

W0. Introduction

W0.1

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

Novartis is a global healthcare company based in Basel, Switzerland, with a history going back more than 150 years. We provide healthcare solutions that address the evolving needs of patients and societies worldwide. Novartis products are sold in about 155 countries and they reached more than 800 million people globally in 2018. Approximately 125,000 people of 147 nationalities work at Novartis around the world (this figure is as of December 31, 2018, prior to our 2019 spin-off of our former Alcon Division). Rapidly aging populations and the growth in chronic illnesses such as heart disease and cancer continue to increase demand for care and put pressure on health systems around the world. These trends raise the importance of delivering true innovation that produces better health outcomes for patients and society - and doing this more efficiently.

Our purpose is to reimagine medicine to improve and extend people's lives. Our vision is to be a trusted leader in changing the practice of medicine. Our strategy is to build a leading, focused medicines company powered by advanced therapy platforms and data science. As we implement our strategy, we have five strategic priorities to shape our future and to help us continue to create value for our company, our shareholders and society: unleash the power of our people, deliver transformative innovation, embrace operational excellence, go big on data and digital and build trust with society.

In building trust with society we aim to hold ourselves to the highest ethical standards, be part of the solution on pricing and access to medicines, tackle complex global health challenges and do our part as a responsible global citizen. With respect to the environment, we established a new company wide environmental sustainability strategy, with the aspiration to become carbon neutral by 2025 and plastic and water neutral by 2030. The strategy includes a commitment to ensure there are no water quality impacts from manufacturing effluents before 2025. This target encompasses effluents from our own operations and our supply chain. We also included a target to enhance water quality wherever operate before 2030 because we recognize there is a close relationship between water and health.

Research and development is at the core of our company, with 23,000 scientists, physicians and business professionals worldwide focused on discovering new treatments and developing them for patients. The Novartis Institutes for BioMedical Research (NIBR) is the innovation engine of Novartis collaborating across scientific and organizational boundaries, with a focus on powerful new technologies that have the potential to help produce therapeutic breakthroughs for patients. Global Drug Development (GDD) oversees all drug development activities for our Innovative Medicines Division and the biosimilars portfolio of our Sandoz Division.

Our Innovative Medicines Division researches, develops, manufactures, distributes and sells patented prescription medicines to enhance health outcomes for patients and healthcare providers. Innovative Medicines is organized into two global business units: Novartis Oncology and Novartis Pharmaceuticals. Sandoz develops, manufactures, distributes and sells prescription medicines as well as pharmaceutical active substances that are not protected by valid and enforceable third-party patents.

Novartis Technical Operations (NTO) manages our manufacturing operations and supply chain across our Innovative Medicines and Sandoz Divisions, with a goal of further improving efficiency. Novartis Business Services (NBS), our shared services organization, delivers integrated solutions to all Novartis divisions and units worldwide. NBS seeks to drive efficiency and effectiveness across Novartis by simplifying and standardizing services across six service domains: people & organization (formally HR), real estate and facility services, procurement, information technology, commercial and medical support activities, and financial reporting and accounting operations. NBS works to leverage the full scale of Novartis to create value across the company and to free up resources to invest in innovation and our product pipeline.

Our Global Health and Corporate Responsibility (GH & CR) strategy fundamentally supports this company purpose and vision with a focus on expanding access to healthcare and doing business responsibly which includes striving for environmental sustainability. We take our responsibility for environmental impacts seriously and we plan to continue to do what we can to reduce or mitigate our environmental impacts through our ambitious new environmental sustainability targets and our newly approved Science Based Targets for carbon reduction.

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 2018	December 31 2018

W0.3

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

Argentina
Austria
Bangladesh
Belgium
Brazil
Canada
China
Egypt
France
Germany
India
Indonesia
Ireland
Italy
Japan
Malaysia
Mexico
Poland
Romania
Russian Federation
Singapore
Slovenia
South Africa
Spain
Switzerland
Turkey
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

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	Important	Pharmaceutical manufacturing is not very water intensive, but access to good quality freshwater is important. Where not sufficient, water will be additionally purified. Several Novartis sites use large quantities of water to cool production processes, and/or buildings. In these cases, water quantity is more important than quality. We have determined the importance of water quality and water quantity in our supply chain, which considers all tiers in the upstream value chain. The usage pattern in the upstream supply chain is similar to our own, thus water quantity is more important than quality in the indirect use of water as well. If quality is not sufficient, additional purification steps will be included. Downstream in the value chain, i.e. usage of our products by patients is not water intensive and will not be taken into account. In the future due to e.g. climate change or an increase in population, a decrease of water quality and water availability could impact our company (direct use) and our upstream supply chain (indirect use). We will observe this closely and we will adjust our business according to future conditions.
Sufficient amounts of recycled, brackish and/or produced water available for use	Neutral	Neutral	Recycled water is used at several Novartis sites. Process water is circulated to e.g. cooling towers for usage at the same site. Rain water is collected and used e.g. for filter scrubbing. In case of disruption, the use of recycled water or rain water can be substituted by using freshwater so processes are not interrupted. In future, it is anticipated that the use of recycled water at our sites will become more important. Climate change, more local water use and the expected decrease in water quality will lead to changes in the availability of water. Thus, treatment and recycling of water will increase. The assessment of our supply chain, which considers all tiers in the upstream value chain, has been conducted. The results show that access to sufficient amounts of water is more important than the quality, thus the use of recycled water can be substituted if necessary with other types of water. Downstream in the value chain, i.e. usage of our products by patients is not water intensive and will not be taken into account.

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
--	----------------------------------	----------------

	% of sites/facilities/operations	Please explain
Water withdrawals – total volumes	100%	Novartis actively manages its water consumption by monitoring amounts of water input, water use and water output throughout the organization. Percentage coverage is 100%. Total water input (withdrawals) volumes and volumes by sources are reported on a quarterly basis by all production, research and development and major administration facilities under Novartis operational control. Accurate information on water input (withdrawals) is obtained from invoices and public water meters (for purchased water) or from own supplying operations.
Water withdrawals – volumes from water stressed areas	100%	Water input (withdrawals) volumes are reported on a quarterly basis by all production, research and development and major administration facilities under Novartis operational control. Percentage coverage is 100%. Water risks are assessed in a separate process based on the WRI Aqueduct tool. Accurate information on water input (withdrawals) from water stressed areas is obtained from invoices and public water meters (for purchased water) or from own supplying operations.
Water withdrawals – volumes by source	100%	Water input (withdrawals) is the sum of all fresh water amounts entering a site from all types of water sources (where from). Percentage coverage is 100%. The following water input by source indicators (where relevant) are reported quarterly, together with the total volumes as stated above: - Water purchased from external suppliers - Water drawn from aquatic environment - Water collected from rain - Water input as ingredient of raw materials - Water input from other sources. Accurate information on water input (withdrawals) by source is obtained from invoices and public water meters (for purchased water) or from own supplying operations.
Entrained water associated with your metals & mining sector activities - total volumes [only metals and mining sectors]	<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	Not relevant	Water withdrawal quality is relevant and monitored at the specific sites which uses the withdrawn water, but not at the corporate level. This is why we have selected "not relevant" in the drop down menu. The requirements for the water quality depends on the final usage form of the water at the specific sites and is supervised through regulatory control mechanisms. For instance, if the water is in direct contact with our products we use water of high quality (e.g. purified water); in case the withdrawn water is not meeting these standards the water is additionally treated (e.g. via reverse osmosis). There is no future need for monitoring water withdrawals at corporate Levels, as it is a prerequisite for the specific production site to comply with regulatory requirements, like GMP (Good Manufacturing Practice).
Water discharges – total volumes	100%	Water output (discharges) is the sum of all water amounts sent to any destination off site. Percentage coverage is 100%. Total water output volumes and volumes by sources are reported on a quarterly basis by all production, research and development and major administration facilities under Novartis operational control. Accurate information on water output (discharges) is obtained from water meters of sewer system and on- or off-site Waste Water Treatment Plant (WWTP) invoices.
Water discharges – volumes by destination	100%	Water output (discharges) is the sum of all water amounts sent to any destination off site. Percentage coverage is 100%. The following water output by source indicators (where relevant) are reported quarterly, together with the total volumes as stated above: - Water returned, released directly to aquatic environment - Water returned, discharged via treatment - Water lost, evaporated from cooling / heating systems - Water output as product ingredient - Water output to other destination. Accurate information on water output (discharges) by destination is obtained from water meters of sewer system and on- or off-site Waste Water Treatment Plant (WWTP) invoices.
Water discharges – volumes by treatment method	100%	Water returned, discharged via on-site or off-site treatment, is a mandatory indicator for all sites. Percentage coverage is 100%. It is reported quarterly and covers water that goes through treatment either in an on-site or off-site Waste Water Treatment Plant (WWTP) or both, on which at least one or several effluent load parameters are reduced to conditions in line with the local legal requirement for effluent to surface fresh water bodies. Accurate information on treatment method from off-site WWTP is obtained from WWTP invoices managed at the local level and for manufacturing sites reporting is usually monthly or quarterly.
Water discharge quality – by standard effluent parameters	100%	Water quality data is reported on a yearly basis by all production and research and development facilities under Novartis operational control. Percentage coverage is 100% (water quality data is not collected from administration sites as this data is considered not relevant compared to the data from our manufacturing and R & D sites). The following water quality indicators are reported (where relevant): - Total Suspended Solids (TSS) load - Chemical Oxygen Demand (COD) load - nitrogen load - phosphate load. All manufacturing facilities also assess effluent load of active pharmaceutical ingredients (APIs) in their water streams, using a risk-based approach based primarily on mass balance methods (or where necessary include analytical methods) and respective eco-toxicity parameters of individual drug substances.
Water discharge quality – temperature	Not relevant	Water discharge quality – temperature is relevant and monitored at all specific sites with local waste water permits including temperature limits among other parameters, but not at the corporate level. This is why we have selected "not relevant" in the drop-down menu. Our manufacturing sites are obliged to fulfil local permits: regular site conformance reviews and audits include the inspection of local waste water permits and support the adherence to local regulations. We currently evaluate if we include in future the temperature of water discharged into our corporate monitoring program. This helps to increase awareness on corporate levels on future risk from increased temperature of local water bodies e.g. due to climate change.

