Applied Materials Inc. - Water Security 2022

W0. Introduction

W0.1

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

Applied Materials, Inc. (Nasdaq: AMAT) provides manufacturing equipment, services and software to the semiconductor, display and related industries. Founded in 1967, Applied Materials is the leader in materials engineering solutions used to produce virtually every new chip and advanced display in the world. Our expertise in modifying materials at atomic levels and on an industrial scale enables customers to transform possibilities into reality. From our commitment to the well-being of our employees and their communities, to our sustainable and ethical business practices, we are focused on our goal to Make Possible a Better Future.

Applied Materials is committed to growing profitably and sustaining our business in an environmentally and socially responsible manner. We use our resources and technology leadership to enable the creation of products that improve the way people live. As of the end of fiscal year 2021, Applied employed approximately 27,000 regular employees. Around the world, as of the end of 2021, we owned a total of approximately 7,327,000 square feet of space and leased another 3,712,000 square feet of space for offices, plants and warehouses.

W0.2

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

	Start date	End date
Reporting year	January 1 2021	December 31 2021

W0.3

(W0.3) Select the countries/areas in which you operate.

Canada
China
France
Germany
Greece
India
Ireland
Israel
Italy
Japan
Malaysia
Netherlands
Philippines
Republic of Korea
Singapore
Taiwan, China
United Kingdom of Great Britain and Northern Ireland
United States of America

W0.4

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

USD

W0.5

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

Companies, entities or groups over which operational control is exercised

W0.6

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

No

W0.7

(W0.7) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization.	Provide your unique identifier
Yes, a Ticker symbol	AMAT

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	Important	Vital	Direct use: good quality freshwater is essential to our operations and is used in our manufacturing processes (i.e., equipment production) as well as for general building services (utilities, domestic water, landscaping, etc.). High-quality water is used during our manufacturing processes to rinse equipment. A lack of good quality freshwater can have an appreciable impact on our direct operations; however, Applied's own operations are not water intensive, thus yielding a rating of "Important" for this category. Indirect use: Applied has an intricate value chain. Strategic suppliers are involved in producing specialized electronic parts, which rely on good quality freshwater. Water is vital for our customers due to their use of ultrapure water to make semiconductor chips and other products. Significant water shortages could force customers to purchase equipment that use less water or limit production, which is why we have selected a "Vital" rating and are working collaboratively with customers to reduce water use through improvements in product design and efficiency. Future water dependency in both direct and indirect operations will continue to increase due to continued strong demand for semiconductor products that power the technology sector; however, the industry is working to identify measures to decouple our growth from water demand through product and operational innovation.
Sufficient amounts of recycled, brackish and/or produced water available for use	Neutral	Neutral	Direct use: Applied currently uses a limited quantity of recycled, brackish, and produced water in our operations. Where possible, Applied Materials is implementing water recycling alternatives, especially around cooling tower operations and landscaping water usage. Presently, this does not represent a large percentage of our overall water use. Opportunities to increase use of recycled/brackish water and water recycling are continually under consideration in our operations; therefore, we have given this a rating of "Neutral" but anticipate that this could change going forward. We expect the use of recycled/ brackish/ produced water will increase in the future, primarily due to the expansion of our operations globally to meet increasing business demand and geopolitical priorities. Indirect use: Like us, our suppliers are using limited quantities of recycled, brackish and/or produced water in their operations. We have given them a ranking of "Neutral" in alignment with our own water usage understanding and based on the responses that they provide to the annual RBA environmental survey. Similarly, our key customers are actively looking for ways increase water recycling and reclamation at their fabs, however current product processes are still heavily dependent on freshwater, thus reinforcing the "Neutral" rating at this time. We anticipate use of recycled/ brackish/ produced water will increase over the next decade as suppliers and customers increasingly invest in solutions that reduce their reliance on freshwater.

