Welcome to your CDP Water Security Questionnaire 2019

W0. Introduction

W0.1

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

At Microsoft, our mission is to empower every person and every organization on the planet to achieve more. We strive to create local opportunity, growth, and impact in communities around the globe. Our strategy is to build best-in-class platforms and productivity services for an intelligent cloud and an intelligent edge infused with artificial intelligence (AI).

Water is a serious challenge that requires a global response from all sectors of society. All around the world, water resources are under increasing stress due to the combined effects of numerous challenges, including population growth, economic development, and climate change. These challenges, in turn, are driving an imbalance between water supply and demand that could jeopardize human health, agricultural productivity, economic development, and the ability to maintain sustainable ecosystems.

Microsoft has a water stewardship strategy that builds on our belief that we should be looking at water in a more holistic way. Our strategy is intended to help us understand and articulate the value of water in our operations, as well as the relative risks as water becomes scarcer. Our approach focuses on increasing our understanding of water-related risks and impacts to our business and to the communities in which we operate; improving our water efficiency across datacenter and real estate locations; collaborating with our suppliers to ensure they are advancing water stewardship practices; and using our learnings to advance innovative solutions to water challenges.

Our water strategy complements our ongoing commitments to reducing our carbon footprint; searching for opportunities to minimize our environmental impact, reduce waste, and conserve other raw materials; and developing technical tools and technological approaches that facilitate the achievement of environmental sustainability objectives. In pursuing these goals, we follow our policies and comply with international environmental regulations and the specific environmental requirements of each country/region where we do business.

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	July 1, 2017	June 30, 2018

W0.3

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

W0.4

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

W0.5

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

W0.6

(W0.6) Within this boundary, are there any geographies, facilities, water aspects, or other exclusions from your disclosure?
No

W1. Current state

W1.1

(W1.1) Rate the importance (current and future) of water quality and water quantity to the success of your business.

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Vital	Important	The primary use for freshwater in our direct operations is for cooling systems (depending on the cooling technology deployed) for some offices, labs, and datacenters. This is vital to ensure continuous delivery of customer services, for our datacenters in particular. It is also vital for drinking water for employees. Water dependency per megawatt in our direct operations should be reduced in the future because we are piloting various technologies that decrease freshwater reliance. For example, after using Nalco Water's Water Risk Monetizer to model the full value of water to our San Antonio datacenter, we determined that the risk-adjusted water bill is more than 11 times greater than the current water bill presented by the San Antonio Water System; this provided the business case for adopting new technology to manage and value risk through water recycling and reuse projects (e.g. with Nalco 3D TRASAR cooling water automation and choosing recycled water over potable water, we can avoid 58.3 million gallons of potable water per year [524 million gallons over nine years]). We also installed water-saving irrigation nozzles throughout the Redmond campus in FY18, and we plan to improve the campus irrigation control system in FY19. The primary uses for good quality freshwater for most of our suppliers include domestic and process use. Adequate working conditions for supplier employees and sufficient freshwater supply for industrial operations are important. We do not anticipate any change in water dependency for our indirect operations in the future because sufficient freshwater supply has been and will remain a vital component of supplier operations and employee wellbeing. Our products and services have minimal water impacts in other stages of the value chain.

Sufficient amounts of recycled, brackish and/or produced water available for use	Important	Important	The primary use for non-freshwater in our direct operations is for cooling systems in our datacenters. Some use recycled water as an alternative makeup water source. When process water is required, we use recycled, reused, or industrial water where available unless we require freshwater supply (such as with adiabatic cooling systems). We also use non-freshwater for flush fixtures, cooling, and irrigation for some of our offices and labs globally. Access to non-freshwater is important because it reduces our operation's dependency on limited freshwater. For example, by using Nalco 3D TRASAR cooling water automation and choosing recycled water over potable water at our San Antonio datacenter, we can avoid 58.3 million gallons of potable water per year (524 million gallons over nine years). In another example, our Johannesburg office, located in a water-stressed region, installed a greywater and rainwater harvesting system in FY18. Therefore, future dependency on recycled water will be increasing throughout our direct operations. The primary uses for non-freshwater for our suppliers include process use (for example, surface treatment and cooling processes) and limited domestic use (for example, toilet flushing and landscaping). Non-freshwater use is important because it reduces demand for freshwater, which is an increasingly scarce and costly resource, and increases resiliency against water scarcity. We expect future dependency on non-freshwater for our indirect operations and supplier sites to increase because of the efforts we are helping drive at our manufacturing supplier sites to implement waste/wastewater recycling practices, which help increase supply resiliency and provide significant reputational value in many parts of the world. Our products and services have minimal water impacts in other stages of the value chain.

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%	We are reporting water withdrawals for 100% of our facilities (including datacenters, offices, labs, retail). Water withdrawals are based on data from utility bills from our largest sites and, in

		some cases, estimations. We have a robust estimation methodology for leased sites that accounts for square footage, electricity consumption, building type, and cooling type. We updated this methodology in FY18 to account for varying withdrawal rates of different cooling types at our datacenters. We monitor datacenter water withdrawal total volumes daily for a portion of the sites that Microsoft owns and operates. For all other facilities, utility data at individual sites is collected monthly or estimated. The global water inventory, which includes estimations, is aggregated annually.
Water withdrawals – volumes from water stressed areas	100%	Each year we perform a water risk analysis of our global facility portfolio using the WRI Aqueduct tool to determine which sites are in water-stressed areas. We are reporting water withdrawals for 100% of our facilities (including datacenters, offices, labs, retail). Water withdrawals are based on data from utility bills from our largest sites and, in some cases, estimations. We monitor datacenter water withdrawal total volumes daily for a portion of the sites that Microsoft owns and operates in water-stressed areas. For all other facilities, utility data at individual sites is collected monthly or estimated. The global water inventory, which includes estimations and a water stress analysis, is aggregated annually. In FY19 we will expand water data collection to include the source of supply (e.g. specific river basin or groundwater source) for key facilities.
Water withdrawals – volumes by source	100%	We are reporting water withdrawals for 100% of our facilities (including datacenters, offices, labs, retail). Water withdrawals are based on data from utility bills from our largest sites and, in some cases, estimations. We have a robust estimation methodology for leased sites that accounts for square footage, electricity consumption, building type and cooling type. We updated this methodology in FY18 to account for varying withdrawal rates of different cooling types at datacenters. We monitor datacenter water withdrawal total volumes daily for a portion of sites that Microsoft owns and operates. For all other facilities, utility data at individual sites is collected monthly or estimated. The global water inventory is aggregated annually. The vast majority of metered withdrawals come from municipal sources. Where water withdrawals are estimated, we assume they come from municipal sources. In FY19 we will expand water data collection to include the source of supply for key facilities.

Water withdrawals quality	1-25	At most of our sites (including datacenters, offices, labs, retail), water quality is monitored at the municipal level. Only at specific sites are water withdrawals monitored for quality at the site level. For example, we engage a third-party organization in China to annually check bacteria levels and other water quality metrics at water dispensers at our Beijing, Shanghai, Suzhou, and Zizhu campuses (offices and labs) as well as our Chengdu, Fuzhou, Guangzhou, Hangzhou, JiNan, Nanjing, Shenzhen Kerry Center, and Wuxi office sites.
Water discharges – total volumes	100%	Most of our sites (including datacenters, offices, labs, retail) do not have discharge meters. Water consumption is low at many of our office sites and so for these sites we know that discharges are close to withdrawals. Where there is water consumption (such as for landscaping, evaporative coolers, cooling towers, settling ponds), we adjust discharge values accordingly. We use blowdown meters in Puget Sound to track water discharges from our cooling towers and in Beijing to monitor discharge from our HVAC water treatment system. Where discharges are not metered, we estimate them annually as part of our global water inventory aggregation process. We have completed a datacenter fleet update of our water meters on the intake and discharge side and are continuing to confirm our consumption numbers to establish a solid baseline for reporting and internal goal setting.
Water discharges – volumes by destination	100%	Most of our sites (including datacenters, offices, labs, retail) do not have discharge meters. Water consumption is low at many of our office sites and so for these sites we know that discharges are close to withdrawals. Where there is water consumption (such as for landscaping, evaporative coolers, cooling towers, settling ponds), we adjust discharge values accordingly. For most Microsoft-owned sites, water discharges go directly to the wastewater treatment plant. Therefore, monthly utility invoices are a proxy for water discharge volumes by destination (wastewater treatment plants) for sites that Microsoft owns and operates. Where discharges are not metered, we estimate them annually as part of our global water inventory aggregation process. We have completed a datacenter fleet update of our water meters on the intake and discharge side and are continuing to confirm our consumption numbers to establish a solid baseline for reporting and internal goal setting.

Water discharges – volumes by treatment method	100%	The vast majority of Microsoft water discharges go directly to the wastewater treatment plant. Most of our sites (including datacenters, offices, labs, retail) do not have discharge meters. Water consumption is low at many of our office sites and so for these sites we know that discharges are close to withdrawals. Where there is water consumption (such as for landscaping, evaporative coolers, cooling towers, settling ponds), we adjust discharge values accordingly. Where discharges are not metered, we estimate them annually as part of our global water inventory aggregation process. We have completed a datacenter fleet update of our water meters on the intake and discharge side and are continuing to confirm our consumption numbers to establish a solid baseline for reporting and internal goal setting.
Water discharge quality – by standard effluent parameters	1-25	The majority of our discharges (including from datacenters, offices, labs, retail) are conveyed to municipal treatment plants. Water discharge quality is measured at only some of our datacenters; water discharge quality effluent parameter reporting is on a site-by-site basis. Where it is required, we provide this information to the appropriate reporting agency. Water discharge quality is measured inline daily to monthly, depending on the requirements of each individual site. As part of this reporting exercise, we are identifying gaps in reporting capabilities and will be performing an analysis on what it would cost to add infrastructure to have the ability to report on this in the future.
Water discharge quality – temperature	Less than 1%	Water discharge temperatures from datacenters are reported on a site-specific basis depending upon the local, state, and federal requirements of a given region.
Water consumption – total volume	100%	Most of our sites (including datacenters, offices, labs, retail) do not have discharge meters. For these sites, water consumption is zero unless they have landscaping that requires irrigation or a water-based cooling system. Our Beijing office site is an example of where we meter consumption; we use a flow meter to regularly monitor makeup water for the cooling tower system. Where consumption is not metered, we estimate it annually as part of our global water inventory aggregation process.
Water recycled/reused	100%	We measure and monitor reused water at sites that have water recycling capability, though very few sites (including datacenters, offices, labs, retail) reuse/recycle water. At datacenters that use recycled/reused water, meters collect real-time data on usage. At all other facilities,

		where present, recycled/reused water data is collected monthly. In FY18, our Johannesburg office completed a greywater and rainwater harvesting system to increase water reuse in a water-stressed region. The greywater treatment plant is separately metered to track the water reused monthly. We are redeveloping our Silicon Valley office campus to be a net-zero non-potable water campus and established a water budget to quantify the amount of water captured, recycled, and reused onsite. Our Herzliya office campus, located in a water-stressed region, will feature cooling tower optimization, where condensate water will be collected and treated onsite to meet non-potable water irrigation needs.
The provision of fully-functioning, safely managed WASH services to all workers	100%	Microsoft provides fully functioning wash, sanitation, and hygiene (WASH) services for all workers at all of our sites (including datacenters, offices, labs, retail). WASH services are cleaned and monitored as part of daily custodial services.

