Novartis - Water Security 2021

W0. Introduction

W0.1

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

Novartis is reimagining medicine to improve and extend people's lives with a vision to become the most valued and trusted medicines company in the world. As a leading global medicines company, we use innovative science and digital technologies to create transformative treatments in areas of great medical need. In our quest to find new medicines, Novartis ranks among the world's top companies investing in research and development. About 106,000 people of more than 140 nationalities work at Novartis around the world. Novartis products reach nearly 800 million people globally and we are finding innovative ways to expand access to our latest treatments. Our products address most major disease areas and are sold in approximately 155 countries around the world. Our manufacturing facilities produced 72 billion treatments in 2020.

Novartis is structured to deliver innovative products, operate on a global scale, and respond to new opportunities and risks. Our divisions - Innovative Medicines and Sandoz - are supported by functional organizations with global scale. Made up of two business units – Novartis Pharmaceuticals which includes Novartis Gene Therapies, and Novartis Oncology – our Innovative Medicines Division commercializes innovative patented medicines to enhance health outcomes for patients and healthcare professionals. Sandoz is a global leader in generic pharmaceuticals and Biosimilars that pioneers novel approaches to help people around the world access high-quality medicines.

Novartis is comprised of several organizational units. The Novartis Institutes for BioMedical Research (NIBR) is the research arm of Novartis. NIBR focuses on discovering new drugs that can change the practice of medicine. The Global Drug Development (GDD) organization oversees the development of new medicines discovered by our researchers and partners. Novartis Technical Operations (NTO) is responsible for making our innovative medicines, devices, and Sandoz products and delivering them to our customers across the world. Novartis Business Services (NBS) now known as Customer & Technology Solutions (CTS) consolidates support services across our organization, helping drive innovation, efficiency, simplification, standardization and quality. Other corporate functions support the enterprise in specific areas of expertise, including finance, human resources, legal and communications.

Our purpose is to reimagine medicine to improve and extend people's lives. Our strategy is to build a leading, focused medicines company powered by advanced therapy platforms and data science. As we implement this strategy, we have five priorities to shape our future and to help us continue to create value for our patients, company, 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 this trust, we aim to hold ourselves to high ethical standards, be part of the solution on pricing and access to medicines, tackle complex global health challenges, and be a responsible citizen, addressing complex societal challenges such as water quality, waste and climate change. We aim to be a leader in environmental sustainability and a catalyst for change. We established a new company wide environmental sustainability strategy in 2018, with goals to become carbon neutral in our own operations by 2025, carbon neutral across our supply chain by 2030 and plastic and water neutral by 2030.

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 2020	December 31 2020

W0.3

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

Argentina
Austria
Bangladesh
Belgium
Brazil
Canada
China
Egypt
France
Germany
India
Indonesia
Ireland
Italy
Japan
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	Text field [maximum 2,000 characters] 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 also more important than quality in the indirect use of water. 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. Rainwater is collected and used e.g. for filter scrubbing. In case of disruption, the use of recycled water or rainwater can be substituted by using freshwater so processes are not interrupted. In the 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 therefore, 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
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 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, groundwater - Water drawn from aquatic environment, surface water - Water collected from rain - Water input as ingredient of raw materials - or 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 sector]	<Not Applicable>	<Not Applicable>
Produced water associated with your oil & gas sector activities - total volumes [only oil and gas sector]	<Not Applicable>	<Not Applicable>
Water withdrawals quality	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 depend on the final usage form of the water at the specific sites and are 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 does not meet 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 on-site or off-site treatment - Water lost (evaporated from cooling/ heating systems - output as product ingredient - or 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 wastewater 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 wastewater permits and support the adherence to local regulations. We are currently evaluating if we will include 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.
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 consumption (water lost) 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	76-99	Water recycled/reused is monitored through an annual site assessment. All sites across the organization are requested to review and guarantee their set of sustainability metrics to ensure accurate reporting of relevant metrics to the organization. Water recycled/reused is then monitored at these sites where it is identified to be relevant, 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. In 2020, we installed a new water recycling plant at one of our sites in Singapore. This plant uses reverse osmosis technology to treat water so it can be reused on site. In Germany, a water reuse project saved 18,000 m3 of water and in Slovenia a condensate recovery project saved 12,500 m3 of water.
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. Availability of water used for sanitary purposes is monitored and reported on a quarterly basis by all production, research and development and administration facilities under Novartis operational control. Accurate information on water input (withdrawals) by source is obtained from invoices and public water meters (for purchased water) or from own supplying operations.

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	54701	Lower	Cooling water (primarily freshwater from groundwater sources or riverbeds) 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 (>10% variance) than previous reporting year (54,701 ML vs. 66,716 ML in 2019) due to seasonal conditions. We expect that total water withdrawals will decrease further in future years, in order to meet the company-wide target to reduce water consumption by half in 2025. Interventions to reduce the water withdrawals include increase water efficiencies in production and cleaning processes.
Total discharges	53366	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 (1,115 ML). Total discharges are lower (>10% variance) than the previous reporting year (53,366 ML vs. 65,396 ML in 2019). We expect that total discharge will decrease further in future years, in order to meet the company-wide target to reduce water consumption by half in 2025. Interventions to reduce the water withdrawals include increase water efficiencies in production and cleaning processes.
Total consumption	1115	About the same	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 and total consumption as volumes are partly estimated based on process and previous usage. Therefore, total consumption does not exactly equals to total withdrawal minus total discharges (54,701 ML - 53,366 ML = 1,335 ML). Plausibility checks help to ensure that mismatch is smaller than 10% at each site. Total consumption is about the same (<10% variance) than previous reporting year due to continued improvements in operations (1,115 ML vs. 1,196 ML 2019). We expect that water not returned to the local environment will decrease in future years in order to meet the company-wide targets for water. This is due to our environmental sustainability strategy, which aims to increase water efficiencies in production and cleaning processes.

