



Roche Position¹ on Water

Background

Water is the basis of all life. Water covers much of the Earth's surface, although only about 3% of this is fresh water while the bulk is salt water. Only a small proportion of fresh water is available as drinking water, while the majority is locked in the polar ice caps and glaciers.

The Earth's drinking water reserves are limited and very unevenly distributed. As a result, many people are currently living in regions where clean water is scarce. Access to clean drinking water and the availability of water for food and feed production are basic preconditions for development.

Stakeholders' Expectations and Concerns

Parts of the world are facing a true water crisis. Because of an ever-expanding population, political conflicts, the continued widespread negligent use of water (in particular in agriculture), insufficient water re-use, and the effects of climate change, the impact of inadequate water supplies will be a significant issue in the years to come. Government awareness of this predicament continues to increase even in countries not directly affected, with mitigation measures being identified in an effort to reduce the global impact. In 2010, the United Nations General Assembly approved a resolution to make access to water a human right.

Roche Position

The production of pharmaceuticals and diagnostic products is not possible without high-quality clean water in sufficient volumes. Inadequate supply of water (in terms of quantity and quality) would create risks to our business. Hence, Roche addresses water related risks with high priority. Roche analyses the local water risk situation, holistically covering physical, regulatory and reputational risks, at all its locations to determine related business risks. If risks are deemed unacceptable, appropriate mitigation measures are taken. Roche uses such risk analyses to prioritize actions, to improve water management, and to seek solutions for more equitable and sustainable water governance. A number of Group companies are located in regions with high water stress. To relieve supply pressures, these sites continue to implement water conservation measures.

Water consumption at Roche sites has been reported since 1991 and total consumption has been published yearly since then. To run its business, the Roche Group withdraws approximately 15 million cubic meters of water each year of which less than 3 million cubic meters are actually consumed while the majority is cleaned and discharged to receiving water bodies for potential re-use. Roche has established targets for reducing its water consumption, focusing actions in locations with high water stress and water risks. Despite the large growth of our business, we have managed to gradually decrease water

¹ Pertains to SDGs 3, 6, 12, 14 and 15



consumption each year.

All aqueous process wastewater streams at Roche are treated in wastewater treatment plants. The vast majority of the organic material in Roche's wastewater is degradable and thus removed in the biological treatment steps of the wastewater treatment. If indicated, specific wastewater streams are pre-treated at the source prior to being discharged to the wastewater treatment plant. Excess activated sludge from wastewater treatment plants is separated, dewatered and incinerated or disposed in compliance with the local regulatory requirements. Since the early 1970s, Roche has invested in the construction of modern wastewater treatment plants. Over the years, these investments have resulted in a significant reduction in the total organic carbon (TOC) load discharged into receiving waters from Roche sites throughout the Group. Heavy metal compounds in wastewater are not biodegradable and, depending on their concentration, are harmful to animals and plants in natural waters. They can accumulate in the food chain or be deposited in sediments. Roche's heavy metal emissions fluctuate around a very low level. The total load mainly consists of metals (zinc, copper, nickel, chromium) leached out of piping.

The topic frequently referred to as "pharmaceuticals in the environment" (PIE) is of significant interest to Roche². Pharmaceutical residues are detected in surface waters and in some cases also in groundwater and drinking water at very low concentrations. This is due on the one hand to the poor biodegradability of certain drugs and the increasing quantities used. On the other hand, the ever growing sensitivity of modern analytics allows the detection of ever smaller concentrations of substances in water bodies.

The main source of PIE is excretion after use of the products. Another pathway is improper disposal and only a small share results from manufacturing effluents. At Roche in particular the majority of the products are bio-molecules which are readily degradable.

While there appears to be general agreement that the risk to humans from exposure to the small concentrations of individual compounds is low, there is still much to learn about possible long-term effects of mixtures of pharmaceuticals, especially on aquatic organisms. Roche is conscious of its responsibility and is therefore committed to obtain reliable data on our compounds and to use these data as a basis for integrated risk assessment and corresponding risk management measures to reduce emissions. New active pharmaceutical ingredients (API's) are investigated for biodegradability and initial eco-toxicity during their development. For product registration, a full state-of-the-art environmental risk assessment (ERA) is developed based on chronic environmental effects and advanced environmental fate data, as required by the pertinent regulations. Roche and third party chemical and galenical manufacturing sites are required to assess risks resulting from pharmaceutical emissions into receiving waters, and if risks are deemed unacceptable, risk mitigation measures must be implemented without delay.