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	7,202.45	Higher	Water withdrawals are based on data from utility bills from our largest sites (including datacenters, offices, and labs) and, in cases where metered data is unavailable, estimations. We have a robust estimation methodology for leased sites that accounts for square footage, electricity consumption, building type, and cooling type. Even so, there exists uncertainty of +/-10 percent in the data due to data gaps, metering/measuring constraints, and extrapolation methodology. Because of business growth, our total measured water withdrawals increased from the previous reporting period—an increase of greater than 10 percent but less than 50 percent. We anticipate withdrawals to increase along with our business over the next several years.

| Total discharges | 3,588.13 | Higher | Most of our sites (including datacenters, offices, labs, and retail) do not have discharge meters. In most cases, water consumption is low, and so for these sites we know that discharges are close to withdrawals. We estimate discharges at each site by subtracting metered/estimated consumption from total withdrawals. There exists uncertainty of +/-20 percent in the data due to data gaps, metering/measuring constraints, and extrapolation methodology. As with our withdrawal volume, our total estimated water discharges grew from the previous reporting period—an increase of greater than 10 percent but less than 50 percent. We anticipate an increase in proportion to withdrawals as our business grows over the next several years. |
| Total consumption | 3,614.32 | Higher | Most of our sites (including datacenters, offices, labs, and retail) do not have discharge meters or consumption meters. Therefore, we must estimate consumption for nearly all of our sites. For office facilities, water consumption as a percentage of withdrawals is based on whether landscaping is present at the site. For datacenters, water consumption as a percentage of withdrawals is based on the cooling type of the facility. There exists uncertainty of +/-20 percent in the data due to data gaps, metering/measuring constraints, and extrapolation methodology. As with our withdrawal volume, our total estimated water consumption grew from the previous reporting period—an increase of greater than 10 percent but less than 50 percent. We anticipate an increase in proportion to withdrawals as our business grows over the next several 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	27	About the same	WRI Aqueduct	Each year, we conduct annual water risk assessments that consider the near future for our business facilities (including offices and labs) and datacenters using the WRI Aqueduct tool because it reveals a broad spectrum of key water-related risks at the level of individual river basins. We consider sites to be in a water-stressed area if they sit in a water basin rated as

| | | | | | having at least "High (40-80%)" baseline water stress according to the WRI Aqueduct tool. There was a less than 10 percent change in this value from the previous reporting period because our site portfolio and proportion of withdrawals from each location remained consistent. We concluded that we do not have a substantive risk at the enterprise level, though we do have several important sites that are being monitored for potential water availability risks in the future and we are currently taking proactive steps to manage those risks. We are integrating the results into our siting and operational planning to mitigate the identified risk. Our risk assessment is based on the location of our facilities because we don't currently have the location of withdrawal sources available. In FY19 we will expand water data collection to include the source of supply (for example, specific river basin or groundwater source) for key facilities. In FY18, we began exploring a replenishment goal based on site-level water consumption in high-risk basins. We are now piloting replenishment projects in several high-risk basins. |

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	39.42	About the same	This source is relevant to Microsoft as we capture rainwater at three of our office locations. These withdrawal volumes are metered and remain roughly the same (depending on annual rainfall) each year because we did not expand rainwater collection efforts. We expect future withdrawal volumes from fresh surface water to remain roughly the same.
Brackish surface water/Seawater	Not relevant			This source is not relevant to Microsoft as we do not withdraw any brackish surface water/seawater. We expect future withdrawal volumes

				from brackish surface water/seawater to remain unchanged (that is, we do not anticipate withdrawing from this source in the future).
Groundwater – renewable	Relevant	29.14	Higher	This source is relevant to Microsoft as we withdraw groundwater at several of our office campuses, such as Bangalore and Hyderabad. These withdrawal volumes are metered and increased in FY18 from the previous year—an increase of greater than 10 percent but less than 50 percent—because of growth at some of the sites that use renewable groundwater. We expect future withdrawal volumes from renewable groundwater to remain relatively flat.
Groundwater – non-renewable	Not relevant			This source is not relevant to Microsoft as we do not withdraw any nonrenewable groundwater. We expect future withdrawal volumes from nonrenewable groundwater to remain unchanged (that is, we do not anticipate withdrawing from this source in the future).
Produced/Entrained water	Relevant	294.59	Higher	This source is relevant to Microsoft because municipally treated wastewater is used for cooling at one of our datacenters and for landscape irrigation at several of our office campus locations. These withdrawal volumes are metered and increased in FY18 from the previous year—an increase of greater than 10 percent but less than 50 percent—because of growth at the datacenter that uses municipally treated wastewater. We expect future withdrawal volumes from produced/process water to increase as more sites start to use it.
Third party sources	Relevant	6,839.3	Higher	This source is relevant to Microsoft because most of our water withdrawals (including for datacenters, offices, labs, and retail) come from the local municipal supply. These water withdrawals are based on data from utility bills from our largest sites and, in cases where metered data is unavailable, estimations. We have a robust estimation methodology for leased sites that accounts for square footage, electricity consumption, building type, and cooling type. Because of business

| | | | | growth and an increased need for cooling water, our total measured water withdrawals in FY18 grew from the previous reporting period—an increase of greater than 10 percent but less than 50 percent. We anticipate withdrawals to increase along with our business growth over the next several years. |

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	Not relevant			This destination is not relevant to Microsoft as we do not discharge any water to fresh surface water sources.
Brackish surface water/seawater	Not relevant			This destination is not relevant to Microsoft as we do not discharge any water to brackish surface water/seawater sources.
Groundwater	Not relevant			This destination is not relevant to Microsoft as we do not discharge any water to groundwater sources.
Third-party destinations	Relevant	3,588.13	Higher	This destination is relevant to Microsoft, as the water that is not consumed at our sites (including datacenters, offices, labs, and retail) is discharged to local municipal treatment plants (we are unaware if municipally treated water is recycled for further use). Most of our sites do not have discharge meters. In most cases, water consumption is low, and so for these sites we know that discharges are close to withdrawals. We estimate discharges at each site by subtracting metered/estimated consumption from total withdrawals. Because of business growth and an increased need for cooling water, our total estimated water discharges in FY18 grew from the previous reporting period (an increase of greater than 10 percent but less than 50 percent), and we anticipate an increase in

			water discharge volumes in proportion to withdrawals as our business grows over the next several years.

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	1-10	About the same	We measure and monitor reused water at sites that have water recycling capability. The proportion of water recycled at Microsoft sites increased to 1 percent from the previous reporting period, as our Johannesburg office implemented greywater and rainwater harvesting. In datacenters where we have cooling towers, we also reuse water and use recycled water when feasible. Recycling/reusing water at these sites enables us to reduce our dependence on freshwater withdrawals. We anticipate an increase in recycled/reused water as our business grows over the next several years.

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

We focus engagements on our top suppliers in terms of spend because they represent our areas of greatest reliance and potential supplier carbon footprint and water usage. In FY18, we participated in the CDP Supply Chain program for water security, requesting responses from 122 suppliers (representing 90 percent of our direct/manufacturing supplier spend, as well as our top indirect/nonmanufacturing suppliers and tier 1 datacenter server suppliers), 78 of which responded. Suppliers are incentivized to report through our supply contracts, which request that they comply with the sustainability standards as defined in our Supplier Code of Conduct. We also encouraged direct/manufacturing supplier participation through our sourcing managers.

Impact of the engagement and measures of success

We request information from suppliers on their water accounting, impacts and risks. We use this CDP data to understand supplier water usage and risk exposure (e.g. for direct/manufacturing suppliers, it helps us identify and better understand carbon emission and water usage hot spots, indicators of which suppliers we should partner with first to reduce manufacturing carbon emissions and water usage). We measure success by CDP response rate. Our preliminary targets are a 100% response rate from requested direct/manufacturing suppliers representing 90% of our direct/manufacturing supplier spend and a >80% response rate from requested indirect/nonmanufacturing suppliers. We have not yet set a target for tier 1 datacenter server suppliers, as FY18 was the first year to include these suppliers. For indirect/nonmanufacturing suppliers, our goal is ongoing evolution of the program, to have our suppliers share their practices and then to segment and reward suppliers based on CDP performance.

Comment

W1.4b

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

Type of engagement

Onboarding & compliance

Details of engagement

Requirement to adhere to our code of conduct regarding water stewardship and management

% of suppliers by number

Less than 1%

% of total procurement spend

1-25

Rationale for the coverage of your engagement

We maintain a supplier audit program as part of our onboarding and compliance process. Water management requirements are included in the audit program. All directly contracted hardware manufacturing suppliers are included in the audit program, because we consider compliance with environmental, health and safety, and labor and ethics (EHS&LE) policies important to our business. Microsoft is committed to responsible sourcing, and we expect our suppliers to adhere to the same standards of conduct and behavior that we expect from our own employees. We start with our directly contracted suppliers, who are expected to then cascade these expectations and requirements to their own supply chain.

Impact of the engagement and measures of success

Water management requirements in the audit program mainly include water monitoring, water conservation, wastewater treatment, and water contamination prevention. For example, suppliers are required to implement a water management program that documents, characterizes, and monitors water sources, use, and discharge; seeks opportunities to conserve water; and controls channels of contamination. The audit program gives us a clear understanding of suppliers' compliance status and, as a tool, drives closure of findings identified at suppliers' sites. We measure the success of the water management portion of the audit program by assessing the quality of the audits and auditors, mitigating relevant compliance risks, and ultimately driving suppliers' improvement in water protection and conservation.

Comment

Type of engagement

Innovation & collaboration

Details of engagement

Educate suppliers about water stewardship and collaboration

Other, please specify

Provide expertise and support to improve water efficiency

% of suppliers by number

Less than 1%

% of total procurement spend

Less than 1%

Rationale for the coverage of your engagement

We have an onsite waste coolant treatment and recycling project as part of a waste reduction program. Water, separated from the treatment processes, can be recycled in production. Since mid-FY17, the project has been piloted at one direct/manufacturing supplier's factory. We intend to introduce the project to a broader scope of suppliers that generate significant amounts of waste coolant in the next two years.

