

Yara International ASA - Water Security 2019

W0. Introduction

W0.1

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

Yara's knowledge, products and solutions grow farmers', distributors' and industrial customers' businesses profitably and responsibly, while protecting the earth's resources, food and environment.

Our fertilizers, crop nutrition programs and technologies increase yields, improve product quality and reduce the environmental impact of agricultural practices. Our industrial and environmental solutions improve air quality by reducing emissions from industry and transportation, and serve as key ingredients in the production of a wide range of goods. We foster a culture that promotes the safety of our employees, contractors and societies.

Founded in 1905 to solve emerging famine in Europe, today Yara has a worldwide presence, with close to 15,000 employees and sales to about 160 countries.

W-CH0.1a

(W-CH0.1a) Which activities in the chemical sector does your organization engage in?

Bulk inorganic chemicals

W0.2

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

	Start date	End date
Reporting year	January 1 2018	December 31 2018

W0.3

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

- Australia
- Belgium
- Brazil
- Canada
- Colombia
- Finland
- France
- Germany
- India
- Italy
- Netherlands
- Norway
- Sweden
- Trinidad and Tobago

W0.4

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

USD

W0.5

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

Companies, entities or groups over which operational control is exercised

W0.6

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

No

W1. Current state

W1.1

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

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Important	Neutral	Yara manufacturing sites need water for cooling purposes and to a lesser extent to produce raw materials and steam production. Water withdrawal is license based on most sites. Most raw materials are global commodities where availability is less dependent on an individual source.
Sufficient amounts of recycled, brackish and/or produced water available for use	Neutral	Neutral	Yara sites purchase produced water primarily only for drinking water purpose. None of the key supplies are dependent on produced water quality.

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	76-99	Most of Yara's manufacturing facilities have water withdrawal permits by source.
Water withdrawals – volumes from water stressed areas	Not monitored	
Water withdrawals – volumes by source	76-99	Most of Yara's manufacturing facilities have water withdrawal permits by source.
Entrained water associated with your metals & mining sector activities - total volumes [only metals and mining sectors]	<Not Applicable>	<Not Applicable>
Produced water associated with your oil & gas sector activities - total volumes [only oil and gas sector]	<Not Applicable>	<Not Applicable>
Water withdrawals quality	51-75	Most of the sites with a water withdrawal permit also have water quality monitoring requirements in place. However, water quality of withdrawn water is followed up by the local units and it is not reported centrally in the corporate unless there are deviations.
Water discharges – total volumes	76-99	Most of Yara's manufacturing facilities have water discharge permits by destination and by pollutant.
Water discharges – volumes by destination	76-99	Most of Yara's manufacturing facilities have water discharge permits by destination and by pollutant.
Water discharges – volumes by treatment method	76-99	Most of Yara's manufacturing facilities have water discharge permits including requirements for treatment methods.
Water discharge quality – by standard effluent parameters	76-99	Most of Yara's manufacturing facilities have water discharge permits by destination and by wastewater quality parameters.
Water discharge quality – temperature	76-99	Most of Yara's manufacturing facilities have water discharge permits by destination and by wastewater quality parameters.
Water consumption – total volume	76-99	Most of Yara's plants have complex circulation and reuse systems for water streams inside the plant without full record keeping of circulated streams. The majority of the withdrawn water is reused several times. We report the amount of water withdrawn as the amount of water consumed.
Water recycled/reused	1-25	Most of Yara's plants have complex circulation and reuse systems for water streams inside the plant without full record keeping of circulated streams. The majority of the withdrawn water is reused several times. We report the amount of water withdrawn as the amount of water consumed.
The provision of fully-functioning, safely managed WASH services to all workers	76-99	The majority of Yara's facilities provide adequate WASH services for workers.

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	924681563	Higher	This year's figure includes the newly acquired Indian & Brazilian plants.
Total discharges	773881482	Higher	This year's figure includes the newly acquired Indian & Brazilian plants.
Total consumption	924681563	Higher	This year's figure includes the newly acquired Indian & Brazilian plants. Additionally, this figure only represents the amount of water withdrawn and consumed. Most of Yara's plants have complex water circulation and reuse systems in place, thus the actual amount of water included in the processing systems is greater than this. However the plants typically do not have full metrics in place to follow up the water circulation and reuse loops.