W1.2d

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

	Withdrawals are from areas with water stress	% withdrawn from areas with water stress	Comparison with previous reporting year	Identification tool	Please explain
Row 1	Yes	1-10	Lower	WWF Water Risk Filter	To assess our risks related to water stressed areas, since 2020 we are using the Water Risk Filter tool by entering the coordinates of all our sites 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 a risk for scarcity greater or equal to 3 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 volume of water withdrawn from water stressed areas in 2020 is lower than compared to previous year (3.01% vs 4.81% in 2019). This is due to network transformation, continuous reduction of water consumption, to reach our company-wide 2025 water target (water consumption reduced by half in our operations), but also to the specific condition in 2020 due to the pandemic and its imposed adjustments of working conditions.

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	7089	Lower	Withdrawal from fresh surface water is relevant for several Novartis sites, because large quantities of fresh surface water can be used to cool production processes, and/or buildings. Novartis reports the quantities of water abstracted from the aquatic environment, 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 withdrawal is lower (>10% variance) as the previous reporting year (7,089 ML vs 9,111 ML in 2019). The reduction is due to seasonal conditions necessitating less non-contact water for cooling. We expect that the volume will decrease in future years. This is due to our 2025 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	41672	Lower	Withdrawal from renewable groundwater sources is relevant for several Novartis sites, because large quantities of water can be used to cool production processes, and/or buildings. Novartis reports the quantities of water abstracted from the aquatic environment, surface water and groundwater. Most water abstracted from the environment is from renewable groundwater sources. Total withdrawal is lower (>10% variance) as the previous reporting year (41,672 ML vs. 48,251 ML in 2019). The reduction is due to implemented actions to meet the company-wide target to reduce water consumption by half in 2025. We expect that the volume will continue to decrease in future years. This is due to our 2025 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 because of the extraction, processing, or use of any raw material.
Third party sources	Relevant	5940	Lower	This includes water purchased from external suppliers and is relevant in areas, where groundwater abstraction is not possible. Volume is lower than previous reporting year (5,940 ML vs. 9,354 ML in 2019) due to the rationalization of some activities. We expect that the volume will continue to decrease in future years. This is due to our 2025 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	6666	Lower	Novartis reports the quantities of water discharged to the aquatic environment, 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 water discharged is lower (>10% variance) as the previous reporting year (6,666 ML vs. 8,805 ML in 2019). The tendency of a reduction is due to implemented actions to meet the company-wide target to reduce water consumption by half in 2025. We expect that the volume will decrease in future years. This is due to our 2025 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 destinations.
Groundwater	Relevant	39422	Lower	Novartis reports the quantities of water discharged to the aquatic environment, 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 water discharged is lower (>10% variance) as the previous reporting year (39,422 ML vs. 46,707 ML in 2019) The tendency for a reduction is due implemented actions to meet the company-wide target to reduce water consumption by half in 2025. We expect that the volume will decrease in future years. This is due to our 2025 environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.
Third-party destinations	Relevant	7278	Lower	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 lower (>10% variance) as the previous reporting year (7,278 ML vs. 9,884 ML in 2019). The reduction is due to implemented actions to meet the company-wide target to reduce water consumption by half in 2025. We expect that the volume will decrease in future years. This is due to our 2025 environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.

W1.2j

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

	Relevance of treatment level to discharge	Volume (megaliters/year)	Comparison of treated volume with previous reporting year	% of your sites/facilities/operations this volume applies to	Please explain
Tertiary treatment	Relevant	3063	About the same	11-20	Novartis contact water is mainly treated at onsite wastewater treatment plants, equipped with primary, secondary and tertiary treatment technology. This is relevant to fulfil regulatory requirements by reducing the load of certain parameters. Total volume is about the same (<10% variance) as the previous year (3063 ML vs. 3068 ML in 2019). We expect that the volume will decrease in future years. This is due to our 2025 environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.
Secondary treatment	Relevant	659	About the same	1-10	Novartis contact water is mainly treated at onsite wastewater treatment plants. This is relevant to fulfil regulatory requirements by reducing the load of certain parameters. Total volume is about the same (<10% variance) as the previous year (659 ML vs. 676 ML in 2019). We expect that the volume will decrease in future years. This is due to our 2025 environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.
Primary treatment only	Relevant	22	About the same	Less than 1%	Novartis contact water is mainly treated at onsite wastewater treatment plants. This is relevant to fulfil regulatory requirements by reducing the load of certain parameters. Total volume is about the same (<10% variance) as the previous year (22.1 ML vs. 22.5 ML in 2019). We expect that the volume will decrease in future years. This is due to our 2025 environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.
Discharge to the natural environment without treatment	Relevant	46087	Lower	11-20	Novartis reports the quantities of water discharged directly to the natural environment. This is relevant as this is the majority of non-contaminated cooling water, and no treatment is necessary. Total withdrawals are lower (>10% variance) than previous reporting year (46087 ML vs. 51332 ML in 2019) due to seasonal conditions. We do not expect an ongoing decrease, as using water for cooling/heating purposes keeps energy usage GHG emissions low.
Discharge to a third party without treatment	Relevant	2591	Lower	11-20	Novartis discharges some contact water to third parties, which treat the effluent mainly through a primary, secondary and tertiary treatment process. This is relevant to fulfil regulatory requirements by reducing the load of certain parameters. Total volume is lower (>10% variance) as the previous year (2591 ML vs. 2957 ML in 2019). We expect that the volume will decrease in future years. This is due to our 2025 environmental sustainability strategy, including water targets, which will increase efficiencies in production and cleaning processes.
Other	Relevant	853	Lower	61-70	Novartis commercial offices are discharging their sanitary water to municipal wastewater treatment plants. Treatment technology at these facilities is not known, this is why the category “others” has been chosen. Total volume is lower (>10% variance) as the previous year (853 ML vs. 1280 ML in 2019). We expect no future changes.

