Knowledge grows

CEO Water Mandate report 2014:

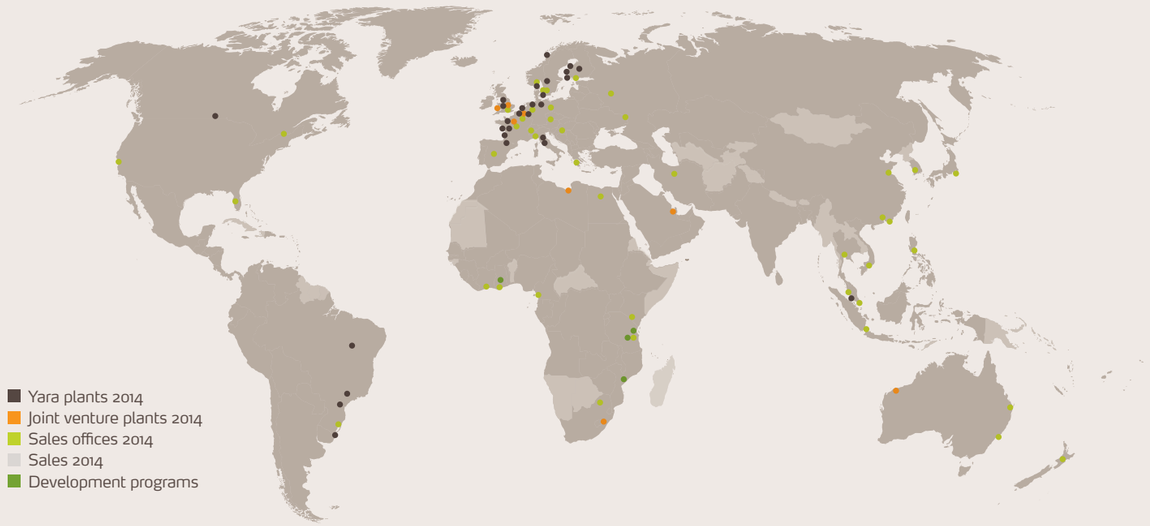
Communication on progress

About this Report

In July 2014, Yara announced that it had opted to become a ‘CEO Water Mandate’ signatory. Launched in July 2007 by the UN Secretary-General, the CEO Water Mandate is a unique public-private initiative designed to assist companies in the development, implementation, and disclosure of water sustainability policies and practices.

Established by the UN Global Compact, the initiative was created out of the acknowledgement that global water challenges create risk for the private sector, public sector, local communities, and the environment alike.

This report has been assembled from Yara’s annual reports and other sources.



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Who We Are

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

Our fertilizers, crop nutrition programs and technologies increase yields, improve product quality, and reduce environmental impact from agricultural practices.

Our industrial and environmental solutions reduce emissions and improve air quality from industry and transportation, and serve as key ingredients in the production of a wide range of goods.

Founded in 1905 to solve emerging famine in Europe, Yara today has a global presence with more than 12,000 employees and sales to more than 150 countries.

Yara's Approach

Agriculture today uses 11% of the world's land surface, but accounts for 70% of the water withdrawals worldwide. On more or less the same land area, by 2050, world agriculture will need to produce 60% more food globally. If current water consumption patterns continue, 2/3 of the world's population will live in water-stressed countries by 2025. By 2050, demand in water will increase by 55%. These trends indicate that water-wise agriculture is key to meet future food demand without compromising freshwater resources.

Irrigated agriculture currently accounts for 20% of the total cultivated land, but contributes 40% of the global food production. So while irrigated agriculture is 2-3 times as productive as rainfed agriculture, its impact on water resources is much larger. Some of the increased food supply might have to come from further expansion of irrigated land, but most of it could be obtained through more resource efficient irrigation technology and improved agricultural practices. Water use efficiency in both irrigated and rainfed agriculture has to improve, and crop nutrition plays an important role in achieving this.

In the debate about sustainable agricultural water use, attention is mainly focused on issues such as irrigation technology, water retention of the soil and drought tolerant varieties. In addition, Yara sees a potential in exploring new knowledge and innovative technologies to advance crop water use efficiency through optimized crop nutrition.

There is a fundamental and close relationship between crop nutrition and crop water consumption. If crops are not optimally fertilized, more water is needed for every kilo of final product. Proper crop nutrition management can substantially improve agronomic water use efficiency.

Yara's on-going research demonstrates positive effects of crop nutrition on water use efficiency (WUE). Nutrient supply increases agronomic water use efficiency, as a consequence of reduced soil evaporation and drainage losses and increases in the harvestable portion of the plant's biomass.

