7 WATER MANAGEMENT

7.1 Annual water consumption in the healthcare sector in the Flemish region (m³) (ENV-16)

7.1.1 Documentation sheet

Description	**Primary indicator:** A. Annual water consumption in the healthcare sector in the Flemish region (m^3 per capita) **Secondary indicators:** B. Annual water consumption per bed in hospitals of the Flemish region (m^3 per bed) C. Annual water consumption in the healthcare sector in the Flemish region (m^3) D. Annual water consumption in the healthcare sector in the Flemish region (as a share of total water consumption)
Rationale	Hospitals and long-term care facilities require large volumes of water for sterilisation, sanitation, laundry, and cooling systems, making them among the highest consumers in the public building category. Monitoring water use is essential for identifying efficiency gaps and implementing conservation measures that reduce resource depletion.
Calculation	**Primary indicator:** • Numerator: Annual water consumption in the healthcare sector in m^3 • Denominator: Population of the corresponding year (calculated as mean of population at beginning and end of year) **Secondary indicators:** **Indicator B:** • Numerator: Annual water consumption of hospitals in m^3 • Denominator: Number of hospital beds, calculated as the sum of justified acute beds (CD, E, M, NI, and G-beds of non-isolated sites) and licensed subacute beds (B, SP, AKT, and G-beds of isolated sites) of general hospitals. **Indicator C:** • Numerator: Annual water consumption in the healthcare sector in m^3 • Denominator: / **Indicator D:** • Numerator: Annual water consumption in the healthcare sector in m^3 • Denominator: Annual water consumption in total in m^3
Data source	Water use: VITO Kennispunt Water [1] • **Drinking Water**: Data on drinking water consumption is derived from official water billing records (source the "water books") • **Other Water sources**: Data on water use from other sources (e.g. groundwater, surface water, rainwater) and use of cooling water are only available for organisations subject to the water abstraction levy (source the “water levy database’) Population data: Statbel [2] Data on hospital beds: FPS Public health [3]
Technical definitions	Surface water use excluding cooling water is calculated by subtracting cooling water discharge from total surface water abstraction, as recorded in the water levy database. In this cooling water is assumed to originate from surface water. Negative values of

	'surface water use excluding cooling water' indicate that part of the cooling water originates from other sources. The healthcare sector was identified via the statistical classification of economic activities in the European Community (NACE Rev. 2): Human health activities (Q86) and Residential care activities (Q87.1). More details on method and technical definitions can be found on: https://vito.be/nl/economisch-belang-2026
International comparability	International comparability was assessed based on a systematic review by Batista et al. [4]
Limitations	Data availability limited to Flemish region.
Dimension	Environmental sustainability
Related indicators	/
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7.1.2 Results

BELGIUM

The Flemish healthcare sector consumed 6 972 182 m³ (0.68 m³ per capita) of water in the year 2022, corresponding to 1.40% of total water consumption in Flanders, excluding cooling water (from both numerator and denominator). When cooling water is considered, healthcare accounted for 7 698 854 m³ (0.75 m³ per capita) or 0.33% of total water consumption.

A share of 57% of the total water consumption (excl. cooling water) in the health sector can be attributed to hospitals. For hospitals, the total water consumption amounts to 171 m³ per bed per year.

The observed increase in water consumption is due to the increase in cooling water in one hospital. Excluding cooling water, water consumption in the healthcare sector is slightly increasing, with 6 039 891 (0.59 per capita) in 2012 to 6 972 182 m³ (0.68 m³ per capita) in 2022 (see Table 1). This increase is in contrast to the goal of the European Commission to reduce water consumption and improve water efficiency in the EU by 10% [5]. This aim is particularly relevant for Belgium, given is one of the OESO countries with the lowest availability of water [6].