Impact of the engagement and measures of success

This project helps to ease the pressure of water scarcity while reducing waste. We measure the success of this project mainly by water recycling and waste reduction rates, based on the proper operation of the onsite treatment systems. Based on the actual practices at the pilot factory, the water recycling rate reached 80 percent in FY18. As the next step, we expect to involve more suppliers in this project, which will have a positive impact on our supply chain.

Comment

Type of engagement

Other

Details of engagement

Other, please specify

Provide expertise and support to improve water recovery

% of suppliers by number

Less than 1%

% of total procurement spend

1-25

Rationale for the coverage of your engagement

We have monitored the water consumption of selected top tier 1 direct/manufacturing suppliers since approximately 2016. These suppliers were selected as they represent the majority of our spend and water impact from our manufacturing supply chain. Currently, only domestic water consumption is included in the monitoring as process water consumption is very limited at these suppliers' sites.

Impact of the engagement and measures of success

This program enables us to track and understand the water management practices of the direct/manufacturing suppliers that have a major business and water impact in our supply chain. We collect relevant information from these suppliers once every month. The information is then compiled and analyzed to identify any indications of significant changes in water consumption that may require our attention, based on our understanding of the operations at these supplier sites. We measure the success of this work by the accuracy and sufficiency of information provided by the suppliers and the establishment and continuous improvement of water consumption information tracking and reporting methods/systems. This work gives us a clear understanding of the water consumption amount and trend associated with our production lines at these supplier sites while enabling us to identify potential opportunities to reduce water consumption in our supply chain.

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 strategy for engaging with customers and other stakeholders is to address water-related challenges by activating multisector partnerships to advance solutions; developing new solutions with cloud-based technologies; and enabling people and organizations to quantify and address water-related risks. We have identified and tested ideas within our own datacenters with the goal of sharing best practices and, where applicable, developing commercial offerings. We prioritize engagements with potential to amplify our impact on global water challenges. Guiding our engagement process is our overarching water stewardship strategy, which focuses on (1) reducing water use, (2) investing to alleviate water stress in the areas in which we operate, (3) developing tools/technology that enable our customers and partners to improve efficiency, and (4) accelerating research breakthroughs with our AI for Earth program. For example, we supported the development of the Ecolab Water Risk Monetizer (WRM), a publicly available financial modeling tool that helps businesses fully quantify water risks to support decision making. Success is measured in our ability to quantify our own operational water-related risks and the number of external users who download the WRM tool. Similarly, our AI for Earth program builds on our commitment to use AI technology to amplify human ingenuity and advance sustainability. Our strategy is to engage customers and other stakeholders through ongoing projects and partnerships that use AI to accelerate people's ability to observe environmental systems and convert data into useful information, which enables better management of water and other natural resources. Through the AI for Earth grant program, individuals and organizations gain access to cloud and AI computing resources to create more efficient environmental solutions. Success is measured by the number of grants awarded and applications developed, as well as the impact of AI for Earth–supported projects.

W2. Business impacts

W2.1

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

Yes

W2.1a

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

Country/Region

South Africa

River basin

Limpopo

Type of impact driver

Physical

Primary impact driver

Increased water stress

Primary impact

Closure of operations

Description of impact

Our 88,000-square-foot Johannesburg office experienced severe drought and regional water shortages for over six months of the reporting year. Business operations were impacted, affecting more than 500 employees, as the site experienced shutdowns due to lack of water. Some processes, such as bathroom and exterior landscaping water use, were unable to operate and backup water was brought in, as well as portable toilets. Although the site closures did impact daily operations, employees were able to work remotely and the scale of impact was not substantive, in relation to our overall portfolio.

Primary response

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

Total financial impact

61,000

Description of response

We installed a greywater treatment plant (GWTP) and began harvesting rainwater on the site as a response measure during the reporting period. Using greywater and harvesting rainwater reduces the amount of potable water we require to maintain business operations, improving our water security. The immediate costs of installing the GWTP totaled $61,000. We also have a recurring operating expense of $11,000 for ongoing water sampling by a third party.

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 part of an enterprise risk management framework

Frequency of assessment

Six-monthly or more frequently

How far into the future are risks considered?

>6 years

Type of tools and methods used

Tools on the market

Enterprise Risk Management

International methodologies

Databases

Other

Tools and methods used

WRI Aqueduct

IPCC Climate Change Projections

Maplecroft Global Water Security Risk Index

Regional government databases

Internal company methods

External consultants

Other, please specify

Federal Emergency Management Agency (FEMA) data; Proprietary modeled flood data; Regulatory restrictions; ISO 14001 significant aspect and impacts review process; Business continuity testing

Comment

Multiple business groups across Microsoft, including our corporate Environmental Sustainability (ES) team, perform risk assessments using these tools (with varying frequencies; for example, the ISO 14001 assessments are conducted annually). The ES team shares the results biannually with our Enterprise Risk Management group, which anticipates, identifies, assesses, and prioritizes risks and, through regular reporting and discussion, assists our directors with governance of risk.

Supply chain

Coverage

Full

Risk assessment procedure

Water risks are assessed as part of other company-wide risk assessment system

Frequency of assessment

Annually

How far into the future are risks considered?

>6 years

Type of tools and methods used

Databases

Other

Tools and methods used

Internal company methods

External consultants

Other, please specify

Proprietary modeled flood data; CDP Supply Chain Program

Comment

The CDP Supply Chain Program runs annually. Other supply chain risk assessments are completed as required.

Other stages of the value chain

Coverage

Full

Risk assessment procedure

Water risks are assessed as part of other company-wide risk assessment system

Frequency of assessment

Annually

How far into the future are risks considered?

>6 years

Type of tools and methods used

Other

Tools and methods used

Internal company methods

Other, please specify

Community listening sessions and surveys; Business continuity testing

Comment

Business continuity testing is conducted annually. Other risk assessments for other stages of the value chain are completed as required.

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	When selecting locations, access to freshwater or industrial supply is one of our key criteria. For our existing locations, we use the WRI Aqueduct tool to assess the issue for our offices, labs, and datacenters. For our datacenter projects, water availability is also assessed through regularly conducted Maplecroft risk assessments. We also engage with utilities (water/sewer/power/fiber) prior to concluding a transaction. Capacity and quality are vetted and service agreements put in place prior to completing the transaction. Where future expansion plans are unknown, when possible we obtain commitment letters from the utilities indicating that they can provide for future demand (often subject to expansion of existing infrastructure) (tool: internal company methods). In 2017, we assessed the vulnerability of our operations to the physical impacts of climate change, including the potential for diminished water availability at the local level. In FY18, we expanded this assessment to include LinkedIn facilities and key suppliers. These assessments included a scenario analysis based on the IPCC RCP 8.5 projection out to 2030 (tools: FEMA flood data, IPCC data on future precipitation and sea-level rise, WRI Aqueduct tool, downscaled sea-level rise estimates provided by regional and local government authorities, and proprietary flood modeling products). We concluded that we do not have a substantive risk at the enterprise level, though

		we do have several important sites that are being monitored for potential water availability risks in the future and we are currently taking proactive steps to manage those risks. We are integrating the results into our siting and operational planning to mitigate the identified risk. Water availability at the basin level is particularly relevant to our corporate Environmental Sustainability team, which is pursuing a replenishment program in high-risk basins in FY19.
Water quality at a basin/catchment level	Relevant, always included	When selecting locations, access to freshwater or industrial supply is a basic and fundamental criterion. For our existing locations, we use the WRI Aqueduct tool to assess the issue for our offices, labs, and datacenters. For our datacenter projects, we engage with utilities (water/sewer/power/fiber) prior to concluding a transaction. Withdrawal/discharge capacity and water quality are vetted and service agreements put in place prior to completing the transaction. Where future expansion plans are unknown, when possible we obtain commitment letters from the utilities indicating that they can support future demand (tool: internal company methods). If those conditions change, we reevaluate our impact at the basin level and how we can address the issue. For example, we have acted upon improving the quality of our discharge and that of other industrial users by providing significant additional infrastructure to meet regulatory quality requirements. We also engage communities and local stakeholders in high-priority regions facing water risks. For example, in FY18, Microsoft announced a partnership with Trout Unlimited and the Bonneville Environmental Foundation to facilitate water replenishment in central Washington. The partnership supports projects that will increase flows and habitat conditions for migrating fish, remove fish passage barriers, and test new irrigation techniques that can improve the quality and quantity of fruit, while using less water. These projects are designed to produce tangible benefits that are meaningful for the aquatic environment and for the agricultural sector in the area.
Stakeholder conflicts concerning water resources at a basin/catchment level	Relevant, sometimes included	We assess the risk of stakeholder conflicts as applicable for our facilities globally; where required, we conduct a more detailed analysis. The corporate Environmental Sustainability governance model brings leaders from across the corporation—including finance, regulatory/policy, technology, and environmental professionals, as well as external subject matter experts—together to identify risks. Where applicable, it transitions identified risks to subsidiaries for further evaluation. Since our offices and labs are not significant users of water, there is generally no need for further assessment of stakeholder conflicts for these facilities; were an issue to be identified, it would be assessed through this model. For our datacenters, water supply and discharge are preapproved during site selection due diligence processes

		(tool: internal company methods); we meet with key local representatives to determine the likelihood of future potential issues and site viability. Microsoft engages communities and local stakeholders in high-priority regions facing water risks on an ongoing basis and participates in multi-stakeholder water replenishment programs in a variety of areas. For example, in FY18, Microsoft established a partnership with Gift of the Givers, a local NGO in South Africa's Western Cape Province, along with the Western Cape Government. This project enabled the installation of smart water meters at health facilities to provide assistance during water shortages. Smart metering allowed facility managers to monitor consumption and detect leakage and waste, reducing consumption and cost in this water-stressed region.
Implications of water on your key commodities/raw materials	Relevant, always included	The effect of our direct/manufacturing suppliers' operations on water sources is covered in the CDP reporting through the CDP Supply Chain program. For key raw materials in our supply chain, we also assess the current and future risk of impact on water sources at the materials' extraction sites (tool: internal company method). In addition, in FY18, we assessed the vulnerability of key Microsoft suppliers to the physical impacts of climate change; this assessment included a scenario analysis based on the IPCC RCP 8.5 projection out to 2030 (tools: FEMA flood data, IPCC data on future precipitation and sea-level rise, WRI Aqueduct tool, downscaled sea-level rise estimates provided by regional and local government authorities, and proprietary flood modeling products). For all other suppliers, the issue is not relevant because we do not source commodities/raw materials from these suppliers.
Water-related regulatory frameworks	Relevant, always included	Our corporate Environmental Sustainability governance model brings leaders from across the corporation—including finance, regulatory/policy, technology, and environmental professionals, as well as external subject matter experts—together to identify risks. Where applicable, it transitions identified risks to subsidiaries for further evaluation. Since our offices and labs are not significant enough users of water to be exposed to unique regulations and tariffs compared with any other standard office building, there is generally no need for further assessment of water-related regulatory risks for these facilities; were an issue to be identified, it would be assessed through this model. For our datacenters, we also explore this as part of site selection due diligence (tool: internal company methods). Where permits or water rights are required, we obtain those as part of the process. Monitoring regulatory restrictions is a useful risk assessment tool in and of itself—water-related requirements implemented by a municipality, local, regional, or federal agency provide a good indicator for risk to our facilities.