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%	Applied Materials tracks total water withdrawals at all owned facilities and large leased facilities through invoices received from the city, municipality or utility provider. The volume of water withdrawal is then documented monthly, as data is available, using our third-party environmental data management software following the receipt of invoices. Data is consolidated and reviewed at a corporate level twice per year at minimum to check for data accuracy and consistency. Water withdrawals at small leased offices and facilities are estimated annually when invoices are not available, based on building type and size. Estimated sites represent 18% of our footprint by square footage and 8% of water usage.
Water withdrawals – volumes by source	76-99	Applied Materials tracks water volumes by source at all owned and large leased facilities through invoices received from the utility provider, city or municipality providing the water services. We track groundwater, municipal, fire service, and irrigation water when the data is available. Data is entered into our third-party environmental data management software monthly, following the receipt of invoices. Data is consolidated and reviewed at a corporate level twice per year at minimum to check for data accuracy and consistency.
Entrained water associated with your metals & mining sector activities - total volumes [only metals and mining sector]	<Not Applicable>	<Not Applicable>
Produced water associated with your oil & gas sector activities - total volumes [only oil and gas sector]	<Not Applicable>	<Not Applicable>
Water withdrawals quality	76-99	Applied Materials obtains its water from local, municipal-supplied facilities within the cities, counties, states, or countries where we operate. In the US, municipal water meets all standards under National Primary Drinking Water Regulations. In addition, for application-specific uses, we ensure the quality of water through continuous, weekly onsite testing to meet our process needs, such as creating de-ionized (DI) and filtered industrial water. This only occurs in relevant facilities, such as lab and manufacturing sites.
Water discharges – total volumes	51-75	Applied Materials uses water supplied by municipalities. Following its use, water that cannot be recycled / reused for other purposes (used in chillers, landscaping, etc.) is discharged to the publicly owned treatment facilities for appropriate wastewater processing. For locations with available data (primarily major manufacturing, lab and large office sites), it is entered into our third-party environmental data management software monthly, following the receipt of invoices. Data is consolidated and reviewed at a corporate level twice per year at minimum to check for data accuracy and consistency. For all other locations, including smaller sites and office leased buildings, we estimate water discharge volumes for all locations that use water based on building type and size. We are actively working on improving the quality and quantity of water discharge data.
Water discharges – volumes by destination	51-75	Applied Materials discharges to publicly owned treatment works for appropriate wastewater processing. For locations with available data (primarily major manufacturing, lab and large office sites), it is entered into our third-party environmental data management software monthly, following the receipt of invoices. Data is consolidated and reviewed at a corporate level twice per year at minimum to check for data accuracy and consistency. We are actively working on improving the quality and quantity of water discharge data.
Water discharges – volumes by treatment method	100%	For sites that require wastewater pre-treatment, 100% of wastewater is measured and monitored daily by a Digital Chart Recorder and FMS system. We are working on incorporating this data into our third-party environmental data management software, which will require quarterly input of monthly wastewater invoices. For all other wastewater, Applied Materials discharges to publicly owned treatment works for appropriate wastewater processing.
Water discharge quality – by standard effluent parameters	100%	Applied Materials discharges to the publicly owned treatment works for appropriate wastewater processing. All process wastewater complies with the local discharge permits. Where applicable, Applicable facilities monitor the quality of all wastewater continuously (daily) through a digital chart recorder and Facility Management Systems (FMS) to ensure that permitted parameters are met. Every 6 months the discharge pH trend data and effluent sensor calibration records are audited by the regulatory agency. Any out-of-spec effluent parameters result in the diversion of wastewater to a holding tank by the FMS system for further treatment resulting in no discharge of out-of-spec wastewater to the sanitary drain. Local agencies sample our wastewater quarterly to validate our compliance to the discharge permits.
Water discharge quality – temperature	Not relevant	The temperature of discharged wastewater is not considered material to the company at this time, and therefore it is not measured or monitored on a regular basis. We do not anticipate it becoming relevant in the future but will review periodically to ensure this is the case.
Water consumption – total volume	51-75	Applied Materials tracks total water consumption at all facilities that have access to both water discharge and withdrawal data through invoices received by the utility provider. Smaller sites have very low consumptions because discharges are equal to withdrawals. Water consumption is estimated in all other sites that lack this data, including leased offices and facilities, based on building type and size. We are actively working on improving the quality and quantity of water consumption data via improved data management of wastewater discharge data. Data is consolidated and reviewed at a corporate level once per year at minimum to check for data accuracy and consistency.
Water recycled/reused	76-99	Applied Materials implements or considers water reuse, as feasible. Water is reused or recycled in our largest manufacturing facility for use in the chiller systems for building temperature management. Several facilities collect and use rainwater for use in landscaping or non-production needs. Alternative uses for water are considered at our operations, wherever feasible. When water is recycled and/or reused, data is entered into our third-party environmental data management software monthly, following the receipt of invoices.
The provision of fully-functioning, safely managed WASH services to all workers	100%	The accessibility of clean water for all employees is viewed as a fundamental right by Applied Materials. All owned and leased facilities do and are required to have suitable wash services (i.e., bathrooms, sinks) available for use by employees. Our facilities teams are responsible for ensuring consistent access to WASH services to all workers. As water discharge is tracked at each location, there is not a standardized frequency of measurement across the company. We install water filters in common areas and kitchens to improve quality of potable water.

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	2512	Higher	The increase is a result of increased groundwater usage due to piping modifications and replacements in our Santa Clara facilities. We also are now reporting water withdrawals at 100% of our locations by using estimations based on building type and size to report a more complete accounting of our water footprint. Although our overall water withdrawals increased, we were able to decrease our use of irrigation water by 25% from 2020.
Total discharges	2171	This is our first year of measurement	We did not report Total Discharges in our previous year's response. For sites that do not have access to discharge data or invoices, we estimate discharges based on building type and size.
Total consumption	341	Much lower	In the previous year's response, we reported 100% consumption. Because we improved our methodology for measuring and tracking water discharges, we are now able to report more accurate total consumption data.

W1.2d

(W1.2d) Indicate whether water is withdrawn from areas with water stress and provide the proportion.

	Withdrawals are from areas with water stress	% withdrawn from areas with water stress	Comparison with previous reporting year	Identification tool	Please explain
Row 1	Yes	11-25	Lower	WRI Aqueduct	Our withdrawal from water stressed areas decreased from 12.4% in 2020 to 11.7% in 2021. Sites that are located in water stressed areas implemented a number of water efficiency projects that are further detailed in Section 4. Overall, Applied Materials operations are not water-intensive. We require water for routine use in office buildings, cooling equipment, labs, etc. However, most operations are not water demanding. Applied Materials takes measures to reduce, reuse and recycle water whenever possible, in all facets of the business. The WRI Aqueduct tool is used on an annual basis to assess and determine water-stressed regions and the potential impact on our operations based on water stress severity. Water-stressed regions are documented and opportunities for water management are discussed at the site level.