Yara is dedicated to resource efficiency and environmental stewardship in its own operations. Yara provides knowledge, products and solutions for sustainable agriculture. With regards to water, Yara develops knowledge, products and tools to support improved water use efficiency and nutrient use efficiency in agriculture

While fertilizers are fundamental to feeding the global population, there are also potentially detrimental impacts on the environment from using organic or mineral fertilizers.

It is of great importance to use fertilizers correctly. Wrong application could cause growth in unwanted areas, for example, leakage of nutrients into rivers and sea can cause algae bloom. There are several examples of incorrect fertilizer application, mainly related to the wrong amount, the wrong nutrients, or at the wrong time.

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 believes 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.

Yara is through its HESQ Policy dedicated to excellence in its company performance on health, safety, environment and quality, which also implies minimizing emissions to water. While the release of fertilizer from Yara's own operations is at a very low level, losses of fertilizers to the environment is a challenge in the agricultural sector. Yara engages to promote increased productivity and reduced environmental impact from fertilizer use

Based on these perspectives, Yara believes that engaging downstream of its own business, towards the agricultural sector, provides the most substantial opportunities for improvement. Hence our reporting and activities are focused on value chain engagement.

Direct Operations

Yara carefully manages its direct use of and emissions to water. Water is used in Yara's production primarily for cooling purposes, and to a lesser extent, steam production and manufacturing processes.

Water Use for Production

Yara used totally 594 million m^3 of water in 2014 in its production. This covers all Yara's major production sites (22 large volume chemical sites included in the 2014 reporting).

The majority of the water used (97%) was surface water, including water from wetlands, rivers, lakes and oceans. The rest was split equally between ground water and water purchased from municipal water supplies or other water utilities (8 million m^3 each). Water is used in Yara's production primarily for cooling purposes, and to a lesser extent, steam production and manufacturing processes. Thus, nearly all of the water withdrawn by Yara is returned to the water course unpolluted.

Most of the Yara sites have certified environmental management systems in place. 18 sites out of 23 are currently ISO14001 certified, with processes due for the remaining sites. Each certified site has assessed risks related both to the use of water as well as discharges to water as a part of their environmental impact assessment. In addition, six sites have carried out specific water risk assessment for their operations covering risks related to flooding, drought, use of water and discharges to water.

Water recycling corresponded to 11% of fresh water withdrawal (73 million m^3). No water sources are significantly affected by Yara's withdrawal of water.

The Yara site in Ravenna, Italy, has identified the potential flooding of the Candiano Canal to represent a risk to the site. High canal water level is now covered by the site's emergency procedure to prevent nutrient leakages in case of flooding.

Water management related to mining operations has currently triggered significant public interest in Finland. Yara's Siilinjärvi apatite mine assessed water management in detail as a part of the national Mining Stress Test program, conducted by the Ministry of Environment. The assessment included safety of dam constructions, tailings dams and water lagoons, potential leakage risks of harmful substances, water balance scenarios for example in a case of extraordinary precipitation, and finally emergency preparedness and communication practices.

Improvement need related to sanitary systems was identified in two sites, both of which are in the process of being rectified.

Risks related to rivers providing the main water supply have been assessed in Köping, Sweden, and Rostock, Germany, where the River Warnow is also the source for drinking water of the Rostock city.

Company commitment:

"We will promote sustainable agriculture and deliver environmental solutions contributing to global growth while addressing food security, resource efficiency and environmental protection. We will emphasize energy efficient operations and reduce emissions and environmental impact of our processes and products."

Water Conservation and Waste Water Treatment

Yara's environmental policy was updated in 2014, also reflecting the life cycle aspects of fertilizers.

For Yara's own production plants, this implies continuous focus to reduce emissions, set targets and initiate actions to improve environmental performance. Compliance with statutory requirements, permits and corporate standards is a minimum expectation for any operation.