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
Novartis has dozens of thousands of suppliers in its global network, continuous compliance is targeted at key suppliers with greater amounts of spend in different categories. Novartis 2025 goal concerning “no water quality impacts from manufacturing effluents” comprises of suppliers, which are important due to tactical and strategical business reasons. Besides these key suppliers, all antibiotic producing suppliers are included as well due to our commitment to the Antimicrobial Resistance Industry Alliance (AMR IA) roadmap. Our guideline on Corporate Responsibility Management emphasizes that environment protection is directly linked with our Third Party Risk Management (TPRM) program. Hence, the key incentive for suppliers to disclose this information is the opportunity they have to enhance their business relationship with us. In November 2020, we launched a revised version of the Novartis Third Party Code to strengthen the environmental sustainability language and outline requirements for third parties regarding environmental targets and managing environmental performance, including in their supply chain - this also covers the water quality. The same expectations are now being embedded in the new and revised contracts.

Impact of the engagement and measures of success
We assess and audit the level of maturity towards our 2025 goal, “no water quality impacts from manufacturing effluents”, in three levels: capability, assessed, target achieved. The first level comprises trainings and compliance as per regulatory water quality requirements; the second level includes the identification and quantification of drug substance loss followed by a risk assessment in effluents and the third level is reaching our company-wide goal for effluents, which means managing manufacturing drug substance loss without affecting the receiving environment and thus supporting water security. We provide guidance to our suppliers on water quality topics, incl. a tailored mass balance calculation template to identify and quantify the API (Active Pharmaceutical Ingredients) in wastewater, a critical step towards achieving the 2025 targets. A contract manufacturer in China established a process for API inactivation as well as a control mechanism to minimize drug substances loss in wastewater. We have set milestones for each level e.g. by 2022 all selected supplier meet level 2. This information is used to monitor progress, track and steer implementation and inform business leaders on the achievement of our water targets and goals.

Comment
NA

W1.4b

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

Type of engagement
Incentivizing for improved water management and stewardship

Details of engagement
Demonstrable progress against water-related targets is incentivized in your supplier relationship management

% 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) model has been conducted annually since 2014 to assess key areas of relevance. Determining the cost of water, in particular in areas where resources are scarce, is a key factor in understanding the environmental impact of our supply chain. The water footprint, which relates to our direct materials supply chain, represents around 11% of our total supply chain environmental footprint valuation. With this knowledge, 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 dozens of thousands of suppliers in its global network our engagement targets the key suppliers with higher amount of spend in specific procurement categories (such as Chemicals).

Impact of the engagement and measures of success
Novartis leveraged the Pharmaceutical Supply Chain Initiative (PSCI) platform and continued own initiatives on engaging with suppliers on innovation and collaboration. In 2020, we have been actively engaged in the PSCI India and PSCI China groups that aim to enhance the supply chain collaboration and increase regional best practices sharing regarding water sustainability. Through the PSCI India group, we collaborate with the government of Telangana in the Musi River revitalization project initiated in 2020. The project aims to increase the water and riparian quality of the surrounding of the river Musi in Hyderabad through water quality management best practices and knowledge sharing.

Comment
NA

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

0

Total value of fines

0

% of total facilities/operations associated

0

Number of fines compared to previous reporting year

About the same

Comment

Incident at a US site which resulted in a non-financial penalty. The type of incident: Lab tubes were discovered in a solid-covered leaching pool connected to a storm water drain located in the loading dock area parking lot. The type of penalty was a request to update BMP (Best Management Practice), creation of a facility plan identifying industrial and storm water outfalls/connections, and a source track-down plan to identify all potential contamination sources to the leaching pool. Novartis has completed the majority of requested remedial works and aims to conclude the matter in a timely manner and to a high quality standard.

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

WWF Water Risk Filter
ISO 31000 Risk Management Standard
Internal company methods