Status of ecosystems and habitats	Relevant, always included	The status of ecosystems and habitats are considered by default based on the federal, state, and local permitting regulations. Before we purchase land for our datacenters and office buildings, we generally have an environmental impact assessment performed. Furthermore, amphibian population health is a good indicator of the status of ecosystems. For our existing locations, we use the overall water risk score from the WRI Aqueduct tool (which takes into account whether amphibians are threatened in watersheds) to assess this issue for our offices, labs, and datacenters. We do not see this as a highly relevant risk for our offices or labs because they are not significant users of water. The status of ecosystems and habitats is particularly relevant to our corporate Environmental Sustainability team, which is pursuing a replenishment program in high-risk basins in FY19.
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	Access to fully functioning, safely managed wash, sanitation, and hygiene (WASH) services is relevant to our business because it is essential for the well-being of our employees. For our existing locations, we use the current water availability metrics within the WRI Aqueduct tool to assess this issue for our offices, labs, and datacenters. Facilities identified as being at risk for water shortages are also considered at risk for access to WASH services.
Other contextual issues, please specify		

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	Customers are indirectly or directly relevant to everything Microsoft does. Our customers are concerned about how we treat the environment and therefore their perspectives are relevant when we make decisions about how deeply we engage the community, for example for grant opportunities from Microsoft related to improving local water quality and quantity. If we do not engage with our customers in the areas of our operations—in particular, in the areas where we operate datacenters, where our presence will have the most impact—the result could be a loss of local goodwill, negative effects on our brand value, and a loss of business. We primarily engage with

		these customers through surveys. For example, we recently performed a survey of customers in selected locations where our datacenters are located. A water risk indirectly related to our customers would be if a water-related impact (such as flooding, extreme weather, drought, sea level rise/storm surges) compromised the reliability of our cloud services, which would be unacceptable to Microsoft and damaging to our customers. Therefore, we prioritize ongoing global business continuity, monitoring risks and implementing business continuity measures to help ensure continued reliability. Our Enterprise Business Continuity Management (EBCM) program conducts annual testing of Microsoft's critical services and business processes; scenarios vary but can involve loss of facilities, loss of systems, loss of workforce, loss of critical third-party suppliers of goods/services, cybersecurity events, or a combination of two or more of those scenarios. Beyond our datacenters and cloud services, the water-related customer impact of our operations is minimal and indirect, because our products are not water intensive in creation or use. Method of engagement: surveys, direct engagement.
Employees	Relevant, always included	When selecting locations, access to freshwater is a basic and fundamental criterion. Microsoft provides fully functioning wash, sanitation, and hygiene (WASH) services for all workers at all of our sites (in compliance with all local legal requirements). Access to freshwater is important for employee consumption, restrooms, and cooking (some locations). If we didn't provide potable water for our employees, we would not be able to operate our facilities, which would jeopardize our ability to provide continuous customer services; this risk is particularly relevant to water-stressed areas where we have facilities, such as in India. In areas with water restrictions, it is also important that our employees understand and prioritize any water conservation measures that are in place. We engage with employees through surveys (requesting their views on Microsoft environmental sustainability performance) and facilitate the sharing of best practices for water reduction measures implemented throughout our office and lab facilities; employees use certain water-savings tools such as automatic bathroom sink faucets daily. The Microsoft Sustainability Speaker Series gives visibility to topics such as global water sustainability issues to employees across Microsoft through in-person and online seminars. Method of engagement: surveys, daily use of office water systems, website, in-person speaker series.
Investors	Relevant, always included	Investors are increasingly concerned about the environmental performance and impact of the companies in which they invest, including water-related issues. We have reported our annual water use, water-related risks, and governance of water publicly through CDP since 2012 at the request of investors. We also publish detailed

		information on our water stewardship commitment and action on our website. Method of engagement: CDP, website.
Local communities	Relevant, always included	The health of the communities in which we operate is highly relevant for Microsoft. If we did not engage with the local communities in the areas of our operations—in particular, in the areas where we operate datacenters, where our presence will have the most impact—the result could be a loss of local goodwill and negative effects on our brand value. We also have an ethical responsibility to give back to the communities in the areas in which our operations have the greatest impact. As a part of our commitment to water stewardship, we engage communities and local stakeholders in high-priority regions facing water risks. For example, Cloud Operations + Innovation (CO+I)—responsible for the datacenters that power the Microsoft Cloud—has a dedicated team and budget to support local partnerships to solve critical local environmental issues, focusing on each community's priorities. In FY18, Microsoft established a partnership with Gift of the Givers, a local NGO in South Africa's Western Cape Province, along with the Western Cape Government. This project enabled the installation of smart water meters at health facilities to provide assistance during water shortages. Smart metering allowed facility managers to monitor consumption and detect leakage and waste, reducing consumption and cost in this water-stressed region. Method of engagement: Chamber of Commerce, surveys, educational outreach, focus groups, collaboration with community groups.
NGOs	Relevant, always included	For our offices and labs, we are not substantial water users in the river basins in which we operate. However, datacenters can at times be large users of water. The most significant water-related risk that we face regarding NGOs is reputational. We would be subject to criticism and scrutiny from any local NGOs that advocate for ecosystem preservation or social justice if one of our sites were operating with sufficient water but the local community ecosystem were not. We factor the role of NGOs in protecting water resources into our risk assessment by virtue of ensuring that we assess, identify, and mitigate any potential impact on susceptible river basins. We also engage with NGOs in high-priority regions facing water risks. For example, in FY18, Microsoft became a member of the California Water Action Collaborative, a platform made up of NGOs and companies seeking to positively impact water issues in California. Microsoft also joined the UN CEO Water Mandate in FY18. Microsoft has committed $1 billion to bring cloud computing resources to nonprofit organizations around the world. We believe nonprofits should have access to the same computing power as industry and that the ability to harness insights from big data will lead to new discoveries. As part of that commitment, every day we donate nearly $2 million in products and services to nonprofits like World Wildlife Fund, Rocky Mountain Institute,

		CDP, Wildlife Conservation Society, and the United Nations Framework Convention on Climate Change (UNFCCC) Climate Neutral Now initiative, as well as a number of local organizations, to advance solutions that benefit both people and the planet. NGOs are a particularly relevant stakeholder to our corporate Environmental Sustainability team, which will be partnering with NGOs in FY19 and beyond to deliver replenishment projects in high-risk basins. Method of engagement: direct engagement, multi-stakeholder meetings with NGOs and other stakeholders.
Other water users at a basin/catchment level	Relevant, sometimes included	For our offices and labs, Microsoft is not a substantial water user in the river basins in which we operate. Therefore, we do not have a significant impact on the water sources for other water users. However, datacenters can at times be large users of water. Water supply and discharge for our datacenters are preapproved; therefore, quantity and quality requirements are vetted in advance and are often included in our service agreements with the local utility company. During our risk assessment processes we continue to assess whether the demands for water from other users will affect the available supply for our datacenters in high-priority regions facing water risks, and we engage communities and local stakeholders as appropriate. Other water users at a basin/catchment level are a particularly relevant stakeholder to our corporate Environmental Sustainability team, which will be pursuing replenishment projects in high-risk basins in FY19 and beyond. Methods of engagement: direct engagement.
Regulators	Relevant, always included	For our offices and labs, Microsoft is not a substantial water user in the river basins in which we operate. Therefore, water regulators do not play a significant role in our water risk assessments for these locations. Where applicable, we work directly with regulators when installing and upgrading water systems (for example, we recently engaged with regulators to obtain permits for our Silicon Valley Campus water reuse system, and our Puget Sound campus used municipal rebates when upgrading the irrigation water system in FY18). For datacenters, quantity and quality requirements are vetted in advance and are often included in our service agreements with the local utility company. However, a potential risk that we factor into our ongoing risk assessments is the likelihood that, in cases of severe or extended droughts, our water allocations may be revised. Accordingly, our datacenter teams continue to work with appropriate agencies following the site selection, construction, and commissioning phases, in case new circumstances dictate a reduction in water availability and therefore a change in operations. Methods of engagement: direct engagement.

River basin management authorities	Relevant, sometimes included	A potential water-related risk that we face regarding river basin management authorities is if any were to impose restrictions on water rights or use that would restrict our ability to operate our facilities—particularly for our datacenters, for which access to sufficient freshwater is vital for operations. Only where water rights are required do we engage with bureau or basin management agencies. In those cases, the water permits are regulated and coordinated with those authorities. Method of engagement: direct engagement.
Statutory special interest groups at a local level	Relevant, sometimes included	For our offices and labs, Microsoft is not a substantial water user in the river basins in which we operate. However, datacenters can at times be large users of water. The quantity and quality requirements of our water supply and discharge are vetted in advance and are often included in our service agreements with the local utility company. We also engage statutory special interest groups at a local level in high-priority regions facing water risks. Our Johannesburg office, for example, installed a greywater treatment plant (GWTP) during the reporting period and engaged local third-party groups to conduct ongoing water quality samples. We consider a threat to watersheds not only in the context of our operations, but also to other water users. For example, through the Microsoft Community Development Fund, we have actively sought out organizations that we could assist in improving watershed health. We review applications for assistance to improve watershed health from statutory special interest groups such as conservancy groups located in the area of our operations. Method of engagement: direct engagement.
Suppliers	Relevant, always included	We always consider suppliers in our water risk assessments and then engage those suppliers where we deem it important based on water risks or level of priority to Microsoft. We focus engagements on suppliers that represent the majority of our supplier spend and impact. We annually request our top direct/manufacturing suppliers, some indirect/nonmanufacturing suppliers, and our tier 1 datacenter server suppliers to participate in the CDP Supply Chain water security program. In addition, through our supplier audit program, we monitor directly contracted manufacturing suppliers' water management practices and water/wastewater compliance to ensure that their water risks are minimized. An example of a risk considered is the risk of higher operating costs and of plant/production disruption leading to reduced output from increased water risk or projected water scarcity; in FY18, 27 percent of our indirect suppliers responding to the CDP Supply Chain water questionnaire reported water-related risks, and three rated these risks as high impact and virtually certain. Based on our analysis, however, these do not represent substantive risk to Microsoft. For our datacenter projects, we engage with utilities (water/sewer/power/fiber) prior to concluding a transaction. Capacity and quality are vetted and service

		agreements put in place prior to completing the transaction. Method of engagement: CDP, surveys, training, audits, collaboration on water efficiency, water recovery projects, internal company methods.
Water utilities at a local level	Relevant, sometimes included	For our offices and labs, Microsoft is not a substantial water user in the river basins in which we operate; therefore, since we have determined that there is no risk associated with these stakeholders, we do not consider water utilities any further in our water risk assessments for these facilities. Our datacenter teams work with local water utilities throughout the lifecycle of each building's construction and operations. For datacenters, water supply and discharge are preapproved; therefore, quantity and quality requirements are vetted in advance and are often included in our service agreements with the local utility company. Method of engagement: direct engagement.
Other stakeholder, please specify		

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.

