

Water Management Plan 2020-2030

June 2021



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1. Introduction

The UWE Water Management Plan 2030 is part of a suite of Plans responding to the commitment of UWE to achieve net-zero carbon emissions by 2030, and the continued commitment to management water consumption.

This is the second Water Management Plan at UWE, the first covering the period 2013-2020. The estate has grown significantly during this time, and the demands on water supply are ever increasing, however the water management approach has also intensified, bringing with it greater efficiency, improved specification of fixtures and fittings, and a much improved ability to identify and react to changes in consumption patterns.

The UK Climate Change Coalition have identified the need for significant reduction in personal water consumption to reduce the risk of draught in the adaptation to climate change. The awaited UK Environment Bill is likely to include measures to respond to this.

This Water Management Plan sets out the wider context within UWE; how the carbon impact of water is measured; focus areas for water management; UWE water consumption past and current; targets and KPIs; and detail on measurement and management.

2. Transforming Futures Strategy 2030

[Transforming Futures Strategy 2030](#) sets out our focus for the next 10 years. It will evolve and develop as we continually review our own performance and adapt to a rapidly changing environment.

The Strategy has strong commitments to sustainability and carbon emissions reductions, outlined in seven commitments:

"Through our 2030 Strategy we will work to address the urgency of the climate and ecological emergency and strive to fulfil our role in the achievement of the United Nations' Sustainable Development Goals."

Be carbon neutral as an organisation, with net-zero emissions of greenhouse gases by 2030.

Work with our students to explicitly address climate change and environmental challenges through our teaching, learning and curriculum.

Work through the ISO 14001 standard to set clear targets and plans to reduce water and energy use, cut waste generation including food waste, and support biodiversity.

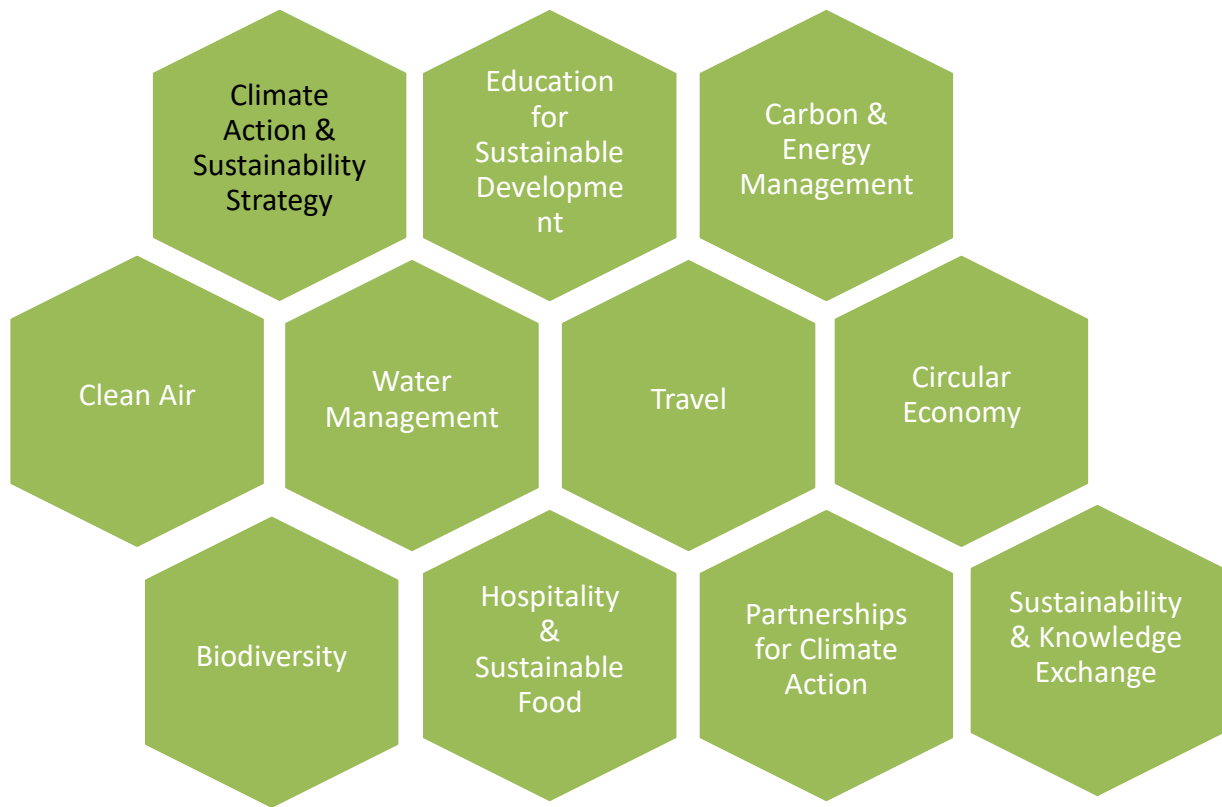
Establish all our campuses as clean air and smoke-free zone.