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	535158487	Much lower	Yara data collection changed to separate seawater from surface water.
Brackish surface water/Seawater	Relevant	360396126	This is our first year of measurement	Yara data collection changed to separate seawater from surface water. This is the first year that the volume of seawater was reported.
Groundwater – renewable	Relevant	15218476	Much higher	The newly acquired Indian plant's withdrawal accounts for nearly 40% of the total groundwater withdrawn.
Groundwater – non-renewable	Relevant but volume unknown	<Not Applicable>	<Not Applicable>	Yara data collection does not currently separate different groundwater sources, all groundwater is therefore included in the renewable groundwater figure.
Produced/Entrained water	Not relevant	<Not Applicable>	<Not Applicable>	
Third party sources	Relevant	13542806	Higher	This is 100% from municipal supplies.

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	139812037	Higher	Discharge to fresh surface water is relevant as Yara discharge to both lakes and rivers. The discharge is metered (direct measurement) and the increase is due to the acquisition of the Cubatão plants in May 2018. Without the Cubatão plants the discharge volume would have been about the same as the previous reporting year and it is expected that the discharge volume will continue to be about the same as this reporting year.
Brackish surface water/seawater	Relevant	621003892	About the same	Discharge to brackish surface water/seawater is relevant as Yara discharge to seawater. The discharge is metered (direct measurement) and the increase is due to the acquisition of the Cubatão plants in May 2018. Without the Cubatão plants the discharge volume would have been about the same as the previous reporting year and it is expected that the discharge volume will continue to be about the same as this reporting year.
Groundwater	Not relevant	<Not Applicable>	<Not Applicable>	Yara do not discharge to groundwater and therefore this is not relevant.
Third-party destinations	Relevant	13065553	Higher	Discharge to third-party destinations is relevant as Yara discharge to wastewater providers. It does not include water to other organisations for further use. The discharge is metered (direct measurement) and the increase is due to the acquisition of the Babrala plant in January 2018. Without the Babrala plant the discharge volume would have been about the same as the previous reporting year and it is expected that the discharge volume will continue to be about the same as this reporting year.

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	11-25	About the same	Number of Yara plants do have water reuse/recycling systems in use, but some of them do not measure the circulated water streams. Therefore the actual % is higher than the reported figure.

W-CH1.3

(W-CH1.3) Do you calculate water intensity for your activities in the chemical sector?

No, and we have no plans to do so in the next two years

W1.4

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

Yes, our customers or other value chain partners

W1.4c

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

Smarter and more efficient use of water in agriculture is critical to future food security. Agriculture today accounts for about 70% of freshwater withdrawals worldwide.

Through agronomic research, Yara has identified a fundamental and close relationship between crop nutrition and crop water consumption. Our analyses demonstrate that optimum crop nutrition support higher water use efficiency.

We engage with farmers and partners along our value chain to share knowledge and collaborate on projects seeking to sustainably intensify agricultural production. Yara can leverage a competitive advantage in particular in areas where water is a scarce resource, helping the farmers optimizing resources while maintaining yield and quality.

The strategy is executed by building water related solutions into Yara's digital tools and solutions. The Yara Water Solution, including a unique Water-Sensor system, forms part of our Farm Management System offering and enables farmers to irrigate on-demand, typically saving 20–30% of water, without sacrificing yield or quality.

As an example of strategy execution, water quality and irrigation practices is top-of-mind for almond growers in California, a region facing severe and repeated droughts. Yara is working to help the growers improve the water situation by bringing them the Yara Water Solution. The Yara Water-Sensor has been set up at a Californian almond farm for trial and sensor calibration continues. Yara collaborates with the Almond Board of California on sustainability programs and R&D, and has launched the Farm Water Advisor, providing field specific irrigation schedules straight to the farmers' phones.