Tool selection and process reflect both companywide and unit-specific needs: (1) Corporate Environmental Sustainability governance model, including monthly meetings with subject matter experts in policy, regulation, technology, legal affairs, marketing/branding, climate change risk assessment, and value chain, in part to identify and transition risks for further evaluation. (2) Enterprise Risk Management (ERM) program, which anticipates, identifies, assesses, and prioritizes risks and, through regular reporting and discussion, assists our directors with governance of risk. (3) Companywide assessment of vulnerabilities to the physical impacts of climate change, using IPCC RCP 8.5 scenario (to 2030). We are integrating the results into our siting and operational planning to mitigate identified risk. (4) WRI Aqueduct, to evaluate current facility risks. In FY19 and beyond, sites with high water risk scores will be evaluated for inclusion in Microsoft's replenishment program. (5) Microsoft Treasury annual property risk assessments to value global property insurance; our insurance broker uses industry-standard risk models to estimate probable impact from hazards like hurricanes, floods, supply chain disruptions (time horizon 1–3 years). These property risk assessments are used to represent Microsoft's risk exposure to underwriters and to benchmark the choice of coverages (by type/category) and coverage limits (by $ value) that we purchase. (6) Datacenter site selection due diligence, using internal company methods and information on water quality/quantity targets from economic development agencies and water utilities (on an ongoing basis). The results of this analysis both inform site selection and raise operational awareness of potentially applicable water targets. (7) Maplecroft Global Water Stress Index, used annually as part of datacenter threat vulnerability risk assessments (time horizon 1–3 years). This ongoing

water stress monitoring identifies water trends to inform the development of water-related mitigation measures as needed. (8) Microsoft Devices ISO 14001 certification, identifying risk using the Significant Aspects and Impacts review process (time horizon 1 year). The outputs of this annual assessment are used to define our significant environmental impacts and aspects ("water usage" does not currently meet our definition of "significant" for the areas covered by this assessment). (9) Annual CDP Supply Chain water security program, using supplier responses to fully understand supplier water usage and exposure to risk (time horizon 1 year). (10) Hardware manufacturing supplier audit program, using internal company methods to assess the water/wastewater compliance status of the suppliers and minimize water-related risks (time horizon 1 year). (11) Community listening sessions and surveys to document perceptions (negative or positive) with respect to Microsoft facilities in their communities to inform program decisions to contribute to social license to operate, livability, and workforce availability (as needed).

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

W4.1a

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

Microsoft defines substantive strategic or financial impact from water-related risks as follows:

- For offices and labs, an impact that would require significantly altering or relocating the operations of a facility or group of facilities that would affect our ability to deliver continuous customer services. This applies to direct operations.
- For datacenters, an impact that would require significantly altering or relocating a datacenter that would affect our ability to deliver continuous customer services. The definition of "continuous customer services" in this context is based on a customer's contracted reliability tier. The reliability tier can vary in the Microsoft service level agreements or contracts with customers. This applies to direct operations.
- For our suppliers, an impact that would block or delay the delivery of contracted goods or services to the extent that it would affect our ability to deliver continuous customer services or force a change in our business strategy (including, but not limited to, when supplier working conditions no longer meet requirements for the supplier's workplace as a result of a water-related impact). This applies to our supply chain.

- For our business overall, an impact that would lead us to alter our business strategy as a result of changes in return on investment, capital expenditures, or the cost of key supplies. This applies to both direct operations and supply chain.

Our products and services have minimal water impacts in other stages of the value chain.

Subject matter leadership on water-related risk resides with our Environmental Sustainability (ES) team, led by our Chief Environmental Officer. This team assesses comparative risk and impact through consultation with subject matter experts from across the company using formal risk assessments. The results of these assessments are shared with the Microsoft Enterprise Risk Management (ERM) program. The ERM group anticipates, identifies, assesses, and prioritizes risks and, through regular reporting and discussion, assists our directors with governance of risk. The ERM program has a formal process for assessing the size, scope, and relative significance of the various risks that Microsoft faces, including those related to water. The process involves categorizing risks according to their inherent impact on a scale of 1 (minimal) to 5 (critical) in four categories: trust or reputational; operational scope; legal, compliance, or environmental; and enterprise value. Risks are then rated according to their inherent likelihood on a scale of 1 (remote) to 5 (expected). These two ratings are used to produce an inherent risk score, and any risk for which the inherent risk score exceeds a defined threshold is considered material for reporting to senior management. The two ratings are also aggregated with a management action/control effectiveness rating for a residual risk calculation.

An example of a substantive impact considered is the potential for facility damage from an acute weather event, such as flooding. To mitigate this risk, Microsoft has an established Enterprise Business Continuity Management (EBCM) program, to help ensure the existence of effective, reliable, well-tested plans, systems, and processes that can be counted on during a disruptive event to support continuity of business operations and minimize adverse impacts. The EBCM program works with the ERM team to ensure consistent alignment among risks and risk ratings. (Note that this risk is not substantive; central to Microsoft cloud services design is geographic redundancy, which reduces our vulnerability to physical impacts, including flooding, and offers customers the option of a resilient alternative to on-premises datacenters.)

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	Consultation with subject matter experts across the organization and other water risk assessments (including our FY17–18 assessment of physical climate risks and our use of the WRI Aqueduct tool) have not revealed any substantive water risk across our global portfolio. None of the identified risks have the potential to affect our ability to deliver continuous customer services or force a change in our business strategy. For our offices and labs, each local operation is a relatively small contributor and most functions are mobile. Potential risks include water rationing, which would first impact landscaping and, in extreme cases, reduce work hours, though remote work locations would be available to employees. While our Johannesburg office provides an example during the reporting period where a water rationing incident reduced work hours, the impact was minimized because employees were able to work remotely, and we installed a system to collect and treat water for non-potable reuse onsite. For our datacenters, although access to freshwater is vital for cooling, central to our cloud services design is geographic redundancy, which inherently reduces our vulnerability to water impacts (whether from excess water or drought). We also have a water crisis response plan and ongoing business continuity strategies, including monitoring identified risks and implementing business continuity measures to help ensure continued reliability. Furthermore, capacity and quality are vetted with utilities and service agreements put in place prior to construction. The results of our assessments inform an executive review process led by the Microsoft Enterprise Risk Management (ERM) group, which anticipates, identifies, assesses, and prioritizes risks and, through regular reporting and discussion, assists our directors with governance of risk.

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 freshwater is important to our supplier operations, none of the identified risks have the potential to affect our ability to deliver continuous customer services or force a change in our business strategy. We annually request our top direct/manufacturing, some indirect/nonmanufacturing suppliers, and our tier 1 datacenter server suppliers to participate in the CDP Supply Chain water security program. For our directly contracted hardware manufacturing suppliers, we also assess supplier performance in environmental, health and safety, and labor and ethics (EHS&LE) areas, including water management, through our supplier audit program (typically on an annual basis). From these analyses, in combination with business importance and spend, we have determined that there are no substantive water risks. For example, in FY18, 27

		percent of our indirect suppliers responding to the CDP Supply Chain water security questionnaire reported water-related risks, and three rated these risks as high impact and virtually certain. Based on our analysis, however, these do not represent substantive risk to Microsoft. For our datacenter projects, we engage with utilities (water/sewer/power/fiber) prior to construction. Capacity and quality are vetted and service agreements put in place prior to completing the transaction. Our products and services have minimal water impacts in other stages of the value chain.

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

Products and services

Primary water-related opportunity

New R&D opportunities

Company-specific description & strategy to realize opportunity

Our opportunity is twofold: (1) Provide IT services resilient to physical impacts of climate change, such as flooding from sea level rise/extreme precipitation. With a cloud provider with georedundant datacenters, customers affected by a weather-related disaster can resume operations as soon as they restore Internet access. We are investing in cloud solutions across our product lines; two of our most significant services for businesses are Microsoft Office 365 and Microsoft Azure. Our global cloud service operations are supported by one of the largest physical networks in the world, with several industry certifications including ISO/IEC 27001:2005 and SAS70 Type II. We use geo-replicated customer

workloads to improve reliability. (2) Help accelerate the world's understanding and management of critical water-related resources through technology innovation using IoT scenarios and AI computing on the Azure platform. Our strategy consists of testing solutions in our operations, activating multisector partnerships to advance solutions to water challenges; developing new solutions that take advantage of cloud-based technologies to address water challenges; and enabling people and organizations to quantify and address water-related risks. For example, our AI for Earth program empowers people and organizations to solve global environmental challenges—including in water—by increasing access to AI tools and educational opportunities while accelerating innovation.

Estimated timeframe for realization

Current - up to 1 year

Magnitude of potential financial impact

Low-medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

0

Potential financial impact figure – maximum (currency)

3,300,000,000

Explanation of financial impact

It is difficult to quantify the potential financial implications. Theoretically if we were to win—for example—up to 3 percent additional business because we offered technology to help organizations and governments manage the water-related impacts of climate change (through resilient cloud services and AI computing resources), the impact based on FY18 (the reporting period) revenue of $110.36 billion would have been an increase of up to $3.3 billion.

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 business impact on water Description of water-related performance standards for direct operations Description of water-related standards for procurement Reference to international standards and widely-recognized water initiatives Company water targets and goals	Our water policy is available on the environmental sustainability portion of our website. We have a water stewardship strategy with four main objectives: (1) understand water risk and business impact in places where we operate; (2) set goals and improve water use; (3) drive local engagement and stewardship; and (4) advance innovative solutions to water challenges. Having a companywide water policy is essential to achieving our objectives. Each of the elements selected in the Content column directly supports our efforts to go beyond regulatory compliance and achieve our water stewardship strategy. Each provides guidance to help ensure alignment internally (from the corporate level down to the facility level) and externally (in how our business groups engage suppliers, customers, and other partners) in all water-related decisions and actions. By including this information on our website, it also makes us publicly accountable to our objectives and the supporting targets and commitments.

		Commitment to align with public policy initiatives, such as the SDGs Commitments beyond regulatory compliance Commitment to water-related innovation Commitment to stakeholder awareness and education Commitment to water stewardship and/or collective action Acknowledgement of the human right to water and sanitation Recognition of environmental linkages, for example, due to climate change	

W6.2

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

Yes

W6.2a

(W6.2a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for water-related issues.