Comment

Our Enterprise Risk Management process identifies, prioritizes 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 relevant 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), company specific developed tools i.e. Global Operating Procedures (GOP) and the European Medicines Agency Pre-Authorization of Medicines for Human Use Guidelines (EMEA/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 were managed as part of our Third Party Risk Management (TPRM) program. 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. This also helps to identify water related risks. This tool considers the embedded water scarcity of our supply chain (not just our direct suppliers). 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 (EMEA/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 (EMEA/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	Pharmaceutical manufacturing is not very water intensive, but access to water is relevant for cooling purposes and in production processes. 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 if required. Sites located in water-stressed locations are identified using the WWF Water Risk Filter. Availability of water at a basin level is relevant and if a significant risk materialize, it will be included in the Novartis risk portfolio. The Novartis risk portfolio is regularly updated using the Novartis Enterprise Risk Management guideline 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 given that 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 environmental sustainability goals is to have "no quality impact from manufacturing effluents" by 2025. All our own sites and key suppliers manufacturing sites are required to treat process water according to the 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 the internal global operating procedure "PiE" (Pharmaceuticals in the Environment). 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. A new GOP "Water in Operations" is currently under development and will come into force 2021. This GOP will define besides others Novartis expectations on wastewater effluent and storm water management, chemical spillage and leakage prevention, and will specify due diligence assessments of service wastewater providers. Potential impacts on water quality from the use of our products downstream in the value chain are very important and are considered as part of the marketing authorization approval process. Additionally, where required by applicable law, Novartis participates in the responsible take-back of its products through the operation of disposal kiosks and/or mail-back schemes. There is an effort to defer our products from entering the environment through inappropriate end-of-use disposal. This is done to comply with extended producer responsibility (EPR) legislation in multiple states across the US, Brazil, and some countries in EMEA.
Stakeholder conflicts concerning water resources at a basin/catchment level	Relevant, always included	Stakeholder conflicts at basin/catchment level could impact our ability to draw sufficient water for manufacturing sites and offices, and are relevant for us. Stakeholder conflicts are considered in the Risk Portfolio of each site using the internal global operating procedure "HSE Risk Management GOP". Importantly, we also want to protect stakeholders from any health, safety and environmental (HSE) implications arising from our activities. The Third Party Risk Management (TPRM) program considers Health, Safety and Environmental (HSE) risks within our supply chain and includes stakeholder conflicts. Downstream in the value chain, i.e. usage of our products and the concerns of stakeholders on environmental impacts of our products are important and is monitored.
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 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 (NCP) 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) refers to about 11% of the total supply chain footprint.
Water-related regulatory frameworks	Relevant, always included	Novartis requires that all sites (own and supplier) to abstract and treat water to conditions in line with local legal requirements. This is relevant for our business, as a sudden shut down of production due to incompliance to water-related regulatory framework, would put our mission at risk to produce our products on time, every time to meet the need of our patients. Each site is required to follow the internal global operating procedures "Compliance Management GOP", which includes the tracking and adaptation of legislative developments and local regulations. Compliance with all wastewater permit conditions and limits is tracked internally on a monthly basis via HSENet (health, safety and environment online metrics platform) and any nonconformities are identified and action plans implemented as required. 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 wastewater 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 Enterprise Risk Management (ERM) process. Any inconsistency will be included and tracked accordingly. A new GOP "Water in Operations" is currently under development and will come into force 2021. This GOP will define besides others, Novartis expectations on wastewater effluent and storm water management, chemical spillage and leakage prevention, and will specify due diligence assessments of service wastewater providers.
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 wherever we operate. Aspects of ecosystems and habitats are identified following the internal risk management process (GOP HSE Risk Management) and considered, if relevant, as part of the Novartis ERM process for our own sites. The risk management process is based on the international standard ISO 31000 Risk Management. Within our supply chain, these risks are considered and managed in the context of our Third Party Risk Management (TPRM) program. Novartis is supporting the development of an integrated watershed project in the India, Telangana region that addresses the long-term challenge of water availability in water-stressed areas. The goal is to help local communities in the long-run by increasing water availability, providing additional and safe drinking water, supporting agriculture best practice, building personal hygiene structures for school children as well as contributing to the local eco-systems.
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. This is an important part of our business and we will include aspects of WASH where relevant for our sites. A new GOP "Water in Operations" is under development and will come into force in 2021. This GOP will ensure compliance to drinking water quality requirements through laboratory testing of all potable water at a minimum every 12 months. As a member of the PSCI (Pharmaceutical Supply Chain Initiative), we request that suppliers, in accordance PSCI audit protocol, provide safe and potable drinking water and hygienic facilities to all employees. Novartis is supporting the development of an integrated watershed project in the India, Telangana region that addresses the long-term challenge of water availability in water-stressed areas. The goal is to help local communities in the long- run by increasing water availability, providing additional and safe drinking water, supporting agriculture best practice, building personal hygiene structures for school children as well as contributing to the local eco-systems.
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' 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 stakeholders, 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 authorization 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 also 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 ESG Report) 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. Where required by local/regional legislation, Novartis participates in the responsible take-back of its products through the operation of disposal Kiosks and/or mail-back schemes an effort to defer our products from entering the environment through inappropriate end-of-use disposal. This is done to comply with extended producer responsibility (EPR) legislation in multiple states across the US, Brazil, and some EMEA countries.
Employees	Relevant, always included	We believe that the Novartis environmental 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 associates 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 can use this program or tool for easy recording of HSE related issues (including water) in a timely manner and consolidate reporting, as well as enhance group wide data transparency and accessibility.
Investors	Relevant, always included	Investors and their evaluation of our Environmental, Social and Governance (ESG) performance is important to us, because investor scrutiny and trust in our future performance are linked to our financial success, long-term value delivered to our shareholders and our reputation as an ESG leader. In 2018, our CEO communicated to analysts and investors that building trust with society is one of the five key organizational priorities for Novartis. Our efforts to integrate environmental sustainability into our business are components of our strategy to build trust with society and be a leader on ESG topics in the healthcare sector. We inform our investors about our water saving activities and related water risks in our annual non-financial reporting (Novartis in Society ESG Report and environment data supplement), in local environmental reports and on our webpage. Investors request specific information on environmental topics, including water, to get a better understanding on Novartis' environmental strategy and management processes, to support investment decisions.
Local communities	Relevant, always included	Communities are engaged in advance and included in our local risk assessments, because we believe a good relationship and interactive communication with local communities is essential. We hope that regular contact with community groups, local to the surroundings where we operate, will mitigate any reservations about our activities. In addition to 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 have conducted 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 and they can support us in developing strategies that are inclusive of wider stakeholder groups. 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, "mapping public water management" and "water security assessment" with Massachusetts Institute of Technology (MIT). We also voluntarily participate in a benchmark on anti-microbial resistance, initiated by the Access to Medicine Foundation. This benchmark aims to understand and limit the impact of antibiotic manufacture on microbial resistance and provides us valuable information on our performance.
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 better overview of the local situation. With our current environmental sustainability strategy endorsed in 2018, we will be working with other users in the same water catchments to meet our water targets. For example, in 2019 we initiated a first pilot project on integrated watershed management in India. The project focuses on capability building and establishing Community Based Organizations (CBOs) to develop and maintain technical interventions to secure water availability, e.g. collecting rainwater and recharging natural reservoirs for farmers.
Regulators	Relevant, always included	Regulators are included in the water risk assessments at Novartis manufacturing facilities, where we operate our own wastewater treatment operations and/or discharge wastewater 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 these risks. This reduces uncertainties within operations and reduces the risk of an unexpected shutdown of production. Summary reports including key water parameters are shared with regulators if requested. 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 and better manage identified risks through corrective actions. This reduces uncertainties within operations and reduces the risk of an unexpected shutdown of production. E.g. water specialists at our manufacturing sites in Switzerland and Germany, work closely with the Rhine River Watershed authority and local public wastewater 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 ESG 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 authorities and the communities to identify water risk and to mitigate appropriately e.g. in Germany, a Novartis pharmaceutical operation installed a state-of-the-art effluent pre-treatment production facility in agreement with the local authority and community.
Suppliers	Relevant, always included	Novartis engages in water-risk related assessments of suppliers as any such risk may negatively impact the flow of direct and indirect materials across the value chain and delay production downstream. This may in turn delay the delivery of critical drugs to patients. All new or 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 enables us to determine key risks involved and include them in the risk management process, including the requirement for corrective action and preventive action plans (CAPAs) from certain suppliers. In the water-risk related assessments, Novartis focuses on tier 1, and selectively also on suppliers in other tiers based on the value chain structure and a risk-based approach.
Water utilities at a local level	Relevant, always included	Water utilities at a local level are important stakeholders, because they give us valuable input for certain business decisions, e.g. feedback on the utility's capability to meet our water (quality and quantity) demand now and in the future. This information on e.g. future fresh water availability is relevant and enables Novartis to integrate this into its risk assessment process and ensure adequate mitigation actions are implemented. This reduces risk and uncertainties and helps to ensure an undisrupted production process. Novartis informs stakeholders about its water savings activities in its annual non-financial reporting (Novartis in Society ESG Report and environment data supplement) and its local environmental reports e.g. Eco-Management and Audit Scheme (EMAS) Reports. For certain matters, e.g. water quality, we collaborate directly with the local authority and the community to identify risks and mitigate appropriately. E.g. in Germany one of our pharmaceutical operations installed a state-of-the-art effluent pre-treatment production facility in collaboration and agreement with the local water utilities, 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 (Health, Safety and Environment) and Environmental Sustainability (ES) risk assessment process and if significant are included in the Novartis Risk Portfolio. The Novartis Risk Portfolio is presented to the Executive Committee of Novartis and the Risk Committee of the Board of Directors. This information assists in decision-making and budget allocation. Where risk exposure is identified, divisions, organisational units and corporate functions are responsible for ensuring the establishment of adequate strategies and measures to be applied to both reduce the impact and / or risk likelihood as far as feasible.