W2. Business impacts

W2.1

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

Yes

W2.1a

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

W2.2

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

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

W2.2a

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

Row 1

Total number of fines

1

Total value of fines

14000

% of total facilities/operations associated

6

Number of fines compared to previous reporting year

About the same

Comment

Water quality not in compliance with state water quality standards.

W3. Procedures

W-CH3.1

(W-CH3.1) How does your organization identify and classify potential water pollutants associated with its activities in the chemical sector that could have a detrimental impact on water ecosystems or human health?

All major plants are covered by an environmental management system. Therefore they are requested to have a systematic identification process for any environmental aspects and assessment of related impacts in place.

In order to facilitate the reduction of emissions to water and the reduction of water usage, an inventory of waste water streams shall be established and maintained, that incorporates the following features:

- (i) information about the chemical production processes also showing side products;
 - (a) simplified process flow sheets that show the origin of the emissions;
 - (b) descriptions of process-integrated techniques and waste water treatment at source including their performances;
- (ii) information, as comprehensive as is reasonably possible, about the characteristics of the waste water streams, such as:
 - (a) average values and variability of flow, pH, temperature, and conductivity;
 - (b) average concentration and load values of relevant pollutants/parameters and their variability (e.g. COD/TOC, nitrogen species, phosphorus, metals, salts, specific organic compounds);
 - (c) data on bioeliminability.

For relevant emissions to water as identified by the inventory of waste water streams, key process parameters are monitored (including continuous monitoring of waste water flow, pH and temperature) at key locations (e.g. influent to pretreatment and influent to final treatment) with at least the minimum frequency as defined in applicable local legislation.

W-CH3.1a

(W-CH3.1a) Describe how your organization minimizes adverse impacts of potential water pollutants on water ecosystems or human health. Report up to ten potential pollutants associated with your activities in the chemical sector.

Potential water pollutant	Value chain stage	Description of water pollutant and potential impacts	Management procedures	Please explain
Nutrients (Nitrogen and Phosphorus compounds)	Direct operations Product use	Excessive concentrations of certain nitrogen and phosphorus compounds in water can lead to eutrophication	Compliance with effluent quality standards Measures to prevent spillage, leaching, and leakages Providing best practices instructions on product use	Yara is a proponent of nutrient management systems and tools designed to achieve better fertilizer use efficiency in the agricultural sector. Nutrient management means that fertilizer demand is calculated based on soil analysis, yield expectations, desired crop quality and climate. Yara firmly endorse that organic nutrients available at a farm should be used first. Mineral fertilizers should then be added based on the calculated nutrient gap. Nutrient management also contains guidelines for the correct choice of fertilizer products and application methods. The use of precision tools and technology should be encouraged to enable farmers to add just the nutrients needed, in the right amount at the right time, thereby greatly reducing negative environmental impact while optimizing the yield. Indirect operations, relevant effluent quality standards and discharge limits shall be complied with, in accordance with procedures along ISO14001 management system standards.
Oil spillages, chemical leakages.	Direct operations	Some of these chemicals can be linked with toxicity, public health impacts. These can harm aquatic organisms or can be bioaccumulative.	Measures to prevent spillage, leaching, and leakages	Oils or chemicals are not considered as key environmental impacts of fertilizer industry (re EU IED directive), and these are not used in significant amounts in the operations. Therefore no quality standards are introduced for operations or use phase. Incident prevention and risk management programs are in place.
Sulphur containing inorganic compounds (sulphates)	Direct operations	The sulphate ion is one of the major anions occurring in natural waters. It is of importance because of its cathartic effect on humans when it is present in excessive amounts. It is important to control sulphate in the influent of waste water treatment plants because of the potential to create odour (formation of hydrogen sulphide) and corrosion problems in sewers (by oxidation of hydrogen sulphide to sulphuric acid). Freshwater organisms can be harmed by excessive sulphate concentrations.	Compliance with effluent quality standards Measures to prevent spillage, leaching, and leakages Providing best practices instructions on product use	Yara provides tools and solutions to customers to manage H2S and odour problems in sewers. In direct operations, relevant effluent quality standards and discharge limits shall be complied with, in accordance with procedures along ISO14001 management system standards.