	% of sites/facilities/operations	Please explain
Water consumption – total volume	100%	Novartis actively manages its water consumption by monitoring amounts of water input, water use and water output throughout the organization. Percentage coverage is 100%. Total volume of water use (consumption) is reported on a quarterly basis by all production, research and development and major administration facilities under Novartis operational control. Information on water consumption is obtained from water meters for respective use streams, from production reports, or are estimated from uses and processes.
Water recycled/reused	26-50	Water recycled/reused is only monitored at sites where it makes sense i.e. at places where such water recycling/reuse initiatives have been implemented, either in areas of water scarcity or by major production, R&D and administration facilities.
The provision of fully-functioning, safely managed WASH services to all workers	100%	Due to the nature of our operations, where cleanliness and sterile working conditions are extremely important, we ensure that fresh water is available for cleaning, washing, and sanitary services at all facilities under Novartis operational control. Sanitary water availability and consumption are reported on a quarterly basis by all production, research and development and administration facilities under Novartis operational control.

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	73129	Lower	Cooling water (primarily freshwater from groundwater sources or river-beds) can be withdrawn in large quantities and is returned in similar volumes to its original source nearby with negligible losses or variation in quality. Total withdrawals are lower than previous reporting year due to seasonal conditions. We expect that total water withdrawals will decrease in future years. This is due to our new environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.
Total discharges	71158	Lower	The total quantity of water discharges does not include additional water losses from Novartis facilities due to evaporation from heating and cooling systems or water use in products (2,068 ML). We expect that total discharge will decrease in future years. This is due to our new environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.
Total consumption	2068	Lower	Total consumption includes water losses from Novartis facilities due to evaporation from heating and cooling systems or water use in products. Total withdrawals do not exactly balance to total discharges + total consumption as volumes are partly estimated from uses and processes. Plausibility checks help to ensure that mismatch are smaller than 10% at each site. Total consumption is slightly lower than previous reporting year due to continued improvements in operations. We expect that water not returned to the local environment will decrease in future years. This is due to our new environmental sustainability strategy, including water targets, which will increase of equipment efficiency to reduce evaporation.

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	6.79	About the same	WRI Aqueduct	To assess our risks related to water stressed areas we are using the WRI Aqueduct tool by entering the coordinates of all our site and evaluating the results against the overall water risk, including physical risks for water quality and quantity, regulatory and reputational risk. All sites resulting in medium risks are taken into account for withdrawals sourced from water stressed areas. This allows us to consider future developments and assess water risks at individual sites. The location and number of sites in water scarce areas has not changed significantly in the last year, thus the volume of water withdrawn in 2018 is about the same compared to previous year (6.79% vs 6.35% in 2017).

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	7426	Lower	Novartis reports the quantities of water abstracted from the aquatic environment, and we now distinguish between surface water and groundwater. Novartis reports fresh surface water use as well as rainwater or other precipitation harvested at the sites (on roofs, in ponds, etc.). Total is lower than previous reporting year due to seasonal conditions necessitating less non-contact water for cooling. We expect that the volume will continue to decrease in future years. This is due to our new environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.
Brackish surface water/Seawater	Not relevant	<Not Applicable>	<Not Applicable>	Novartis does not withdraw brackish surface water / seawater.
Groundwater – renewable	Relevant	51593	Lower	Novartis reports the quantities of water abstracted from the aquatic environment, and we now distinguish between surface water and groundwater. Most water abstracted from the environment is from renewable groundwater sources. Total is lower than previous reporting year due to seasonal conditions necessitating less non-contact water for cooling. We expect that the volume will continue to decrease in future years. This is due to our new environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.
Groundwater – non-renewable	Not relevant	<Not Applicable>	<Not Applicable>	Most groundwater abstracted from the environment is from renewable groundwater sources.
Produced/Entrained water	Not relevant	<Not Applicable>	<Not Applicable>	Novartis does not have water entering the organization's boundary as a result of the extraction, processing, or use of any raw material.
Third party sources	Relevant	14110	About the same	This includes water purchased from external suppliers and is relevant in areas, where groundwater abstraction is not possible. Volume is slightly higher than previous reporting year (14,110 ML vs. 13,529 ML in 2017) as it includes purchased process water and water from "other sources". We expect that the volume will decrease in future years. This is due to our new environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.

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	50773	Lower	Novartis reports the quantities of water discharged to the aquatic environment, and we now distinguish between surface water and groundwater destinations. This is relevant as the majority of non-contaminated cooling water is discharged back into the original water body. Total is lower than previous reporting year due to seasonal conditions (less water used for cooling). We expect that the volume will decrease in future years. This is due to our new environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.
Brackish surface water/seawater	Not relevant	<Not Applicable>	<Not Applicable>	Novartis does not discharge water to brackish surface water / seawater destination.
Groundwater	Relevant	7253	Lower	Novartis reports the quantities of water discharged to the aquatic environment, and we now distinguish between surface water and groundwater destinations. This is relevant as the majority of non-contaminated cooling water is discharged back into the original water body. Total is lower than previous reporting year. This is due to our new environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.
Third-party destinations	Relevant	13132	About the same	Novartis contact water is discharged via on-site or off-site Treatment. This is relevant to fulfil regulatory requirements by reducing the load of certain parameters. Total volume is about the same than previous reporting year, most improvement initiatives having targeted reduced use of non-contact water in 2018. We expect that the volume will decrease in future years. This is due to our new environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.

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	26-50	About the same	In 2018 Novartis reused / recycled 16,849 ML of water. The percentage of recycled / reused is about the same than previous reporting year due to maintained efforts in our operations to improve water efficiency and reduced withdrawal of water. Reusing water will allow business continuity in periods (i.e. summer times) when water availability is reduced or when costs are increasing. We expect that the percentage of water reused/recycled will increase in future years. This is due to our new environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.

W1.4

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

Yes, our suppliers

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

1-25%

% of total procurement spend

26-50

Rationale for this coverage

To support the ambitious targets and becoming a good water steward, Novartis measures the water use and the associated water risks of our own operations and our suppliers/supply chain. We then engage to identify opportunities for collaboration and to ensure improvement. Because Novartis has hundreds of thousands of suppliers in its global network, continuous compliance is targeted at the key suppliers with greater amounts of spend in various key categories that drive water consumption. Our guideline on Corporate Responsibility Management (CRM) emphasizes that environment protection is directly linked with our Responsible Procurement (RP) program. Hence, the key incentive for suppliers to disclose this information is the opportunity they have to enhance their business relationship with Novartis. Our guideline also encourages collaboration with our suppliers on water security and the reduction of water consumption, which drives environmental benefits and costs savings.