W1.2h

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

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Not relevant	<Not Applicable>	<Not Applicable>	Our operations require high purity water and the source is important for its use. Almost all Applied facilities rely on third-party municipal sources of water, and we do not withdraw fresh surface water directly from source.
Brackish surface water/Seawater	Not relevant	<Not Applicable>	<Not Applicable>	Our operations require high purity water and the source is important for its use. Almost all Applied facilities rely on third-party municipal sources of water and we do not withdraw brackish surface water directly from source.
Groundwater – renewable	Not relevant	<Not Applicable>	<Not Applicable>	The extraction of groundwater for use is very limited. Currently, we only rely on non-renewable groundwater (see below).
Groundwater – non-renewable	Relevant	338	Higher	The higher withdrawal of this source is due to piping modifications and replacements in our Santa Clara facilities.
Produced/Entrained water	Not relevant	<Not Applicable>	<Not Applicable>	Source not used.
Third party sources	Relevant	2174	Higher	Water is obtained from the applicable local municipality-supplied water resources. The increase in third party sources is due to the inclusion of more data. We are reporting water withdrawals at 100% of our locations by using estimations based on the type of building type and size. Even though our overall usage increased, we were able to decrease our use of irrigation water by 25% from 2020.

W1.2i

(W1.2i) Provide total water discharge data by destination.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water	Relevant	50	Lower	Through better monitoring of irrigation watering systems and weather, we were able to decrease our use of irrigation water by 25%.
Brackish surface water/seawater	Not relevant	<Not Applicable>	<Not Applicable>	This source is not used/discharged
Groundwater	Not relevant	<Not Applicable>	<Not Applicable>	This source is not used/discharged
Third-party destinations	Relevant	2121	This is our first year of measurement	All of the water used at Applied Materials locations is discharged to the local municipality managed wastewater treatment system. We did not report Total Discharges in our previous year's response; therefore, we cannot determine whether volume has increased or decreased. For sites that do not have access to discharge data or invoices, we estimate discharges based on the building type and size.

W1.2j

(W1.2j) Within your direct operations, indicate the highest level(s) to which you treat your discharge.

	Relevance of treatment level to discharge	Volume (megaliters/year)	Comparison of treated volume with previous reporting year	% of your sites/facilities/operations this volume applies to	Please explain
Tertiary treatment	Relevant but volume unknown	<Not Applicable>	<Not Applicable>	<Not Applicable>	We do not currently have a system in place to measure tertiary treatment as we only have 4 locations that have on-site wastewater treatment to remove solids, neutralize and/or support quality adjustments.
Secondary treatment	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	We do not discharge water by this method.
Primary treatment only	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	We do not discharge water by this method.
Discharge to the natural environment without treatment	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	We do not discharge water by this method.
Discharge to a third party without treatment	Relevant but volume unknown	<Not Applicable>	<Not Applicable>	<Not Applicable>	A vast majority of our total water discharge is to the local municipality managed wastewater treatment system and meets all local regulatory requirements.
Other	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	We do not discharge water by this method.

W1.3

(W1.3) Provide a figure for your organization's total water withdrawal efficiency.

	Revenue	Total water withdrawal volume (megaliters)	Total water withdrawal efficiency	Anticipated forward trend
Row 1	23063000000	2512	9181130.57324841	Decrease – Applied is in the process of setting a water efficiency goal and engaging with its Facilities teams on identifying and implementing water efficiency measures.

W1.4

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

Yes, our customers or other value chain partners

W1.4c

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

Only a few select types of Applied tools require ultrapure water in production processes. Most of our tools require cooling water, which runs in a closed-loop process and is negligible in terms of water consumption. Because of this our focus on water has come through the lens of energy efficiency, for example, looking at hardware and software processes that reduce water flow and thus the required energy to pump the water. We are working with our largest customers, who collectively represent over 70% of our Scope 3 Category 11 emissions, to share these types of solutions as a part of our Design for Sustainability program, which is part of our strategy to optimize our equipment and to drive energy and water reductions with customers where we can make the greatest impact. Applied is also starting to gather water consumption indicators across its tools as a part of our 3x30 product efficiency modelling initiative in order to identify efficiency opportunities for specific tools so we can engage with customers on options for reducing water use in the future. Engagement success is measured through the total number of projects where efficiency measures are implemented across our tools and the total reductions associated with such projects.

W2. Business impacts

W2.1

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

No

W2.2

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

No

W3. Procedures

W3.3

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

Yes, water-related risks are assessed

W3.3a

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

Value chain stage
Direct operations

Coverage
Full

Risk assessment procedure
Water risks are assessed in an environmental risk assessment

Frequency of assessment
Annually

How far into the future are risks considered?
More than 6 years

Type of tools and methods used
Tools on the market

Tools and methods used
WRI Aqueduct
Other, please specify (Datamaran)

Contextual issues considered
Water availability at a basin/catchment level
Water quality at a basin/catchment level
Water regulatory frameworks

Stakeholders considered
Customers
Investors
Regulators
Suppliers

Comment
Applied conducted its own annual analysis using the WRI Aqueduct tool to identify facilities located in High- and Extremely High-water risk regions across its global operations and tracks associated water use across these facilities. In addition, an assessment of water stress-related risks was included in the physical climate risk assessment conducted for Applied in 2020/2021 by Trucost, which identified top facilities that—due to their location-- are expected to be subject to relatively higher associated risks between 2020-2050. In 2021 Applied also began using the Datamaran platform to identify and evaluate ESG risks (including climate and water-related issues) in term of significance to the relevant stakeholders listed above.