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 in an environmental risk assessment

Frequency of assessment

Annually

How far into the future are risks considered?

1 to 3 years

Type of tools and methods used

Enterprise Risk Management
International methodologies
Databases

Tools and methods used

COSO Enterprise Risk Management Framework
ISO 31000 Risk Management Standard
Environmental Impact Assessment
Life Cycle Assessment

Comment

Water risks are assessed as a part of the sites and business units' Enterprise Risk Assessment. In addition water risks are assessed in the sites' Environmental Risk Assessment (ISO14001). For mining operations specific water risks assessments are done, as are done also at some sites when there is a local need identified.

Supply chain

Coverage

Partial

Risk assessment procedure

Water risks are assessed in an environmental risk assessment

Frequency of assessment

Annually

How far into the future are risks considered?

1 to 3 years

Type of tools and methods used

Enterprise Risk Management
International methodologies

Tools and methods used

COSO Enterprise Risk Management Framework
ISO 31000 Risk Management Standard
Environmental Impact Assessment
Life Cycle Assessment
Other, please specify (Fertilizer Europe's "Product Stewardship" standard; IFA's "Protect & Sustain" standard)

Comment

Water risks are assessed as a part of the sites and business units' Enterprise Risk Assessment. In addition water risks are assessed in the sites' Environmental Risk Assessment (ISO14001). For mining operations specific water risks assessments are done, as are done also at some sites when there is a local need identified. The two industry specific standards target responsible production, handling and use of fertilizer products throughout the life cycle, and the majority of Yara's operations are certified to have implemented these standards as applicable.

Other stages of the value chain

Coverage

Partial

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?

1 to 3 years

Type of tools and methods used

Enterprise Risk Management
International methodologies

Tools and methods used

COSO Enterprise Risk Management Framework
ISO 31000 Risk Management Standard
Environmental Impact Assessment
Life Cycle Assessment
Other, please specify (Fertilizer Europe's "Product Stewardship" standard; IFA's "Protect & Sustain" standard)

Comment

Water risks are assessed as a part of the business units' Enterprise Risk Assessment. In addition water risks are assessed in the Business Units' Environmental Risk Assessment (ISO14001), where relevant. Water footprint assessment has been done covering main products and their use as fertilizer. The two industry specific standards target responsible production, handling and use of fertilizer products throughout the life cycle, and the majority of Yara's operations are certified to have implemented these standards as applicable.

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	It is included in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant, according to ISO14001 analysis of significant environmental aspects and impacts.
Water quality at a basin/catchment level	Relevant, always included	It is included in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant, according to ISO14001 analysis of significant environmental aspects and impacts..
Stakeholder conflicts concerning water resources at a basin/catchment level	Relevant, always included	It is included in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant, according to ISO14001 analysis of significant environmental aspects and impacts.
Implications of water on your key commodities/raw materials	Not relevant, explanation provided	Water consumption in the upstream supply chain has not been considered as a material sustainability aspect. According to the calculated Fertilizer Water Footprint, use of water in farming is the most significant phase in the product lifecycle.
Water-related regulatory frameworks	Relevant, always included	It is included in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant, according to ISO14001 analysis of significant environmental aspects and impacts.
Status of ecosystems and habitats	Relevant, always included	It is included in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant, according to ISO14001 analysis of significant environmental aspects and impacts.
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	It is included in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant, according to ISO14001 analysis of significant environmental aspects and impacts.
Other contextual issues, please specify	Relevant, sometimes included	Estimates of future implications of water on key customers' / downstream users activities is assessed in the environmental impact assessment and enterprise risk assessment in markets where regarded relevant, according to ISO14001 analysis of significant environmental aspects and impacts.