Impact of the engagement and measures of success

Questionnaires have been used to obtain information on our supplier's water consumption and their risk assessment status. This information has enabled us to identify water hotspots and to understand water awareness levels among suppliers. Novartis scores suppliers based on their past, current and planned efforts towards reduction in water consumption and improving water quality. The data collected is also used to derive insights about water management improvement opportunities and these are shared with suppliers to encourage continuous improvement. We measure success through the proportion of procurement where we obtain water related information and the response rate, the success stories related to water reduction achieved through collaboration and the number of suppliers Novartis ceases to do business with because they failed to meet Third Party Risk Management (TPRM) requirements.

Comment

As part of the Third-Party Risk Management Program (TPRM), Novartis has developed a tool to map the procurement categories to areas of risk including human rights, health, safety, environment and ethics. Categories are mapped against environmental risks (climate and water). A self-assessment questionnaire based on guidelines from Pharmaceutical Supply Chain Initiative (PSCI) is used during supplier on-boarding and covers water related risks.

W1.4b

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

Type of engagement

Innovation & collaboration

Details of engagement

Encourage/incentivize innovation to reduce water impacts in products and services
Encourage/incentivize suppliers to work collaboratively with other users in their river basins
Educate suppliers about water stewardship and collaboration

% of suppliers by number

1-25

% of total procurement spend

26-50

Rationale for the coverage of your engagement

A supply chain analysis on water footprint using an Environmentally Extended Input-Output EEIO tool (EnScaN - Environmental Supply chain accounting Novartis) has been conducted annually since 2014 to assess key areas of relevance. The social cost of water, in particular if resources are scarce, is a decisive factor to determine the total environmental impact of our supply chain. The social costs of the water footprint, which relate to our direct materials supply chain encompasses around 20% of our total supply chain footprint. With this information we ensure that we put effort into educating suppliers on the latest technological solutions available for water management and provide them with a platform to collaborate. As Novartis has hundreds of thousands of suppliers in its global network, so this engagement is targeted at the key suppliers with greater amounts of spend in various key procurement categories (like Chemicals) that drive most of the water consumption of our suppliers.

Impact of the engagement and measures of success

Novartis has leveraged various platforms like CDP, the Pharmaceutical Supply Chain Initiative (PSCI) and its own initiatives to engage with its suppliers on innovation and collaboration. Beneficial outcomes of this engagement include the increased awareness level of suppliers on how to reduce water usage at their sites and the sharing of success stories of achievements through collaboration. Novartis has selected suppliers for collaboration in this area. To measure success from this mode of engagement, we assess the year on year financial savings and the subsequent reduction in water footprint through the collaborative efforts of Novartis with its suppliers. These measures provide evidence that Novartis is on the right track towards achieving water neutrality by 2030.

Comment

In 2018 Novartis further developed its strategy on supply chain engagement and plans to focus its engagement activities on key suppliers based in India and China during 2019.

W2. Business impacts

W2.1

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

No

W2.2

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

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

W2.2a

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

Row 1

Total number of fines

1

Total value of fines

33167

% of total facilities/operations associated

1

Number of fines compared to previous reporting year

Higher

Comment

The fine was issued to one Novartis location by a local environmental regulator because one effluent sample exceeded permit conditions for Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD) and Total Suspended Solids (TSS). Novartis has undertaken corrective actions to prevent a reoccurrence. Novartis did not have water-related regulatory violation in 2017.

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

Annually

How far into the future are risks considered?

3 to 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
ISO 31000 Risk Management Standard
Internal company methods

Comment

Our Enterprise Risk Management process identifies, prioritize and manages risks across our organisation and allows us to escalate them as needed. The risk management process consists of six main process elements (defining scope, assess risk, plan action, monitor progress, report and communicate). If risk on water availability and/or access is identified, the risk is incorporated into the sites risk portfolio. Manufacturing sites perform an effluent assessment and determine the local risk of pharmaceuticals in the receiving surface waters. We use an internal enterprise risk management process aligned to international methodologies (e.g. ISO 31000), a company specific developed tool and the European Medicines Agency Pre-Authorization of Medicines for Human Use Guideline (EMA/CHMP/SWP/4447/00) to perform the risk assessment.

Supply chain

Coverage

Full

Risk assessment procedure

Water risks are assessed as part of an enterprise risk management framework

Frequency of assessment

Annually

How far into the future are risks considered?

3 to 6 years

Type of tools and methods used

Enterprise Risk Management
International methodologies
Databases
Other

Tools and methods used

Environmental Impact Assessment
Internal company methods
Other, please specify (PSCI audit protocol, Natural Capital Protocol)

Comment

Water risks are managed as part of our Responsible Procurement (RP) and Third Party Risk Management (TRRM) processes. This is supported by our engagement with the Pharmaceutical Supply Chain Initiative (PSCI) and the use of its audit protocol. In addition, an environmental impact analysis is performed annually, using an environmentally extended input/output assessment (EEIO tool developed by Novartis called EnScan - Environmental Supply chain accounting Novartis). This also helps to identify water related risks. This tool considers the embedded water scarcity of our supply chain (not just our direct suppliers). Information is based on the WRI Aqueduct tool and we use the Natural Capital Protocol to quantify the supply chain environmental footprint.

Other stages of the value chain

Coverage

Full

Risk assessment procedure

Other, please specify (Regulation during approval process)

Frequency of assessment

Not defined

How far into the future are risks considered?

3 to 6 years

Type of tools and methods used

International methodologies

Tools and methods used

Other, please specify (European Medicines Agency Pre-Authorization of Medicines for Human Use Guideline (EMA/CHMP/SWP/4447/00))

Comment

For all new drug products or Type II variations, we perform an environmental risk assessment as outlined in the European Medicines Agency Pre-Authorization of Medicines for Human Use Guideline (EMA/CHMP/SWP/4447/00), which is part of the regulatory requirement within the marketing authorization approval process. This risk assessment needs to be performed in the European Union, United States and Switzerland during any marketing authorisation approval process. We therefore do not follow any defined frequency, but complete assessments as necessary to comply with the marketing authorization approval process.

