

W0. Introduction

W0.1

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

Novartis is a global healthcare company based in Basel, Switzerland, with a history going back more than 150 years. We provide healthcare solutions that address the evolving needs of patients and societies worldwide. Novartis products are sold in about 155 countries and they reached nearly 1 billion people globally in 2017. About 125,000 people of 145 nationalities work at Novartis around the world.

Rapidly aging populations and the growth in chronic illnesses such as heart disease and cancer continue to increase demand for care and put pressure on health systems around the world. These trends raise the importance of delivering true innovation that produces better health outcomes for patients and society - and doing this more efficiently.

Our mission is to discover new ways to improve and extend people's lives. Our vision is to be a trusted leader in changing the practice of medicine. Our strategy is to use science-based innovation to deliver better patient outcomes in growing areas of healthcare. We believe innovation leadership will be increasingly important to respond to future opportunities and challenges, as we strive to continue creating value for our company, our shareholders and society. We are implementing our strategy with a focus on further strengthening innovation, driving a digital transformation, and reinforcing our position in growing areas of healthcare.

In 2017, we focused on fully implementing the integrated drug development and manufacturing structures we established a year earlier. With these latest steps in our transformation, we believe our organization is now well positioned to drive forward our strategy: leading in innovation, harnessing new technology, and making the most of our global scale. Research and development is at the core of our company, with 23,000 scientists, physicians and business professionals worldwide focused on discovering new treatments and developing them for patients. The Novartis Institutes for BioMedical Research (NIBR) is the innovation engine of Novartis. 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. GDD regularly evaluates the potential of new products in our pipeline and ensures we allocate resources to the most promising development projects. It also drives the adoption of common standards and procedures, best practices and new technologies, with the aim of greater efficiency and effectiveness. The Innovative Medicines Division has two business units. Novartis Pharmaceuticals focuses on patented treatments in the areas of ophthalmology, immunology and dermatology, neuroscience, respiratory and cardio-metabolic. Novartis Oncology is focused on the treatments for a variety of cancers and rare diseases. Sandoz offers patients and healthcare professionals' high quality, affordable generics and biosimilars. With its Surgical and Vision Care businesses, Alcon offers one of the world's widest selections of eye care devices - from sophisticated equipment for delicate eye surgery to a wide portfolio of advanced contact lenses. Our global service and manufacturing organizations help us benefit from our global scale and support our efforts to improve efficiency. Novartis Technical Operations (NTO) handles manufacturing of innovative medicines and Sandoz products. NTO helps us optimize resource allocation and capacity planning across our production sites while further improving quality. Novartis Business Services (NBS) consolidates support services across our organization, helping drive efficiency, simplification, standardization and quality. NBS includes six service domains: financial reporting and accounting operations, human resources services, information technology, procurement, product lifecycle services, and real estate and facility management. It helps generate productivity gains.

Our corporate responsibility (CR) strategy fundamentally supports this company mission and vision, with a focus on expanding access to healthcare and doing business responsibly which includes striving for environmental sustainability. We take our responsibility for environmental impacts seriously, and we will continue to do what we can to reduce or mitigate our environmental impacts (emission to air and water, waste to landfill, and efficient use of water and energy resources). We also manage risks proactively by implementing appropriate preventive and contingency measures.

W0.2

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

	Start date	End date
Reporting year	January 1 2017	December 31 2017

W0.3

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

Austria
Belgium
Canada
China
Egypt
France
Germany
India
Indonesia
Ireland
Italy
Malaysia
Singapore
Slovenia
Spain
Switzerland
Turkey
United Kingdom of Great Britain and Northern Ireland
United States of America
Other, please specify (Rest of World)

W0.4

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

USD

W0.5

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

Companies, entities or groups over which operational control is exercised

W0.6

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

No

W1. Current state

W1.1

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

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Vital	Important	Pharmaceutical manufacturing is not very water intensive, but access to good quality freshwater is vital for our production processes. Where not sufficient, water is 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. It considers all tiers in the upstream value chain. We capture in our analysis high and low water quality, using a split in grey, green and blue water footprint. We expect that future climate change will lead to more water use and a decrease in water quality so water availability will change and this could impact our company. We will observe this closely and we will adjust our business according to future conditions. Downstream in the value chain, i.e. usage of our products by patients is not water intensive and will not be taken into account.
Sufficient amounts of recycled, brackish and/or produced water available for use	Neutral	Neutral	Recycled water is used at several Novartis sites. Process water is circulated to e.g. cooling towers for usage at the same site. Rain water is collected and used e.g. for filter scrubbing. In case of disruption, the use of recycled or rain water can be substituted by using freshwater so processes are not interrupted. In future, it is anticipated that the use of recycled water at our sites will become more important. Climate change, more local water use and the expected decrease in water quality will lead to changes in the availability of water. Thus, treatment and recycling of water will increase. The assessment of our supply chain has been conducted annually in the last three years. The results show that access to sufficient amounts of water is more important than the quality. Thus, different types of water can be used by our suppliers. 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 from water stressed areas	100%	Water Input (Withdrawals) volumes are reported on a quarterly basis by all production, research and development and major administration facilities under Novartis operational control. Percentage coverage is 100%. Water risks are assessed in a separate process based on the Global Water Tool™ from the WBSCD. Accurate information on Water Input (Withdrawals) from water stressed areas is obtained from invoices and public water meters (for purchased water) or from own supplying operations.
Water withdrawals – volumes by source	100%	Water Input (Withdrawals) is the sum of all fresh water amounts entering a site from all types of water sources (Where from). Percentage coverage is 100%. The following water input by source indicators (where relevant) are reported quarterly, together with the total volumes as stated above: - Water purchased from external suppliers - Water drawn from aquatic environment - Water collected from rain - Water input as ingredient of raw materials - Water input from other sources. Accurate information on Water Input (Withdrawals) by source is obtained from invoices and public water meters (for purchased water) or from own supplying operations.
Produced water associated with your metals & mining sector activities - total volumes	<Not Applicable>	<Not Applicable>
Produced water associated with your oil & gas sector activities - total volumes	<Not Applicable>	<Not Applicable>
Water withdrawals quality	Not relevant	Water withdrawal quality is usually monitored at the specific site, which uses the withdrawn water. The requirements for the water quality depend on the final usage form of water. If the water is used and is in direct contact with our product, high quality of water is used, In case the withdrawn water is not meeting these standards, the water is additionally purified.

	% of sites/facilities/operations	Please explain
Water discharges – total volumes	100%	Water Output (Discharges) is the sum of all water amounts sent to any destination off site (to where). 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 WWTP invoices.
Water discharges – volumes by destination	100%	Water Output (Discharges) is the sum of all water amounts sent to any destination off site (to where). Percentage coverage is 100%. The following water output by source indicators (where relevant) are reported quarterly, together with the total volumes as stated above: - Water returned, released directly to aquatic environment - Water returned, discharged via treatment - Water lost, evaporated from cooling / heating systems - Water output as product ingredient - Water output to other destination. Accurate information on Water Output (Discharges) by destination is obtained from water meters of sewer system and on- or off-site 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. Information on treatment method are considered at local level but are not reported on a global level.
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 and 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	Temperature is usually monitored on a site level and is so far not mandatory in global reporting. Local waste water permits usually include temperature limits. Our manufacturing sites are obliged to fulfill local permits. Regular site audits include the inspection of local waste water permits and support the adherence to local regulations.
Water consumption – total volume	100%	Novartis actively manages its water consumption by monitoring amounts of water input, water use and water output throughout the organization. Percentage coverage is 100%. Total volume of water use (Consumption) is reported on a quarterly basis by all production, research and development and major administration facilities under Novartis operational control. Information on Water consumption is obtained from water meters for respective use streams, from production reports, or are estimated from uses and processes.
Water recycled/reused	26-50	Several Novartis sites located in areas of water scarcity recycle water. Overall water recycling is approximately 28.5% compared to total water used at those sites.
The provision of fully-functioning, safely managed WASH services to all workers	Not monitored	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. We do not explicitly expect facilities to confirm this within our reporting systems as it is a prerequisite for quality operation.