Position of individual	Please explain
Board-level committee	The charter for the Regulatory and Public Policy Committee of our Board of Directors includes the responsibility to "review and provide guidance to the board and management about the company's policies and programs that relate to corporate social responsibility, including accessibility, environmental sustainability, ethical business practices, human rights, philanthropy, privacy and cybersecurity, and responsible sourcing." The committee oversees the broad set of Microsoft's public responsibilities and corporate social responsibility (CSR) issues, and environmental sustainability issues such as water fit into this mandate. Each year, our President and Chief Legal Officer (CLO) presents to this committee on these topics. The membership of the committee consists of at least two directors of the board and currently includes five directors.

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	Reviewing and guiding major plans of action	The Regulatory and Public Policy Committee meets three times a year with a varied agenda covering a breadth of corporate social responsibility (CSR) issues including updates on the company's commitments to environmental sustainability.

W6.3

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

Name of the position(s) and/or committee(s)
Other C-Suite Officer, please specify

Chief Legal Officer

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

Annually

Please explain

In FY18 (reporting period), the President/Chief Legal Officer (CLO) was responsible for our Corporate, External, and Legal Affairs (CELA) group. CELA is the company's legal, public policy and social responsibility arm of the company, focused on building and maintaining trust with customers, investors and stakeholders that we operate responsibly, including in the area of environmental sustainability. Each year, our President/CLO presents to the Regulatory and Public Policy Committee of the Board of Directors on the company's policies and programs that relate to corporate citizenship, including environmental sustainability as appropriate. The President/CLO monitored water-related issues and the company's progress on water objectives through quarterly business reviews with the General Manager, Technology and Corporate Responsibility and in more frequent individual meetings as appropriate. There is a direct line of escalation to the President/CLO and senior leadership team, when required.

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

Other, please specify

General Manager, Technology and Corporate Responsibility

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

Annually

Please explain

In FY18 (reporting period), our General Manager of Technology and Corporate Responsibility (TCR) was responsible for governance of environmental issues across the organization, including water. This role also had executive-level oversight of the Chief Environmental Strategist and corporate Environmental Sustainability team, including the company's water actions, and received updates on water strategy/issues monthly.

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

Environment/Sustainability manager

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

Annually

Please explain

In FY18 (reporting period), our Chief Environmental Strategist reported into the Corporate, External, and Legal Affairs (CELA) Technology and Corporate Responsibility (TCR) group. Our Chief Environmental Strategist led our corporate Environmental Sustainability team, the charter of which includes assessment and management of issues related to water. By focusing on operations, products, partners, and policy, the team strives to reduce our company's environmental footprint while empowering societal change through technology. The Environmental Sustainability team assesses progress on our environmental sustainability programs and supports our overall commitment to environmental sustainability goals, including those related to water. (Note: In FY19, Microsoft appointed a Chief Environmental Officer to lead our overall environmental sustainability vision, strategy, and program execution.)

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

Other, please specify

Water Program Manager

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

Annually

Please explain

The Water Program Manager is a new role created within our corporate Environmental Sustainability team in FY18 as a part of Microsoft's efforts to ramp up activities around water stewardship. In FY18 (reporting period), our Water Program Manager reported into the Corporate, External, and Legal Affairs (CELA) Technology and Corporate Responsibility (TCR) group. Our Water Program Manager leads Microsoft's water stewardship efforts, which include assessment and management of issues related to water. By focusing on operations, products, partners, and policy, the Environmental Sustainability team strives to reduce our company's environmental footprint while empowering societal change through technology. The team assesses progress on our environmental sustainability programs and supports our overall commitment to environmental sustainability goals, including those related to water.

W6.5

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

Yes, direct engagement with policy makers

Yes, trade associations

Yes, other

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?

We strive to ensure that our participation in the political process is open, transparent and based on reasons that are clear and justifiable to our shareholders and the public. We are pleased that Microsoft gained the second highest rating given by the CPA-Zicklin Index of Corporate Political Accountability and Disclosure for our policies that ensure the accountability and transparency of our public policy engagement. (Full guidelines governing our policy engagement and details of campaign contributions and advocacy spending are available through the corporate social

responsibility section of the Microsoft website.) Our Director of Sustainability Policy role (responsible for the company's policy efforts on sustainability issues) and our Water Program Manager (within our corporate Environmental Sustainability team) coordinate using regular communication to ensure that our advocacy work is consistent with our water stewardship and sustainability strategy. Both roles are part of our Corporate, External, and Legal Affairs (CELA) organization, which helps ensure consistency in our programmatic and policy work related to water. Should any inconsistency between Microsoft activities that influence public policy on water and our water stewardship strategy and commitments be discovered, we would first ensure that these roles were aware of the inconsistency and determine whether they were able to resolve it. If not, the issue would be escalated to the office of the President.

W6.6

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

Yes (you may attach the report - this is optional)

📎 MSFT_FY18Q4_10K.docx

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	> 30	Microsoft has opportunities to significantly improve our water use and stewardship with a cross-company water strategy and specific goals. Our opportunity is to both fulfill our broader sustainability commitments to mitigate our risk and create long-term value around water stewardship. Water is considered in long-term Microsoft real estate investments. There is strategic value in these long-lived assets, and investment decisions are made on a time horizon >30 years. Our water stewardship

			strategy includes long-lived assets and facilities as well as technologies and service offerings. Our strategy has four main objectives: (1) understand water risk and business impact in places where we operate; (2) set goals and improve water use; (3) drive local engagement and stewardship; and (4) advance innovative solutions to water challenges. We have an opportunity to understand our water-related risks, improve water stewardship, and accelerate our customer's and society's understanding and management of water resources through technology. The cloud and Internet of Things (IoT) can improve water metering, infrastructure monitoring, and water resource management. Combined with the potential for AI to anticipate and respond to resource challenges, there is opportunity for digital transformation within Microsoft and in the water sector over the next decade. Our ability to deliver these transformational experiences will be enhanced by our water stewardship efforts.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	> 30	In expanding our water risk assessment across our operations and supply chain in FY17, we identified high-risk basins that are now the focus of our water replenishment initiative. This has enabled us to prioritize resources on the water basins, facilities, and suppliers that have the greatest potential for water risk now and in the future (time horizon >30 years) and engage facilities, suppliers, and communities to improve water stewardship and mitigate potential risks. In FY17 and FY18, we increased water metering within our Cloud Operations + Innovation (CO+I) division to improve data collection. In FY19 we will be expanding water data collection to include sources of supply for key sites. We engage stakeholders in high-priority regions facing water risks, including engagement with local communities to address local water supply issues. We also joined the California Water Action Collaborative and UN CEO Water Mandate, both of which will enhance our ability to engage with local communities, NGOs, and other companies in basins facing water risks. We will continue to identify and pursue opportunities to engage communities on local water issues as part of our corporate water stewardship and datacenter community engagement efforts. Key activities include identifying opportunities for technology innovation, establishing pilot projects, sharing best practices and evaluating scalability, and identifying commercialization opportunities.
Financial planning	Yes, water-related issues are integrated	> 30	Water is one consideration included in our long-term real estate investments. There is strategic value in these long-lived assets, and investment decisions are made with consideration of water issues on a long-term time horizon >30 years. In addition, our water stewardship strategy includes both long-lived assets and facilities as well as technologies and service offerings. For example, we partnered

			with the City of Quincy in 2011 to help create a water reuse system using excess water from food processing plants to provide water for datacenter cooling systems. This investment demonstrates our long-term financial planning and investment in water stewardship.

W7.2

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

Row 1

Water-related CAPEX (+/- % change)

0

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

Water-related OPEX (+/- % change)

37

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

-2.5

Please explain

The water CAPEX change (0%) reflects datacenters in the Cloud Operations + Innovation (CO+I) group only. We invested $1 million to install supply-side water meters for these datacenters. Because our offices and labs (Real Estate & Security [RE&S] division) are not substantial water users, we do not track water CAPEX for them separately. The water OPEX change reflects both CO+I and RE&S. CO+I OPEX increased, while RE&S water utility OPEX decreased. The RE&S decrease is due in part to a reported consumption reduction of 7.3%. The anticipated forward trend for CO+I for the next reporting year will be to increase OPEX/CAPEX based on datacenter growth projections; RE&S does not forecast

water-related CAPEX separately. The anticipated forward trend for OPEX provided (-2.5%) is based on forecasted RE&S volume decreases and unchanged water utility rates only; this does not include CO+I projections.

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 RCP 8.5	During FY16, we initiated a scenario analysis focused on the risks associated with the physical impacts of climate change. We relied on RCP 8.5 because it is the publicly available and peer-reviewed scenario with the greatest potential physical risk. Although our analysis did not reveal any material risks, it did present the possibility of water shortages at several of our facilities from extended drought and increased flooding risk from intense precipitation events. During FY18, we began evaluating scenarios	Our response to possible water-related outcomes is multifaceted and ongoing. We are rigorous about creating redundancy in our datacenter operations, using geo-replicated customer workloads (keeping multiple copies of workloads in multiple locations) to improve reliability. We are also currently exploring and implementing approaches to reduce our water usage. We also identify alternative sources for water that do not require the provision of municipal water, including water reuse. And we take

		for our assessment of transition risk, and we expect to have a substantially greater understanding of our transition risk by FY20.	water stresses into account when we relocate older facilities or site new facilities; any office construction projects in water-stressed regions prioritize water reduction and reuse strategies. We plan to increase capital investment in water conservation projects, including large-scale campus redevelopment projects in Silicon Valley (FY20). In FY18, our Johannesburg office completed a greywater treatment plant (GWTP) and rainwater harvesting system to increase water reuse in a water-stressed region. The GWTP is separately metered to track the amount of water reused on a monthly basis. Located in a water-stressed region, our Herzliya campus redevelopment (FY20) will feature cooling tower optimization, where condensate water will be collected and treated onsite to meet non-potable water irrigation needs.

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
As a first step in exploring water valuation practices, Microsoft is using the Water Risk Monetizer (WRM) tool to evaluate the full cost of water to the company. We have deployed the WRM tool in our San Antonio datacenter and found that the risk-adjusted water bill, representing the full value of water to Microsoft operations, is more than 11 times greater than the current water bill presented by the San Antonio Water System. This type of information could help Microsoft in setting an internal price on water, although the context-based value of water doesn't lend itself particularly well to one globally applicable price of water.