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, sometimes included	Estimates of future implications of water on key customers' / downstream users activities is assessed in the environmental impact assessment and enterprise risk assessment in markets where regarded relevant. According to the water footprint assessment, use of water in the use phase of fertilizers is the major contributor to the WFP of fertilizers.
Employees	Relevant, always included	These are identified as stakeholders in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant, according to ISO14001 analysis of significant environmental aspects and impacts.
Investors	Relevant, sometimes included	Investors expectations are considered in specific cases, for example in business transactions and related due diligence or in financing considerations.
Local communities	Relevant, always included	These are identified as stakeholders in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant, according to ISO14001 analysis of significant environmental aspects and impacts.
NGOs	Relevant, sometimes included	These are identified as stakeholders in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant, according to ISO14001 analysis of significant environmental aspects and impacts.
Other water users at a basin/catchment level	Relevant, sometimes included	These are identified as stakeholders in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant.
Regulators	Relevant, always included	These are identified as stakeholders in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant.
River basin management authorities	Relevant, always included	These are identified as stakeholders in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant, according to ISO14001 analysis of significant environmental aspects and impacts.
Statutory special interest groups at a local level	Relevant, sometimes included	These are identified as stakeholders in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant.
Suppliers	Not relevant, explanation provided	Water consumption in the upstream supply chain has not been considered as a material sustainability aspect. According to the calculated Fertilizer Water Footprint, use of water in the upstream supply chain is a minor contributor of WFP of the product lifecycle.
Water utilities at a local level	Relevant, sometimes included	These are identified as stakeholders in the sites' environmental impact assessment and in the enterprise risk assessment when regarded relevant , according to ISO14001 analysis of significant environmental aspects and impacts.
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.

Process for identifying and assessing water-related risks

Yara's Enterprise Risk Management (ERM) framework is based on the COSO II ERM Framework and the ISO 31000:2018. Internal steering documents describe roles, responsibilities and processes.

Propose risk appetite statements: The Board of Directors (BoD) shall define Yara's risk appetite annually. CEO is responsible for proposing the level of risk appetite relevant for key strategic, operational, financial, compliance and HESQ related risks to BoD.

Annual risk ID and assessment, country and plant level: Country and plant managers are responsible for the annual risk evaluation which aims to identify and assess key risks. Their risk pictures and risk mitigation plans are reported to the relevant business unit (BU) managers.

Annual risk ID and assessment, BU level: At the level below Country and plant managers, the Business Unit (BU) managers as well as process owners and expert functions are responsible for the annual risk evaluation which aims to identify and assess key risks. The BU risk pictures and risk mitigation plans are reported to the relevant segment managers.

Annual risk ID and assessment, segment level: The segment managers are responsible for the annual risk evaluation which aims to identify and assess key risks. The segment risk pictures and risk mitigation plans are reported to the CFO and Risk manager who will update Yara Executive Management along with escalated risks coming out from the process.

Annual risk ID and assessment, Yara level: Based on the segment risk pictures and escalated risks, the CEO is responsible for the annual Yara level risk evaluation which aims to identify and assess key risks. Yara's aggregated risk pictures and risk mitigation plans are reported to the Board of Directors.

Quarterly update of risk picture and follow up of risk treatment plans: Quarterly the managers on BU and segment level are responsible to update the risk picture and report on progress.

W4. Risks and opportunities

W4.1

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

No

W4.1a

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

Yara's ERM system defines risks according to financial impact brackets. The two major risk categories are defined as USD 125 million and above, e.g. as direct operational costs, loss of revenues or other. The risks are considered across all Yara's operations.

W4.2b

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

	Primary reason	Please explain
Row 1	Risks exist, but no substantive impact anticipated	Water related risks were not identified as being at a material level in the corporate materiality analysis or in the Enterprise Risk Management process. The site-level risks are managed at the sites and reported through to segment management. Certain sites have specific, water related measures in place to counter such risks. Examples include an innovative dry process for mining processing (Angico mine, Galvani JV, Brazil) and pooling of rainwater (Belle Plaine, Canada). In addition, water related mapping is initiated on a regular basis from the corporate level to maintain vigilance and internal transparency on changes in the materiality of the water topic.