In order to have a significant impact a risk must have the potential to influence more than 1% of the total revenue within a five-year period. Our use of the WWF Water Risk Filter and internal company methods to assess water risks at individual sites aids with decision making for future developments.

The risks of pharmaceuticals in the environment from manufacturing effluents are assessed by using internal procedures, namely GOP Pharmaceuticals in the Environment' and associated implementing support documents. We maintain an accounting system on water withdrawal, consumption and discharge. Effluent risks are 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) for each business, supply category and country. The water footprint allows us to identify impact particularly in hot spots areas. Water risks in the supply chain are considered as part of the HSE risk area for our Third Party Risk Management (TPRM) program. Water consumption related risks associated with our supply chain are also assessed using an environmentally extended input /output assessment (EEIO) tool. It considers all tiers in the upstream value chain. We aim to keep the procedure in our own and our suppliers' 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. 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, Business Continuity and Novartis Emergency Management, Ethics, Risk and Compliance, Health Safety and Environment (HSE), Corporate Affairs & Global Health (CAGH), Information Security, Data Privacy, Quality Assurance and Third Party Risk Management (TPRM), thus covering both, our direct operations and our 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 (NRC), which is continually monitored by the Risk & Resilience team. The process is repeated annually and 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 five levels for likelihood (rare, unlikely, possible, likely, and almost certain) and five levels for impact (insignificant, minor, moderate, major, and severe)). Risks are categorized using the NRC in strategic, operational and emerging risks and / or as awareness topics, 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 on the company's performance. 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. Higher operating costs and the issues associated with higher GHG emissions are examples of substantive impacts considered by our organization.

Beyond the classical ERM process, our global Materiality Assessment helps us understand the environmental, social and governance topics that matter most to our internal and external stakeholders; how our economic, social and environmental impacts are perceived along our value chain; and how they translate today and in the future into associated risks and opportunities for our company. Materiality assessment are also conducted at country level, which will inform the risk discussions in our country operations as well.

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	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 an "awareness topic" that we watch closely so we can anticipate any impact before it emerges and take appropriate action. Beyond the classical ERM process, our latest global Materiality Assessment from 2017 called out Novartis' environmental impact as important but not material (https://www.novartis.com/sites/www.novartis.com/files/cr-materiality-results-report-2017.pdf). In 2020, we initiated the process to repeat and update the materiality assessment and the results will be available in 2021. We plan to perform this assessment in future more often.

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 our supplier base and although suppliers are affected by increased water stress, this risk is not expected to cause significant disruptions in our supply chain within a 5 years' time horizon and is therefore considered not likely to have a substantive or strategic impact. Moreover, we recognize that this is a complex area and we are enhancing our approach because water stress could reduce water availability and impact water quality at supplier sites leading to cost increases. Beyond the classical ERM process, our latest global Materiality Assessment from 2017 called out Novartis' environmental impact as important but not material (https://www.novartis.com/sites/www.novartis.com/files/cr-materiality-results-report-2017.pdf). In 2020, we initiated the process to repeat and update the materiality assessment and the results will be available in 2021. We plan to perform this assessment in future more often.

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) program 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 environmental sustainability strategy, endorsed by the Executive Committee Novartis (ECN) in 2018, and implemented 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 of 14% and an operational cost 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, a single figure estimate

Potential financial impact figure (currency)
12808000

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

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

Explanation of financial impact
Our water environmental sustainability target is to reduce water consumption by half in our own operations, compared to a 2016 baseline. 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 (which 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 environmental sustainability strategy, endorsed by the Executive Committee Novartis (ECN) in 2018, and is supported 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 providing direct financial benefit to the company. However, it will ease compliance with expected stricter water legislation in future and thus reduces the company's risk exposure.