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 Business level specific targets and/or goals Site/facility specific targets and/or goals	Targets are monitored at the corporate level Goals are monitored at the corporate level	Motivated by our commitment to water stewardship, we are working towards developing specific, measurable goals and targets at the site/facility, business group, and corporate levels. At the site/facility level, our approach is focused on our datacenters: developing intelligent systems to gather real-time data; monitoring and servicing those systems to ensure that the data accurately represents site-level conditions; using the data to justify additional investments in water-related efficiency projects; and pursuing projects that facilitate the use of non-potable water. At the business group level, in FY18, Real Estate & Security (RE&S) initiated water audits at major campuses to uncover opportunities to reduce water use and improve efficiency. These opportunities inform global sustainability goals and water reduction targets, to be monitored at the corporate level. In FY18, our Cloud Operations + Innovation (CO+I) division engaged in a parallel SMART goalsetting process to evaluate setting a volumetric water reduction goal specific to its water use patterns and targets that would represent a meaningful reduction across our most water-stressed sites. At the corporate level, we are working towards setting a company-wide operational volumetric water reduction goal. This process has included consultation with RE&S and CO+I to determine volumetric reduction targets tied to meaningful metrics for each business group, monitored at the corporate level. RE&S will track absolute water use reduction based on a baseline year, and CO+I will track water use reduction based on volume and water use effectiveness (WUE [liters of cooling water per kilowatt-hour of IT energy]). We are also engaged in a process to set a corporate replenishment goal based on water consumption in high-risk basins. This goal builds on the results of our risk assessment process, layering in site-level water consumption data and other company priorities to determine the list of basins in which we will pursue replenishment. In FY19, Microsoft issued a request for proposal (RFP) for replenishment projects in priority basins, and we are moving forward with a first round of replenishment projects.

W8.1a

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

Target reference number

Target 1

Category of target

Other, please specify

Reduction in real estate water intensity

Level

Business

Primary motivation

Cost savings

Description of target

In FY18, our Real Estate & Security (RE&S) group (responsible for our offices and labs) had a target to limit our real estate water intensity at large sites—as measured by cubic meter of water withdrawn per square foot of included buildings. We set a goal to keep our intensity essentially flat to baseline (no more than 0.5 percent increase). Drivers (beyond cost savings) for this target include water security, brand value protection, water stewardship, and that it is a recommended sector best practice. At the end of FY18, we had reduced water use intensity at our large campus locations by 2.5 percent compared with our baseline year (FY14).

Quantitative metric

Other, please specify

% reduction per square foot of included buildings

Baseline year

2014

Start year

2015

Target year

2018

% achieved

100

Please explain

Note that the baseline and target years refer to Microsoft fiscal years (baseline of FY14, from July 1, 2013, to June 30, 2014, and target year of FY18, from July 1, 2017, to June 30, 2018).

W8.1b

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

Goal

Engagement with suppliers to help them improve water stewardship

Level

Business

Motivation

Water stewardship

Description of goal

Require our tier 1 direct/manufacturing suppliers to "water balance." This means to perform an analysis to map water inflows, outflows, and intermediate reuse between production and support areas in a manufacturing plant. This goal is set at the business level because it is specific to our direct/manufacturing suppliers. It is important to our company as the analysis provides valuable information to our suppliers leading to

improved water management and cost reductions while helping meet our requirement that they have management systems for environmental aspects. We verify the suppliers' implementation of this requirement across all tier 1 suppliers through onsite audits. Suppliers must show completion and demonstrate the effectiveness of their "water balance" implementation.

Baseline year

2016

Start year

2016

End year

2018

Progress

The first stage included data collection, program design, and defining the site organization to support the program. The second stage focused on capability building and water balance analysis. The third stage focused on engineering and administrative improvements. Our threshold for success was when all tier 1 sites had achieved all three stages. We assessed our progress against this goal by verifying the completion and effectiveness of implementation through onsite audits. The program was piloted in 2013 with a supplier in Dongguan, China. By the end of FY18 (the reporting period), all sites reported completing the third stage. The "water balance" implementation helped the sites to build relevant capabilities, identify water-saving opportunities, and realize their water conservation goals. For example, the main achievements through the program at one site included (1) renovating the underground fire water supply pipelines; (2) replacing traditional faucets with water-saving faucets; (3) replacing underground water supply pipelines; and (4) replacing underground fire-sprinkling pipelines. The site's monthly water consumption rate at the end of FY18 (June 2018) had reduced by approximately 50 percent compared with at the beginning of FY16.

Goal

Engagement with suppliers to help them improve water stewardship

Level

Business

Motivation

Water stewardship

Description of goal

Promote water conservation by driving adoption of various waste/wastewater onsite and recycling techniques at supplier sites. The techniques enable water to be separated from waste/wastewater and reused in production, which helps conserve water. It is important to our company as adoption of these techniques decreases the water dependency of these suppliers and makes our supply chain more resilient in terms of water security. This goal is set at the business level because it is specific to our direct/manufacturing suppliers. It has been implemented at select suppliers since FY17 and will be expanded to a wider scope in the future.

Baseline year

2017

Start year

2017

End year

2019

Progress

We assess our progress against this goal using the following indicators: progress of the waste reduction project and the results of the project on the factory operations. Our threshold for success is progress of the factory as shown in the data reported. In FY17, we launched an onsite waste coolant treatment project at a pilot (supplier) factory. We introduced treatment techniques to the supplier and then had waste coolant treatment facilities installed at the factory. After a series of equipment/facility adjustments and process optimization, the waste treatment practices have been carried out at the pilot factory properly. Based on the information provided by the supplier, the waste coolant treatment system reached a waste reduction rate of approximately 80 percent in FY18. In FY19, we plan to involve more factories generating significant amounts of waste coolant in this project to further benefit our supply chain and the environment.

Goal

Engagement with suppliers to reduce the water-related impact of supplied products

Level

Business

Motivation

Reduced environmental impact

Description of goal

Increase the number of Microsoft direct/manufacturing suppliers that respond to the CDP water security questionnaire. This goal is important to our company as it will help us in our reporting on supplier water engagement. It is relevant to the goal of achieving water security because of the environmental implications. This goal is set at the business level because it is specific to our direct/manufacturing suppliers. We are implementing it by partnering directly with our suppliers on the topic. We held a supplier forum during which Microsoft requested suppliers to complete the CDP water security questionnaire. We also videotaped the forum and will place it in our supplier training portal.

Baseline year

2017

Start year

2017

End year

2018

Progress

This is an ongoing goal, measured annually. We assess our progress for this goal based on the number of suppliers that respond to the CDP water security survey. Our threshold for success is 100 percent response rate from suppliers constituting 80 percent spend. In FY18, we requested suppliers representing 90 percent of direct/manufacturing supplier spend to respond to the questionnaire and received 51 responses. In FY19, we will be increasing reach to 95 percent of direct/manufacturing suppliers.

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

Tradeoff

Type of linkage/tradeoff

Other, please specify

Increased water use at facility level

Description of linkage/tradeoff

More energy-efficient adiabatic cooling systems are associated with increased water use. Chillers, cooling towers, and adiabatic cooling enable us to cool our datacenters, labs, and offices more efficiently than air, thereby using less energy and reducing emissions. However, they use more water than air-cooled systems. For example, a typical chilled water system requires 1.6 to 3.0 gallons per minute (gpm) per ton. The tradeoff with chilled systems is that while they consume more water than a direct expansion (DX) system (onsite), they require less physical space. The reduced physical space requirement is a benefit to the environment. In FY18, Microsoft continued investing in more advanced design techniques to deploy more advanced technologies as they become available.

Policy or action

We are able to design systems that allow us to manage which resource will be best used given the location and the resource availability and sustainability for that location. Our water-related business strategy includes conducting this tradeoff analysis when constructing new sites in order to use the most suitable technology available for that site's context, including maximizing operational flexibility. For example, in some cases, we can manage site-level resource optimization on a day-to-day basis by altering our operational programming to use more or less power or water on a given day in response to weather conditions. We do this based on factors like how hot or cool the outside air is, drought status in the surrounding area, current loading of the power grid, and even whether or not those power sources are carbon offset capable so as to minimize use of nonrenewable or high-carbon-output grid power suppliers. Some Microsoft-owned datacenters now have innovative cooling systems that are similar to "swamp coolers" used in residential homes. These systems are highly efficient, using less electricity than other cooling systems and a fraction of the water consumed by other water-based cooling systems.

Linkage or tradeoff

Tradeoff

Type of linkage/tradeoff

Other, please specify

Increased water use at utility level

Description of linkage/tradeoff

With the use of current waterless technologies in Microsoft datacenters, our energy demand increases. While Microsoft relies minimally on air-cooled equipment, this results in an increase in water consumption at the utility level. Power plants require 2 gallons of water for every 1 kilowatt-hour (kWh) of energy consumed. To offset this tradeoff, Microsoft procured nearly 600 megawatts of renewable energy in FY18.

Policy or action

Microsoft increasingly relies on free-cooling systems with supplemental cooling from adiabatic or waterless cooling systems throughout our portfolio of datacenters. Our water-related business strategy includes integrating these systems when feasible given the site's local context. Under certain outdoor environmental conditions, the majority of our datacenters mix fresh outside air with indoor air, allowing us to bypass the more energy- and water-intense cooling systems. Other Microsoft-owned datacenters now have innovative cooling systems that are similar to "swamp coolers" used in residential homes. These systems are highly efficient, using less electricity than other cooling systems and a fraction of the water consumed by other water-based cooling systems.

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
W1. Current state	Total withdrawals	ISAE3000	Microsoft annually has our total global water withdrawals independently verified. Of Microsoft water data, withdrawal data is the most accurate and complete, as a large portion is metered and we estimate withdrawals for sites that are not metered.

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	President and Chief Legal Officer	President

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)].

Yes

SW. Supply chain module

SW0.1

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

	Annual revenue
Row 1	110,360,000,000

SW0.2

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

Yes

SW0.2a

(SW0.2a) Please share your ISIN in the table below.

ISIN country code	ISIN numeric identifier (including single check digit)

| Row 1 | US | 5949181045 |

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?

No facilities were reported in W5.1

SW1.2

(SW1.2) Are you able to provide geolocation data for your site facilities?

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.

Requesting member

Endesa

Category of project

Other

Type of project

Other, please specify

Risk management

Motivation

Risk mitigation

Estimated timeframe for achieving project

Up to 1 year

Details of project

Businesses around the world understand that insufficient access to clean water can significantly disrupt business operations and growth. There's also a wide appreciation for the growing amount of risk related to access to water, as the UN predicts that global demand for water will outstrip our existing supply by 40 percent by 2040. We launched the Water Risk Monetizer (WRM) (waterriskmonetizer.com) in March 2017 in partnership with Ecolab and Trucost because we believe that data can play an important role in transforming the way big business uses water to create a more sustainable future. Free, global, and built on the Azure Cloud, the WRM is the first publicly available water risk analysis and financial modeling tool to translate water scarcity risks into financial terms. It enables businesses to factor current and future water risks into decision making. The information provided by the WRM can help you assess water-related risks at a site and enterprise level, make the case for proactive water management strategies, prioritize locations for investment based on water scarcity risk, and understand the full value of water to your operation. To get started, we encourage you to watch the tutorial video at https://youtu.be/N_PUMqUI-i4 and read through the frequently asked questions (FAQs) at waterriskmonetizer.com/learn-more/faq.