As signatories to the UK Plastics Pact, eliminate all but essential single-use plastic and meet the 2025 targets for recycling and reuse.

Invest in and secure year-on-year improvement in travel sustainability for staff, students and visitors.

Support research that addresses issues relating to climate change, environmental challenges and biodiversity.

The Strategy is implemented through a series of sub-strategies and plans. The Water Management Plan is one of a series of ten Plans that set out how the Transforming Futures Climate Action and Sustainability Strategy will be delivered.



In January 2020 UWE Board of Governors publicly declared a [Climate and Ecological Emergency](#), resolving to redouble our efforts to address the urgency of the mitigation and adaptation measures required.

Headline target

The Water Management Plan focuses on the headline target:

“To be carbon neutral as an organisation, with net-zero emissions of greenhouse gases by 2030”

UWE are taking responsibility for all carbon emissions as a result of the university operation - from direct and indirect emissions. In Greenhouse Gas Protocol terms, this is Scopes 1, 2 and 3. Water use and disposal contributes to UWE Scope 3 emissions.

In addition, to commitment:

“To work through the ISO 14001 standard to set clear targets and plans to reduce water and energy use, cut waste generation including food waste, and support biodiversity.”

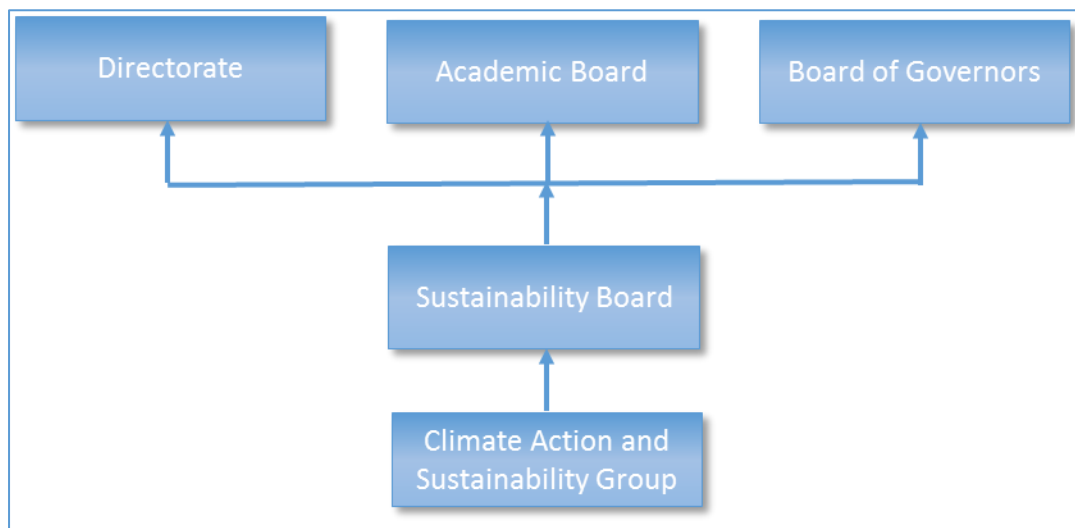
Roles and responsibilities

Achievement of the target will involve the whole university, and will include bringing employees, students and suppliers on board.

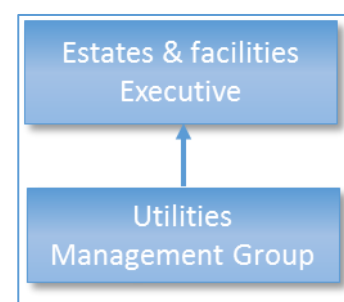
The Water Management Plan is overseen by the Energy Manager, and contributes to the Carbon and Energy Management Plan with the carbon emissions directly related to the volume of water used as a result of UWE operations and activities.

Governance

Progress and issues are reported to the Climate Action and Sustainability Group (CAS), which can then be escalated through the Sustainability Board to the Directorate, Board of Governors or Academic Board.



The Utilities Management Group review utility procurement strategies; monitor the delivery and performance of energy projects and water saving projects; receive update reports on the progress towards carbon management plan targets; highlight legislative changes; and highlight risks where major capital projects may not deliver on sustainability targets. This reports to the Estates and Facilities Executive.



Campus 2030 shall monitor progress on the carbon target, with particular attention to the impact of new builds, refurbishment projects, building purchases and disposed estate on the carbon trajectory.

A Governance review with the aim to achieve a simpler and clearer means of reporting on progress, risks and opportunities will be completed within the first year of the Plan.