W3.3b

(W3.3b) 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.

Tools and methods used: To help better understand current and future water risks, Applied Materials' water risk assessment includes the use of the WRI Aqueduct Tool to assess which facilities are located in High- and Very High-water risk regions across its global operations and track the sites' associated use of water on an annual basis. To further enhance our analysis, in 2020/2021 we engaged Trucost to conduct a quantitative and qualitative assessment of our assets' physical climate-related risk exposure to climate hazards (which includes water stress) under high, moderate, and low climate change scenarios. We performed a facility-level risk assessment that considered facility location, relative water stress levels in that region, and evaluated the risks through 2050.

In addition, starting in 2021 Applied is using the Datamaran platform to systematically evaluate and prioritize ESG-related topics (including climate and water-related risks and issues) in terms of significance to its key stakeholders such as customers, investors, suppliers, and regulators. The results were informed through Applied internal stakeholder input along with Datamaran's aggregated research and benchmarking of external stakeholder sources (reports, regulations, media, etc.).

How the outcomes of the risk assessment are used: Facilities groups are responsible for water use management at specific Applied sites, with oversight from the company's EHS organization. Our Managing Director of EHS is responsible for ensuring that water-related risks and minimization opportunities are assessed as appropriate. Water reduction is covered under our EHS policy and ISO 14001 EHSMS, which call for our business operations to identify opportunities, make continual improvements on environmental preservation and natural resource conservation, and meet or exceed all applicable and relevant regulatory requirements. Limited portions of our operations use water in any significant amount; however, we continue to work with our applications labs that maintain and operate equipment for R&D purposes on opportunities to reduce our water consumption.

An explanation of why each of the contextual issues selected: Although Applied is not an intensive user of water, access to sufficient water quantity that is of good water quality is critical to our manufacturing and R&D operations, as well as general facilities services, and thus included in our assessment. Applied continuously monitors all relevant regulatory frameworks across its operations to ensure our business meets or exceeds all applicable and relevant regulatory requirements.

An explanation of why each of the stakeholders was selected: The stakeholders selected are consistent with our overall ESG materiality assessment process. We operate in an interdependent value chain that is reliant on water to deliver our technologies. Thus, the priorities/significance of water-related issues is considered for both our customers and key suppliers. Investors have articulated their interests in Applied's management of water-related issues and hold the business accountable to demonstrating progress and performance on ESG matters broadly. Conducting outreach with regulators and monitoring relevant regulations are critical to ensuring our company's compliance and ability to anticipate any shifts in local and regional regulations that may impact our access and use of water across our facilities.

W4. Risks and opportunities

W4.1

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

Yes, only within our direct operations

W4.1a

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

Applied Materials defines substantive financial or strategic impacts as those that could materially and adversely affect Applied's business, financial performance, continuity of operations, and/or cause reputational harm. Our risk assessment processes allow us to evaluate and prioritize the impact of emerging and ongoing risks, which would be considered substantive based on factors like probability, magnitude, and duration, depending on the scenario. The thresholds used to determine whether an impact is substantive are specific to the risk, scenarios, and time horizons evaluated; thus, generalizations on specific thresholds are difficult to provide. Some quantitative indicators we use to assess whether an impact is substantive include:

- % Change to Applied's OPEX
- % Change to Applied's profit margins
- % Revenue/sales gains/losses
- % Change in market share
- Number of days of interrupted R&D or manufacturing
- Number of days/weeks of accelerated/delayed time to market
- Potential for swings in stock price due to shareholder behavior
- Presence or absence of mitigating factors

W4.1b

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

	Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
Row 1	2	1-25	Two manufacturing/lab sites, one in China, the other in Israel, represent ~9% of Applied's overall 2021 water footprint and are located in High and Extremely High overall water risk regions, according to the WRI Aqueduct tool.

W4.1c

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

Country/Area & River basin

China	Huang He (Yellow River)

Number of facilities exposed to water risk
1

% company-wide facilities this represents
Less than 1%

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Less than 1%

Comment
Applied Materials has one campus containing 2 buildings in Xi'an, China. These buildings consist of lab and office space. The site manages all aspects of water use and discharge properly and according to regulatory requirements. Water-stress-related impacts are unlikely to cause substantive financial impact. Any risks that may interrupt our operations are evaluated and mitigated through our business continuity planning.

Country/Area & River basin

Israel	Other, please specify (Mediterranean Sea, East Coast)

Number of facilities exposed to water risk
1

% company-wide facilities this represents
Less than 1%

Production value for the metals & mining activities associated with these facilities
<Not Applicable>

% company's annual electricity generation that could be affected by these facilities
<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities
<Not Applicable>

% company's total global revenue that could be affected
Less than 1%

Comment
Applied Materials has 1 campus containing 3 buildings in Rehovot, Israel. Applied manages all aspects of water use and discharge properly and according to regulatory requirements. Water-stress-related impacts are unlikely to cause substantive financial impact. Any risks that may interrupt our operations are evaluated and mitigated through our business continuity planning.