Table 1 – Annual per capita water consumption (m³), evolution 2012-2022, Flanders

	2012	2014	2016	2018	2020	2022
Including cooling water	**0.68**	**0.70**	**0.71**	**0.77**	**0.75**	**0.87**
Excluding cooling water	**0.59**	**0.60**	**0.61**	**0.61**	**0.60**	**0.68**

Source: VITO 2026

ANALYSIS BY TYPE OF WATER CONSUMED

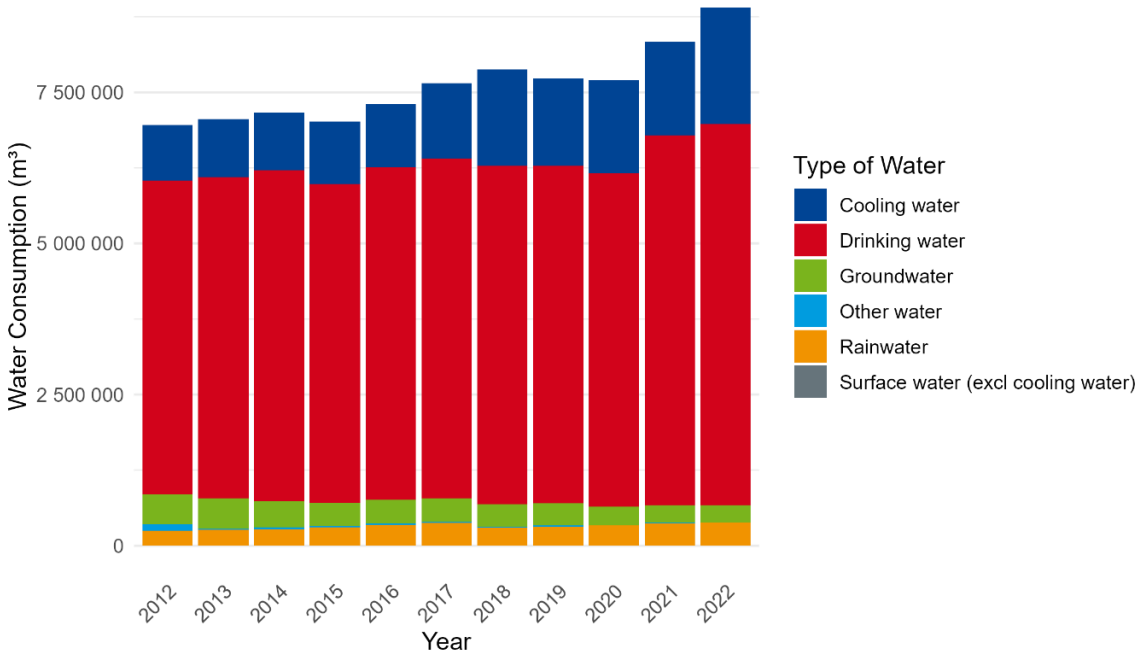
The distribution of type of water used in 2022 is presented in Table 2. Water consumption consisted predominantly of drinking water (70.78%). Additionally, the evolution of water consumption by type is displayed in absolute number in Figure 1 and in per capita consumption in Figure 2, showing no major shifts over time. Notably, all use of cooling water can be attributed to one hospital, AZ Sint-Jan Brugge, who perform part of their cooling activities using of the Brugge-Oostende canal as part of a past environmental project.

Table 2 – Overview of water consumption by type (2020)

Type of water consumed	Absolute Consumption	Consumption per Capita	Proportion including cooling water	Proportion excluding cooling water
Drinking water	6 304 556 m³	0.61 m³	70.78%	90.42%
Ground water	278 317 m³	0.03 m³	3.12%	3.99%
Rainwater	386 666 m³	0.04 m³	4.34%	5.55%
Cooling water	1 934 984 m³	0.19 m³	21.72%	/
Other water	2 643 m³	<0.01 m³	0.03%	0.04%

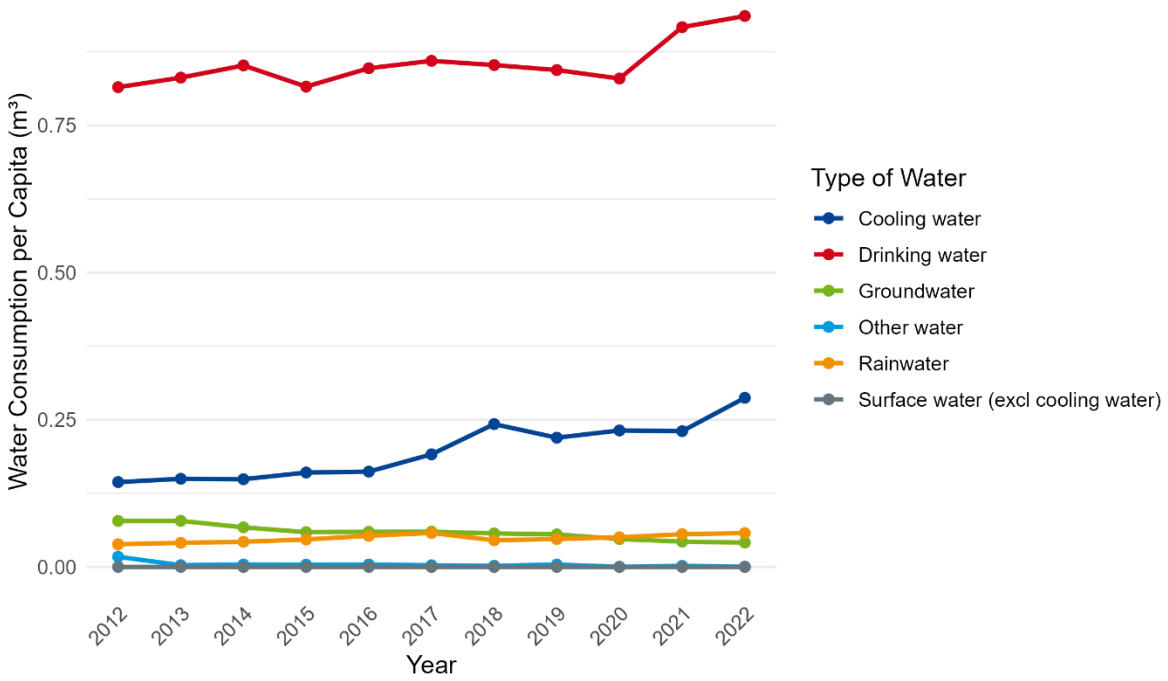
Source: VITO 2026

Figure 1 – Evolution of water consumption by type



Source: VITO 2026

Figure 2 – Evolution of per capita water consumption by type



Source: VITO 2026

REGIONAL COMPARISON

Figure 3 shows per capita water consumption in the healthcare sector per province. The province of Flemish Brabant has the lowest water consumption, probably due to many inhabitants seeking care in Brussels, for which no data are available. The largest level of water consumption per capita is found in Antwerp.

Figure 3 – Water consumption per capita by province (excl. cooling water)



Source: VITO 2026

INTERNATIONAL COMPARISON

A systematic review by Batista et al. (2019) on water consumption in the hospital sector summarizes several studies in which water use was calculated, often expressed in cubic meters per bed per year.[4] Due to substantial heterogeneity among the studies (such as differences in time periods, and hospital contexts) and lack of generalizability, these figures should only be compared in terms of order of magnitude. In European hospitals (Spain, Germany, and Italy), annual water consumption ranged from 103 m³/bed/year to 458 m³/bed/year. When weighted by the number of hospitals included in each study, the European average is 394 m³/bed/year. In 2020, Flemish hospitals consumed 3 595 000 m³ of water for 23 658 beds. This results in a consumption of 171 m³/bed/year, which is clearly in the lower end of the European range found in Batista et al. (2019). It must be noted, however, that the number of beds used for this calculation (i.e. licensed beds) are an overestimation of the real activity. Because of this and the fact that the source studies in Batista et al. (2019) are quite old, this international comparison must be interpreted with caution.

KEY POINTS

- In 2022, the Flemish healthcare sector consumed 6 972 182 m³ (0.68 m³ per capita), representing 1.40% of total water use in Flanders (excluding cooling water). Including cooling water, consumption rose to 7 698 854 m³ (0.75 m³ per capita), or 0.33% of total use. Antwerp shows the highest per capita consumption.
- The increase observed in water consumption in the healthcare sector is due to cooling water use in a single hospital, AZ Sint-Jan Brugge for an environmental project. Excluding cooling water, water consumption slightly increased between 2012 and 2022, from 6 039 891 (0.59 per capita) in 2012 to 6 972 182 m³ (0.68 m³ per capita) in 2022.
- Water use type was mainly drinking water (71%), and trends over time show no major shifts.

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