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	Availability of water in our operations and for our suppliers is more important than water quality, as the majority of the manufacturing sites have water purification equipment to address water quality in case it has not the appropriate quality. Sites located in a water-stressed locations are identified using the WRI Aqueduct tool. Availability of water is included in the Novartis risk portfolio if necessary. The Novartis risk portfolio is regularly updated to cover current and future risks. Downstream in the value chain, i.e. usage of our products in connection to water availability is not water intensive and is not taken into consideration.
Water quality at a basin/catchment level	Relevant, always included	Quality of withdrawn water is not as important as water availability as the majority of our own and suppliers manufacturing sites have water purification equipment to address water quality issues. The quality of the water we return to environment, however, is relevant for us, as one of our new environmental sustainability goal is to have "no quality impact from manufacturing effluents" by 2025. All our own and key suppliers manufacturing sites are required to treat process water to conditions in line with the local legal requirements before it is returned to the environment. In addition to this, all manufacturing facilities assess their effluent load of active pharmaceutical ingredients (APIs) in the receiving water streams to meet our internal global standard. This is done using a company specific developed tool. It is a risk-based approach based on mass balance (and where necessary additional analytical methods) and the respective eco-toxicity parameters of individual drug substances. Downstream in the value chain, i.e. usage of our products in connection to water quality is very important and is considered as part of the marketing authorization approval process.
Stakeholder conflicts concerning water resources at a basin/catchment level	Relevant, sometimes included	In our own manufacturing sites, we have not experienced any stakeholder conflict. But in case of future conflicts this will be considered and assessed in the Novartis Risk Portfolio of each site. The Third Party Risk Management (TPRM) process considers Health, Safety and Environmental (HSE) risks within our supply chain and includes stakeholder conflicts, if required. Downstream in the value chain, i.e. usage of our products and the concerns of stakeholders on environmental impacts of our products are important but currently not considered in our risk assessment.
Implications of water on your key commodities/raw materials	Relevant, always included	A supply chain analysis on water footprint using an environmentally extended input/output assessment (EEIO tool developed by Novartis called EnScaN - Environmental Supply chain accounting Novartis) has been conducted annually since 2014 to assess key areas of relevance. The social cost of water, in particular if resources are scarce, is a decisive factor on the total impact of our material supply chain. The application of the Natural Capital Protocol in quantifying our own and supply chain environmental footprints in monetary terms shows that water is among the most relevant parts of our impact. Social costs of the water footprint which relate to our direct materials supply chain (including tiers of our suppliers – Tier 1-n) refers to about 20% of the total supply chain footprint.
Water-related regulatory frameworks	Relevant, always included	Novartis requires all sites (own and supplier) to abstract and treat water to conditions in line with local legal requirements so our business is able to produce our products in time, every time to meet the need of our patients. Each site is required to follow the internal global operating procedure (GOP) "Compliance Management GOP", which includes the tracking and adaptation of legislative and local regulatory requirements. Our internal accounting system on water withdrawal and consumption also includes the reporting on water quality indicators like, total suspended solids (TSS) load, chemical oxygen demand (COD) load, nitrogen load and phosphate load. In addition to local legal requirements, our own manufacturing facilities determine the amount of active pharmaceutical ingredients (APIs) in their waste water and take action to ensure that it meets our internal global guidelines. This is done using a risk-based approach based on mass balance (and where necessary additional analytical methods) and the respective eco-toxicity parameters of individual drug substances. All regulatory frameworks are considered and assessed as part of the Novartis Risk Portfolio process. Any inconsistency will be included and tracked accordingly.
Status of ecosystems and habitats	Relevant, always included	The status of ecosystems and habitats are relevant for our business, because Novartis' sustainability strategy aims to ensure sufficient and safe water as well as being a good water steward where ever we operate. Aspects of ecosystems and habitats are identified following the internal risk management process and considered, if relevant, as part of the Novartis Risk Portfolio process for our own sites. The risk management process is based on the international standard ISO 31000 Risk Management 2018. Within our supply chain these risks are considered and managed during our Responsible Procurement (RP) and Third Party Risk Management (TPRM) process.
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	Cleanliness and sterile working conditions are extremely important for pharmaceutical production. Novartis therefore ensures that fresh water is available for cleaning, washing, sanitary and drinking purposes at facilities under Novartis operational control. Due to the importance to our business this is a basic requirement. Aspects WASH services are identified following the internal risk management process and considered if relevant in the Novartis Risk Portfolio for our own sites. The risk management process is based on the international standard ISO 31000 Risk Management 2018. As a member of PSCI (pharmaceutical supply chain initiative) we request that suppliers, in accordance with the Pharmaceutical Supply Chain Initiative (PSCI) audit protocol, provide safe and potable drinking water and hygienic facilities to all employees.
Other contextual issues, please specify	Not relevant, explanation provided	All contextual issues are considered above.

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	Novartis' overall purpose is to reimagine medicine to discover new ways to improve and extend people's lives. Thus, our customers and patients are the most important stakeholder, because they rely on the timely delivery of our products. An environmental risk assessment which includes water risks is a mandatory requirement for the marketing authorisation approval process for new medicines. A water related risk assessment is therefore routinely completed to enable us to deliver new medicines to patients without delay. Besides that, we are fully committed to helping our patients/customer enjoy a cleaner environment because this has benefits for their health. Novartis believes that the careful stewardship of natural resources is not only important for the company but critical for society and future generations. Novartis informs customers about its water saving activities and related water risks in its annual non-financial reporting (Novartis in Society Report and environmental data supplement) and in local environmental reports. Novartis also recommends to patients and consumers of pharmaceutical and medicinal products that they should dispose of any unused or expired medicinal product or waste material in accordance with local requirements as well as following the disposal instructions on the patient information materials provided with the product.
Employees	Relevant, always included	We believe that Novartis sustainability strategy which includes water related topics, plays an important role in attracting and retaining employees. Thus, our associates are called upon to contribute to increased water efficiency and increased water quality through their work and daily habits (e.g. on the use of sanitary water). A sustainable business can only be achieved if all employees contribute within and beyond their specific working environment. A cross-divisional program for harmonization of Health, Safety and Environment (HSE) processes and implementation includes environmental topics and allows tracking of events, identifying relevant impacts, performing a root cause analysis, and triggering/managing corrective and preventive action. Associates have the possibility to use this tool which allows for easy recording of HSE related issues (including water) in a timely manner and enables consolidated reporting as well as enhanced group wide data transparency and accessibility.
Investors	Relevant, always included	Investors and their evaluation of our Environmental, Social and corporate Governance (ESG) performance is important to us, because the results of their evaluation and their trust in our future performance is directly linked to their financial support now and in future. Including this stakeholder group as part of our risk assessment process reduces the risk of losing future investment in our business. In 2018 our CEO communicated to analysts and investors that building trust with society is one of the five key organizational priorities for Novartis. This made it clear that Novartis has integrated environmental sustainability into its strategy. We inform our investors about our water saving activities and related water risks in our annual non-financial reporting (Novartis in Society Report and environment data supplement), in local environmental reports and on our webpage. In 2018, investors requested specific information on environmental topics, including water, in order to get a better understanding on Novartis environmental strategy and management processes, to inform their investment decisions.
Local communities	Relevant, always included	Depending on the local situation, communities are included in our local risk assessment, because a good relationship with local communities will help Novartis to be a successful company. We hope that regular contacts with community groups, local to the surroundings where we operate, will mitigate any reservations about our activity and will increase our reputation because the community will feel integrated and not excluded. Besides corporate responsibility reporting at a group level, we inform local stakeholders about our water saving activities and related water risks in local environmental and sustainability reports. For example, we are currently conducting a voluntary remediation project in France, to protect local groundwater sources from pesticide pollutants, originating from the former owners of the area.
NGOs	Relevant, always included	NGOs are included, because they represent a wider public opinion but they also can support us in developing strategies with an external view. Including this group of stakeholders reduces our risk of missing emerging topics in the area of water. We collaborate with selected groups in various projects on water availability and security. E.g. The "water stewardship benefit accounting methodology", with WRI, Valuing Nature and Quantis; and "mapping public water management", with Massachusetts Institute of Technology (MIT). We also voluntarily participate in a benchmark on anti-microbial resistance, which was initiated by the Access to Medicine Foundation. The benchmark aims to understand and to limit the impact of antibiotic manufacture on microbial resistance.
Other water users at a basin/catchment level	Relevant, always included	Other water users such as other industries, are included, because we withdraw and compete for the same water source. Taking them into account will reduce the risk of water shortages, because we will have a good overview on the local situation. With our new environmental sustainability strategy endorsed in 2018, we will start working with other users in the same water catchment to enhance water quality wherever we operate. For example in 2018 we started a project in Africa, where we support the delivery 1,000 water filter systems to families, which have limited or no access to clean drinking water.
Regulators	Relevant, always included	Regulators are included in the water risk assessments at Novartis manufacturing facilities, where we operate our own waste water treatment operations and/or discharge waste water to public sewer treatment facilities. Including regulators in this process gives Novartis insights into current and emerging water related risks and allows us to develop mitigation plans that will reduce this risk. This reduces uncertainties within operations and reduces the risk of an unexpected shut-down of production. Summary reports including key water parameters are shared if requested with the regulators. For example at a site in Germany, regulators were informed about some proposed changes to the product portfolio in advance and were included in the different stages of design and execution of the adaptive process.
River basin management authorities	Relevant, always included	River basin management authorities are factored into water risk assessments undertaken at Novartis manufacturing facilities, because they have knowledge about the potential future water related risks. They act as the point of contact for users of the watershed to enable collaborative efforts to be made to better manage the identified risk through corrective actions. This reduces uncertainties within operations and reduces the risk of an unexpected shut-down of production. For example water specialists at our manufacturing sites in Switzerland and Germany, work closely with the Rhine River Watershed authority and local public waste water treatment plants to monitor and control water effluent and pollutant parameters of the river Rhine.
Statutory special interest groups at a local level	Relevant, always included	The inclusion of statutory special interest groups allows Novartis to find a consensus on topics which affect relevant stakeholder groups and thus reduces uncertainties for our business. Novartis informs stakeholders about its water savings activities in its annual non-financial reporting (Novartis in Society Report and environment data supplement) and its local environmental reports (e.g. EMAS Reports). For certain matters, e.g. water quality, we collaborate directly with local authority and the community to identify the water risk and to mitigate appropriately. For example in Germany during 2016 a Novartis pharmaceutical operation installed a state-of-the-art effluent pre-treatment production facility in agreement with the local authority and community.