W4.2

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

Country/Area & River basin

China	Huang He (Yellow River)

Type of risk & Primary risk driver

Chronic physical	Water stress

Primary potential impact
Increased operating costs

Company-specific description
Applied Materials' operations are not water intensive; however, water quality is important for routine operations. Water is primarily used for domestic, landscaping and industrial uses such as cooling towers, scrubbers, ultra-pure water, boilers and chillers. The Huang He River is rated as having Extremely High baseline water stress according to the WRI Aqueduct tool. It is projected to have Extremely High future water stress in 2030 based on all scenarios (pessimistic, business as usual, and optimistic). The water stress in this region puts the facility at risk to supply disruption, increased cost, and reliability of operations. We have not currently experienced any business disruptions due to water supply.

Timeframe
More than 6 years

Magnitude of potential impact
Medium-low

Likelihood
About as likely as not

Are you able to provide a potential financial impact figure?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure - minimum (currency)
<Not Applicable>

Potential financial impact figure - maximum (currency)
<Not Applicable>

Explanation of financial impact
Applied is in the process of evaluating its overall water baseline and identifying measures to improve efficiency holistically across our operations. Detailed analysis of cost saving or avoided regulatory/utility fees has not been completed at this time.

Primary response to risk
Adopt water efficiency, water reuse, recycling and conservation practices

Description of response
The Xi'an facilities team has implemented projects to reduce water withdrawal at the site. Some projects include rainwater reclamation for landscaping and capturing reverse osmosis (RO) reject water for toilet flush use. In addition, the site plans to implement various future water savings projects over the next 3-5 years.

Cost of response
0

Explanation of cost of response
Water management is folded into standard site OPEX budgets and is challenging to isolate; specific costs related to water management have not been calculated.

Country/Area & River basin

Israel	Other, please specify (Mediterranean Sea, East Coast)

Type of risk & Primary risk driver

Chronic physical	Water stress

Primary potential impact
Increased operating costs

Company-specific description
Applied Materials' operations are not water intensive; however, water quality is important for routine operations. Water is primarily used for domestic, landscaping and industrial uses such as HVAC and chilled water systems. The Mediterranean Sea is rated as having High baseline water stress according to the WRI Aqueduct tool. It is projected to have Extremely High future water stress in 2030 based on all scenarios (pessimistic, business as usual, and optimistic). The water stress in this region puts the facility at risk of supply disruption, increased cost, and challenges to the reliability of its operations. We have not currently experienced any business disruptions due to water supply.

Timeframe
More than 6 years

Magnitude of potential impact
Medium-low

Likelihood
About as likely as not

Are you able to provide a potential financial impact figure?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure - minimum (currency)
<Not Applicable>

Potential financial impact figure - maximum (currency)
<Not Applicable>

Explanation of financial impact
Applied is in the process of evaluating its overall water baseline and identifying measures to improve efficiency holistically across our operations. Detailed analysis of cost saving or avoided regulatory/utility fees has not been completed at this time.

Primary response to risk
Adopt water efficiency, water reuse, recycling and conservation practices

Description of response
In our Rehovot campus, the site has implemented several water savings opportunities. Some of these projects include: - Smart and economic irrigation system used on campus grounds - Installation of faucet aerators in restrooms throughout the campus to reduce flow rate - Installation of “flow-less” system – electric control valves that automatically close main feeding lines when constant irregular flow is recognized. - Installation of new water treatment and distribution system to our main cafeteria which is designed to deliver safer drinking water with fewer leaks and will require less water-intensive maintenance compared to the old system. In addition, the site has future water savings projects that will be implemented, including improvements to the cooling towers / supporting system to add sand filtration with back-wash.

Cost of response
0

Explanation of cost of response
Water management is folded into standard site OPEX budgets and is challenging to isolate; specific costs related to water management have not been calculated

W4.2c

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

	Primary reason	Please explain
Row 1	Not yet evaluated	Only a few select types of Applied tools require ultrapure water in production processes. Most of our tools only require cooling water, which runs in a closed-loop process and is negligible in terms of water consumption. Risks associated with Applied's value chain may exist in some regions in the manufacturing of select semiconductor products and any potential limitations, restrictions, or costs associated with this; however, there is currently no mechanism in place to accurately and quantitatively assess specific water-related risks at a water-basin level associated with our customers, especially taking into consideration the extensive risk mitigation measures many of them are taking based on their water use levels.

W4.3

(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?
Yes, we have identified opportunities, and some/all are being realized

W4.3a

(W4.3a) Provide details of opportunities currently being realized that could have a substantive financial or strategic impact on your business.

Type of opportunity
Efficiency

Primary water-related opportunity
Improved water efficiency in operations

Company-specific description & strategy to realize opportunity
Although Applied’s operations are not water-intensive, access to high quality water across our operations is important to the business, especially in our R&D and manufacturing operations, with emphasis on sites located in high- or very high-water risk regions. Identifying and implementing water efficiency measures may lead to some cost-saving opportunities, especially for water heating or cooling processes that also tie to energy-savings. We also seek to optimize our water use overall to ensure we play our part in limiting stress on the local water basin and to help insulate our operations from the impact of any future water regulations or restrictions.