W4.2c

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

	Primary reason	Please explain
Row 1	Risks exist, but no substantive impact anticipated	Yara's main market is the agricultural sector, which is inherently water sensitive. Market risks include drought and flooding, both with a potential to strongly influence the economy of the farmers, being the main consumers of Yara's products. While such exposure may carry risk in certain markets, Yara's global presence with sales to about 160 countries is a significant offset of such risks. Crop failure in one market is also likely to increase demand from other markets, creating a natural hedge for risks.

W4.3

(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes, we have identified opportunities, and some/all are being realized

W4.3a

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

Type of opportunity

Efficiency

Primary water-related opportunity

Other, please specify (Water efficiency solutions at farm level)

Company-specific description & strategy to realize opportunity

Through agronomic research, Yara has identified a fundamental and close relationship between crop nutrition and crop water consumption. Our analyses demonstrate that optimum crop nutrition support higher water use efficiency. We engage with farmers and partners along our value chain to share knowledge and collaborate on projects seeking to sustainably intensify agricultural production. Yara can leverage a competitive advantage in particular in areas where water is a scarce resource, helping the farmers optimizing resources while maintaining yield and quality. The strategy is executed by building water related solutions into Yara's digital tools and solutions. The Yara Water Solution, including a unique Water-Sensor system, enables farmers to irrigate on-demand, typically saving 20–30% of water, without sacrificing yield or quality. Example Water and irrigation is top-of-mind for almond growers in California, a region exposed to droughts. Yara has field-tested our solution and worked to identify the operational challenges for farmers. This enables Yara to further develop our commercial offering, which now includes field specific irrigation schedules on the farmer's phone. Based on data, including field-specific weather, soil and irrigation system information, the solution recommends the best schedule for maximum yield and to avoid over-irrigation and leaching. Sensor calibration work to improve performance on Almonds continues in parallel.

Estimated timeframe for realization

1 to 3 years

Magnitude of potential financial impact

Low-medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

11000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact

The figure is a calculated potential for revenues three years post strategy execution. The calculation is based on a) number of plots and acreage for relevant crops using fertigation systems (i.e. irrigation with water soluble fertilizers) in select markets, where water is a key farming sensitivity; b) percentage wise penetration in these markets for Yara Water Solutions; and c) combined sales of hardware, software license and the relevant fertilizer products. The mid- to long term business case is as much connected to building a permanent platform for Yara connectivity to farmers, and to water being one integrated factor in total digital solutions service deliveries.

Type of opportunity

Products and services

Primary water-related opportunity

Increased sales of existing products/services

Company-specific description & strategy to realize opportunity

Managing odor control in municipal wastewater processes: In wastewater treatment plants, there is a risk of formation of the foul-smelling, poisonous and highly corrosive gas H₂S. The gas is the result of anaerobic conditions, which cause bacterial production of hydrogen sulphide (H₂S) and mercaptans, both of which are toxic and bad smelling gases. Yara has a solution called Nutriox, tackling the problem at its root. Nutriox offers a technology to safely and effectively prevent and eliminate the formation of toxic H₂S and mercaptans. At the same time, Nutriox avoids overdosing by dynamically adjusting the quantities needed. Increased focus on environmental and workplace safety regulations will drive increases in the demand for solutions on H₂S. The European Union is about to recognize H₂S as a dangerous substance in the workplace and to set recommendations for limits of exposure for workers. Working in locations like pumping stations or inlet works, as well as on the wastewater plant itself is safer if septicity is prevented. Through two strategic company acquisitions, Yara's strategy to grow this business is to merge our core knowledge with the competence of the two companies. This enables Yara to expand into new markets and also to create new benefits for customers by combining water conditioning and air treatment. Combinations can improve the overall performance and optimize costs for the customer.

Estimated timeframe for realization

4 to 6 years

Magnitude of potential financial impact

Low-medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact

Financial impact is calculated, but is not disclosed.