Projected outcome

With the WRM, users can get a new level of understanding of enterprise water-related risk by ranking facilities based on risk level, plotting facilities on a risk versus likelihood continuum, and assigning action plans for facilities based on risk probability. They can also gain insight into water-related reputational risk factors. Businesses can use these insights to inform decision making, develop locally relevant plans, and drive investment in water-saving measures—thereby benefiting the business and the communities where they operate. The financial benefits of using the WRM will be company specific. However, as an example, at Microsoft we used the tool to assess the risk at our datacenter near San Antonio, TX. San Antonio is located within the Leon Creek Watershed, which is considered a high-water-stress region, according to the World Resources Institute (WRI) Water Risk Atlas. The data insights that we gained through the tool showed that the risk-adjusted water bill, representing the full value of water to Microsoft operations, is more than 11 times greater than the current water bill presented by the San Antonio Water System. We worked with Nalco, an Ecolab company, to develop a strategy where we now use recycled water and their technology. This allows us to save more than $140,000 in water costs per year, while also avoiding the use of 58.3 million gallons of potable water per year.

Requesting member

Ford Motor Company

Category of project

Other

Type of project

Other, please specify

Risk management

Motivation

Risk mitigation

Estimated timeframe for achieving project

Up to 1 year

Details of project

Businesses around the world understand that insufficient access to clean water can significantly disrupt business operations and growth. There's also a wide appreciation for the growing amount of risk related to access to water, as the UN predicts that global demand for water will outstrip our existing supply by 40 percent by 2040. We launched the Water Risk Monetizer (WRM) (waterriskmonetizer.com) in March 2017 in partnership with Ecolab and Trucost because we believe that data can play an important role in transforming the way big business uses water to create a more sustainable future. Free, global, and built on the Azure Cloud, the WRM is the first publicly available water risk analysis and financial modeling tool to translate water scarcity risks into financial terms. It enables businesses to factor current and future water risks into decision making. The information provided by the WRM can help you assess water-related risks at a site and enterprise level, make the case for proactive water management strategies, prioritize locations for investment based on water scarcity risk, and understand the full value of water to your operation. To get started, we encourage you to watch the tutorial video at https://youtu.be/N_PUMqUI-i4 and read through the frequently asked questions (FAQs) at waterriskmonetizer.com/learn-more/faq.

Projected outcome

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water-related reputational risk factors. Businesses can use these insights to inform decision making, develop locally relevant plans, and drive investment in water-saving measures—thereby benefiting the business and the communities where they operate. The financial benefits of using the WRM will be company specific. However, as an example, at Microsoft we used the tool to assess the risk at our datacenter near San Antonio, TX. San Antonio is located within the Leon Creek Watershed, which is considered a high-water-stress region, according to the World Resources Institute (WRI) Water Risk Atlas. The data insights that we gained through the tool showed that the risk-adjusted water bill, representing the full value of water to Microsoft operations, is more than 11 times greater than the current water bill presented by the San Antonio Water System. We worked with Nalco, an Ecolab company, to develop a strategy where we now use recycled water and their technology. This allows us to save more than $140,000 in water costs per year, while also avoiding the use of 58.3 million gallons of potable water per year.

Requesting member

Fujitsu Limited

Category of project

Other

Type of project

Other, please specify

Risk management

Motivation

Risk mitigation

Estimated timeframe for achieving project

Up to 1 year

Details of project

Businesses around the world understand that insufficient access to clean water can significantly disrupt business operations and growth. There's also a wide appreciation for the growing amount of risk related to access to water, as the UN predicts that global demand for water will outstrip our existing supply by 40 percent by 2040. We launched the Water Risk Monetizer (WRM) (waterriskmonetizer.com) in March 2017 in

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Projected outcome

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Requesting member

General Motors Company

Category of project

Other

Type of project

Other, please specify

Risk management

Motivation

Risk mitigation

Estimated timeframe for achieving project

Up to 1 year

Details of project

Businesses around the world understand that insufficient access to clean water can significantly disrupt business operations and growth. There's also a wide appreciation for the growing amount of risk related to access to water, as the UN predicts that global demand for water will outstrip our existing supply by 40 percent by 2040. We launched the Water Risk Monetizer (WRM) (waterriskmonetizer.com) in March 2017 in partnership with Ecolab and Trucost because we believe that data can play an important role in transforming the way big business uses water to create a more sustainable future. Free, global, and built on the Azure Cloud, the WRM is the first publicly available water risk analysis and financial modeling tool to translate water scarcity risks into financial terms. It enables businesses to factor current and future water risks into decision making. The information provided by the WRM can help you assess water-related risks at a site and enterprise level, make the case for proactive water management strategies, prioritize locations for investment based on water scarcity risk, and understand the full value of water to your operation. To get started, we encourage you to watch the tutorial video at https://youtu.be/N_PUMqUI-i4 and read through the frequently asked questions (FAQs) at waterriskmonetizer.com/learn-more/faq.

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Requesting member

HP Inc

Category of project

Other

Type of project

Other, please specify

Risk management

Motivation

Risk mitigation

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Up to 1 year

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Requesting member

L'Oréal

Category of project

Other

Type of project

Other, please specify

Risk management

Motivation

Risk mitigation

Estimated timeframe for achieving project

Up to 1 year

Details of project

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Requesting member

LinkedIn Corp.

Category of project

Other

Type of project

Other, please specify

Risk management

Motivation

Risk mitigation

Estimated timeframe for achieving project

Up to 1 year

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Requesting member

Nokia Group

Category of project

Other

Type of project

Other, please specify

Risk management

Motivation

Risk mitigation

Estimated timeframe for achieving project

Up to 1 year

Details of project

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Requesting member

Endesa

Category of project

New product or service

Type of project

Other, please specify

AI to enable better management of water

Motivation

Increase the accessibility and usefulness of AI tools to solve global environmental challenges

Estimated timeframe for achieving project

Details of project

We are developing artificial intelligence (AI) computing resources to enable people, organizations, and governments to more effectively monitor, model, and manage water. AI for Earth is a Microsoft program aimed at empowering people and organizations to solve global environmental challenges—specifically in climate, water, agriculture, and biodiversity—by increasing access to AI tools and educational opportunities, while accelerating innovation. Funded with $50 million over a 5-year commitment from Microsoft President Brad Smith in December 2017, the AI for Earth program is focused on deploying Microsoft's deep investments in AI research and technology to enable people and organizations to sustain and manage earth's life support systems. Learn more at microsoft.com/en-us/aiforearth.

Projected outcome

The AI for Earth program empowers people and organizations to solve global environmental challenges with Microsoft's cloud and AI tools. For example, FarmBeats uses Microsoft's machine learning algorithms along with low-cost sensors, drones, and other data to deliver actionable insights to farmers. We believe that data, coupled with the farmer's knowledge about his or her farm, can help increase farm productivity while reducing environmental impact and out-of-pocket costs. In another example, Microsoft partnered with the Chesapeake Conservancy to build a dynamic system for generating one-meter resolution land cover data anywhere in the United States. Using algorithms on Microsoft's AI platform and integrating the data into Esri's ArcGIS spatial mapping software, we were able to create an accurate, current land cover map, giving conservationists access to regularly updated data with 900 times the information that was available before. Organizations like Chesapeake Conservancy are leveraging these new geospatial capabilities to work with regional stakeholders to better target and implement on-the-ground agricultural and conservation practices that reduce sediment and nutrient loads into adjacent water bodies.

Requesting member

Ford Motor Company

Category of project

New product or service

Type of project

Other, please specify

AI to enable better management of water

Motivation

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Requesting member

Fujitsu Limited

Category of project

New product or service

Type of project

Other, please specify

AI to enable better management of water

Motivation

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Requesting member

General Motors Company

Category of project

New product or service

Type of project

Other, please specify

AI to enable better management of water

Motivation

Increase the accessibility and usefulness of AI tools to solve global environmental challenges

Estimated timeframe for achieving project

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Requesting member

HP Inc

Category of project

New product or service

Type of project

Other, please specify

AI to enable better management of water

Motivation

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Estimated timeframe for achieving project

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Requesting member

L'Oréal

Category of project

New product or service

Type of project

Other, please specify

AI to enable better management of water

Motivation

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Requesting member

LinkedIn Corp.

Category of project

New product or service

Type of project

Other, please specify

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Requesting member

Nokia Group

Category of project

New product or service

Type of project

Other, please specify

AI to enable better management of water

Motivation

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Estimated timeframe for achieving project

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Requesting member

Endesa

Category of project

Promote river basin collective action

Type of project

Invite customer to collaborate with other users in their river basins to reduce impact

Motivation

Improve water conditions in the river basins in which we operate

Estimated timeframe for achieving project

Details of project

As we implement our water stewardship strategy at Microsoft, we will be evaluating opportunities to co-invest with partners in ecosystem restoration and water replenishment projects that alleviate water stress in the river basins in which we operate.

Projected outcome

Through our water replenishment commitment, we are interested in exploring opportunities to collaborate on projects to improve the water conditions where we each have operational interests.

Requesting member

Ford Motor Company

Category of project

Promote river basin collective action

Type of project

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Fujitsu Limited

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General Motors Company

Category of project

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Requesting member

HP Inc

Category of project

Promote river basin collective action

Type of project

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Requesting member

L'Oréal

Category of project

Promote river basin collective action

Type of project

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Motivation

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Estimated timeframe for achieving project

Details of project

As we implement our water stewardship strategy at Microsoft, we will be evaluating opportunities to co-invest with partners in ecosystem restoration and water replenishment projects that alleviate water stress in the river basins in which we operate.

Projected outcome

Through our water replenishment commitment, we are interested in exploring opportunities to collaborate on projects to improve the water conditions where we each have operational interests.

Requesting member

LinkedIn Corp.

Category of project

Promote river basin collective action

Type of project

Invite customer to collaborate with other users in their river basins to reduce impact

Motivation

Improve the water conditions in the river basins in which we operate

Estimated timeframe for achieving project

Details of project

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Projected outcome

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Requesting member

Nokia Group

Category of project

Promote river basin collective action

Type of project

Invite customer to collaborate with other users in their river basins to reduce impact

Motivation

Improve the water conditions in the river basins in which we operate

Estimated timeframe for achieving project

Details of project

As we implement our water stewardship strategy at Microsoft, we will be evaluating opportunities to co-invest with partners in ecosystem restoration and water replenishment projects that alleviate water stress in the river basins in which we operate.

Projected outcome

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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.

Submit your response

In which language are you submitting your response?

Please confirm how your response should be handled by CDP

	Public or Non-Public Submission	I am submitting to
I am submitting my response	Public	

Please confirm below