Estimated timeframe for realization
1 to 3 years

Magnitude of potential financial impact
Low-medium

Are you able to provide a potential financial impact figure?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact
Applied is in the process of evaluating its overall water baseline and identifying measures to improve efficiency holistically across our operations. Detailed analysis of cost saving or avoided regulatory/utility fees has not been completed at this time.

W5. Facility-level water accounting

W5.1

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

Facility reference number
Facility 1

Facility name (optional)
Xi'an, China

Country/Area & River basin

China	Huang He (Yellow River)

Latitude
34.3416

Longitude
108.9398

Located in area with water stress
Yes

Primary power generation source for your electricity generation at this facility
<Not Applicable>

Oil & gas sector business division
<Not Applicable>

Total water withdrawals at this facility (megaliters/year)
170

Comparison of total withdrawals with previous reporting year
Lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes
0

Withdrawals from brackish surface water/seawater
0

Withdrawals from groundwater - renewable
0

Withdrawals from groundwater - non-renewable
0

Withdrawals from produced/entrained water
0

Withdrawals from third party sources
170

Total water discharges at this facility (megaliters/year)
144

Comparison of total discharges with previous reporting year
This is our first year of measurement

Discharges to fresh surface water
0

Discharges to brackish surface water/seawater
0

Discharges to groundwater
0

Discharges to third party destinations
144

Total water consumption at this facility (megaliters/year)
26

Comparison of total consumption with previous reporting year
Higher

Please explain
The demand for semiconductors and related products led to more research and development (R&D), testing, and production, which increased the need for water consumption for labs and factories. The Xi'an facility is made up of an R&D lab and demonstration cleanroom, which requires high purity water for its operations.

Facility reference number
Facility 2

Facility name (optional)
Rehovot, Israel

Country/Area & River basin

Israel	Other, please specify (Mediterranean Sea, East Coast)

Latitude
31.892773

Longitude
34.811272

Located in area with water stress
Yes

Primary power generation source for your electricity generation at this facility
<Not Applicable>

Oil & gas sector business division
<Not Applicable>

Total water withdrawals at this facility (megaliters/year)
67

Comparison of total withdrawals with previous reporting year
Higher

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes
0

Withdrawals from brackish surface water/seawater
0

Withdrawals from groundwater - renewable
0

Withdrawals from groundwater - non-renewable
0

Withdrawals from produced/entrained water
0

Withdrawals from third party sources
67

Total water discharges at this facility (megaliters/year)
58.5

Comparison of total discharges with previous reporting year
This is our first year of measurement

Discharges to fresh surface water
0

Discharges to brackish surface water/seawater
0

Discharges to groundwater
0

Discharges to third party destinations
58.5

Total water consumption at this facility (megaliters/year)
8.5

Comparison of total consumption with previous reporting year
This is our first year of measurement

Please explain
The demand for semiconductors and related products led to more research and development (R&D), testing, and production, which increased the need for water consumption for labs and factories. The facilities in Israel are made up of R&D labs, manufacturing and testing cleanrooms, which require high purity water for their operations.

W5.1a

(W5.1a) For the facilities referenced in W5.1, what proportion of water accounting data has been third party verified?

Water withdrawals – total volumes

% verified
76-100

Verification standard used
Water consumption / use is validated at each location by reviewing monthly invoices received from the local municipality or service provider. This data is then entered into our internal environmental data management system. We receive third party verification from ERM CVS, which uses International Standard on Assurance Engagements ISAE 3000 (Revised). Assurance level is Limited Assurance.

Please explain
<Not Applicable>

Water withdrawals – volume by source

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain
We currently only verify water withdrawal volume data

Water withdrawals – quality by standard water quality parameters

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain
We currently only verify water withdrawal volume data

Water discharges – total volumes

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain
We currently only verify water withdrawal volume data

Water discharges – volume by destination

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain
We currently only verify water withdrawal volume data

Water discharges – volume by final treatment level

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain
We currently only verify water withdrawal volume data

Water discharges – quality by standard water quality parameters

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain
We currently only verify water withdrawal volume data

Water consumption – total volume

% verified
Not verified

Verification standard used
<Not Applicable>

Please explain
We currently only verify water withdrawal volume data

W6. Governance

W6.1

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

No, but we plan to develop one within the next 2 years

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	Responsibilities: Applied's Corporate Governance and Nominating Committee (CGNC) oversees our ESG strategy to foster accountability. On a quarterly basis, the CGNC is briefed by the Director of ESG and Managing Director of Environmental, Health and Safety (EHS) on the status of Applied's company-wide environmental, social and governance (ESG) strategy, focused on integrating sustainability into our operations and company culture through initiatives aligned to business strategy that address a broad set of stakeholders, including customers, employees, suppliers, governments, investors and our local communities. This strategy is reviewed by the CGNC on a quarterly basis. The CGNC is informed and provides input on Applied's various environmental initiatives, which include water management, and tracks progress through their review of our annual sustainability report. A more in-depth annual update evaluation of the overall ESG strategy is conducted on an annual basis. Example of water-related decisions: The CGNC was recently engaged to review and approve all of Applied's environmental disclosures, including the refinement of our water consumption and withdrawal data and year on year progress.

