseeing acquisitions and divestiture Overseeing major capital expenditures Reviewing and guiding annual budgets Reviewing and guiding strategy Reviewing and guiding corporate responsibility strategy Setting performance objectives	At the direction of Micron's Chief Executive Officer and President, our Sustainability Council, a team of senior leaders including the Vice President of Sustainability and Compliance, have responsibility for developing all aspects of the company's sustainability strategy, with oversight and approval from an executive leadership team. Additionally, Micron's Risk Committee, a team of senior leaders including the CFO, review and guide risk management objectives including water-related risks. The Sustainability Council and Risk Committee along with our Environment in Operations (EIO) Committee drives our water strategy and focuses on how we can improve the impact of our operations on the environment.

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)

Chief Sustainability Officer (CSO)

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

Quarterly

Please explain

Micron's Vice President of Sustainability and Compliance chairs our Sustainability Council, initiated at the direction of the Chief Executive Officer and President. The Sustainability Council is comprised of senior leaders representing the various aspects of sustainability, including supply chain, procurement, sales, and global manufacturing. The Environment in Operations (EIO) Committee, a sub-committee of the Sustainability Council, is enabling an integrated strategy from technology development through high volume manufacturing to execute on environmental initiatives and goals. On a quarterly basis, the Sustainability Council monitors, among other things, water-related risks, and tracks progress towards goals. Micron's Risk Committee monitors, among other things, water-related risks/opportunities identification and actions. The Sustainability Council, the Risk Committee and our EIO drive our strategy and improve the impact of our operations on water sources and community.

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, 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?

Micron has established an Environmental Policy Committee to review upcoming potential environmental issues and obligations (regulatory and from interested parties) and evaluate the company response within the relevant regional industry association to align with the company strategy.

This committee includes senior members of the key functions: the VP Compliance & Sustainability, Legal Department, Government Affairs, Global EHS, Supply Chain and Product Compliance.

Members have periodical meetings to review upcoming issues, assess the potential impact and define strategy to prevent and reduce any associated environmental risks, including water.

W7. Business strategy

W7.1

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

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	5-10	Longest time horizons used for enterprise risk assessment when evaluating likelihood is up to 6 years
Strategy for achieving long-term objectives	No, water-related issues not yet reviewed, but there are plans to do so in the next two years	<Not Applicable>	
Financial planning	No, water-related issues not yet reviewed, but there are plans to do so in the next two years	<Not Applicable>	

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	180	240	5	5	CAPEX has increased in CY17 vs CY16 and the anticipated trend for CY18 further increases, mainly due to huge investments in water systems. Main reasons for CAPEX increase over time is to support: capacity increased in 2017 and will further increase in 2018, new manufacturing sites under construction that will start operation in 2018, enhancement/upgrades of existing water systems to increase efficiency and reliability as ongoing effort. OPEX expense globally is quite stable, with some increase due to increased water-related monitoring requirements and permit applications to support expansions and new operations.

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	No, but we anticipate doing so within the next two years	

W7.4

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

Row 1

Does your company use an internal price on water?

No, and we do not anticipate doing so within the next two years

Please explain

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	Goals are monitored at the corporate level	Micron defined a corporate goal to achieve a 10% increase of water reuse/recycle rate by 2022 compared to 2016 baseline.

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 (Water reuse/recycle % increase)

Level

Company-wide

Motivation

Reduced environmental impact

Description of goal

Micron defined a corporate goal to achieve a 10% increase of water reuse/recycle rate by 2022 compared to 2016 baseline.

Baseline year

2016

Start year

2017

End year

2022

Progress

Micron has increased global reuse/recycle rate by 1% in 2017 compared to 2016. We have several projects ongoing in 2018 that will improve further the performance. As of results recorded so far, the goal is in progress to achieve the expected improvement.

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

W9.1a

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

Linkage or tradeoff

Linkage

Type of linkage/tradeoff

Environmental restoration

Description of linkage/tradeoff

Micron has been expanding capacity of its operations and more water is needed to support increasing production. By increasing the volume of reuse/recycle water Micron aims to reduce the need to proportionally increase water withdrawal, with a positive impact on local water supplies.

Policy or action

W10. Verification

W10.1

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

No, we are waiting for more mature verification standards and/or processes

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	Global Environmental Director	Environment/Sustainability 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)].

Please select

SW. Supply chain module

SW0.1

(SW0.1) What is your organization's annual revenue for the reporting period?

	Annual revenue
Row 1	23878404559

SW0.2

(SW0.2) Do you have an ISIN for your organization that you are willing to share with CDP?

No

SW1.1

(SW1.1) Have you identified if any of your facilities reported in W5.1 could have an impact on a requesting CDP supply chain member?

This is confidential

SW1.2

(SW1.2) Are you able to provide geolocation data for your site facilities not already reported in W5.1?

No, this is confidential data

SW2.1

(SW2.1) Please propose any mutually beneficial water-related projects you could collaborate on with specific CDP supply chain members.

SW2.2

(SW2.2) Have any water projects been implemented due to CDP supply chain member engagement?

No

SW3.1

(SW3.1) Provide any available water intensity values for your organization's products or services across its operations.

Product name

Die

Water intensity value

0.0019

Numerator: Water aspect

Water consumed

Denominator: Unit of production

Number of total die shipped to Micron's customers during CY17

Comment

We have used the same normalization factor used for Climate Change Supply Chain response. The water consumed has been calculated as (Water withdrawal - water discharge) from values reported in W.1 The intensity value unit is "m3 of consumed water/die".

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	Public or Non-Public Submission	I am submitting to	Are you ready to submit the additional Supply Chain Questions?
I am submitting my response	Public	Investors Customers	Yes, submit Supply Chain Questions now

Please confirm below

I have read and accept the applicable Terms