W6. Governance

W6.1

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

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

W6.1a

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

	Scope	Content	Please explain
Row 1	Company-wide	Description of business dependency on water Description of business impact on water Description of water-related performance standards for direct operations Description of water-related standards for procurement Reference to international standards and widely-recognized water initiatives Company water targets and goals 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 applies company-wide because we strive to operate everywhere responsibly by building a long-term sustainable business, considering best use of water. 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 the societal and environmental value of the UN Global Compact and signed the Davos Declaration to combat AMR through actions. An emerging 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 such as the Innovative Medicine Initiative (IMI) project PREMIER (Prioritization and Risk Evaluation of Medicines in the Environment), which is an EU public-private partnership supporting the development of sustainable medicines. In addition, Novartis are also a part of a project from the Stockholm International Water Institute (SIWI) on Responsible Antibiotics Manufacturing (RAMP) and contributes to other open accessible platforms (medsdisposal.eu). We routinely encourage our suppliers via responsible procurement programs to adopt water management practices equivalent to our own and have elevated this is to a requirement as part 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 Guideline and program acknowledges 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 CEO leads the Executive Committee of Novartis (ECN), thus has the ultimate responsibility to approve the environmental sustainability strategy, water targets and goals. The CEO can take action to accelerate implementation to respond to external expectations or business needs. The ECN meets each month. It approves annual budgets and sets business priorities, oversees and approves major capital expenditures, acquisitions and divestitures, and it tracks progress against goals and targets for addressing environmental sustainability, which includes water. Performance is reported annually in our Novartis in Society ESG Report. The Novartis Trust & Reputation Committee (TRC) met six times in 2020. Chaired by our CEO, this sub-committee of the Executive Committee of Novartis (ECN) oversees progress and aims to accelerate decision-making in key ESG areas. Topics discussed in 2020 included potential gaps in our ESG performance, new ESG commitments, the environmental sustainability strategy, and diversity and inclusion. The CEO's involvement enables the Novartis water strategy to be balanced with other business priorities and ensures that sufficient resources are in place to execute plans in support of the strategy. An example of a water-related decision made by the CEO in 2020 was to endorse the UN CEO Water Mandate.
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 met 10 times in 2020 with each meeting lasting approximately 5 hours. Environmental sustainability including water is considered in the 5 company priorities set by the board. 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 specifically to reduce water consumption by half in our own operations by 2025 and to ensure that there are no water quality impacts from manufacturing effluents including specifications for active pharmaceutical ingredients. By 2030, we aim to be water neutral in all areas and enhance water quality wherever we operate.
Board-level committee	The Board delegates certain duties and responsibilities to its five committees: The Audit and Compliance committee oversees internal control and compliance processes and procedures. The Compensation Committee, designs, reviews and recommends compensation policies and programs. The Governance, Nomination and Corporate Responsibilities Committee (GNCRC) oversees the company's strategy and governance on corporate responsibility. The Science and Technology Committee advise on scientific, technological and R&D matters. The Risk Committee oversees the company's risks across a wide range of possible topics. These committees are responsible for identifying and investigating issues of strategic importance and ensuring they are appropriately managed. Water related issues are balanced in these committees with other business priorities as part of the company's 5 priorities.
Chief Sustainability Officer (CSO)	In 2020, Novartis created the position of CSO, who reports to a member of the Executive Committee of Novartis (ECN), to lead the strategy and execution of environmental sustainability, which includes water targets and goals across the company. Four strategic objectives were identified and are led by the CSO: 1) To be a leader in environmental sustainability 2) Sustainable products delivered to our patients 3) A mind-set of sustainability embedded in the way we operate 4) A strong voice influencing the sustainability agenda. The CSO also leads the existing governance processes at the Environmental Sustainability Strategy Implementation (ESSI) Steering Committee and presents relevant subject matter to the CEO chaired Trust and Reputation Committee (TRC).

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 - all meetings	Monitoring implementation and performance Overseeing acquisitions and divestiture Overseeing major capital expenditures Providing employee incentives Reviewing and guiding annual budgets Reviewing and guiding business plans 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 Setting performance objectives Other, please specify (Overseeing against goals and targets)	The Board of Directors is responsible for direction, strategy, organization 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 met 10 times in 2020 with each meeting lasting approximately 5 hours. The Board has delegated certain duties and responsibilities to its five committees led by a Board-elected Chairman: Audit and Compliance Committee, Compensation Committee, Science and Technology Committee, Risk Committee and Governance, Nomination and Corporate Responsibilities Committee. The committees enables the Board to work in an efficient and effective manner, allowing a thorough review and discussion of issues. The Risk Committee, which met 4 times in 2020 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 (GNCR), which met 4 times in 2020, ensures that water issues are integrated in governance mechanisms across the company by reviewing and guiding the corporate responsibility strategy. 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 oversees the progress against the targets and goals by monitoring the implementation of the new environmental sustainability strategy. The Board gets regular progress performance updates on the environmental sustainability targets, including water related issues, from Members of the Executive Committee of Novartis such as the heads of Novartis Technical Operations (NTO) and Novartis Business Services (NBS) now known as Customer & Technology Solutions (CTS) as well as other members of the senior management, such as, the CSO, Regional, Country and Site Managers. The Board also oversees the progress against the targets and goals by monitoring the implementation of the new environmental sustainability strategy.

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 matrix structure with several persons responsible for operating units of our company. Two employees are mainly responsible for management of water-related issues and function as COOs: the Head of Novartis Business Services (NBS now CTS) and the Head of Novartis Technical Operations (NTO). Both report directly to the CEO and enable the company to have effective operational and financial procedures in place. Both roles are responsible for the management of environmental risks and for implementing the company-wide water targets/goals. Both roles are members of the ECN, HSE Governance Board, Trust & Reputation and ESSI Steering Committee. All these committees meet at least quarterly, steer, and monitor progress towards the water targets/ goals. Progress towards these targets/goals are presented to the board either as presentations or as written updates.

Name of the position(s) and/or committee(s)
Other committee, 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 environmental targets, including water targets and goals are managed and implemented appropriately.