	Relevance & inclusion	Please explain
Suppliers	Relevant, always included	Novartis engages in water-risk related assessments for suppliers as it has an impact on the procurement of direct and indirect materials. Suppliers are relevant, because any delay in the supply chain affect production lines and hence the delivery of critical drugs for patients. All new/future suppliers are assessed via the Novartis Third-Party Risk Management (TPRM) program and existing suppliers are assessed regularly using questionnaires. Questionnaires are based on the principles and guidelines from the Pharmaceutical Supply Chain Initiative (PSCI). The PSCI was formed by a group of pharmaceutical and healthcare companies to develop a shared common vision of how they can ensure better, social and environmental outcomes (including water) in the communities they serve. The evaluations of these questionnaires tell us the risk factors involved so these can be included in the risk assessment process. Novartis considers all tiers in the upstream supply chain.
Water utilities at a local level	Relevant, always included	Water utilities are included, because they give us valuable input for certain business decisions, e.g. feedback on the utility's ability to meet demand now and in the future. This information enables Novartis to integrate this into its risk assessment process and ensure adequate mitigation actions are implemented. This reduces risk and uncertainties for our business. Novartis informs stakeholders about its water savings activities in its annual non-financial reporting (Novartis in Society Report and environment data supplement) and its local environmental reports (e.g. EMAS Reports). For certain matters, e.g. water quality, we collaborate directly with local authority and the community to identify risks and to mitigate appropriately. For example in Germany one of our pharmaceutical operations installed a state-of-the-art effluent pre-treatment production facility in agreement with the local authority and community.
Other stakeholder, please specify	Not considered	All stakeholders are considered above.

W3.3d

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

Water risks are evaluated as part of the HSE risk assessment process and if relevant are included in the Novartis Risk Portfolio. The Novartis Risk Portfolio is the tool Novartis uses to communicate risk information to senior management. This information assists in decision-making and budget allocation. Where risk exposure is identified, division, organisational unit and corporate function are responsible for ensuring the establishment of adequate strategies and measures to be applied to both reduce the impact and / or increase the level of control as far as feasible.

Water risks from water scarce sites are not considered a material risk because they do not affect our strategy for growth and the respective consequences are limited to a few individual sites located in water scarce areas. In order to have an impact a risk must have the potential to influence more than 1% of the total revenue within a five year period. The currently very low financial implications related to water risks and the possibilities to avoid/mitigate these risks by alternative ways, did not change our strategy for growth. Our use of the WRI Aqueduct tool and the internal company methods to assess water risks at individual sites, allows us to consider future developments.

The risks of pharmaceuticals in the environment from manufacturing effluents is assessed by using internal guideline (HSE GL15) and guidance notes. We maintain an accounting system on water withdrawal, consumption and discharge. Effluent risks are also not considered a material risk to our growth strategy.

Since 2014, we have conducted an annual study on the carbon and water footprint of the direct material supply chain (upstream value chain) per business, per supply category and per country. The water footprint identifies impact in hot spots areas. Water risks in the supply chain are considered as part of the HSE risk area for our RP (Responsible Procurement)/ TPRM (Third Party Risk Management) process. Water consumption related risks associated with our supply chain are also being assessed using an environmentally extended input /output assessment (EEIO tool developed by Novartis called EnScaN - Environmental Supply chain accounting Novartis). It considers all tiers in the upstream value chain. We aim to keep the procedure in our own and our supplier's operations as similar as possible to make sure that the identified risks are not biased one way or the other.

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?

At Novartis, risk and strategy issues are integrated in a cross-functional risk management process, because both belong together. A holistic view of all risks are consolidated in a Novartis Risk Compass which enables senior management, the Executive Committee of Novartis (ECN) and the Novartis Board of Directors to focus discussion on key strategic risks and to align the company strategy so our risk exposure can be minimized. The functions involved in this process include Corporate Finance, Legal, People & Organization (formally Human Resources), Business Continuity and Novartis Emergency Management, Integrity and Compliance, Health Safety and Environment (HSE), Information Security, Data Privacy, Quality Assurance and Third Party Risk Management (TPRM), thus covering both, our direct operations and supply chain. The involvement of these different groups ensures that the Novartis Risk Compass covers issues affecting strategical direction, direct operations and as well as supply chain in a holistic manner. The Enterprise Risk Management (ERM) process includes a risk identification top down from all business units as well as the supporting functions that is known as the One Risk Discussion. In addition, the risk identification is bottom up from the countries. All these outputs are then consolidated in the Novartis Risk Compass, which is continually monitored by the Risk & Resilience team. The process is repeated annually. The process begins by determining our risk exposure followed by defining the scope of risk management activities, understanding the external and internal context in which Novartis operates, defining the criteria of the potential impact of each risk and the likelihood that each risk will occur. A risk matrix is created where the likelihood of a risk occurring is plotted against the impact on objectives. This gives guidance on prioritization. The matrix consists of four levels for likelihood and four levels for impact (low, medium, high and very high). It is also composed of four categories (strategic, operational, emerging and awareness risks), which enables us to focus on the right risks and ensures that the most appropriate mitigation strategy is put in place.

All functions within the company define their threshold of substantive impact. The financial ranges which define substantive impact at the Group level are <1%, 1-2%, >2-4% and >4% loss of annual sales. Other measures are e.g. time of delayed product registration, findings in authority inspections, increased resilience, damage of reputation and / or environment. Impacts are plotted against the likelihood of an impact materializing within 5 years to help guide senior management, and ensures that the ECN and Board of Directors only focus on the key risks.

As outlined in W1.1, water is important for production processes in our own (direct use) and supply chain (upstream value chain; indirect use) whereas quantity is more important than quality. Large quantities of water are used at several Novartis sites to cool production processes and/ or buildings. Novartis encourages the use of water for cooling at sites where water is abundant. This saves significant quantities of energy and associated greenhouse gas (GHG) emissions. In the unlikely event of a longer-term future, where sites could no longer abstract cooling water from the aquatic environment due to e.g. climate change resulting in water shortage (glacier regression), the use of mechanical chillers would be required to cool the production processes. This would result in higher operating costs through increased energy usage and higher GHG emissions. The higher costs and higher GHG emissions might be considered a substantive change to the organization.

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	During 2018, Novartis enhanced its integrated company-wide Enterprise Risk Management (ERM) process and adjusted the criteria which determines whether a risk is substantive or not. As a consequence two facilities which were reported last year as being exposed to water risks with the potential to have a substantive financial or strategic impact on our business are no longer regarded as such. The changes include the replacement of "Level of Control" to "Likelihood" as risk rating criteria and reducing the rating scale "Impact" from previous seven to only five criteria. The current time horizon of 5 years in which the risk impact materialized, was not met by the two facilities reported in the last year, and thus we have not identified any inherent water-related risks with the potential to have a substantive financial or strategic impact on our business. As explained in W1.1 water is important, whereas quantity is more important than quality. Several Novartis sites use large quantities of water to cool production process, and/or buildings. The largest demand is from a site in Austria. If this site was unable to obtain water for cooling, mechanical chillers would be required to cool the processes and buildings, which would result in significantly higher operating costs and increased capital costs. The estimated costs are USD 10 million over 5-10 years plus the annual increase in energy costs of USD 1.5 - 2.5 million per year. These costs when added to other location's costs are still less than 1% of total global revenue. In addition neither of these locations has any strategic, operational, emerging or awareness risks so they do not meet the criteria for substantive or strategic impact. However, this risk is still kept as an "awareness risk" that we watch closely so we can anticipate any impact before it emerges and take appropriate action.

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	As explained in W1.1 water is important to production processes in our supply chain. Water quantity is more important than water quality, because where water quality is not sufficient, additional purification steps can be included. Novartis performs water impact assessments on its supply chain. India and China represents a major portion of the supplier base for Novartis and although suppliers are affected by increased water stress, this risk is not expected to cause significant disruptions in our supply chain in a 5 year time horizon and therefore not to have a substantive or strategic impact. However, we recognise that this is a complex area and we plan to enhance our approach during 2019 because water stress could reduce water availability and impact water quality at supplier sites leading to cost increases.