Also, Roche participates in take-back programs in different countries to avoid improper disposal of unused pharmaceuticals³.

² Roche Position on Pharmaceuticals in the Environment (PIE):

http://www.roche.com/dam/jcr:05ea28bc-d654-47cb-a6ae-9d46de15b29b/en/pharmaceuticals_in_the_environment.pdf

³ http://www.roche.com/dam/jcr:5afa4418-ead4-4b4a-b3e6-aa9fa1efea28/en/position_product_stewardship.pdf



During normal operation, Roche diagnostic systems produce liquid waste containing chemical substances used as reagents as well as materials of biological origin and reaction and decomposition products thereof. Roche is intensifying its efforts to reduce discharges into wastewater from the use of its diagnostic products and to reduce the presence of harmful substances in these liquid wastes. The challenge is to guarantee reliable results of diagnostic methods while having minimal adverse effects on the environment. Roche is committed to deselect harmful substances when new diagnostic methods and instruments are developed. Roche developed a tool that facilitates its customers to assess risks arising from the release of liquid waste generated during Roche instrument use. Customers are asked to use this tool and dispose of their wastewater in an appropriate way accordingly.

Roche wants to ensure that all its employees have access to safe water, sanitation and hygiene at the workplace. With this in mind, Roche continues to provide appropriate access to safe water, sanitation and hygiene for all employees in all its premises under the company's control.

Outlook/Status/Current engagement and initiatives

Roche is proactively addressing water protection issues specific to our industry through participation in international and national bodies dedicated to studying the impact of trace chemicals, including pharmaceuticals, in surface waters and groundwater. Roche is funding national and international research projects that have similar objectives.

Roche has established goals that address water related issues⁴. All Roche companies are required to develop and implement action plans to support these goals, which are annually updated. The status is monitored at a Group level to evaluate progress against targets and to assess the need for further actions.

For example, Roche aims to reduce risks resulting from water use and consumption. To prioritize actions and to focus on where it matters most, we have assessed the local water risk situation for all our sites to identify those with the greatest need for action. Measures to conserve water resources and to reduce water consumption are introduced in particular in regions with high water risks. Actions range from the introduction of less water-intensive processes, water recovery and water re-use to the reduction or even elimination of irrigation water by adaption of our site landscaping.

Other goals pertain to the reduction of water pollutants such as heavy metals and nutrients such as phosphorus that cause eutrophication in receiving water bodies.

Increasing atmospheric greenhouse gas levels, in particular carbon dioxide concentrations as a result of energy use, contribute to rising global air temperatures and climate change, which in turn changes the hydrogeological cycles. To reduce such impacts, Roche has also established ongoing goals to reduce greenhouse gas emissions and to substitute

⁴ SHE Goals for the Roche Group, 2020-2025:

<https://www.roche.com/dam/jcr:b0628c0f-51a7-49d0-9a5d-6af3f95e6ed3/en/20200331-she-goals-2020-2025-communication.pdf>



fossil fuels with energies from sustainable sources⁵.

More information

The topic of water has been regularly addressed in the annual Roche Group Reports on safety and environmental protection and in the subsequent sustainability reports: http://www.roche.com/investors/annual_reports.htm

Roche's Guidelines for the Assurance of Safety, Health and Environmental Protection in the Roche Group, including the Annex "SHE Principles and Procedures":

<https://www.roche.com/dam/jcr:5b95a6fa-f1a8-4c00-9219-86e5b8d70e82/en/she-guidelines.pdf>

Roche position papers on several health and environmental topics:

http://www.roche.com/sustainability/how_we_work/positions_policies_downloads.htm

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This updated position paper was proposed by the Corporate Sustainability Committee and adopted by the Corporate Executive Committee on April 21, 2017 and entered into force the same day.

It was revised in June 2021.

⁵ Roche Position Paper on Greenhouse Gas / Climate Change and Roche Position Paper on Energy:
http://www.roche.com/dam/jcr:906a5aef-1035-4cc2-a011-dcf0e5b9f481/en/global_position_greenhouse_gases_climate_change.pdf
http://www.roche.com/dam/jcr:178fbe4a-96fb-4e51-abe8-86723123efb6/en/sus_pos-energy.pdf