W6.2b

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

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - some meetings	Monitoring implementation and performance Reviewing and guiding major plans of action Reviewing and guiding corporate responsibility strategy	Applied's Director of ESG and Managing Director of Environmental, Health and Safety (EHS) present progress on Applied's overall ESG strategy and sustainability initiatives, which include water use, to the CGNC on a quarterly basis. A more in-depth review of Applied's ESG strategy is conducted on an annual basis, and the CGNC reviews progress and data associated with water use during its review of Applied's annual sustainability report.

W6.2d

(W6.2d) Does your organization have at least one board member with competence on water-related issues?

	Board member(s) have competence on water-related issues	Criteria used to assess competence of board member(s) on water-related issues	Primary reason for no board-level competence on water-related issues	Explain why your organization does not have at least one board member with competence on water-related issues and any plans to address board-level competence in the future
Row 1	Yes	Criteria include: - Professional experience or exposure to to water-related issues - Understanding of water-related concepts, such as water-related risks and their intersection with climate change and environmental resource management - Understanding and familiarity with environmental data and metrics	<Not Applicable>	<Not Applicable>

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, please specify (Vice President of Corporate Asset Services)

Responsibility
Assessing water-related risks and opportunities
Managing water-related risks and opportunities

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

Please explain
The Vice President of Corporate Asset Services oversees and is responsible for assessing and managing water-related risks and opportunities for global operations, including monitoring water use, identifying measures to optimize water use, and meeting any local water-related regulations or requirements across our facilities. The Managing Director of EHS and Sustainability delivers quarterly environmental updates, which may cover water-related issues if there are relevant updates on this topic (i.e., substantial new water-related initiatives or new goals), to the Corporate Governance and Nominating Committee (CGNC) and the executive team, which includes the CEO. A more in-depth annual update is provided by the Director of ESG to the same Board and Executive groups on the overall ESG strategy, including water. In addition, Applied publishes an annual sustainability report that covers water-related data and updates on management of water related risks and opportunities.

W6.4

(W6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

	Provide incentives for management of water-related issues	Comment
Row 1	No, and we do not plan to introduce them in the next two years	Applied's operations are not water-intensive, therefore the issues have not been prioritized in the C-suite's ESG-related scorecard, which informs executive compensation. However, the C-suite does have compensation-based incentives for other critical ESG issues, including GHG emissions and energy.

W6.5

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

W6.5a

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

Applied Materials is a member of SEMI, which, continuously seeks opportunities to enhance resource conservation throughout the semiconductor industry, which includes water efficiency efforts. Applied is an active member in various SEMI working groups and strives to engage and influence the group to ensure strategic opportunities to address pertinent water-related issues are addressed. We are not aware of inconsistencies between the work of this group and Applied's water priorities. If an inconsistency were to be identified, Applied would first take a proactive engagement approach through SEMI's working groups to identify and define a solution to rectify the issue with the other members and organization leaders. If engagement methods were not successful, then Applied would weigh the costs/benefits of continuing its membership with the group, and make an informed decision with key internal stakeholders.

W6.6

(W6.6) Did your organization include information about its response to water-related risks in its most recent mainstream financial report?
No, but we plan to do so in the next two years

W7. Business strategy

W7.1

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

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	5-10	Access to high quality water is critical to our operations; it is used in our manufacturing processes and R&D (i.e., rinsing equipment), as well as for general building services (utilities, domestic water, landscaping, etc.). To meet our business growth objectives in response to substantial demand for semiconductor products, the company is expanding its operations. Continued access to key inputs such as high-quality water is necessary for meeting our growth objectives. Further, Applied is in the process of evaluating water-specific reduction targets across its operations to mitigate risks related to water. Water is also vital for our customers, who rely on substantial quantities of ultrapure water in the chip manufacturing process. Although only a few of Applied's tools consume substantial amounts of water, our global Design for Sustainability team is including the modelling of water use across our tools to ensure this factor can be analyzed and managed.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	5-10	To meet our business growth objectives in response to substantial demand for semiconductor products, the company is expanding its operations. New site selection considers local regulations and costs related to water consumption and considers access to high quality water to ensure continuity of our operations. Water is vital to our customers, as well. To maintain Applied's leading role in equipment manufacturing, we must ensure our products reflect continuous efficiency improvements. As a key input and priority issue for our customers, water efficiency is considered in the design and performance of our products.
Financial planning	Yes, water-related issues are integrated	5-10	In response to continued strong demand across the semiconductor industry Applied will be expanding our business operations, for which access to stable supplies of high-quality water is critical. Operational costs for utilities including water are included in our plans for all new or expanded sites.

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)

14

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

73

Water-related OPEX (+/- % change)

7.1

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

10

Please explain

As demand for Applied Materials equipment is projected to increase significantly over the next several years, we are investing in more R&D, Manufacturing and Office space globally, thus driving an increased usage of water (and all utilities). In addition to increasing our global footprint with new facilities, our existing facilities water systems are aging and must be replaced as they reach end-of-life, driving significant capex spend in water-related systems.

W7.3

(W7.3) Does your organization use scenario analysis to inform its business strategy?

	Use of scenario analysis	Comment
Row 1	Yes	In 2020/2021 Applied completed its first climate-related scenario analysis with the support of Trucost. Water stress was a risk factor incorporated into the physical risk assessment across our key global facilities modelled from 2020 to 2050 using RCP 2.6, 4.5 and 8.5 climate scenarios and identified the locations for which water stress poses risks, what the trajectory of that risk is over time, and level of relevant/impact it has for the site.