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

Resilience

Primary water-related opportunity

Increased resilience to impacts of climate change

Company-specific description & strategy to realize opportunity

At Novartis, our continued success depends on our ability to manage risks effectively. Risk can be defined as "the effect of uncertainty on objectives" (source ISO31000); in other words, an uncertain event, should it occur, would have an effect on the achievement of objectives. An effect can be positive, negative or both and can address, create or result in threats, but also in opportunities. Thus, risks, positive and negative, are included in our Enterprise Risk management (ERM) process and follow the same integrated process. Climate change could decrease water availability so taking action to reduce water consumption gives us the opportunity to build a more sustainable business and to continue to meet the needs of our patients. This opportunity originates from our new environmental sustainability strategy, endorsed by the Executive Committee Novartis in 2018, and is driven by the

Global Health Safety and Environment (HSE) team, which is responsible for HSE topics company-wide. The financial benefit of decreased water consumption varies by location. However, in one of our manufacturing sites in Turkey, the water consumption was reduced and the quality of effluent was increased by the installation of a reverse osmosis-ultrafiltration system which allowed a proportion of the water to be reused within the site. The project cost was approximately USD 600,000, but the benefit was a water consumption reduction by 14% and a cost operational reduction of USD 100,000 per year.

Estimated timeframe for realization

4 to 6 years

Magnitude of potential financial impact

Low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

25616000

Potential financial impact figure – maximum (currency)

41946200

Explanation of financial impact

One of the new environmental sustainability targets is to reduce our water consumption by half in our operations, with a baseline of 2016. This results in a water volume of about 6 million m3. Applying the Novartis internal water costs, which was determined during the development of our new environmental sustainability strategy and includes the full cost of water, we were able to estimate the potential positive financial impact.

Type of opportunity

Products and services

Primary water-related opportunity

Reduced impact of product use on water resources

Company-specific description & strategy to realize opportunity

At Novartis, our continued success depends on our ability to manage risks effectively. Risk can be defined as “the effect of uncertainty on objectives” (source ISO31000); in other words, an uncertain event, should it occur, would have an effect on the achievement of objectives. An effect can be positive, negative or both and can address, create or result in threats, but also in opportunities. Thus, risks, positive and negative, are included in our Enterprise Risk management (ERM) process and follow the same integrated process. The impact of this opportunity is to be a good water steward, by reducing the impact of product use on water resources associated with regulatory changes and to be able to produce our products in an environmental sustainable way. This opportunity originates from our new environmental sustainability strategy, endorsed by the Executive Committee Novartis in 2018, and is driven by the global HSE team, which is responsible for HSE topics company-wide. The benefit, applies company-wide and will ease compliance with potentially stricter water legislation, but also increase the reputation of our business with different stakeholders. For example our investment into a waste water treatment plant at a production site in Germany, enables the wastewater to be consistently treated to a quality within legal limits for discharge, fulfils our targets for water quality, and thus gains flexibility for the future formulation of new active pharmaceutical ingredients (API).

Estimated timeframe for realization

4 to 6 years

Magnitude of potential financial impact

Low

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

The impact has not been quantified financially because it is a qualitative goal, without direct financial benefit. However, it will ease compliance with stricter water legislation in future.

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.

Row	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 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	The Novartis Health, Safety and Environment (HSE) policy which includes water stewardship applies company-wide because we strive to operate responsibly by building a long-term, sustainable business. Novartis is not an intensive water user, but we recognize the value of water and strive to minimize the environmental impact of our activities and products over their life cycle. We consider HSE implications across the full spectrum of our activities with the intent to protect associates, neighbours, patients, business assets, natural resources and the environment. We promote besides others the societal and environmental value of the UN Global Compact. A major concern is the prevention of pharmaceuticals from entering the aquatic environment and affecting water quality. This is why we follow a four-fold approach as detailed in our Pharmaceuticals in the Environment (PiE) position paper which includes R&D, production, marketing, the disposal of drug products and the increase of knowledge. Our efforts go beyond regulatory requirements, as we regularly monitor the levels of active pharmaceutical ingredients (APIs) in manufacturing effluents, increase awareness and educate stakeholders on the PiE topic via supporting innovative projects (IMI-iPiE) and open accessible platforms (medsdisposal.eu). We also encourage our suppliers via responsible procurement programs to adopt water management practices which are equivalent to our own and this is now a requirement of our new strategy for water quality. We aim to be a good water steward wherever we operate, working to achieve water sustainability and helping ensure sufficient and safe water. The Novartis Corporate Responsibility Policy and programs acknowledge the human right to water so our business (across the entire value chain) does not adversely affect other stakeholder's access to clean water and sanitation.

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
Chief Executive Officer (CEO)	The Executive Committee of Novartis (ECN) led by the CEO meets each month. The ECN formally approves our environmental sustainability strategy, water targets and water goals. It also reviews and approves annual budgets and sets business priorities. It oversees and approves major capital expenditures, acquisitions and divestitures. The ECN tracks progress against goals and targets for addressing water sustainability. Performance is assured by independent auditors and is reported annually in our Novartis in Society Report (formally Corporate Responsibility report). The CEO's Involvement enables the Novartis water strategy to be balanced with other business priorities and that sufficient resources are in place. The CEO can also take action to accelerate implementation as needed to respond to external expectations or business needs.
Board Chair	The Board of Directors is led by the Chairman of the Board and is responsible for setting the strategic direction of the Novartis Group. The Board typically meets 12 times per year and each meeting lasts 6 hours. Environmental sustainability includes water sustainability which is considered to be a priority topic for the organization which needs to be balanced with other important business issues. The Chairman of the Board is best placed to do this. In 2017 the Board requested that the company revisit its environmental strategy to see if more ambition was possible and in 2018 the Chairman of the Board reviewed and endorsed our new environmental sustainability strategy which set ambitious new water sustainability targets and goals for our business. These are to reduce water consumption by half in our own operations by 2025 and to ensure that there are no water quality impacts from our own and key suppliers manufacturing effluents including our active pharmaceutical ingredients. Before the end of 2030 we have targets to be water neutral in all areas and to enhance water quality wherever we operate.
Board-level committee	The Governance, Nomination and Corporate Responsibilities Committee (GN&CRC) oversees the company's strategy and governance on corporate responsibility which includes water related issues. This group typically meets 3-4 times per year and each meeting lasts 2 hours. The Risk Committee oversees the company's risks across a wide range of possible topics to include water stewardship related issues. This task is subject to final Board approval at the GN&CRC. The Chief Ethics, Risk and Compliance Officer is responsible for identifying and elevating issues generated by an integrated enterprise risk management process. These committees are responsible for identifying and investigating issues which are of strategic importance to the business and checking if they are appropriately managed. If either had concerns about the Novartis water strategy these would be brought to the attention of the Board and the Executive Committee of Novartis (ECN).

W6.2b

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

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - some meetings	Monitoring implementation and performance Overseeing acquisitions and divestiture Overseeing major capital expenditures Providing employee incentives Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding strategy Reviewing and guiding corporate responsibility strategy Reviewing innovation/R&D priorities Other, please specify (Overseeing against goals and targets)	The Board of Directors is responsible for direction, strategy, organisation and administration of the company, and holds the ultimate decision-making authority for Novartis, including environmental sustainability strategy, which comprises water-related issues. The Board of Directors meet typically 12 times per year, each meeting lasts 6 hours. The Board has delegated certain of its duties and responsibilities to its five committees led by a Board-elected Chairman: Audit and Compliance Committee, Compensation Committee, Research and Development Committee, Risk and Governance Committee, Nomination and Corporate Responsibilities Committee. The committees enable the Board to work in an efficient and effective manner, allowing a thorough review and discussion of issues. The Risk Committee assists the Board in properly assessing and professionally managing risk by overseeing the risk management system and processes, as well as by reviewing the risk portfolio and related actions implemented by management. The Governance, Nomination and Corporate Responsibilities Committee, which typically meets 3-4 times per year ensures that water issues are integrated in governance mechanisms across the company. The water strategy including the scope and ambition of Novartis is discussed periodically and any recommendations are subject to final Board approval. In 2017 it was decided to review Novartis environmental sustainability strategy and in May 2018, the new environmental sustainability strategy, including targets and goals for water, were approved. The Board is overseeing the progress against the targets and goals by monitoring the implementation of the new environmental sustainability strategy. Members of the Executive Committee of Novartis such as the heads of Novartis Technical Operations (NTO) and Novartis Business Services (NBS) as well as other members of the senior management, such as, e.g.: Region/Country/Site Managers receive monetary rewards for meeting water sustainability targets. Associates who are engaged in reducing Novartis' environmental footprint in energy, waste and water are rewarded through the use of the Novartis Better World Awards which also include a monetary award.