W6. Governance

W6.1

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

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

W6.1a

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

Row	Scope	Content	Please explain
Row 1	Company-wide	Description of business impact on water Description of water-related performance standards for direct operations Reference to international standards and widely-recognized water initiatives Commitment to align with public policy initiatives, such as the SDGs Commitment to water-related innovation Commitment to stakeholder awareness and education Commitment to water stewardship and/or collective action	Yara's main document is the HESQ Policy, describing Yara's aspirations to high performance throughout HESQ topics which also includes water. This document is supplemented by the Code of Conduct, describing our adherence to internationally recognized standards; the (internal and non-disclosed) operational standards which are more specific on safeguards in key business processes; and the GRI report covering also CEO Water Mandate disclosures, which is released annually. Code of Conduct Jan2019.pdf HESQ Policy Feb2017.pdf CEO Water Mandate Report Aug2018.pdf

W6.2

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

Yes

W6.2a

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

Position of individual	Please explain
Chief Executive Officer (CEO)	As the main owner of the Enterprise Risk Management process, the CEO presents risk updates to the Board of Directors. The Board is updated on a regular basis on HESQ performance and risks.

W6.2b

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

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - some meetings	Monitoring implementation and performance Overseeing acquisitions and divestiture Overseeing major capital expenditures Reviewing and guiding business plans Reviewing and guiding risk management policies Reviewing and guiding strategy Reviewing innovation/R&D priorities	As part of the Capital Value Process, Yara performs an environmental due diligence process for major acquisition and other investment decisions. This includes impacts on soil, water and air, and it covers also green- or brownfield expansions or similar major investments. Through the strategic outlook and long term strategy update cycles, as well as in the ERM process, the water aspect is covered. The Yara Water Solution program and its integration into commercial offerings is subject to ongoing investment into R&D activities, such as calibrating sensor tools and algorithms for additional crops and geographies as well as integration into complete solutions delivery systems adapted to customers' needs. Environmental provisions, major incidents and environmental contingencies are regularly followed up by the board.

W6.3

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

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

Other C-Suite Officer, please specify (EVP Production segment)

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

Yara's water use and emissions to water occur in our production facilities, organized in the Production segment. Identifying, managing and reporting on water related risks are the responsibilities of the Production segment, headed by the EVP Production.

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

Other C-Suite Officer, please specify (EVP Yara Sales and Marketing segment)

Responsibility

Both assessing and managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

Annually

Please explain

Yara finds that our opportunities to develop solutions related to water are related to the link between efficient crop nutrition and crop water use efficiency. The Yara Water Solution, providing farmers water use efficiency solutions, is a clear example in the Yara Sales and Marketing segment.

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

Other C-Suite Officer, please specify (EVP New Business segment)

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

Yara's New Business segment holds responsibility for developing new business opportunities. New Business incorporates a successful Business Unit Environmental Solutions, which sells chemicals and solutions for water treatment plants, including H2S control for wastewater treatment plants.

W-FB6.4/W-CH6.4/W-EU6.4/W-OG6.4/W-MM6.4

(W-FB6.4/W-CH6.4/W-EU6.4/W-OG6.4/W-MM6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

No, and we do not plan to introduce them in the next two years

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?

Any Yara lobbying is subject to approval by senior executive management. Yara abstains from political contributions. Company performance and adherence to high standards, including the HESQ Policy and the Code of Conduct, are subject to a whistleblower program where internal as well as external stakeholders can submit information about any perceived misconduct.

W6.6

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

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

yara-annual-report-2018-web.pdf

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	No, water-related issues were reviewed but not considered as strategically relevant/significant	5-10	Water management with our customers' operations are part of the existing business offering, and will be continuously developed. The materiality is however not significant enough to provide for dedicated strategic goals at the corporate level.
Strategy for achieving long-term objectives	No, water-related issues were reviewed but not considered as strategically relevant/significant	5-10	Water management with our customers' operations are part of the existing business offering, and will be continuously developed. The materiality is however not significant enough to provide for dedicated strategic goals at the corporate level.
Financial planning	No, water-related issues were not reviewed and there are no plans to do so	<Not Applicable>	Financial planning do not cover topics which are not considered to be of material significance for the company.