Name of the position(s) and/or committee(s)
Other, 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 management of all HSE risks and issues including any related to water. It reports through the Audit and Compliance committee into the Board of Directors. Several members of this board report directly to the CEO, including heads of NBS (now known as CTS) and NTO and Group Head of People & Organization who has a key role in ensuring that environmental topics are considered in routine business decisions. The HSE Governance Board also includes the Group Head of Corporate Affairs & Global Health, Chief Procurement Officer, Head of Real Estate & Facilities Services, Global Head of HSE, and Head Global Environment & Sustainability Strategy Implementation.

Name of the position(s) and/or committee(s)
Other, please specify (Trust & Reputation 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 Trust & Reputation Committee (TRC) as a sub-committee of the Executive Committee of Novartis (ECN) reviews the company's performance on environmental, social and governance topics. Chaired by the CEO, it oversees progress and aims to accelerate decision-making in key ESG areas aligned with the 5 key organizational priorities; Unleash the power of our people, deliver transformative innovation, embrace operational excellence, go big on data and digital and build trust with society. Building trust with society is one of these priorities, which include the environmental sustainability strategy, and water-related issues.

Name of the position(s) and/or committee(s)
Chief Sustainability Officer (CSO)

Responsibility
Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues
Half-yearly

Please explain
In 2020, Novartis created a new role for the Chief Sustainability Officer (CSO), reporting to the Head of NBS (now CTS). The CSO is responsible for ensuring all environmental targets, including water targets along with associated risks and opportunities are managed appropriately.

W6.4

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

	Provide incentives for management of water-related issues	Comment
Row 1	Yes	

W6.4a

(W6.4a) What incentives are provided to C-suite employees or board members for the management of water-related issues (do not include the names of individuals)?

	Role(s) entitled to incentive	Performance indicator	Please explain
Monetary reward	Chief Executive Officer (CEO) Chief Operating Officer (COO) Chief Purchasing Officer (CPO) Chief Sustainability Officer (CSO)	Reduction in consumption volumes	Novartis believes that the careful stewardship of natural resources, like water, is important for the success of the company but also critical for society and future generations. This is why in 2018 our CEO communicated that building trust with society is one of the five key organizational priorities. Since then, these priorities are included in the annual employee performance management system. The water-related targets and goals are set at a company-wide level and are embedded and portioned out in annual milestones on the Balanced Scorecard (BS). The BS is the Novartis incentive management system for the CSO and CPO and the Novartis Executive Committee (ECN), which includes the CEO, as well as Heads of NBS (now CTS) and NTO, who effectively function as COOs. The annual milestone defined in the BS for 2020 for water-related issues was a company-wide 8% water consumption reduction. This milestone was overachieved in 2020. This achievement on the company wide water-related target was included in the overall performance rating within the five key organizational priorities, weighted 40%, and achievements are incentivized at the end of each business year. The Trust & Reputation Committee (TRC) tracks progress on a quarterly basis. The annual report provides full disclosure on goals and progress. The environmental/ water-related targets and goals are also part of the divisional objectives in the general employee performance system.
Non-monetary reward	No one is entitled to these incentives	<Not Applicable>	No one is entitled to these incentives.

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 ESG work on four pillars that underscore our strategy: Holding ourselves to high ethical standards, being part of the solutions on pricing and access to medicines, addressing global health challenges, being a responsible citizen.
The Corporate Affairs and Global Health Team (CA &GH LT) comprised of leaders from each division and across multiple functions of the company, guides this work. The CA & GH LT is tasked with facilitating information sharing between other related governance bodies, such as Public Affairs, the Compliance and HSE Steering Committees. This platform aims to discover any inconsistency within Novartis policy/commitments and public policy. It then can intervene, discuss, and take action to overcome this inconsistency by giving clear direction to each division and function within the company. For external advocacy, Public 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 was approved with clear targets and goals by 2025 and 2030 respectively for climate, waste and water. Concerning water, we aim to be a good water steward wherever we operate, working to achieve water sustainability and helping to 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. One other environmental sustainability strategic objective is to deliver sustainable products, which includes water related aspects, to our patient. This is a long-term business objective, as the development of a new product until its marketing approval takes about 10 years. Any intervention to increase product sustainability that we implement today will be available in the products that get marketing approval in more than a decade. Our continuous effort improving our products to be sustainable is a long-term business objectives with a long-term time horizon >11 years.
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 operate 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. In 2020, Novartis committed to the UN CEO Water Mandate, which is our long-term commitment to water stewardship. This commitment and our activities go beyond our current water targets and goals and thus is a strategic objective with a long-term time horizon >11 years.
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 when Novartis' CEO communicated to analysts and investors that 'building trust with society' is one of the five key organizational priorities for the company moving forward. For this reason, any activity that affects the environment, such as water, is reviewed and the environmental sustainability dimension included in our financial analysis. In 2018, Novartis endorsed its new environmental sustainability strategy and set ambitious targets. Our target/goal for water is to reduce its consumption in our operations and aim for water neutrality, including water quality from manufacturing effluents. The targets/goals will be transferred to the business unit with the highest impact for implementation. E.g., the technical operation unit manages reduction of water consumption. This unit oversees total water utilization 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 over a long-term time horizon.

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)

-86

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

375

Water-related OPEX (+/- % change)

-4.3

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

0

Please explain

Approved CAPEX has decreased by 86% compared to the previous year. This is due to high infrastructure investments in 2019 (e.g. wastewater treatment technologies) across the network. During 2020, the overall organization focused on efficiency programs to reduce water consumption and improve water recycle/reuse. Infrastructure investment projects were executed following the capital investment plan from 2019. For 2021, as a result of the updated network footprint we expect a hike in investment. We continuously focus on executing efficiency programs to reduce water consumption and water recycle/reuse. In 2021, we will invest in techniques to reuse rejected water from cooling towers at several sites. OPEX for water supply and treatment was almost the same compared to 2019 (<10% variance). The operating costs included service and other related costs for water supply and water treatment, as well as sewage charges. We do not expect any changes in OPEX trend for the 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	The growing effects of climate change and the shifting weather patterns in many regions may impact business and operations. 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. We are 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 scenarios and models applied	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 the middle of the 21st century with even more extreme conditions expected by the end of the century.	These results are suitable for us as short (1-3 years) and long-term (>5 years) 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. In 2019, we initiated another study with MIT on water security in 3 different countries. This will help to understand our risk in future on water availability and flooding potential at the selected regions. 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 ongoing 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, the current environmental sustainability strategy was developed and endorsed with the help of an estimated internal cost of water. This internal cost of water was used to confirm the level of ambition for the water sustainability targets and goals.