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	75988	Lower	Cooling water (primarily freshwater from groundwater sources or river-beds) can be withdrawn in large quantities and is returned in similar volumes to its original source nearby with negligible losses or variation in quality. Total withdrawals are lower than previous reporting year due to seasonal conditions. We expect that total water withdrawals will decrease in future years. This is due to campaigns to increase efficiencies in production and cleaning processes.
Total discharges	74149	Lower	The total quantity of water discharges does not include additional water losses from Novartis facilities due to evaporation from heating and cooling systems or water use in products (2'293 ML). We expect, that total discharge will decrease in future years. This is due to campaigns to increase efficiencies in production and cleaning processes.
Total consumption	2293	Lower	Total consumption includes water losses from Novartis facilities due to evaporation from heating and cooling systems or water use in products. Total Withdrawals do not exactly balance to Total Discharges + Total Consumption as volumes are partly estimated from uses and processes. Plausibility checks help to ensure that mismatch are smaller than 10% at each site. Total consumption is slightly lower than previous reporting year due to continued improvements in operations. We expect that water not returned to the local environment will decrease in future years. This is due to increase of equipment efficiency to reduce evaporation.

W1.2d

(W1.2d) Provide the proportion of your total withdrawals sourced from water stressed areas.

	% withdrawn from stressed areas	Comparison with previous reporting year	Identification tool	Please explain
Row 1	6.35	About the same	WBCSD Global Water Tool	To assess our risks related to water scarcity we are using the WBCSD Global Water Tool and the water WRI scarcity indicator. This allows us to consider future developments and assess water risks at individual sites. The location and number of sites in water scarce areas has not changed significantly in the last year, thus the volume of water withdrawn is about the same compared to previous years.

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	73	About the same	Novartis reports the quantities of rainwater separately (73 ML vs. 81ML in 2016) but does not distinguish between surface water and groundwater. Most water abstracted from the environment is from renewable groundwater sources, or from river side-beds. We consider recording this information separately starting in 2019.
Brackish surface water/seawater	Not relevant	<Not Applicable>	<Not Applicable>	Not material, Novartis does not collect data for this specific source.
Groundwater – renewable	Relevant	62369	Lower	Novartis reports the quantities of water abstracted from the aquatic environment, but does not distinguish between surface water and groundwater. Most water abstracted from the environment is from renewable groundwater sources or from river side-beds. Novartis does not differentiate between renewable and non-renewable groundwater sources. Total is lower than previous reporting year due to seasonal conditions (less water used for cooling). We expect that the volume will decrease in future years due to campaigns to increase efficiencies in production and cleaning processes.
Groundwater – non-renewable	Not relevant	<Not Applicable>	<Not Applicable>	Novartis reports the quantities of water abstracted from the aquatic environment, but does not distinguish between surface water and groundwater. Most water abstracted from the environment is from renewable groundwater sources or from river side-beds. It is not relevant for Novartis to differentiate between renewable and non-renewable groundwater sources.
Produced water	Not relevant	<Not Applicable>	<Not Applicable>	As per CDP Technical Note on Water Accounting, Produced Water is not relevant to Novartis.
Third party sources	Relevant	13546	Lower	This includes water purchased from external suppliers and is relevant in areas, where groundwater abstraction is not possible. Volume is slightly lower than previous reporting year due to continued improvements in our operations. Includes purchased process water and water from "other sources". We expect that the volume will decrease in future years due to campaigns to 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	61046	Lower	For a complete overview on water balances, Novartis reports the quantities of water discharged to the aquatic environment, but not the exact destination. While some quantities may be discharged back to groundwater sources, it is assumed that the majority of non-contaminated cooling water is discharged to fresh surface water bodies. A significant part of the abstracted water is from river-side beds, thus discharging the water back into the original water body. Total is lower than previous reporting year due to seasonal conditions (less water used for cooling). We expect that the volume will decrease in future years due to campaigns to increase efficiencies in production and cleaning processes.
Brackish surface water/seawater	Not relevant	<Not Applicable>	<Not Applicable>	Not material, Novartis reports the quantities of water discharged to the aquatic environment, but not the exact destination. While some quantities may be discharged back to groundwater sources, it is assumed that the majority of non-contaminated cooling water is discharged to fresh surface water bodies.
Groundwater	Not relevant	<Not Applicable>	<Not Applicable>	Novartis reports the quantities of water discharged to the aquatic environment, but not the exact destination. While some quantities may be discharged back to groundwater sources, it is assumed that the majority of non-contaminated cooling water is discharged to fresh surface water bodies.
Third-party destinations	Relevant	13103	About the same	This includes contact water discharged via on-site or off-site treatment and is needed to fulfill regulatory requirements by reducing the load of certain parameters. Total volume is slightly lower than previous reporting year due to continued improvements in our operations. We expect that the volume will decrease in future years due to campaigns to increase efficiencies in production and cleaning processes.

W1.2j

(W1.2j) What proportion of your total water use do you recycle or reuse?

	% recycled and reused	Comparison with previous reporting year	Please explain
Row 1	26-50	Higher	In 2017 Novartis reused / recycled 21'583 ML of water. % of recycled / reused is higher than previous reporting year due to continued efforts in our operations to improve water efficiency and reduced withdrawal of water. Reusing water will allow business continuity in times (i.e. summer times) when water availability is reduced or when costs are increasing. We expect that the percentage of water reused/recycled will slightly increase in future years due to campaigns to increase efficiencies in production and cleaning processes.

W1.4

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

Yes, our suppliers

Yes, our customers or other value chain partners

W1.4a

(W1.4a) What proportion of suppliers do you request to report on their water use, risks and/or management information and what proportion of your procurement spend does this represent?

Row 1

% of suppliers by number

1-25%

% of total procurement spend

1-25

Rationale for this coverage

For information collection, key suppliers of raw materials, like chemicals, intermediates, active pharmaceutical ingredients, and packaging materials are considered. Suppliers are selected based on an EEIO (Environmentally Extended Input / Output) assessment that considers spend data and is linked to industry sectors and countries. The underlying database traces supply chains across 56 sectors and 43 countries. The selected suppliers cover 9% of the total procurement spend. Suppliers are required to provide information on the CDP water supply chain program. Their incentive to report is better HSE performance and leads to positive business relationships.

Impact of the engagement and measures of success

Suppliers are required to provide information on the CDP water supply chain program. The response rate is measured as criteria of success. We aim for at least 80%. This rate was outperformed last year. Considering our data collection in general, we reached 91% response rate including the CDP responses. In addition, the quality of all responses is assessed and sanity checks are performed. The information provided enables us to better identify impact hotspots and continue actions on these to reduce impacts and risks.

Comment

It was found that the quality and completeness of the replies on the water questionnaire are significantly lower than those on the climate questionnaire. In 2018 we focus on the water data, used more "meaningful" questions and aligned them with the KPIs we intend to use as an indicator of the environmental water performance of our suppliers. The information provided by the suppliers enables us to better identify impact hotspots and continue actions on these to reduce impacts and risks.

W1.4b

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

Type of engagement

Innovation & collaboration

Details of engagement

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

% of suppliers by number

26-50

% of total procurement spend

1-25

Rationale for the coverage of your engagement

This engagement considers the contract manufacturers and the suppliers of raw materials, like chemicals, intermediates, active pharmaceutical ingredients. The engagement covers 29% of our suppliers.

Impact of the engagement and measures of success

Novartis is engaging with its suppliers through capability building webinars such as the CDP Supply Chain lead member service. Last year Novartis hosted Webinars in English and Chinese language and encouraged suppliers to participate in CDP webinars and events. We had personal contact about sustainability with all the suppliers from which we collected environmental data. The high response rate, as described above, underpins the success of our engagement and is believed to result in long-term economic benefits for us and our suppliers. In addition, Novartis is engaging with suppliers via the Pharmaceutical Supply Chain Initiative (PSCI). The PSCI is performing workshops and webinars around sustainability and enables further capability building for the suppliers. The leads to a responsible supply chain and a better social, environmental and economic outcome and thus is beneficial for us and the supplier.

Comment

With some selected suppliers we have started to discuss collaboration and support opportunities.

Type of engagement

Incentivizing for improved water management and stewardship

Details of engagement

Water management and stewardship is integrated into supplier evaluation processes

% of suppliers by number

1-25

% of total procurement spend

1-25

Rationale for the coverage of your engagement

Water-related risks (scarcity, water treatment/effluent risks) are a regular part of HSE audits at supplier sites. The supplier survey and audit concept is part of our Responsible Procurement / Third Party Risk Management Program. Depending on the results of the original screening, on site visits are conducted, with focus on high risk countries (i.e. India, China, Latin America) and high risk sectors (i.e. suppliers of chemicals, active ingredients). Suppliers are required to provide information on water consumption, water treatment practices and effluent parameters. Suppliers are incentivized to provide this information because better HSE performance leads to closer business relationships and eventually their selection as key supplier.