W7.3a

(W7.3a) Provide details of the scenario analysis, what water-related outcomes were identified, and how they have influenced your organization's business strategy.

	Type of scenario analysis used	Parameters, assumptions, analytical choices	Description of possible water-related outcomes	Influence on business strategy
Row 1	Water-related Climate-related	Water stress risks were assessed across our top 32 global facilities for the period 2020-2050 using RCP 2.6, 4.5 and 8.5 climate scenarios. Water stress is defined as "Projected future ratio of water withdrawals to total renewable water supply in a given area" and evaluated at the river basin level.	Possible outcomes for the sites located in higher water stress-risk locations, such as Xi'an, China and Rehovot, Israel may include increasing costs related to meeting any new regulations or limitations on water consumption in these regions as well as costs related to upgrading our sites and manufacturing processes to respond to limitations in access to high-quality water.	Operational Design for safety and the environment and conservation of natural resources (inclusive of water) are core pillars of our EHS Management system. Applied takes water access and regulation into account when considering real estate expansion and is in the process of evaluating a corporate water efficiency goal over the medium-term (5-10 years).

W7.4

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

Row 1

Does your company use an internal price on water?

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

Please explain

Applied's operations are not water-intensive, therefore measures such as setting an internal price on water have not been prioritized. Applied is in the process of evaluating a corporate water efficiency goal to ensure responsible consumption of the resource.

W7.5

(W7.5) Do you classify any of your current products and/or services as low water impact?

	Products and/or services classified as low water impact	Definition used to classify low water impact	Primary reason for not classifying any of your current products and/or services as low water impact	Please explain
Row 1	No, but we plan to address this within the next two years	<Not Applicable>	Other, please specify (Most products are inherently low water impact)	Most of Applied's equipment has negligible water-related impacts and is inherently "low water impact" - water is chiefly used for cooling purposes and is run through a close-loop system within our tools. Applied is in the process of gathering and modelling further data, including water consumption, as part of our 3x30 initiative; this data will enable a credible approach for qualifying products as low water impact.

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	Site/facility specific targets and/or goals	None are monitored at corporate level	Most manufacturing locations have registered ISO 14001:2015 certifications, which drive continual improvement at each location, including water conservation opportunities. The sites identify resource conservation, including water, and develop and implement conservation or reduction activities, as applicable. Tracking of water use is fed into Applied's centralized environmental data tracking system. Sites consider water-minimization initiatives, as appropriate and feasible. Applied is in the process of evaluating a corporate water efficiency goal.

W9. Verification

W9.1

(W9.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1a)?

Yes

ERM CVS-Assurance Statement for Applied Materials- 2022 CDP Water.pdf

W9.1a

(W9.1a) 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	Water withdrawals – total volumes	ISAE 3000	Water use is validated at each location by reviewing monthly invoices received from the local municipality or service provider. This data is then entered into our internal environmental data management system. We receive third party verification from ERM CVS, which uses International Standard on Assurance Engagements ISAE 3000 (Revised). Assurance level is Limited Assurance.

W10. 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.

Applied obtains most of its water from municipal water company providers, with the exception of our Kalispell, Montana site, which supplements its water needs using an onsite well. Our remaining facilities do not directly withdraw water from sources such as wells, lakes or rivers. No native water sources are affected by withdrawal of water reclamation processes or drainage. We recognize our role in conserving the quality of the bodies of water from which municipalities source water and into which they may eventually discharge treated wastewater. Our water usage and discharges at our facilities are carefully monitored to confirm that they comply with local laws and regulations. Responsible water use also includes effective wastewater management.

W10.1

(W10.1) Provide details for the person that has signed off (approved) your CDP water response.

	Job title	Corresponding job category
Row 1	President and Chief Executive Officer	Chief Executive Officer (CEO)

W10.2

(W10.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate's Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].

No

SW. Supply chain module

SW0.1

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

	Annual revenue
Row 1	23063000000

SW1.1

(SW1.1) Could any of your facilities reported in W5.1 have an impact on a requesting CDP supply chain member?

No, CDP supply chain members do not buy goods or services from facilities listed in W5.1

SW1.2

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

	Are you able to provide geolocation data for your facilities?	Comment
Row 1	Yes, for some facilities	We are providing locations for the two key facilities identified in high water risk regions specified in our disclosure.

SW1.2a

(SW1.2a) Please provide all available geolocation data for your facilities.

Identifier	Latitude	Longitude	Comment
Xi'an, China	34.3416	108.9398	
Rehovot, Israel	31.892773	34.811272	

SW2.1

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

SW2.2

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

No

SW3.1

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

Product name

Total company water withdrawals

Water intensity value

0.1089

Numerator: Water aspect

Water withdrawn

Denominator

Liters / $ revenue

Comment

The reported intensity value looks at our total company-wide water withdrawals (L) divided by 2021 revenue ($).

Product name

Total company water consumption

Water intensity value

0.0015

Numerator: Water aspect

Water consumed

Denominator

Liters / $ revenue

Comment

The reported intensity value looks at our total company-wide water consumption (L) divided by 2021 revenue ($).

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms