

WATER RESOURCE MANAGEMENT

G4 indicators: G4-DMA, G4-EN8, G4-EN9, G4-EN10, G4-EN22

At Sanofi, we require clean water in sufficient amounts for our production activities, and we are well aware of the critical challenge posed by the dwindling availability of vital freshwater resources.

I. OUR PROGRESS

Objectives	2016 Progress and actions	Status
2010-2020: Achieve a 25% reduction in water consumption.	In 2016, we achieved an 18.3% reduction in our water consumption compared to our 2010 baseline year.	On track

Our environmental strategy (Planet Mobilization program) aims to define targets for reducing water usage at each of our facilities. This will be accomplished through an exercise to determine the maximum achievable reduction target for each site. Next, a reduced water usage global target for the whole company will be established.

II. STRATEGIC APPROACH

Sanofi is committed to managing water responsibly as a sustainable renewable local resource, in order to safeguard the health of individuals and communities.

The responsible management of water resources touches upon key aspects of our business, such as our license to operate, ensuring business continuity, and our relations with stakeholders.

1. Reducing our water consumption

Sanofi uses water for many of its industrial processes – in production operations and cleaning processes at all our manufacturing sites and in cooling systems during fermentation processes. Cleaning operations are a sector-specific key quality concern. Water is also used in R&D and

non-production facilities, and as an obvious service to employees.

In terms of our overall consumption, water used for cooling purposes and at chemistry and biochemistry sites accounts for the greatest share by far. The option of cooling with water, as a trade-off with energy requirements, is always fully assessed considering local availability of water, absence of impact, and acceptance by local communities, with regulatory approval.

Our internal Health, Safety and Environment (HSE) standards require all Sanofi sites to implement and follow a water management plan. In addition, our internal rules require any sites that are potentially concerned by water scarcity to establish and comply with a specific plan for reducing water consumption that is tailored to the site's local context and industrial characteristics.

In line with our commitment to decrease our water consumption by 25% between 2010 and 2020, we organize many different initiatives to help the company use less water. For example, we ask our sites to implement and review water management measures on a regular basis and to organize systematic assessments of any areas where water may potentially be saved. Additionally, we pay particular attention to Sanofi sites located in areas of potential water stress/water scarcity, in order to define specific action plans designed to reduce water consumption and develop appropriate ways to address any risks at these sites.

We have developed a self-assessment tool addressing local sensitivity and the perceptions of people on-site concerning water-related topics. This tool has been used by sites in some of our businesses (Chemistry, Injectables) and also in some countries (Brazil, China, Colombia).

We have also replied to the Climate Disclosure Project (CDP) water questionnaire every year since it was introduced. Our 2016 score (based on 2015 data) was B, reflecting our sound management and commitment to water-related issues.

2. Water-related risk assessment

Our water-related risk assessment relies on:

- An in-depth study of Sanofi sites that may encounter any risk related to water supply especially sites located in water scarcity/water stress areas
- Environmental risk assessment
- Due diligence processes
- HSE audits
- Suppliers

Sanofi sites in water scarcity and water stress areas

As part of our global water management strategy, we focus particular attention on Sanofi sites located in areas of water stress and water scarcity. In such areas, we can develop action plans to reduce water consumption, thus addressing any potential risks.

Since 2014, Sanofi has fine-tuned its methods of determining locations where activities may be impacted by water-related risks. Our approach looks firstly at absolute water usage at the site level, and secondly at absolute local water stress risk and regional relative water usage levels. This in-depth study combined local internal data and global external expertise in 2015 and 2016, along with a list of locations that may potentially be concerned by a water supply risk (water scarcity risk) and locations for which further investigations must be carried out locally to confirm the situation.

In 2016, we identified:

- Sites with high potential water-supply risk (nine sites excluding Merial), representing 20.9% of the company's water withdrawal in 2016
- Sites for which further investigations are necessary to determine whether they are affected by water-related risk (10 sites), representing 7.9% of the company's water withdrawal
- Sites consuming more than 1 million m³ per year (two sites) representing 16.7% of Sanofi's global water use. One of those sites demonstrated no water supply risk (Frankfort, Germany). The other one is conducting in-depth studies to reduce its water consumption (Toronto, Canada).

For all impacted facilities, a working program was established by the end of 2015 to cover a four-year period. Facilities with high potential risk as described above are required to define an action plan to reduce water usage on site, including relevant targets and appropriate follow-up.

Specific studies on water resources and / or internal site usage are conducted, for example, at the vaccine site in Toronto, Canada, and at the Vertolaye and Elbeuf sites in France. Also, in the context of tensions regarding the water supply around Sao Paulo (Brazil), specific monitoring is in place. Other sites are undertaking initiatives to reduce water consumption, such as the Cairo site (Egypt) with the recovery of water used to rinse flasks (1,500 m³ / year).

In addition, a computer tool was developed for sites to carry out their self-assessment with regards to water issues in their local context. This tool focuses on chemistry sites and injectables manufacturing sites, as well as sites in Brazil, Colombia and China. Implementation is ongoing.

Environmental risk assessment

Each site has a program to systematically identify, evaluate, prioritize and control the impact of its activities and products on the environment. This assessment also includes any impact possibly resulting from historic activities (e.g., soil and groundwater contamination). This assessment is regularly updated. An annual action plan is established and implemented to improve and control the prioritized actions identified. This plan is the environmental component of the PASS. Beyond the annual plan, long-term opportunities to optimize resources and expenditures dedicated to better protecting the environment are, when appropriate, identified in the local capital expenditure action plan.

Depending on the results of the environmental risk assessment and regulatory requirements, the management program includes the following:

- A water withdrawal and water consumption management and reduction plan
- Characterization of the main discharges and sources of waste water effluents
- Minimization of flow and load of wastewater effluents
- Monitoring, control and reporting

Each site assesses the need to install the following: waste water treatment plant, an equalization pool, a fire water containment basin to retain polluted water resulting from either the extinction of a fire or from a pollution accident, and a storm water buffer basin.

Due diligence processes

During site purchasing due diligence, water intake and discharge are taken into consideration as one aspect of overall Health, Safety and Environment (HSE) actions. Our key water concerns are related to regulatory compliance for water usage and discharge and assessment of local sensitivity.

Health, Safety and Environment (HSE) audits

HSE audits are conducted throughout all our facilities over a rolling three-year program covering the entire 78 HSE internal rules and related standards. Within the scope of environmental actions, water is addressed in line with requirements concerning water scarcity, the water management plan at site level, and effluent management and discharge.

Suppliers

Today we acknowledge that our environmental responsibility also includes our whole footprint in connection with our suppliers.

3. Contributing to preserving water quality: Managing wastewater discharge responsibly

We strive to limit any contamination of water resources by implementing an effective wastewater discharge management strategy, which also includes active pharmaceuticals ingredients as part of our activities.

Industrial wastewater discharged as liquid effluents includes pharmaceuticals from:

- Sites that manufacture active ingredients
- Sites that produce medicines and vaccines
- R&D laboratories and pilot plants

Each site designs its own wastewater effluent management program based on environmental impact assessments and applicable statutory and regulatory requirements. These programs include characterizing potential pollutants and the implementation of processes to treat, monitor and control such pollutants. We also focus on improving discharge treatment systems and implementing systematic quality controls for effluents to help preserve the quality of surface water and prevent sub-soil and groundwater contamination.

Sanofi's management of wastewater effluents is covered by our HSE policy and falls within the scope of our HSE management system. Furthermore, we promote the proper disposal of unused and expired medicines by patients.

For more information, see our [Download Center](#): Disposal of Unused Medicines and User Recommendations Factsheet

III. HIGHLIGHTS

1. New equipment to reduce our water consumption

In 2016, Sanofi's water consumption remained stable compared to 2015 (-0.24%). This stabilization can be explained by a significant reduction at four of company sites, representing an absolute decrease of more than 1.5 million m³, essentially due to a switch from open loop circuits to closed loop circuits on the Frankfort site (Germany), a change in the activity of the Neuville site (France) and a decrease in consumption at the Vertolaye site, representing 7% of the global water consumption. This reduction is compensated by an increase in water use due to higher production activities at Elboeuf and Vitry-Alfortville (France) and Brindisi (Italy). Sanofi regularly invests in new processes or equipment to reduce water consumption.

Haverhill site (United Kingdom):

Since 2004, our Haverhill (United Kingdom) Genzyme site has implemented an innovative process to recycle about 75% of the water required for drug manufacturing. Thus 11 tons of water per hour are generated that do not have to be extracted from natural systems.

Ankleshwar, Goa and Shanta sites (India):

Three Sanofi production sites in India (Ankleshwar, Goa and Shanta) are equipped with wastewater treatment plants using innovative technologies. Up to 98% of treated wastewater can be reused in the cooling towers at these sites, when needed.

2. Managing wastewater discharge

Chemical oxygen demand (COD) concerns final water pollutant content after various treatment steps.

Depending on the type of production activities and also on available facilities, Sanofi sites discharge their water effluents into municipal wastewater treatment plants (WWTP) or treat their effluents on site before discharge into the environment. Most of our chemistry sites have their own WWTP since they require dedicated technical treatment solutions. In other cases, chemistry sites that do not have their own WWTP are connected to a shared industrial WWTP, or to a large city WWTP. Most of our facilities from other businesses are connected to neighboring municipal WWTPs, which typically are able to handle our rather small effluent flows and loads. A very few have their own wastewater treatment facility, often due to the fact that they are not close to a city WWTP.

In 2016, pollutant wastewater discharge for chemical oxygen demand increased by 18.9% compared to 2015. This can be explained by an activity increase at the Elboeuf site (France) due to dysfunctions in the site's wastewater treatment plant. This increase is partially offset by a reduction of the Mourenx site's COD.

IV. FIGURES

Company water withdrawal (excluding Merial)

In cubic meters (m ³)	2014	2015	2016
Surface water	10,474,043	11,182,553	10,295,794
City water	8,379,313	8,856,055	8,638,102
Ground water	20,559,805	23,448,930	24,448,901
Total water consumption	39,418,535	43,487,538	43,382,797

Water consumed, by business, in 2016 (excluding Merial)

	In 2016
Chemistry and Biopharmacy sites	75.5%
Pharmaceutical production sites	12.1%
Vaccine production sites	6.5%
R&D sites	3.3%
Genzyme	2.6%

Effluents in water discharged (excluding Merial)

	2014	2015	2016	2015-2016 variation
COD (Tons)	2,215	2,029	2,412	+18.9%

Group water withdrawal excluding Merial