Impact of the engagement and measures of success

Suppliers are required to provide information on water consumption, water treatment practices and effluent parameters. Suppliers are incentivized to provide this information because better HSE performance leads to closer business relationships and eventually their selection as key supplier. This engagement helps our company to decide which suppliers should be developed further and / or be considered as future key suppliers. The success can be measured by the number of suppliers that are gaining the status of key suppliers due to their convincing overall performance.

Comment

Moving from our Responsible Procurement (RP) process to the newly created Third party Risk Management (TPRM) process is providing a more comprehensive supplier assessment and monitoring.

Type of engagement

Onboarding & compliance

Details of engagement

Inclusion of water stewardship and risk management in supplier selection mechanism

% of suppliers by number

76-100

% of total procurement spend

76-100

Rationale for the coverage of your engagement

Our RP (Responsible Procurement) / TPRM (Third Party Risk Management) process is covering Health, Safety, and Environmental risks as one area of assessment during the selection and on-boarding process of suppliers. The selection process considers country risks like efficacy of the regulatory systems (HSE), sector specific risks, any known or possible HSE problem, and in selected procurement categories the value of the contract. All suppliers are screened against these criteria and depending on the results site visits are conducted.

Impact of the engagement and measures of success

The engagement is an important approach to pre-screen future suppliers for possible risks including environmental impacts and risks. Suppliers might not be selected or action plans have to be aligned with Novartis and implemented accordingly. The success can be measured on the number of suppliers Novartis is exiting business with for failing to meet the TPRM requirements.

Comment

The engagement is our first and second line of defense.

W1.4c

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

As part of our Responsible Procurement (RP)/Third Party Risk Management (TPRM) process, we systematically engage with our suppliers on corporate responsibility topics, including, human and labor rights, health, safety and environmental (HSE) aspects. The method and strategy for our engagement includes HSE audits and followed by corrective action plans, if necessary. The closure of corrective actions is tracked/measured through HSE and BC Performance Indicator and successfully closed, if completed within the agreed timeframe. Additional visits of suppliers, results in a better understanding and awareness of HSE topics, on our expectations and improvements, and on next steps of actions as specifically agreed. The results of our engagement are measured and disclosed in our annual report, our corporate sustainability report and the environment data supplement. Novartis engages further with suppliers through the CDP Supply Chain Program, and through webinars for our suppliers, which we jointly perform with CDP. Besides that, we are member of the PSCI (Pharmaceutical Supply Chain Initiative) and share best practice with our suppliers in the area of HSE through webinars and conferences. The suppliers for our RP/TPRM process are selected by considering country risks, including, e.g. the efficiency of the regulatory systems around HSE. In addition, we consider sector specific risks, any known or possible HSE problem, and in selected procurement categories the value of the contract. All suppliers are screened regarding these criteria and depending on evaluated risk level, we conduct additionally on-site visits.

W2. Business impacts

W2.1

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

No

W2.2

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

No

W3. Procedures

W3.3

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

Yes, water-related risks are assessed

W3.3a

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

Direct operations

Coverage

Full

Risk assessment procedure

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

Frequency of assessment

Annually

How far into the future are risks considered?

6 to 10 years

Type of tools and methods used

Tools on the market

Other

Tools and methods used

WBCSD Global Water Tool

WRI Aqueduct

Internal company methods

Comment

Water risks are integrated in our internal risk management process and follow a company specific standard. Availability and access to water must be incorporated into the sites' Novartis risk portfolio if relevant. Manufacturing sites perform an effluent assessment and determine the local risk of pharmaceuticals in the receiving surface waters. We use EMEA/CHMP/SWP/4447/00 and a company specific developed tool to perform the risk assessment.

Supply chain

Coverage

Full

Risk assessment procedure

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

Frequency of assessment

Annually

How far into the future are risks considered?

6 to 10 years

Type of tools and methods used

International methodologies

Other

Tools and methods used

Environmental Impact Assessment

Internal company methods

Other, please specify (PSCI audit protocol)

Comment

Water risks are part of our RP (Responsible Procurement) / TPRM (Third Party Risk Management) process. This is supported by the PSCI (pharmaceutical supply chain initiative) audit protocol. In addition, the environmental impact analysis is performed annually, using an environmentally extended input/output assessment (EEIO tool (EnScaN - Environmental Supply chain accounting Novartis). In the tool we consider all tiers and embedded water scarcity information based on the WBCSD Global Water Tool.

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?

2 to 5 years

Type of tools and methods used

International methodologies

Tools and methods used

Other, please specify (EMA/CHMP/SWP/4447/00)

Comment

For all new drug products or Type II variations, we perform an environmental risk assessment as outlined in the EMA/CHMP/SWP/4447/00, which is part of the regulatory requirement within the marketing authorization approval process. This risk assessment needs to be performed in the European Union, United States and Switzerland during any marketing authorisation approval process and thus do not follow any defined frequency, but rather on demand.

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	Novartis has a Health, Safety and Environment (HSE) policy in which water is an integrated part. It is valid for all operations and it describes the efficient use and conservation of water, while minimizing emissions to water from our operations. 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. Availability of water is included in the Novartis risk portfolio of sites located in a water-scarce location, identified using WBCSD and WRI tools . The Novartis risk portfolio is regularly updated to cover current and future risks. Downstream in the value chain, i.e. usage of our products in connection to water availability is not water intensive and is not taken into consideration.
Water quality at a basin/catchment level	Relevant, always included	Novartis has a Health, Safety and Environment (HSE) policy in which water is an integrated part. It is valid for all operations and it describes the efficient use and conservation of water, while minimizing emissions to water from our operations. Quality of withdrawn water is not as important as water availability as the majority of our and suppliers manufacturing sites have water purification equipment to address water quality issues. Additionally, all sites and suppliers are required to treat process water to conditions in line with the local legal requirements before it is returned to the environment. In addition to local legal requirements, all Novartis owned manufacturing facilities must assess their effluent load of active pharmaceutical ingredients (APIs) in the receiving water streams to meet our internal global standard. This is done using a risk-based approach based on mass balance (and where necessary additional analytical methods) and respective eco-toxicity parameters of individual drug substances. Downstream in the value chain, i.e. usage of our products in connection to water quality is very important but currently not considered in our risk assessment.
Stakeholder conflicts concerning water resources at a basin/catchment level	Relevant, sometimes included	In our own manufacturing sites, we have not experienced any stakeholder conflict. But in case of future conflicts this will be considered and assessed in the Novartis Risk Portfolio of each site. The TPRM (Third Party Risk Management) process considers HSE (Health, Safety and Environmental) risks within our supply chain and includes stakeholder conflicts, if required. Downstream in the value chain, i.e. usage of our products and the concerns of stakeholders on environmental impacts of our products are important but currently not considered in our risk assessment.
Implications of water on your key commodities/raw materials	Relevant, always included	A supply chain analysis on water footprint using input/output 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 in quantifying our own and supply chain environmental footprints in monetary terms shows that water is among the most relevant parts of our impact. Social costs of the water footprint which relate to our direct materials supply chain (including tiers of our suppliers – Tier 1-n) refers to about 20% of the total supply chain footprint.
Water-related regulatory frameworks	Relevant, always included	Novartis requires all sites (own and supplier) to abstract and treat water to conditions in line with the local legal requirements. Our internal accounting system on water withdrawal and consumption also includes the reporting on water quality indicators like, total suspended solids (TSS) load, chemical oxygen demand (COD) load, nitrogen load and phosphate load. In addition to local legal requirements, all manufacturing facilities must assess their effluent load of active pharmaceutical ingredients (APIs) in the water streams to meet our internal global guideline. This is done using a risk-based approach based on mass balance (and where necessary additional analytical methods) and respective eco-toxicity parameters of individual drug substances. All regulatory frameworks are considered and assessed as part of the Novartis Risk Portfolio process. Regulatory frameworks and/or water tariffs have limited effect.
Status of ecosystems and habitats	Relevant, sometimes included	Aspects of ecosystems and habitats are identified following the internal risk management process and considered if relevant in the Novartis Risk Portfolio for our own sites. Within our supply chain these risks are considered and managed during our RP (Responsible Procurement) / TPRM (Third Party Risk Management) process.
Access to fully-functioning, safely managed WASH services for all employees	Relevant, not included	Cleanliness and sterile working conditions are extremely important and are a prerequisite for the pharmaceutical business. Fresh water is available for cleaning, washing, sanitary and drinking purposes at facilities under Novartis operational control. Due to the importance for our business, we expect facilities to confirm this as a basic requirement. As a member of PSCI (pharmaceutical supply chain) we request suppliers according PSCI audit protocol to provide safe and potable drinking water and hygienic facilities to all employees.
Other contextual issues, please specify	Not relevant, explanation provided	All contextual issues are considered above.