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)

Chief Operating Officer (COO)

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

Quarterly

Please explain

Novartis does not have a traditional COO but a Head of Novartis Business Services (NBS). The role reports directly to CEO and enables the company to have effective operational and financial procedures in place. NBS drives efficiency and effectiveness across Novartis by simplifying and standardizing services across People & Organization (P&O), Real Estate & Facility Services, Procurement, IT, Commercial & Medical Support activities and Finance. The Head of NBS is also responsible for the design of the groups environmental sustainability strategy (ESS), management of environmental risks and reaching the associated environmental targets and goals, including water. The Head of NBS is a member of the HSE Governance Board and the ESS Steering Committee that ensures all HSE risks including water-related risks are managed appropriately. These group level committees include the Group Head of Manufacturing, Comms, Global Health & CR, P&O and the Chief Procurement Officer which meet quarterly.

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

Other committee, please specify (HSE Governance Board)

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

Quarterly

Please explain

The Health, Safety and Environment (HSE) Governance Board is responsible for the appropriate management of all HSE risks and issues including water. Several members of the board report directly to the CEO. They include the heads of Novartis Technical Operations and Novartis Business Services who have operational responsibility and the Group Head of People & Organization who has a key role in ensuring that environmental sustainability are considered as part of routine business decisions. The HSE Governance Board also includes the Group Head of Global Health & CR for Novartis, the Head of Real Estate and Facilities Services, the Global Head of HSE, and the Head Global Environment & Sustainability Strategy Implementation. The Head Global Environment & Sustainability Strategy Implementation is responsible for water strategy, making recommendations for how they should be managed, developing metrics/targets, and seeking endorsement for implementation from the HSE Governance Board.

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

Other, please specify (Environmental Sustainability Steering Committee)

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

Quarterly

Please explain

The Environmental Sustainability Steering Committee is responsible for ensuring all water targets and goals included in the environmental sustainability target are managed and implemented appropriately.

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, funding research organizations

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 collaborate with others to help address some of the world's greatest health challenges and focus our corporate responsibility work on two areas that underscore our mission: expanding access to healthcare and doing business responsibly. The Novartis Global Health and Corporate Responsibility Leadership Team (GH&CR LT) comprised of leaders from each division and across multiple functions of the company, guides this work. The GH&CR LT is tasked with facilitating information-sharing between other related governance bodies, such as the HSE Steering Committee, the Compliance Steering Committee and Corporate Affairs. This platform aims to discover any inconsistency within Novartis policy/commitments and public policy. It then can intervene, discuss the discrepancy and take action to overcome this inconsistency by giving clear direction to each division and function within the company. For external advocacy, Corporate Affairs has developed a document describing eight advocacy principles as guidance for efforts regarding Corporate Responsibility. Half of these principles focus on doing business responsibly, which includes the sustainable use of water as one of our ambitious targets. Advocacy principles are rooted in the business strategy and thus are consistent. Both, advocacy principles and business strategy, evolve over time in line with the business and the external environment.

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)

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	11-15	Environmental sustainability is an integral part of our strategy. Novartis strives to make efficient use of natural resources including water and to minimize the environmental impacts of its activities and products over their entire life cycle. In 2018, a new environmental sustainability strategy have been approved with clear targets and goals by 2025 and 2030 in the main areas: climate, waste and water. For water, we aim to be a good water steward wherever we operate, working to achieve water sustainability and helping ensure sufficient and safe water. Our 2025 target/goal is to reduce water consumption in our operations by half versus 2016, with no water quality impacts from manufacturing effluents (including key suppliers). By 2030, we aim to be water neutral in all water stressed areas of our operations, while actively enhancing water quality wherever we operate.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	11-15	Novartis' overall purpose is to reimagine medicine to discover new ways to improve and extend people's lives. This means that we do our business responsibly and sustainably and have integrated water stewardship in our strategy. In 2018, Novartis endorsed its new environmental sustainability strategy and set ambitious new targets. Our 2025 target/goal is to reduce water consumption in our operations by half versus 2016, with no water quality impacts from manufacturing effluents (including key suppliers). By 2030, we aim to be water neutral in all water stressed areas of our operations, while actively enhancing water quality wherever we operate.
Financial planning	Yes, water-related issues are integrated	11-15	Novartis includes water related issues as part of its financial planning. This was reconfirmed in early 2018 by our CEO when he communicated to analysts and investors that building trust with society is one of the five key organizational priorities for Novartis moving forward. For this reason, any activity that impacts the environment, like water, is reviewed and the environmental sustainability dimension included in our financial analysis. In 2018, Novartis endorsed its new environmental sustainability strategy and sets ambitious targets. Our 2025 target/goal for water is to reduce its consumption in our operations by half, with no water quality impacts from manufacturing effluents. The targets/goals will be transferred to the business unit with the highest impact for implementation. E.g. reduction of water consumption is managed by the technical operation unit. This unit oversees total water utilisation and the available technical equipment and can propose, change and install the necessary equipment to meet our targets/goals. Therefore, long-term financial planning followed by execution will be managed in the respective business unit to allow successful implementation and completion.

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)

2

Water-related OPEX (+/- % change)

8

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

0

Please explain

The estimated CAPEX remains the same as last year. However, we expect a slight increase for next year due to our new environmental sustainability strategy, including the new water targets and goals. The OPEX for water supply and treatment increased by less than 8 % in 2018 compared to 2017. This increase is due to a change in the general service provider and different allocation of total OPEX costs (incl. infrastructure costs like waste). Besides that the increase is a result of exchange rate from different currency into USD and minor changes in water prices. We expect no change in OPEX for next year.

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	Business and operations may be impacted by the growing effects of climate change and the shifting weather patterns in many regions. With energy, greenhouse gas emissions and water resources becoming greater cost factors, efficiency improvements and alternate sources will become more important. In the long term, the increasingly severe effects of rising sea levels, extreme weather, changing precipitation patterns, and water scarcity could also influence the way we select new locations and how these can be protected against the effects of climate change. In 2018, we started collaborating with an interdisciplinary group from the Massachusetts Institute of Technology (MIT). We investigate how climate change will affect water resources and in particular the change in hydro-climatic risk to the Novartis global infrastructure from climate change. The results will be shared with associates in production, finance and facilities to create a more holistic integrated risk management strategy.

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 (The methodology used here is an extension of the work developed by Strzepek et al 2011 and Strzepek et al 2013, including additional indicator and detailed focus on uncertainties in the used climate change models.)	The intent of this study is to generate an understanding of the relative change in variable values, not the absolute magnitudes of variable values. The results therefore provide an understanding of the range of potential consequences of climate change on risk at the facility scale. The results show a geographically varying risk to Novartis facilities as well as a growing risk to Novartis infrastructure, looking to middle of the 21st century with even more extreme conditions expected by the end of the century.	These results are suitable for us as inputs to the screening-level analyses of the impact of climate change on the location, new design, renovations and management of Novartis research and production facility investments. The results suggest a series of more in-depth climate risk assessments are warranted for key Novartis facilities. The results can assist our management in prioritizing these local in-depth analyses by combining them with other important information about the critical nature of the research, development and production activities on-going at each facility.

W7.4

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

Row 1

Does your company use an internal price on water?

Yes

Please explain

In 2018 a new environmental sustainability strategy was developed and endorsed which estimated the internal cost of water. This internal cost of water was used to confirm the level of ambition for water reduction.

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 Activity level specific targets and/or goals Site/facility specific targets and/or goals Basin specific targets and/or goals	Targets are monitored at the corporate level Goals are monitored at the corporate level	In 2017 Novartis' environmental strategy was reviewed and a new environmental sustainability strategy was endorsed by Executive Committee of Novartis, which includes the CEO and other C suite leaders. The process was kicked-off by a 2-day workshop attended by external and internal stakeholders and accompanied with fruitful discussions with various internal and external interest groups reflecting on the 17 sustainability development goals and our commitment to the UN Global Compact. This process was finalized in May 2018 through the publication of ambitious targets and goals to minimize Novartis' impacts on climate, waste and water. With these targets and goals, we created measurable indicators to guide the company to reach its vision to minimize the environmental impact of our activities and products over their life cycle. Using natural resources wisely and effectively and minimizing our environmental footprint will prepare us for future challenges such as climate change and resource shortages. In the area of water, we strive to be a good water steward wherever we operate, working to achieve water sustainability and helping ensure sufficient and safe water. This goes far beyond regulatory requirement and we hope we will be a catalyst for positive change within industry.