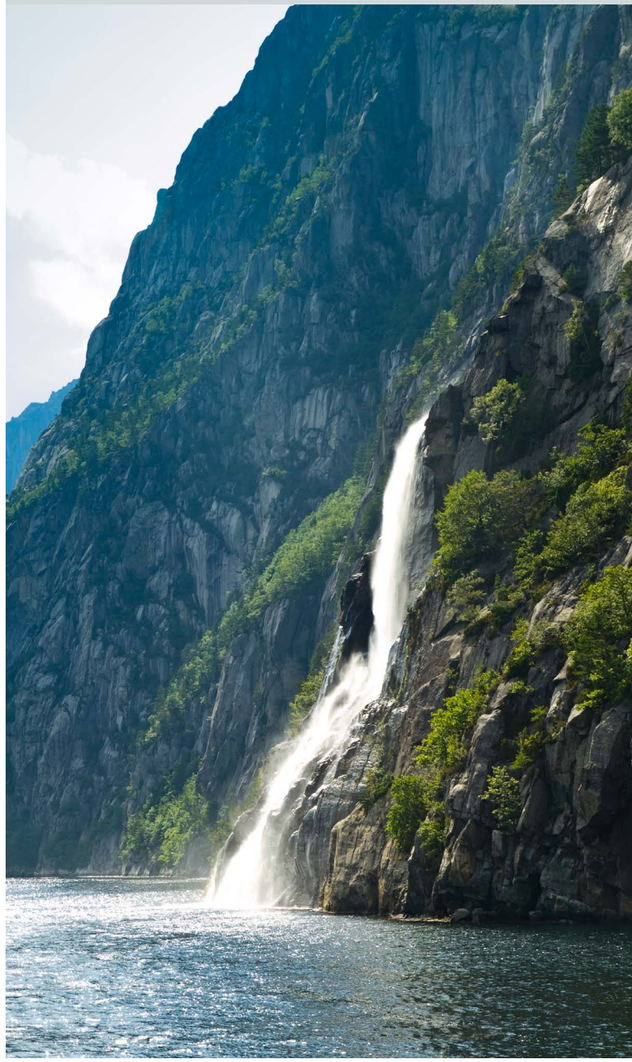
Emissions to water in Yara are measured, analyzed and registered according to national regulations. The main impact into water caused by nitrogen and phosphorus emissions is eutrophication. Thus, the water and air emission data is combined to characterize their eutrophication potential, measured in tons of PO_4-equivalent.

Yara's emissions impacting eutrophication totaled 3,560 tons of PO_4-equivalent in 2014. The total volume of water discharge was 762 million m3 in 2014. A large part of this is returned unpolluted cooling water. 86% of the water volume is discharged into the sea, 4% into rivers and 10% into lake.

Recently several Yara plants have taken actions to separate their waste water streams more efficiently and to prevent spillages and accidental discharges. Yara's plant in Le Havre, France, has isolated an area with earlier contamination and equipped the ponds with pumps to drain polluted water for treatment. Yara's sites in Porsgrunn and Glomfjord, Norway; Köping, Sweden and Uusikaupunki, Finland have all invested in improving their waste water treatment systems with the goal of reducing nutrient discharges to water.

The Yara plant in Rostock, Germany, discharges its waste water to a small river, the Mühlbach. Actions are ongoing with the local authorities to clarify the water status of the river by detailed data sampling, and to protect and enhance the water quality with the aim of achieving good status. As a first step, Yara Rostock has contributed to this by increasing the basin capacity for rainwater prior to biological treatment to reduce nitrogen emissions to the river. Thus the lowest discharge of nitrogen in the history of the plant has been reached.

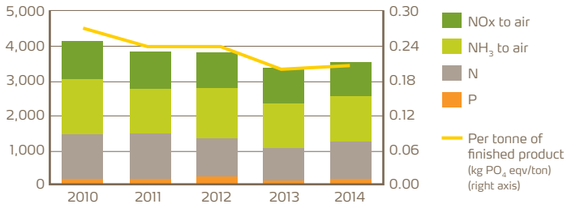
Yara commits to have all of its current major production sites certified according to the environmental management standard ISO14001 no later than 2017. This includes assessing risks related to both the use of water as well as discharges to water, as a part of the environmental impact assessment.



New Technology

Treatment of waste water where nitrogen is present in low concentrations is a rising challenge for fertilizer plants. Testing of novel waste water treatment technologies and investigating their feasibility is currently ongoing e.g. in Yara's plants in Tertre, Belgium; Le Havre, France; Sluiskil, the Netherlands and Siilinjärvi, Finland, each facing their specific challenge with the water quality.

Emissions contributing to euthrophication



Yara's site in Uusikaupunki, Finland, has invented solutions to prevent phosphorus leakage from a gypsum pile to the sea. The outcome is being monitored, while the site is also doing development efforts to find the best techniques to treat the gypsum pile.

Algae Project in Sluiskil

In March 2015, Yara's plant in Sluiskil, Netherlands, opened a novel sustainability project, doing algae-based water treatment.