W3.3c

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

	Relevance & inclusion	Please explain
Customers	Relevant, always included	Novartis overall mission is to discover new ways to improve and extend people's lives. Thus, our customers and patients are the most important stakeholder and we are fully committed to helping our patients/customer enjoy a cleaner environment because this has benefits for their health. Novartis believes that careful stewardship of natural resources is not only important for the company but critical for society and future generations. Novartis informs customers on its water saving activities and related water risks in its annual non-financial reporting (Corporate Responsibility Report and environmental data supplement) and in local environmental reports.
Employees	Relevant, always included	We believe, that Novartis sustainability strategy, including water related topics, play a significant 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). Sustainable business can only be achieved if all employees contribute within and beyond their specific working environment. A cross-divisional program for harmonization of 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. Each associate has the possibility to use this tool which allows for easy recording of HSE related issues (including water) in a timely manner and enables consolidated reporting as well as enhanced group wide data transparency and accessibility.
Investors	Relevant, always included	Investors and their evaluation on our ESG performance are important to us. In early 2018, our newly appointed CEO, Vas Narasimhan, communicated to analysts and investors that returning more to society than we take is one of the five key organizational priorities for Novartis moving forward, which is a strong measure that indicates how Novartis prioritizes important issues such as environmental sustainability. We inform our investors on our water saving activities and related water risks in our annual non-financial reporting (Corporate Responsibility Report and environment data supplement), in local environmental reports and on our webpage. In 2017, a few investors requested specific information on environmental topics, including water, in order to get a better understanding on Novartis environmental strategy and management processes, allowing them to take the right decision.
Local communities	Relevant, sometimes included	Besides CR reporting on corporate level, we inform local stakeholders about our water saving activities and related water risks in local environmental and sustainability reports. Regular contacts are maintained with certain authorities and with community groups of the surrounding communities. For example, in the Basel area we conduct a voluntary remediation project in the commune of Huingue, France, to protect local groundwater sources from pesticide pollutants, originating from former owners of the area.
NGOs	Relevant, not included	NGOs are currently not included in our water-related risk assessment, but we plan to collaborate with selected groups' in 2018 in projects on water availability, like the "water stewardship benefit accounting methodology" and "mapping public water management".
Other water users at a basin/catchment level	Relevant, not included	Other water users are currently not included in our water-related risk assessment, but we plan to include them in future in projects on water availability and quality particularly when we share the same water basin. In 2018, the new environmental sustainability strategy is planned to be published and will include these aspects of other water users in the same water catchment.
Regulators	Relevant, always included	Regulators are included in water risk assessments undertaken at some Novartis manufacturing facilities, where we operate facility owned waste water treatment operations and/or discharge waste water to public sewer treatment facilities. Summary reports including key water parameters are shared if requested with the regulators. For example at a site in Germany, regulators were informed on changes in the product portfolio in advance and they were included in the different stages of design and execution process.
River basin management authorities	Relevant, always included	River basin management authorities are factored into water risk assessments undertaken at some Novartis manufacturing facilities. Water specialists at our manufacturing sites in Stein (CH), Wehr (Germany), Schweizerhalle (CH) and Basel (CH) work closely with the Rhine River Watershed authority and local public waste water treatment plants to monitor and control water effluent and pollutant parameters of the river. A potential risk could be identified in a timely manner and mitigated with joint forces. Values of key parameters are regularly reported. This is partly supported by the internal HSE guideline 15, which assess the risk for pharmaceuticals in the receiving surface water.
Statutory special interest groups at a local level	Relevant, always included	Novartis informs stakeholders on its water savings activities in its annual non-financial reporting (Corporate responsibility Report and environment data supplement) and its local environmental reports (e.g. EMAS Reports). In certain matters, e.g. water quality, we collaborate directly with local authority and the community to identify the risk and mitigate appropriately. For example in Wehr, Germany, where the pharmaceutical operation installed in 2016 a state-of-the-art pre-treatment production facility for effluent in agreement with the local authority and community.
Suppliers	Relevant, always included	All potential suppliers globally are required to meet the Health, Safety and Environmental (HSE) standards specified in our Supplier Code and by the PSCI (Pharmaceutical Supply Chain Initiative) protocol. An assessment of the materials supply chain is regularly conducted by Novartis based on an Input/Output tool, to determine the relevance of the water footprint of the materials supply chain. In 2018 the water footprint was calculated using our with external support further developed EEIO tool (EnScaN - Environmental Supply chain accounting Novartis). It considers all tiers in the upstream value chain and is not limited to a few levels of tiers as the previously used analysis. Novartis is participating in the CDP Supply Chain Program and including 55 selected key suppliers to provide feedback on climate and water. This includes suppliers in water-scarce regions. The information provided enables us to better identify impact hotspots and continue actions to reduce impacts and risks.
Water utilities at a local level	Relevant, always included	Novartis informs stakeholders on its water savings activities in its annual non-financial reporting (Corporate Responsibility Report and environment data supplement) and its local environmental reports (e.g. EMAS Reports). In certain matters, e.g. water quality, we collaborate directly with local authority and the community to identify the risk and mitigate appropriately. For example in Wehr, Germany, where the pharmaceutical operation installed in 2016 a state-of-the-art pre-treatment production facility for effluent in agreement with the local authority and community.
Other stakeholder, please specify	Not considered	

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 in the HSE and BCM risk assessment and if relevant included in the Novartis Risk Portfolio. Water risks from water scarce sites were not considered a material risk on the success of Novartis growth strategy, because respective consequences are limited to a few individual sites located in water scarce areas. The currently still very low financial implications related to water risks and the possibilities to avoid/mitigate these risks by alternative ways, did not change our strategies for growth. Using the WBCSD Global Water Tool, and the WRI scarcity indicator on "water availability per capita in 2025" to assess water risks at individual sites, allows future developments to be considered. The risks of pharmaceuticals in the environment from manufacturing effluents are assessed by using internal guideline (HSE GL15) and guidance notes. We maintain an accounting system on water withdrawal, consumption and discharge. Effluent risks are also not considered a material risk to our growth strategy. Since 2014, we have conducted an annual study on the carbon and water footprint of the direct material supply chain per business, per supply category and per country. The water footprint identifies impact in hot spots areas. Water risks in the supply chain are considered as part of the HSE risk area for our RP (Responsible Procurement)/ Third Party Risk Management (TPRM) process. In addition, the water consumption related risks and environmental footprint of the supply chain is being assessed annually with an EEIO (Environmentally Extended Input/Output) tool. It considers all tiers in the upstream value chain. We aim to keep the assessment in our own and supplier operations as comparable as possible to make sure that the identified risks are not biased.

W4. Risks and opportunities

W4.1

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

Yes, both in direct operations and the rest of our value chain

W4.1a

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

Novartis manages risks proactively by implementing appropriate preventative and contingency measures. Risks include all water and environment-related potential risks and opportunities including natural disasters such as floods, drought, heat events, storms and earthquakes; health risks to people e.g., pandemic; safety such as fire and explosions; environmental risks such as sea level rise, water scarcity, spillage, soil contamination, water pollution and climate risks related to business continuity. Risks can be catalogued at the site level and elevated to senior leadership, they can be identified during site assessments and audits and they can be identified by senior leadership in the organization. All the relevant risk information is passed to Business Continuity (BC) staff, risk staff and strategy staff in various positions of the company as applicable. Substantive impact level could be triggered by significant change in health/safety, environment, regulatory/compliance, operations/business, reputation/image and financial factors. Each one of those variables has a different level of change that triggers assessment as a medium or high risk, and the variables are considered in combination. Therefore, there is no single trigger that determines how serious the risk is considered. In general from an environmental sustainability standpoint, anything that would trigger a 10% change in water footprint or a 10% change in program costs would be brought to the Executive Committee of Novartis (ECN) for review. The risk management matrix takes into account both the likelihood of an occurrence as well as the impact of an occurrence.

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 GHG emissions. In the unlikely event of a longer-term future, when sites could no longer abstract cooling water from the aquatic environment due to e.g. climate change resulting in water shortage, the use of mechanical chillers would be required to cool the production processes. This would result in significantly higher operating costs (estimate 10-20%) through increased energy usage and significantly higher GHG emissions (estimated 10-20%). The higher costs and higher GHG emissions would be considered a substantive change to the organization because the expected change is greater than 10%.

Substantive consumption related risks and the environmental footprint of our supply chain is being assessed through the use of an EEIO (Environmentally Extended Input/Output) tool on an annual basis. The various environmental footprints, including water risks, had been quantified and monetized in the course of an assessment of Environmental Profit and Loss. In 2018, the water footprint was calculated using an enhanced EEIO tool (EnScaN- Environmental Supply Chain accounting Novartis) which was developed in-house with expert support. It considers all tiers in the upstream value chain and is not limited to a few tiers as was previously the case. Water-related impacts of the supply chain constitute about 13% of the total environmental externalities (in USD). The 2017 assessment is fully in line with the restated 2016 results. The results are slightly lower compared to the previous tool, because it considers a more comprehensive analysis of our air emissions in the supply chain (e.g. CO, VOC, NOx). Thus, the overall percentage of the water impact as part of the total environmental impact of the supply chain slightly decreased (previous analysis 18% water related impact in the supply chain in 2015 and 2016).

W4.1b

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

	Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
Row 1	2	1-25	The facilities mentioned here covers several buildings in the specific area, which are however located in one water catchment area

W4.1c

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

Country/Region

Switzerland

River basin

Rhine

Number of facilities exposed to water risk

1

% company-wide facilities this represents

Less than 1%

Production value for the metals & mining activities associated with these facilities

<Not Applicable>

% company's annual electricity generation that could be affected by these facilities

<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities

<Not Applicable>

% company's total global revenue that could be affected

Less than 1%

Comment

Water from the river Rhine is used for the comfort cooling of office and research buildings at our headquarter site in Basel. The water is withdrawn, used for cooling and returned directly back to the river with very small temperature increase. There is a limitation on the use of the river water, at times when the water exceeds a temperature of 25°C. Since installation this temperature was exceeded once in the summer of 2003. Novartis took measures to reduce dependency on the river water for cooling by installing systems for new buildings that allow seasonal heat storage in the bedrock underneath the campus.

Country/Region

Austria

River basin

Danube

Number of facilities exposed to water risk

1

% company-wide facilities this represents

Less than 1%

Production value for the metals & mining activities associated with these facilities

<Not Applicable>

% company's annual electricity generation that could be affected by these facilities

<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities

<Not Applicable>

% company's total global revenue that could be affected

1-25

Comment

Fermentation processes at our Sandoz facility in Kundl, Austria use water for cooling from the riverbed of the river Inn, a tributary to the Danube river. The water is withdrawn, used for cooling and returned directly back to the river with a very small temperature increase. Water shortage in the river Inn would limit the availability of water for cooling, but this is not expected over the next 50 years.

W4.2

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

Country/Region

Switzerland

River basin

Rhine

Type of risk

Regulatory

Primary risk driver

Regulation of discharge quality/volumes

Primary potential impact

Diminished ability to reduce GHG emissions

Company-specific description

The impact to the site is considered relatively small. If less ambient water is available for comfort cooling, mechanical chillers would be required to cool the buildings in summer months, which would result in somewhat higher operating costs (estimated less than 1% of operating costs) through increased energy usage and higher GHG emissions (internal estimation method applied).

Timeframe

More than 6 years

Magnitude of potential impact

Low

Likelihood

About as likely as not

Potential financial impact

0

Explanation of financial impact

Impact not quantified financially

Primary response to risk

Engage with regulators/policymakers

Description of response

In 2014-2016, we installed already heat storage under 3 new buildings. The costs of such projects are in the range of USD 1.5-2 mio each.

Cost of response

5500000

Explanation of cost of response

The cost to develop the response strategy is marginal. The one-off costs of USD 5-6 mio for 3 buildings include the project costs .The heat storage technology was implemented to make the site less dependent on cooling water. Projects for seasonal heat storage of new buildings were implemented in 2014-2016.

Country/Region

Austria

River basin

Danube

Type of risk

Physical

Primary risk driver

Seasonal supply variability/inter annual variability

Primary potential impact

Diminished ability to reduce GHG emissions

Company-specific description

In the rather unlikely event in a longer term future when the fermentation plant in Austria could no longer abstract cooling water

from the aquatic environment due to climate change resulting in water shortage, the use of mechanical chillers would be required to cool the production processes, which would result in significantly higher operating costs (estimated between 10 and 20% of operating costs) through increased energy usage and significantly higher GHG emissions (also between 10 and 20%; internal estimation method applied).

Timeframe

More than 6 years

Magnitude of potential impact

Medium

Likelihood

Unlikely

Potential financial impact

0

Explanation of financial impact

Impact not quantified financially

Primary response to risk

Increase investment in new technology

Description of response

In the rather unlikely event in a longer term future when the fermentation plant in Austria could no longer abstract cooling water from the aquatic environment, the use of mechanical chillers would be required to cool the production processes, which would result in significantly higher operating costs and increased capital costs. The estimated costs are USD 10 mio over 5-10 years plus the annual increase in energy costs of USD 1.5 - 2.5 mio p.a..

Cost of response

1200000

Explanation of cost of response

Cooling technology would need to be changed from water cooling to mechanical chilling. Through internal estimation methods, the one-off costs for the implementation of such equipment will include new equipment for mechanical chilling, estimated to USD 10 mio over 5-10 years plus the annual increase in energy costs of USD 1.5 - 2.5 mio p.a.. Mechanical chilling would increase the site's energy consumption by an estimated 10-20%.

W4.2a

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

Country/Region

China

River basin

Huang He (Yellow River)

Stage of value chain

Supply chain

Type of risk

Reputation & markets

Primary risk driver

Increased stakeholder concern or negative stakeholder feedback

Primary potential impact

Company brand damage

Company-specific description

To better understand the needs and expectations of internal and external stakeholders, we conducted a third full materiality assessment (MA) over the course of 2017. The previous MA (conducted 2006 and 2013) served as a starting point for this most recent assessment. Following best practice guidelines published by international standard setters – including Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), International Integrated Reporting Council (IIRC) and others –

we conducted desk research to identify a set of important CR topics impacting our business, and prioritized the topics by surveying an inclusive list of internal and external stakeholders. In addition to the quantitative analysis, we gathered qualitative data captured through free text fields in the surveys, and we conducted more than 60 one-on-one interviews. As a result, we identified 30 topics in eight issue clusters, which were then ranked by internal and external stakeholders based on impact on and performance of Novartis. Using adequate statistical selection criteria, we identified 14 of these topics that Novartis plans to prioritize in the years to come. "Pollution, waste and effluents", "pharmaceuticals in the environment" and "sustainable use of resources" are among these. This exercise gives us a clear direction for future environmental engagement and communication. This will prevent negative feedback or increased concerns from stakeholders on these emerging topics.

Timeframe

4 - 6 years

Magnitude of potential financial impact

Medium

Likelihood

Likely

Potential financial impact

14350000

Explanation of financial impact

We determine the current financial impact through the analysis of the externalities in our supply chain (SC). An environmentally extended input/output assessment for the supply chain is performed and linked with damage costs based on the CE Delft Shadow Prices Handbook. It was found that water-related impacts of the supply chain constitute currently about 13% of the total environmental externalities (USD). We determined the costs for all countries relevant to our SC, including China and India.

Primary response to risk

Increase requested supplier reporting on water

Description of response

Our response strategy in managing the environmental externalities of the materials supply chain includes to actively manage the selection of suppliers and to influence their environmental footprint through closer monitoring and cooperation. The dialogue with suppliers in China and India has just commenced. We enhanced the number of suppliers we consider in the CDP supply chain program to 55 suppliers, the majority from China and India. We offer joint webinars together with the CDP. The aim is to support our suppliers in building the capability to monitor, improve and report their environmental impacts. The majority of the suppliers we consider are first time responders in the identified hot spot countries. In addition, we collect more detailed and specific data on the water impact for about 50% of those suppliers through a dedicated supplier survey platform.