Reporting cycle

Report on delivery of plan to Utilities Management Group quarterly and progress on KPIs to Climate Action & Sustainability Group and the Sustainability Board, also quarterly. In the Spring of each year the projects for the following year are proposed to the Utilities Management Group, with budgets being sought from the budget planning round. Progress on the headline carbon reduction target will be reported to the Directorate using the key performance indicator of *kg CO₂e per capita (FTE staff and students) per year*.

Monitoring progress

Reporting on KPIs will be facilitated by the Energy Team, working closely with the Sustainability Team, recognising the time lag of data from end of year. Improved means of reporting data with real time is included in the Action Plan below. This will include reporting on Scope 1, 2 and 3.

Engagement

Students and staff contributions and engagement to the UWE water management plan are welcome, and achieved through the following mechanisms:

- Student and staff representatives on the Sustainability Board;
- Ongoing invitation to the SU Green Team to work with sustainability staff (for example, on various Working Groups; events and communications activities; teaching and learning; and ad hoc events);
- Ad hoc events at key points of development of the water management plan;
- An open invitation of involvement on the “get involved” section of the UWE website.

Review point

This plan will be subject to a mid-point review in 2025.

3. Focus areas of the Water Management Plan

Water reuse

Reducing the water required from the mains for low quality tasks can be achieved by harvesting rainwater. Rainwater harvesting is to be included in new building developments, and where feasible renovation and building project works. This can be used for flushing toilets, saving water from the mains that has associated carbon from treatment and distribution.

Water reduction

Leaks occur both underground in distribution systems around the campus sites, as well as from fixtures and fittings in buildings. Means to measure and monitor water consumption and patterns will improve the responsiveness to leaks, enabling rapid leak detection and identification. Leaks also bring a risk to business continuity, and so a programme for improving the resilience of the water distribution systems around UWE is a vital measure to reduce these risks. UWE brings together operational and academic disciplines to work with partners such as Bristol Water to test fixtures and fittings within the UWE estate.

Water management

Improving the management of water throughout the university still offers significant opportunities, by more fully understanding patterns, and working closely with staff and students in all faculties and professional service areas to encourage and empower others to take greater responsibility for water consumption around campus. Identifying fixtures and fittings that may offer greater efficiencies will continue to be reviewed.

Resilience of supply is covered further in the UWE Business Continuity Plan, which includes details of providing water to students and staff in the event of incoming loss of supply.

Managing rainwater runoff

The University already has an extensive sustainable drainage system (SuDs) and will find ways:

- to continue to control rainwater runoff through the use of green infrastructure and permeable surfaces to minimise flood risk
- to improve the quality of surface waters leaving our site, through measures that aim to manage potential water pollution at source
- to deliver important wildlife and human wellbeing benefits
- to plan resilience to future extreme weather conditions such as higher rainfall intensity and periods of drought
- during key phases of campus development and/or masterplanning activity we will employ suitably qualified professionals to advise on the design and implementation of surface water management (covering surface water runoff calculations, hydraulic modelling of storage

requirements for relevant area of impermeable land use for specified rainfall return periods, and total area of impervious roof surfaces to calculate the available roof collection area).

This approach will also contribute to greater landscape resilience and reduce the water demand to maintain green infrastructure particularly in drier conditions.