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 in 2018 the Executive Committee of Novartis (ECN), which includes the CEO and other C suite leaders, endorsed a new environmental sustainability strategy. The process was kicked-off by a 2-day workshop attended by external and internal stakeholders. Discussions reflected 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 stakeholders in 2017, Novartis endorsed its current 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 (NTO) and Novartis Business Services (NBS) now known as Customer & Technology Solutions (CTS), 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

% of target achieved
72

Please explain
The fulfilment of this target is proceeding fast with an achievement of >70% (8.4 Mm3) in the fifth year. We are 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. E.g. 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 a 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 NTO, NBS (now known as CTS), 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

% of target achieved
18

Please explain
The quantitative metrics of this target has not been introduced company-wide, but the target 2, “water withdrawals”, is directly linked to the target 1, “water consumption”, and any achievement in target 1 contributes to achievement of target 2. Our current approach is to use volumetric metrics for the target 2 and thus the achievement from target 1 (72% of target 1 achieved for “water consumption reduced by half”, equals to 36% of total water consumption reduction) can be directly taken into account for the achievement of target 2 (18% of target achieved). Additionally, Novartis initiated a pilot project in India to increase water availability to farmers and the local community. This watershed project will provide valuable insights for future actions on water stewardship.

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 approved an ambitious goal, aiming for no water quality impacts from manufacturing effluents and enhancing water quality, including our key drug substance supplier. We require that our own and our key 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. Several units including Novartis Technical Operation, which will invest as necessary to achieve the target, own this goal. Actions to achieve this goal are coordinated by the Environmental Sustainability Steering Committee.

Baseline year
2016

Start year
2018

End year
2030

Progress
The annual internal effluent assessment is based on a readiness index with three levels, showing the maturity of each site towards a 2025 milestone and the 2030 goal. The first level is the participation in dedicated trainings and compliance as per regulatory water quality requirements. The second level is the identification and quantification of product loss followed by a risk assessment in effluents and the third level is reaching our company-wide goal for effluents. In 2020, approximately 75% of relevant Novartis manufacturing sites are fulfilling the goal; the remaining sites are developing mitigation measures to fulfil the goal at latest by 2025. For our key suppliers we are in the process of establishing the baseline and will track their progress subsequently against the same readiness index with the three levels as for our own sites.

W9. Verification

W9.1

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

W9.1a

(W9.1a) Which data points within your CDP disclosure have been verified, and which standards were used?

Disclosure module	Data verified	Verification standard	Please explain
W1 Current state	Water Use (contact water and non-contact water use)	ISAE 3000	See statement in Novartis in Society ESG Report 2020. Assurance statement can be found on pg. 90: https://www.novartis.com/our-company/corporate-responsibility/corporate-responsibility-reporting-and-disclosure/novartis-society-report “Water Use” as referred to in the ES report corresponds to “Water Withdrawal” in section 1.2 of the CDP water Security report. Please note that the 2020 environmental and resource data published in the Novartis in Society ESG Report are actual data for the period from January through September and best estimates for the period October through December. This data has now been further updated with actual data in the first quarter of 2021, the final 2020 data can be found here: https://www.novartis.com/sites/www.novartis.com/files/novartis-hse-data-2020.pdf
W1 Current state	Water Consumption (Water discharged via treatment and water lost)	ISAE 3000	See statement in Novartis in Society ESG Report 2020. Assurance statement can be found on pg. 90: https://www.novartis.com/our-company/corporate-responsibility/corporate-responsibility-reporting-and-disclosure/novartis-society-report “Water Use” as referred to in the ES report corresponds to “Water Withdrawal” in section 1.2 of the CDP water Security report. Please note that the 2020 environmental and resource data published in the Novartis in Society ESG Report are actual data for the period from January through September and best estimates for the period October through December. This data has now been further updated with actual data in the first quarter of 2021, the final 2020 data can be found here: https://www.novartis.com/sites/www.novartis.com/files/novartis-hse-data-2020.pdf

W10. Sign off

W-FI

(W-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

1. In 2021, Novartis Business Services (NBS) became known as Customer & Technology Solutions (CTS). As this submission focuses on 2020 data, we have used the business unit name 'NBS' as it was known during that time and have clarified throughout that it is now referred to as 'CTS'.
2. Based on planning and engagements which began in 2020, we have increased our supplier engagement, created new 'Green Expectations' for our suppliers and undertaken preparatory work for the establishment of a new ESG Council in 2021. The purpose of the council is to co-create the cross-functional ESG strategy and to ensure ESG activities are integrated into operations. This group will make recommendations and raise relevant topics to the Trust & Reputation Committee (TRC), the Executive Committee of Novartis (ECN) sub-committee overseeing the 'Build Trust with Society' pillar of the company's strategy.

W10.1

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

	Job title	Corresponding job category
Row 1	Until 2020 Head of Novartis Business Services (NBS), since 2021 Head of Customer & Technology Solution (CTS). Corresponding job category is Chief Operating Officer (COO).	Chief Operating Officer (COO)

W10.2

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

Yes

SW. Supply chain module

SW0.1

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

	Annual revenue
Row 1	48659000000

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) Could any of your facilities reported in W5.1 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 facilities?

	Are you able to provide geolocation data for your facilities?	Comment
Row 1	No, this is confidential data	NA

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.

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

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

Please confirm below

I have read and accept the applicable Terms