W7.2

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

Row 1

Water-related CAPEX (+/- % change)

0

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

0

Water-related OPEX (+/- % change)

0

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

0

Please explain

Yara's CAPE and OPEX accounting is not set up for reporting on sub-topics within environmental impacts, and is not expected to do so outside of the topics which are not seen as materially important.

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	Yara is investigating options to define science based targets on climate, which is an exercise that will incorporate climate scenarios.

W7.4

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

Row 1

Does your company use an internal price on water?

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

Please explain

Water is not seen as a material topic at the corporate level, and as such is not eligible for consideration of an internal pricing mechanism.

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	Activity level specific targets and/or goals Site/facility specific targets and/or goals	None are monitored at corporate level	Development of water related risks are followed up systematically. However, while specific sites need water related measures to fulfill targets related to water, e.g. subsequently to EIA assessments, such targets are not mapped and reported on at the corporate level due to water not being seen as a materially significant topic.

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

Linkage

Type of linkage/tradeoff

Other, please specify (Water and land use in farming)

Description of linkage/tradeoff

Through agronomic research, Yara has identified a fundamental and close relationship between crop nutrition and crop water consumption. Our analyses demonstrate that optimum crop nutrition support higher water use efficiency. At the same time, applying nutrients to maintain soil fertility (either as mineral nutrients or organic sources) carries a risk of leaching or run-off into waterways. This can cause eutrophication. Without nutrients, productivity levels decline and more land is needed to produce food for the growing global population. So there is a linkage between crop nutrients and water efficiency, a potential tradeoff between crop nutrients and water quality, and a clear linkage between crop nutrients and land use efficiency and land use change (deforestation) with consequent high climate impacts.

Policy or action

Our policy Yara's aim is to increase productivity and maximize farm profitability, while minimizing environmental harm, based on scientific knowledge and improved management practices. Yara's mantra in fertilizer application is to add the specific nutrients needed for the crop, in exactly the right amount, at the right time. A key concern is that too much nutrient – more than the plants can take up – is wasting money and harming nature. Our actions We offer our comprehensive knowledge to farmers, which is tailored to local growing conditions and specific crops, supported by tools for precision farming to maximize crop yield and quality whilst avoiding over-fertilization, and protecting the environment. The tools include: The YaraLix system, a tool for precision farming that allows farmers to measure crop Nitrogen requirements using their smartphones. The N-Sensor is a tractor-mounted tool that measures a crop's nitrogen requirement as it passes across the field, varying the fertilizer rate accordingly. It ensures that the optimal rate of fertilizer is applied at each part of the field. The N-Tester is a hand-held device that measures the nitrogen status of a crop from the chlorophyll content of its leaves. Based on the measurements, an agronomist can evaluate the nitrogen needed to meet target yields. Yara also offers a range of analytical services, such as the Megalab an internet-based, secure system offering agricultural analysis.

W10. Verification

W10.1

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

Yes

W10.1a

(W10.1a) Which data points within your CDP disclosure have been verified, and which standards were used?

Disclosure module	Data verified	Verification standard	Please explain
W1. Current state	W1.2, W1.2b, W1.2h, W1.2i, W1.2j, W1.4, W1.4c	ISAE3000	The reporting scope and data source is same as in Yara's GRI report. Data verified by Deloitte in GRI report verification.
W2. Business impacts	W2.1, W2.2, W2.2a	ISAE3000	The reporting scope and data source is same as in Yara's GRI report. Data verified by Deloitte in GRI report verification.
W3. Procedures	W-CH3.1, W-CH3.1a, W3.3, W3.3a, W3.3b, W3.3c, W3.3d	ISAE3000	The reporting scope and data source is same as in Yara's GRI report. Data verified by Deloitte in GRI report verification.

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	Director, Head of Sustainability Management	Other, please specify (Director level, Strategy team)

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	13054000000

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	NO	0010208051

SW1.1

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

No facilities were reported in W5.1

SW1.2

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

No, we do not have this data and have no plans to collect it

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