On a yearly basis, Yara Sluiskil draws about 3.5 million cubic meter (cbm) of water from the adjacent Gent-Terneuzen canal. About 85% of that water is used for the manufacturing of liquid end-products. The remaining 15% is discharged back into the canal as wastewater, part of it treated (200,000 cbm), another part untreated (300,000 cbm).

The project will run a two-year trial to treat wastewater with algae on an industrial scale. The algae extract nutrient loads from the currently untreated wastewater, which contains mostly nitrogen. The biomass produced in this way could be used as a bio-fertilizer, or can supply pigments, oil, or sugars. The project is financed in part by Yara and other private partners, and also receives local subsidies promoting innovation and green growth initiatives.

Raising Awareness

Yara's activities are guided by the principles of Product Stewardship, outlined by Fertilizers Europe and the International Fertilizer Industry Association (IFA). Based on a commitment to promote sustainability and safe practices throughout the life cycle of fertilizers, the principles ensure that proper care is taken along the entire value chain, from product development and sourcing of raw materials, through production, storage and distribution, to sales, delivery and application. Assessments of health, safety, environmental and security impacts of products and services cover all life cycle stages.

All Yara's operations in Europe are in full compliance with the requirements of the Fertilizers Europe Product Stewardship Program. Outside Europe, Yara is implementing the IFA Protect & Sustain product stewardship program on a country by country basis. Yara has contributed to the development of this program. In three years, seven non-European Yara units have already received the IFA Protect & Sustain certificate, five of them reaching the highest "Excellence" level. The whole Business Unit in North America, a large part of Yara's business in Brazil and Latin America, as well as an increasing share of Yara's business in Asia and Africa are covered. Remaining units will follow suit, as Yara aims to have all operations outside Europe certified to the program.

Water Sustainability Incorporated in Decision-Making

Yara prepares an environmental impact assessment for any new major operation or extension. As a part of this, potential damage to nature or impact to natural resources are evaluated, and necessary prevention, management and remediation measures are considered.

Such assessments have been made recently, for example, in Siilinjärvi, Finland, for the enlargement of the apatite mine area, as well as at other sites where start-up of mining activities are under consideration.

Value Chain Engagement

Yara is committed to promoting sustainability and safe practices throughout the life cycle of fertilizers. Assessment of health, safety, environmental and security impacts of products and services covers all life cycle stages.

Yara, as the world's leading producer of mineral fertilizers, is a key player in promoting and facilitating sustainable agriculture. Yara has developed extensive agronomic knowledge that it shares with farmers, helping them to boost their yields while contributing to sustainable agriculture. We have a systematic approach to monitoring and reviewing the quality and handling of all our products, ensuring that proper care is taken along the entire value chain.

Yara has calculated the water footprint of plant nutrition, also quantifying effects of crop nutrition management on potential freshwater pollution. Agronomic research has been performed to quantify the effects of crop nutrition on water use efficiency. Results show that nutrient supply should be adapted to the availability of water in order to maximize crop water productivity.

Nitrogen (N) and potash (K) nutrition have a particularly positive impact, with also the form of N supplied being significant, as nitrates perform better in particular under water-stressed conditions.

Fertigation systems, in which nutrients are mixed into the irrigation water, provide the most precise and staged application of nutrients delivering both the highest water and nutrient use efficiency. Yara has a wide range of fertigation and liquid fertilizers to meet any crop situation. Our full range of essential nutrients can be used in drip irrigation, sprinkler systems or pivot agriculture.

Yara has also dedicated resources to develop supporting tools for improved precision in farm management: the handheld N-Tester and the tractor mountable N-Sensor to measure instantaneous nitrogen demand of the crop, and the innovative crop water sensor technology ZIM probe, which measures the crop water stress level and hence water demand, allowing the farmer to optimize water supply to site-specific water demand.

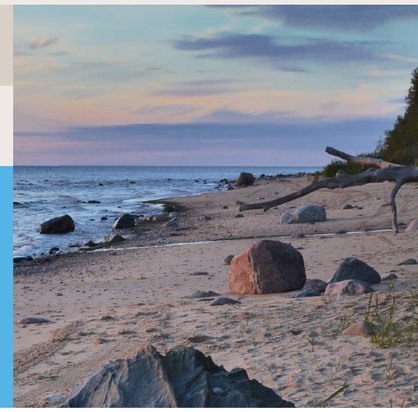
Baltic Sea Engagement

Yara drives innovation to reduce phosphorous leakage and engages in dialogue to promote best farming practice for a cleaner Baltic Sea, by increasing agricultural productivity.