Cost of response

14350000

Explanation of cost of response

Calculating the costs of externalities as described in the text field "explanation of financial impact" using shadow prices, provides a best of knowledge worst case scenario. As this would be the total costs to be paid if all externalities are internalized. The shadow prices express the calculated cost on human health generated by environmental impacts – so remediation / prevention could take a wide range of different approaches. The figure provided is the upper limit of the costs of response.

Country/Region

India

River basin

Ganges - Brahmaputra

Stage of value chain

Supply chain

Type of risk

Reputation & markets

Primary risk driver

Increased stakeholder concern or negative stakeholder feedback

Primary potential impact

Company brand damage

Company-specific description

To better understand the needs and expectations of internal and external stakeholders, we conducted a third full materiality

assessment (MA) over the course of 2017. The previous MA (conducted 2006 and 2013) served as a starting point for this most recent assessment. Following best practice guidelines published by international standard setters – including Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), International Integrated Reporting Council (IIRC) and others – we conducted desk research to identify a set of important CR topics impacting our business, and prioritized the topics by surveying an inclusive list of internal and external stakeholders. In addition to the quantitative analysis, we gathered qualitative data captured through free text fields in the surveys, and we conducted more than 60 one-on-one interviews. As a result, we identified 30 topics in eight issue clusters, which were then ranked by internal and external stakeholders based on impact on and performance of Novartis. Using adequate statistical selection criteria, we identified 14 of these topics that Novartis plans to prioritize in the years to come. "Pollution, waste and effluents", "pharmaceuticals in the environment" and "sustainable use of resources" are among these. This exercise gives us a clear direction for future environmental engagement and communication. This will prevent negative feedback or increased concerns from stakeholders on these emerging topics.

Timeframe

4 - 6 years

Magnitude of potential financial impact

Medium

Likelihood

Likely

Potential financial impact

2560000

Explanation of financial impact

We determine the current financial impact through the analysis of the externalities in our supply chain (SC). An environmentally extended input/output assessment for the supply chain is performed and linked with damage costs based on the CE Delft Shadow Prices Handbook. It was found that water-related impacts of the supply chain constitute currently about 13% of the total environmental externalities (USD). We determined the costs for all countries relevant to our SC, including China and India.

Primary response to risk

Increase requested supplier reporting on water

Description of response

Our response strategy in managing environmental externalities of the materials supply chain includes to actively manage the selection of suppliers and to influence their environmental footprint through closer monitoring and cooperation. The dialogue with suppliers in China and India has just commenced. We enhanced the number of suppliers we consider in the CDP supply chain program to 55 suppliers, the majority from China and India. We offer joint webinars together with the CDP. The aim is to support our suppliers in building the capability to monitor, improve and report their environmental impacts. The majority of the suppliers we consider are first time responders in the identified hot spot countries. In addition, we collect more detailed and specific data on the water impact for about 50% of those suppliers through a dedicated supplier survey platform.

Cost of response

2560000

Explanation of cost of response

Calculating the costs of externalities as described in the text field "explanation of financial impact" using shadow prices, provides a best of knowledge worst case scenario. As this would be the total costs to be paid if all externalities are internalized. The shadow prices express the calculated cost on human health generated by environmental impacts – so remediation / prevention could take a wide range of different approaches. The figure provided is the upper limit of the costs of response.

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

Potential business opportunities are reduced water and energy costs, improved risk management strategies for managing water usage, easier compliance with potentially stricter water legislation, improve sentiment with the investment community as ESG is increasingly recognized and monitored by socially responsible investors and index funds and increased appreciation from current and future Novartis personnel on environmental achievements at Novartis. Reduce water consumption and increase quality of effluent: In our manufacturing site in Kurtkoy, Turkey, the water consumption was reduced and the quality of effluent was increased by the installation a of reverse osmosis-ultrafiltration system. The project cost was approx. USD 600,000.

Estimated timeframe for realization

1 to 3 years

Magnitude of potential financial impact

Low

Potential financial impact

51000

Explanation of financial impact

Actual reduction for total water purchased by 14 ML, will reduce the operating costs by 51'000USD.

Type of opportunity

Efficiency

Primary water-related opportunity

Improved water efficiency in operations

Company-specific description & strategy to realize opportunity

Potential business opportunities are reduced water and energy costs, improved risk management strategies for managing water usage, easier compliance with potentially stricter water legislation, improve sentiment with the investment community as ESG is increasingly recognized and monitored by socially responsible investors and index funds and increased appreciation from current and future Novartis personnel on environmental achievements at Novartis. At our technical operation site in Cork, Ireland, purified water, which was primarily used to rinse products, is recycled for sanitary purposes, like the flushing of toilets. Additionally, drained water is collected and treated via a reverse osmosis treatment plant before being fed back into the raw water tank and held for re-use.

Estimated timeframe for realization

Current - up to 1 year

Magnitude of potential financial impact

Low

Potential financial impact

15000

Explanation of financial impact

Approximately 70% of the reject water is recovered and reused, and thus will lead to reduced operating costs of 15'000USD/year.

Type of opportunity

Resilience

Primary water-related opportunity

Increased resilience to impacts of climate change

Company-specific description & strategy to realize opportunity

Potential business opportunities are reduced water and energy costs, improved risk management strategies for managing water usage, easier compliance with potentially stricter water legislation, improve sentiment with the investment community as ESG is increasingly recognized and monitored by socially responsible investors and index funds and increased appreciation from current and future Novartis personnel on environmental achievements at Novartis. At our service centre in Hyderabad, India, a local project with the title "No water No life - every drop counts" was initiated: rain water harvesting pits were installed, and onsite sewage treatment plan has been installed and purified water is recycled for cooling systems as well as for sanitary and gardening use.

Estimated timeframe for realization

Current - up to 1 year

Magnitude of potential financial impact

Low

Potential financial impact

0

Explanation of financial impact

The potential financial benefit could not be calculated, but will rather be low and not substantial.

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

Potential business opportunities are reduced water and energy costs, improved risk management strategies for managing water usage, easier compliance with potentially stricter water legislation, improve sentiment with the investment community as ESG is increasingly recognized and monitored by socially responsible investors and index funds and increased appreciation from current and future Novartis personnel on environmental achievements at Novartis. The investment at a production site in Germany, Wehr, ensures that wastewater is consistently treated to a quality within legal limits for discharge, and gains flexibility for the future formulation of new Active Pharmaceutical Ingredients (APIs).

Estimated timeframe for realization

1 to 3 years

Magnitude of potential financial impact

Medium

Potential financial impact

1750000

Explanation of financial impact

Actual capital expenditure of the installation of a waste water treatment plant with advance technology is 1.75 mio USD

W5. Facility-level water accounting

W5.1

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

Facility reference number

Facility 1

Facility name (optional)

Basel

Country/Region

Switzerland

River basin

Rhine

Latitude

Longitude

Primary power generation source for your electricity generation at this facility

<Not Applicable>

Oil & gas sector business division

<Not Applicable>

Total water withdrawals at this facility (megaliters/year)

14772

Comparison of withdrawals with previous reporting year

Lower

Total water discharges at this facility (megaliters/year)

14772

Comparison of discharges with previous reporting year

Lower

Total water consumption at this facility (megaliters/year)

0

Comparison of consumption with previous reporting year

About the same

Please explain

All water withdrawn by Facility 1 is discharged back to the water environment for non-contact water, or after on-site/off-site treatment for contact water.

Facility reference number

Facility 2

Facility name (optional)

Kundl

Country/Region

Austria

River basin

Danube

Latitude

Longitude

Primary power generation source for your electricity generation at this facility

<Not Applicable>

Oil & gas sector business division

<Not Applicable>

Total water withdrawals at this facility (megaliters/year)

33889

Comparison of withdrawals with previous reporting year

Lower

Total water discharges at this facility (megaliters/year)

33889

Comparison of discharges with previous reporting year

Lower

Total water consumption at this facility (megaliters/year)

0

Comparison of consumption with previous reporting year

About the same

Please explain

All water withdrawn by Facility 2 is discharged back to the water environment for non-contact water, or after on-site/off-site treatment for contact water.

W5.1a

(W5.1a) For each facility referenced in W5.1, provide withdrawal data by water source.

Facility reference number

Facility 1

Facility name

Basel

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

0

Brackish surface water/seawater

0

Groundwater - renewable

13825

Groundwater - non-renewable

0

Produced water

0

Third party sources

947

Comment

Total water abstraction for Basel is primarily used for comfort cooling.

Facility reference number

Facility 2

Facility name

Kundl

Fresh surface water, including rainwater, water from wetlands, rivers and lakes

0

Brackish surface water/seawater

0

Groundwater - renewable

33889

Groundwater - non-renewable

0

Produced water

0

Third party sources

0

Comment

Total water abstraction for Kundl is primarily used for process cooling.

W5.1b

(W5.1b) For each facility referenced in W5.1, provide discharge data by destination.

Facility reference number

Facility 1

Facility name

Basel

Fresh surface water

14087

Brackish surface water/Seawater

0

Groundwater

0

Third party destinations

685

Comment

Over 95% of the water discharged from the Basel facility is non-contact cooling water which is discharged back to the river Rhine without being in contact with any potential contaminants.

Facility reference number

Facility 2

Facility name

Kundl

Fresh surface water

31408

Brackish surface water/Seawater

0

Groundwater

0

Third party destinations

2481

Comment

Over 92% of the water discharged from the Kundl facility is non-contact cooling water which is discharged back to the river Inn without being in contact with any potential contaminants.

W5.1c

(W5.1c) For each facility referenced in W5.1, provide the proportion of your total water use that is recycled or reused, and give the comparison with the previous reporting year.

Facility reference number

Facility 1

Facility name

Basel

% recycled or reused

None

Comparison with previous reporting year

About the same

Please explain

No water reused/recycled reported in Basel.

Facility reference number

Facility 2

Facility name

Kundl

% recycled or reused

26-50%

Comparison with previous reporting year

Higher

Please explain

In 2017, the Kundl facility recycled/reused 42.5% of its water use, equivalent to 14'393 ML compared to 37.5% in 2016 (13.862 ML).

W5.1d

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

Water withdrawals – total volumes

% verified

76-100

What standard and methodology was used?

In scope of annual ISAE3000 Limited Assurance process

Water withdrawals – volume by source

% verified

Not verified

What standard and methodology was used?

We are currently not verifying these data, but we consider doing this in future.

Water withdrawals – quality

% verified

Not verified

What standard and methodology was used?

We are currently not verifying these data, but we consider doing this in future.

Water discharges – total volumes

% verified

76-100

What standard and methodology was used?

In scope of annual ISAE3000 Limited Assurance process

Water discharges – volume by destination

% verified

Not verified

What standard and methodology was used?

We are currently not verifying these data, but we consider doing this in future.

Water discharges – volume by treatment method

% verified

Not verified

What standard and methodology was used?

We are currently not verifying these data, but we consider doing this in future.

Water discharge quality – quality by standard effluent parameters

% verified

Not verified

What standard and methodology was used?

We are currently not verifying these data, but we consider doing this in future.

Water discharge quality – temperature

% verified

Not verified

What standard and methodology was used?

We are currently not verifying these data, but we consider doing this in future.

Water consumption – total volume

% verified

Not verified

What standard and methodology was used?

We are currently not verifying these data, but we consider doing this in future.

Water recycled/reused

% verified

Not verified

What standard and methodology was used?

We are currently not verifying these data, but we consider doing this in future.

W6. Governance

W6.1

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

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

W6.1a

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

	Scope	Content	Please explain
Row 1	Company-wide	<p>Description of water-related performance standards for direct operations</p> <p>Description of water-related standards for procurement</p> <p>Company water targets and goals</p> <p>Commitments beyond regulatory compliance</p> <p>Commitment to stakeholder awareness and education</p> <p>Acknowledgement of the human right to water and sanitation</p>	<p>The Novartis HSE policy is available publicly. It applies to all operations which must: 1) Conserve water and use it efficiently because water's value is not always reflected in the price we pay. 2) Minimize emissions to water to reduce material losses to water so efficiency is improved and the cost associated with waste water treatment to protect the environment is reduced. 3) Demonstrate that micro-pollutants do not adversely affect water during their manufacture and use so are safe for the environment. 4) Follow responsible procurement programs which cover water consumption and quality in our supply chain to encourage our suppliers to adopt water management practices which are equivalent to our own. In addition Novartis Corporate Responsibility Policy and programs acknowledge the human right to water so our business (across the entire value chain) does not adversely affect other stakeholder's access to clean water and sanitation.</p>

W6.2

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

Yes

W6.2a

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

Position of individual	Please explain
Board Chair	The Board of Directors is responsible for setting the strategic direction of the group. This group typically meets 9 times per year and each meeting lasts 6 hours. Environmental sustainability includes water management and is considered to be a material issue for the organization which needs to be balanced with other business issues and priorities. The Board chair is best placed to do this.
Other, please specify (Board/Executive Chair)	The Governance, Nomination and Corporate Responsibilities Committee (GNCRC) oversees the company's strategy and governance on corporate responsibility which includes water related issues. This task is subject to final Board approval. This group typically meets 3 times per year and each meeting lasts 6 hours. The Global Head of Corporate Responsibility updates the GNCRC regularly on CR strategy and performance. This group is responsible for identifying and investigating issues which are of strategic importance to the business and checking if they are appropriately managed. If they had concerns about of water strategy these would be brought to the attention of the Board and the Executive Committee of the Novartis (ECN).
Chief Executive Officer (CEO)	The Executive Committee of Novartis (ECN) led by the CEO meets each month. The ECN formally approves our environmental strategy and targets. It also reviews and approves annual budgets and sets business priorities. It oversees and approves major capital expenditures, acquisitions and divestitures. The ECN also tracks progress against goals and targets for addressing water related issues. Performance is reported annually in our Corporate Responsibility report and its associated Environmental Data Supplement. The CEO ensures that the Novartis water strategy is balanced with other business priorities and that sufficient resources are in place. The CEO can also take action to accelerate implementation as needed to respond to external expectations or business needs.

W6.2b

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

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - some meetings	Monitoring implementation and performance Reviewing and guiding major plans of action Reviewing and guiding strategy Other, please specify (Overseeing against goals and targets)	The Governance, Nomination and Corporate Responsibilities Committee typically meets three times per year. This group ensures that water issues are integrated in governance mechanisms across the company. Water strategy including the scope and ambition of Novartis water strategy is discussed periodically and any recommendations are subject to Board approval. In 2017 it was decided to review Novartis water strategy. The Executive Committee of Novartis, which includes the CEO and other C suite leaders, meets monthly. Water related issues are scheduled as needed. In 2017 water strategy and targets were included as agenda items.

W6.3

(W6.3) Below board level, provide the highest-level management position(s) or committee(s) with responsibility for water-related issues.

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

Chief Executive Officer (CEO)

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

As important matters arise

Please explain

The CEO chairs the Executive Committee of Novartis (ECN) which oversees the daily management of the business and responds to questions received by the board. The ECN meets monthly. In 2017 Novartis water strategy was reviewed and shared with the Governance, Nomination and Corporate Responsibilities Committee which oversees the company's strategy and governance on corporate responsibility including water. This group typically meets 3 times per year. Members of the ECN include the CEO of Novartis who ensures that water strategy is balanced with other business priorities and that sufficient resources are in place, the Head of Human Resources (HR) of Novartis who ensures that Novartis associates are incentivized to support the company's water strategy, the Chief Financial Officer of Novartis who ensures that sufficient funding is in place to deliver the strategy and other members of ECN who have operational roles to ensure the strategy is executed as part of other business priorities.

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

Other committee, please specify (HSE Governance Board)

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

Quarterly

Please explain

The Health, Safety and Environment (HSE) Governance Board is responsible for ensuring all HSE risks and issues including water are managed appropriately. ECN members are standing members of the HSE Governance Board meetings. These roles were selected because the Heads of NTO and NBS have operational responsibility; the Group Head of HR has a key role in ensuring that environmental sustainability are considered as part of routine business decisions because this is part of our culture. The HSE Governance Board also includes the Global Head of CR for Novartis, the Head of Real Estate and Facilities Services, the Global Head of HSE, and the Global Environment Head. The Global Environment Head is responsible for identifying water related risks and issues, making recommendations for how they should be managed, developing metrics so progress against targets can be monitored, and seeking endorsement for implementation from the HSE Governance Board.

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?