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

Water consumption

Level

Company-wide

Primary motivation

Risk mitigation

Description of target

The United Nations (UN) predicts a water shortage of 40% by 2030 which could restrict Novartis' access to water. Therefore reducing our water consumption seems to be a good way of successfully competing in the future whilst contributing to global water security. After a thorough engagement with internal and external stakeholder in 2017, Novartis endorsed its new environmental sustainability strategy in 2018 which sets ambitious targets besides others for water consumption at company-wide level. Our 2025 target for water is to reduce water consumption in our operations by half versus 2016 and is monitored at the group level to understand our global impact on water security. This target is owned by Novartis Technical Operations and Novartis Business Services which will invest as necessary to achieve the target. Actions to achieve this target are coordinated via the Environmental Sustainability Steering Committee.

Quantitative metric

% reduction in total water consumption

Baseline year

2016

Start year

2018

Target year

2025

% achieved

14

Please explain

The fulfilment of this target has just been started, but with an achievement of >10% in the first year we are already on a good track to meet our target by the anticipated time 2025. The reduction is driven by increased awareness of the need to use water efficiently.

Target reference number

Target 2

Category of target

Water withdrawals

Level

Company-wide

Primary motivation

Increase freshwater availability for users/natural environment within the basin

Description of target

The impact of unsustainable water use can be seen at both the local and regional level. For example withdrawal of water at a rate which is faster than the rate at which it is being replenished leads to water stress for the community and the surrounding environment. In 2018, Novartis set an ambitious target to achieve water neutrality in all water stressed areas of its business by 2030. This target is monitored at the group level because it supports our company-wide strategy to meet patient needs at all times. Being water neutral in all water stressed areas of our operations is expected to increase freshwater availability for all users, including the natural environment within the same area thus supporting local water security. This target is owned by several units including Novartis Technical Operation and Novartis Business Services which plan to invest as necessary to achieve the target. The corresponding actions are coordinated via the Environmental Sustainability Steering Committee.

Quantitative metric

Other, please specify (Water balance, where the difference between water output and water input, is close to zero.)

Baseline year

2016

Start year

2018

Target year

2030

% achieved

0

Please explain

The quantitative metrics of this target has not been introduced company-wide, thus no percentage achievement can be given during this reporting period.

W8.1b

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

Improve wastewater quality beyond compliance requirements

Level

Company-wide

Motivation

Reduced environmental impact

Description of goal

Pharmaceuticals entering the aquatic environment are an inevitable consequence of current healthcare practices. While the

majority of Pharmaceuticals in the Environment (PiE) stem from the excretions of treated patients, relatively small quantities come from the industrial activities of drug research, development and production. In 2018 Novartis has replaced its former micropollutant target (endorsed 2015) with a new ambitious goal aiming for no water quality impacts from manufacturing effluents, including our key drug substance supplier. In future we require that not only our own, but also our contracted manufacturers are managing manufacturing drug substance loss without affecting the environment and human health and thus supporting water security. This company-wide goal is monitored at group level because it will support our company-wide strategy on business continuity, being able to produce and deliver our products in time, every time. This goal is owned by Novartis Technical Operations which will invest as necessary to achieve the target. Actions to achieve this target are coordinated via the Environmental Sustainability Steering Committee.

Baseline year

2016

Start year

2018

End year

2025

Progress

The annual internal effluent assessment in 2018 shows that approximately 70% of relevant Novartis sites are fulfilling the goal, the remaining sites are developing mitigation measures to reduce the risk to the receiving surface water. For our key suppliers we are in the process of establishing a baseline and will track their progress subsequently.

Goal

Engaging with local community

Level

Company-wide

Motivation

Water stewardship

Description of goal

Novartis believes that public concerns about water quality will likely increase and thus new regulation and policy pressure will follow. After a thorough engagement with internal and external stakeholder in 2017, Novartis endorsed its new environmental sustainability strategy in 2018 and set an ambitious goal to enhance water quality wherever we operate by 2030. This goal is monitored at group level because it supports our company-wide strategy on business continuity, being able to produce and deliver our products in time, every time. This target is owned by several units within Novartis including Global Health & Corporate Responsibility. Actions to achieve this target are coordinated via the Environmental Sustainability Steering Committee.

Baseline year

2018

Start year

2018

End year

2030

Progress

We are currently in the process of developing meaningful metrics to show success. In 2018, we started a project in Africa to support the delivery of 1,000 water filters systems and solar cooking stoves to families which have no access to clean drinking water and are using cooking stoves fired with wood. Besides that, we participated in a project with WRI, Valuing Nature and Quantis on water stewardship benefits accounting. These projects are expected to guide us on how to track progress and success during the upcoming years.

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

Increased GHG emissions

Description of linkage/tradeoff

Several Novartis sites in Austria, Italy, Spain and Slovenia abstract large quantities of water from nearby rivers to cool their production processes. Some additional sites, including some in Switzerland, use water from a nearby river for the comfort cooling of offices and groundwater to cool data centres. At these sites the quantity and temperature of the water is important for the efficiency of cooling rather than the water quality. Mechanical chillers could provide cooling instead of using free cooling with water and thus reduce the use of cooling water; however, this would increase energy use, energy costs and energy-related greenhouse gas (GHG) emissions significantly (20-30%).

Policy or action

Environmental sustainability is an integral part of our strategy. Novartis strives to make efficient use of natural resources including water and to minimize the environmental impacts of its activities and products over their entire life cycle. With this approach to use water for cooling instead of electricity, these sites effectively contribute to the Novartis energy efficiency program and to the related greenhouse gas (GHG) targets. Novartis recognises the potential impact this might have on water resources so this approach is only followed where fresh water sources are abundant and any slight increase in the temperature of receiving waters is not significant. If we were to stop using water for cooling we estimate that energy and related GHG emissions would increase 20-30% at relevant sites.

Linkage or tradeoff

Linkage

Type of linkage/tradeoff

Increased energy efficiency

Description of linkage/tradeoff

Currently two sites have installed waste water treatment technology based on fine-bubble diffused aeration. This technology is more energy efficient and more effective in the decomposition of pollutants. This leads to significant reductions in the emissions of key pollutant parameters (less than 10% of licensed amounts), e.g. total suspended solids (TSS), chemical oxygen demand (COD), biological oxygen demand (BOD) and total nitrogen. This technology can be readily retrofitted to other facilities that use an aerobic wastewater treatment process (incorporating activated sludge) and can be scaled in size for multiple plants and various capacities. Additionally this technology offers the potential to reduce discharges of residual active pharmaceutical ingredients (APIs) to the environment. Many of these substances adsorb onto sludge – more of which is now retained in the wastewater treatment plant to be subsequently removed as a solid for incineration.

Policy or action

Environmental sustainability is an integral part of our strategy. Novartis strives to make efficient use of natural resources including water and to minimize the environmental impacts of its activities and products over their entire life cycle. The new technology helps Novartis to achieve both the energy as well as water targets. Less water to be cleaned and more effective treatment reduces energy use and treatment costs, as well as amounts of pollutants remaining in the effluents of treated water. The energy efficiency as well as the reduction of pollutant parameters has increased, and by this the greenhouse gas (GHG) emission has been reduced by 22 tonnes CO₂e per year.

Linkage or tradeoff

Linkage

Type of linkage/tradeoff

Increased energy efficiency

Description of linkage/tradeoff

Currently six Novartis sites in Europe have implemented projects for the reuse of steam condensate for sanitary utilities. The goal

of these projects is to optimize energy consumption, saving energy and reducing the associated cost. A site in Slovenia for example has reduced its thermal energy consumption by 1,100 GJ per year, which results in a GHG reduction of 61 tonnes CO₂e per year. By this measure, the fresh water consumption of the site is reduced by 240 m³ per year.

Policy or action

Environmental sustainability is an integral part of our strategy. Novartis strives to make efficient use of natural resources including water and to minimize the environmental impacts of its activities and products over their entire life cycle. These projects are to optimize the energy consumption, by reusing steam condensate and thus saving energy and fresh water consumption. A site in Slovenia for example has reduced its thermal energy consumption by 1,100 GJ per year, which results in a GHG reduction of 61 tonnes CO₂e per year. By this measure, the fresh water consumption of the site is reduced by 240 m³ per year.

W10. Verification

W10.1

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

No, but we are actively considering verifying within the next two years

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	Head of Novartis Business Services (NBS), reporting directly to the CEO and ensuring that the Company has effective operational and financial procedures in place. Corresponding to job category COO.	Chief Operating Officer (COO)

W11.2

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

No

SW. Supply chain module

SW0.1

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

	Annual revenue
Row 1	51900000000

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	CH	0012005267

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.

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?

English

Please confirm how your response should be handled by CDP

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

Please confirm below

I have read and accept the applicable Terms