Around 90 million people live in the Baltic Sea area and are affected by its poor ecological status. Today the Baltic Sea is considered to be one of the most polluted seas in the world. Agriculture is one part of a complex set of challenges.

Yara has introduced the innovative P-trap, substantially reducing the phosphorous (P) discharges from P-rich soils through gypsum treatment (photo).

Entering an alliance with the EU flagship project Baltic Deal's network of demo farms, Yara shares and promotes its knowledge. Yara is contributing at field days and conferences, not least by lending Yara N-Sensor for demos. Yara has also arranged a cross-border conference with key farmers and other stakeholders.



Collective Action, Public Policy and Community Engagement

Taking a clear stance on water, Yara has published a position paper outlining its main knowledge and views on the global challenge of freshwater availability. More specifically, Yara has also published position papers on both the EU Common Agricultural Policy reform and the company's Baltic Sea engagement, promoting how agriculture can be both productive and environmentally sound.

The topic of water use efficiency is taken into account in a number of partnerships and collaborative initiatives where Yara is involved. Besides developing supporting technology and knowledge on how to improve water use efficiency in farming, Yara works broadly to seek implementation of this knowledge.

Over a period of several years, Yara has been one of the drivers of a multi-sector partnership analyzing the sustainability impacts of modernizing agricultural practices: The Environment and Climate Compatible Agriculture project (ECCAg) is a partnership between Yara and Syngenta under the New Vision for Agriculture (NVA), launched in 2010.

The two companies have worked closely with the Sokoine University of Agriculture (Tanzania) and the Norwegian University of Life Sciences as academic partners. The aim was to test whether intensification of agriculture through improved agronomic protocols can be compatible with environmental sustainability – while also improving the productivity and profitability at farm level. The study took place over four seasons (2011-14) on ten field trials in the Southern Agricultural Growth Corridor of Tanzania.

The project analyzed both food security, economic opportunity and environmental impacts. For the environmental dimension, four indicators were measured: greenhouse gas emissions, water footprint, soil quality and biodiversity.

The water footprint analysis typically provided a lower water footprint per kilo of maize from the modernized, best farming practice protocols provided by the partners, with about 30% reduction.

Growing Pressure on Land, Water Resources

Oslo Water Initiative: Hans Goossens, New Business Director, explains why Yara develops technology solutions and do acquisitions as part of its business strategy in support of agricultural sustainability.

Yara engages to promote our knowledge and solutions, as well as to argue the case for improved productivity. Yara was represented at the World Water Week in Stockholm, August 2014. Also, Yara's Hans Goossens had a speaking slot at the Oslo Water Initiative in October 2014, an event arranged by Global Compact Nordic Network, The CEO Water Mandate, the Confederation of Norwegian Business and Industry (NHO) and Norwegian Church Aid.

Similarly, Yara has on several occasions been represented at high level forums on the challenges in the Baltic region, voicing our support for productive yet low-impact farming. Yara's CEO has twice delivered clear company commitments at the Baltic Sea Action Summit, pledging to work with the farming community to share knowledge and demonstrate technology and solutions.

Public-Private Coffee Partnership

In 2010, Yara decided to engage in the Vietnamese Coffee task force. The task force was established following a regional WEF meeting in June 2010.

The partners include other multinational companies, NGOs and support from the Ministry of Agriculture. The aim is to promote sustainable coffee production – putting the smallholder farmer at the center.

Prevailing farmers' practices involve both extensive irrigation and over-supply of fertilizer. Based on Yara's knowledge, farmers are advised to use our nitrate-based NPK instead of fertilizers based on urea and ammonia sulfate. This has helped increase both yields and profitability, while reducing the carbon footprint.

Through improved farming practices and balanced crop nutrition, the water footprint has been reduced by up to 40%.

Transparency

Yara reports according to the GRI framework, and its full reporting is available online:

http://yara.com/sustainability/reporting/gri_reporting

Yara's commitment to the CEO Water Mandate has been confirmed in its Financial Report 2014, in the report from the Board of Directors.

Yara Grows Knowledge to nurture life by delivering solutions for sustainable agriculture and the environment. Our fertilizers and crop nutrition programs help produce the food required for a growing world population. Our industrial products and solutions reduce emissions; improve air quality and support safe and efficient operations.

Yara International ASA
Drammensveien 131
N-0277 Oslo
Norway
Tel: +47 24 15 70 00
Fax: +47 24 15 70 01

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