At Novartis, our mission is to improve and extend people's lives. Through our business, we make an important contribution to society: we discover and develop innovative healthcare products, targeting unmet medical needs. We collaborate with others to help address some of the world's greatest health challenges and focus our corporate responsibility work on two areas that underscore our mission: expanding access to healthcare and doing business responsibly. The Novartis Global Health and Corporate Responsibility Leadership Team (GH CRLT) comprised of leaders from each division and across multiple functions of the company, guides this work. The GH CRLT is tasked with facilitating information-sharing between other related governance bodies, such as the HSE Steering Committee, the Compliance Steering Committee and Corporate Affairs. For external advocacy, Corporate Affairs has developed a document describing eight advocacy principles as guidance for efforts regarding CR. The advocacy principles are based on and reflect the Novartis strategy, including doing its business responsibly and addressing our ambitious environmental sustainability targets to limit the company's environmental impact. 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.

W7. Business strategy

W7.1

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

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	5-10	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 the area of water and micro-pollutants, our ambition is to generate no adverse effects on water quality and water depletion from our sites and products. In 2015, environmental targets with a 5 year timeline were approved. The target for water and micropollutants is to keep our drug substance effluents from our manufacturing sites ten-fold below the predicted "no effect" concentration in the receiving surface water. New environmental targets are currently developed and anticipated to go beyond a 10 year time horizon.
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	11-15	Novartis overall mission is to discover new ways to improve and extend people's lives .This includes that we do our businesses responsibly and sustainably including water aspects. The current environmental strategy embraces four priority areas: energy and climate, water and micro-pollutants, material and waste, and supply chain. All these targets have a timeline until 2020, thus in 2017, we reconsidered our current targets and worked on new and more ambitious environmental sustainability targets for the time beyond 2020. The timelines for the new targets are set to 2025 and 2030, envisage the long-term objectives of our company.
Financial planning	Yes, water-related issues are integrated	Please select	Novartis responsibility is to do business responsibly. This was reconfirmed early 2018 by our newly appointed CEO, Vas Narasimhan, when he communicated to analysts and investors that returning more to society than we take is one of the five key organizational priorities for Novartis moving forward. For that reason, any activity that impacts the environment, like water, was reviewed and environmental sustainability dimension was included. Decisions usually on 3 year horizon were made considering economic, strategic and environmental aspects.

W7.2

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

	Water-related CAPEX (+/- % change)	Anticipated forward trend for CAPEX (+/- % change)	Water-related OPEX (+/- % change)	Anticipated forward trend for OPEX (+/- % change)	Please explain
Row 1	0	0	-2.5	0	Operational costs for water supply and treatment decreased by 2.5% in 2017 compared to 2016. This reduction is a result of small changes at several locations and might be impacted by changes in water prices.

W7.3

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

	Use of climate-related scenario analysis	Comment
Row 1	No, but we anticipate doing so within the next two years	In 2017 and 2018 a new environmental sustainability strategy is being developed which anticipates the inclusion of climate-related scenario analysis. The new strategy is planned to be published 2018.

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 2017 and 2018 a new environmental sustainability strategy is being developed which estimated the internal cost of water. This internal cost of water was used to confirm the level of ambition for water reduction. The new strategy is planned to be published in 2018.

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 Site/facility specific targets and/or goals	Targets are monitored at the corporate level	In 2015, we set environmental sustainability targets for 4 areas: water/micropollutants; energy/climate; material/waste; and sustainable management. With these targets, 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. Novartis is committed to managing water resources wisely and effectively and minimizing its water footprint through water recycling and savings, particularly at locations where water is scarce. Novartis has been implementing a water savings program assessing water scarcity and water footprint and aiming for water saving of 25% for top scarce sites. Water audits are conducted, local water flows are determined, water saving opportunities evaluated and implemented.

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

Water saving programs at the top water scare sites with highest water footprint and water scarcity

Quantitative metric

% reduction in total water consumption

Baseline year

2010

Start year

2010

Target year

2020

% achieved

28

Please explain

Achieve 28.5% water savings compared to 2010.

Target reference number

Target 2

Category of target

Water pollution reduction

Level

Company-wide

Primary motivation

Water stewardship

Description of target

Site effluents 10-fold below "no-effect" concentration at receiving surface water

Quantitative metric

% reduction in concentration of pollutants

Baseline year

2016

Start year

2015

Target year

2020

% achieved

30

Please explain

The annual effluent assessment in 2017 shows that ~30% of reporting sites are fulfilling the target, the remaining sites have yet to complete the effluent risk assessment and/or are developing mitigation measures to reduce the risk to the receiving surface water.

W9. Linkages and trade-offs

W9.1

(W9.1) Has your organization identified any linkages or tradeoffs between water and other environmental issues in its direct operations and/or other parts of its value chain?

Yes

W9.1a

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

Linkage or tradeoff

Tradeoff

Type of linkage/tradeoff

Increased GHG emissions

Description of linkage/tradeoff

Several Novartis sites in Austria, Italy, Spain and Slovenia use large quantities of water from river side banks to cool their production processes and additional sites in e.g. Switzerland use cooling water from a nearby river for comfort cooling of offices and groundwater to cool data centers. At these sites the quantity and temperature of the water is important for the efficiency of cooling rather than the water quality. Mechanical chillers could provide cooling instead of using free cooling with water and thus reduce the use of cooling water; however, this would increase energy use, energy costs and energy-related GHG emissions significantly. We estimated that energy and related GHG emissions would increase be 20-30% at these sites, if water was not available anymore for cooling.

Policy or action

Environmental sustainability is an integral part of our strategy. Novartis strives to make efficient use of natural resources including water and to minimize the environmental impacts of its activities and products over their entire life cycle. With this approach to use water for cooling instead of electricity, these sites effectively contribute to the Novartis energy efficiency program and to the related GHG targets. The compromise on the water consumption is rated less important; due to the fact that such cooling methodology is applied in areas where fresh water sources are abundant and slight increase in temperature is marginal.

Linkage or tradeoff

Linkage

Type of linkage/tradeoff

Increased energy efficiency

Description of linkage/tradeoff

Currently 2 sites have installed wastewater treatment technology based on fine-bubble diffused aeration. This technology is more energy efficient and more effective in the decomposition of pollutants. This leads to significant reductions in the emissions of key pollutant parameters (less than 10% of licensed amounts), e.g. Total Suspended Solids, Chemical and Biochemical Oxygen Demand and Total Nitrogen. This technology can be readily retrofitted to other facilities that use an aerobic wastewater treatment process (incorporating activated sludge) and can be scaled in size for multiple plants and various capacities. Additionally this technology offers the potential to reduce discharges of residual APIs to the environment. Many of these substances adsorb onto activated sludge – more of which is now retained in the wastewater treatment plant to be subsequently removed as a solid for incineration.

Policy or action

Environmental sustainability is an integral part of our strategy. Novartis strives to make efficient use of natural resources including water and to minimize the environmental impacts of its activities and products over their entire life cycle. The new technology helps Novartis to achieve both energy and related climate, as well as water footprint targets. Less water to be cleaned and more effective treatment reduces quantity of water for treatment, water effluent related costs, as well as amounts of pollutants remaining of the effluents of treated water.

Linkage or tradeoff

Linkage

Type of linkage/tradeoff

Increased energy efficiency

Description of linkage/tradeoff

Currently six Novartis sites in Europe have implemented projects for the reuse of steam condensate for sanitary utilities. The goal of these projects is to optimize energy consumption, saving energy and reducing the associated cost. Our site in Ljubljana for example has reduced its thermal energy consumption by 1'100 GJ/year, which results in a GHG reduction of 61 tonnes CO₂e/year. By this measure, the fresh water consumption of the site is reduced by 240 m³/year.

Policy or action

Environmental sustainability is an integral part of our strategy. Novartis strives to make efficient use of natural resources including water and to minimize the environmental impacts of its activities and products over their entire life cycle. These projects are to optimize the energy consumption, by reusing steam condensate and thus saving energy and fresh water consumption.

W10. Verification

W10.1

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

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

W11. Sign off

W-FI

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

W11.1

(W11.1) Provide details for the person that has signed off (approved) your CDP water response.

	Job title	Corresponding job category
Row 1	Head of Novartis Business Services	Other C-Suite Officer

W11.2

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

Yes

SW. Supply chain module

SW0.1

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

	Annual revenue
Row 1	49109000000

SW0.2

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

Yes

SW0.2a

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

	ISIN country code	ISIN numeric identifier (including single check digit)
Row 1	CH	0012005267

SW1.1

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

This is confidential

SW1.2

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

No, this is confidential data

SW2.1

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

SW2.2

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

No

SW3.1

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

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

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

Please confirm below

I have read and accept the applicable Terms