Availability of drinking water

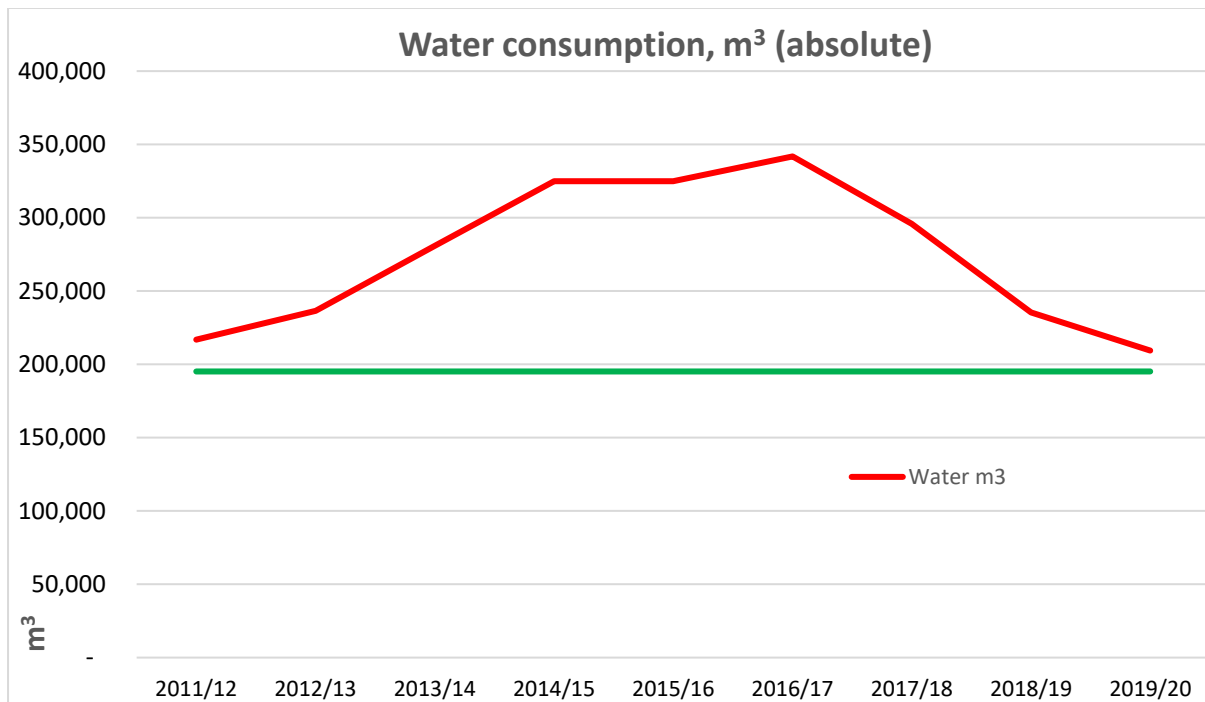
In line with the Plastics Pact and UWE's target to eliminate all but essential single-use plastics, UWE have a network of "hydration points" around campus where staff, students and visitors can refill bottles with drinking water. This network will be extended to cover the whole estate. All new buildings and refurbishments are to include the installation and promotion of water refill stations.

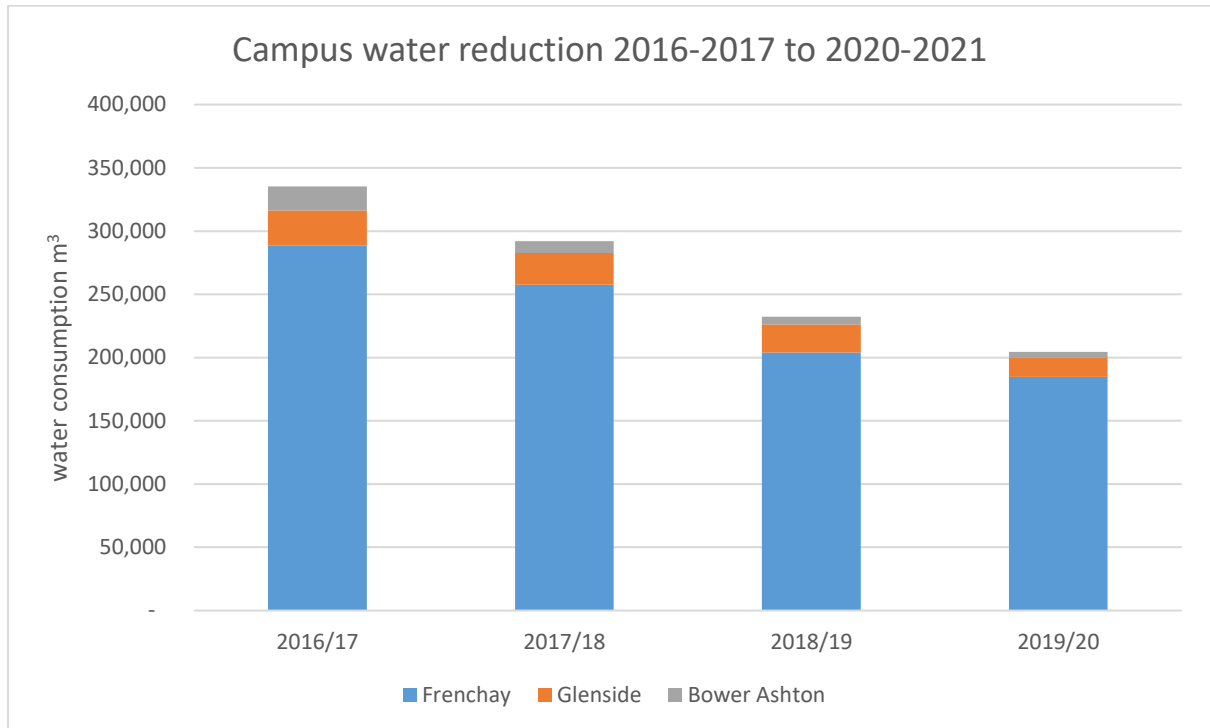
4. UWE water consumption past and current performance

Absolute historical water consumption

Absolute water consumption since 2011-12 has reduced by 3.4% due to a number of factors despite a steady increase to peak of 57.6% above baseline in 2016-17. Rapid reductions were achieved through:

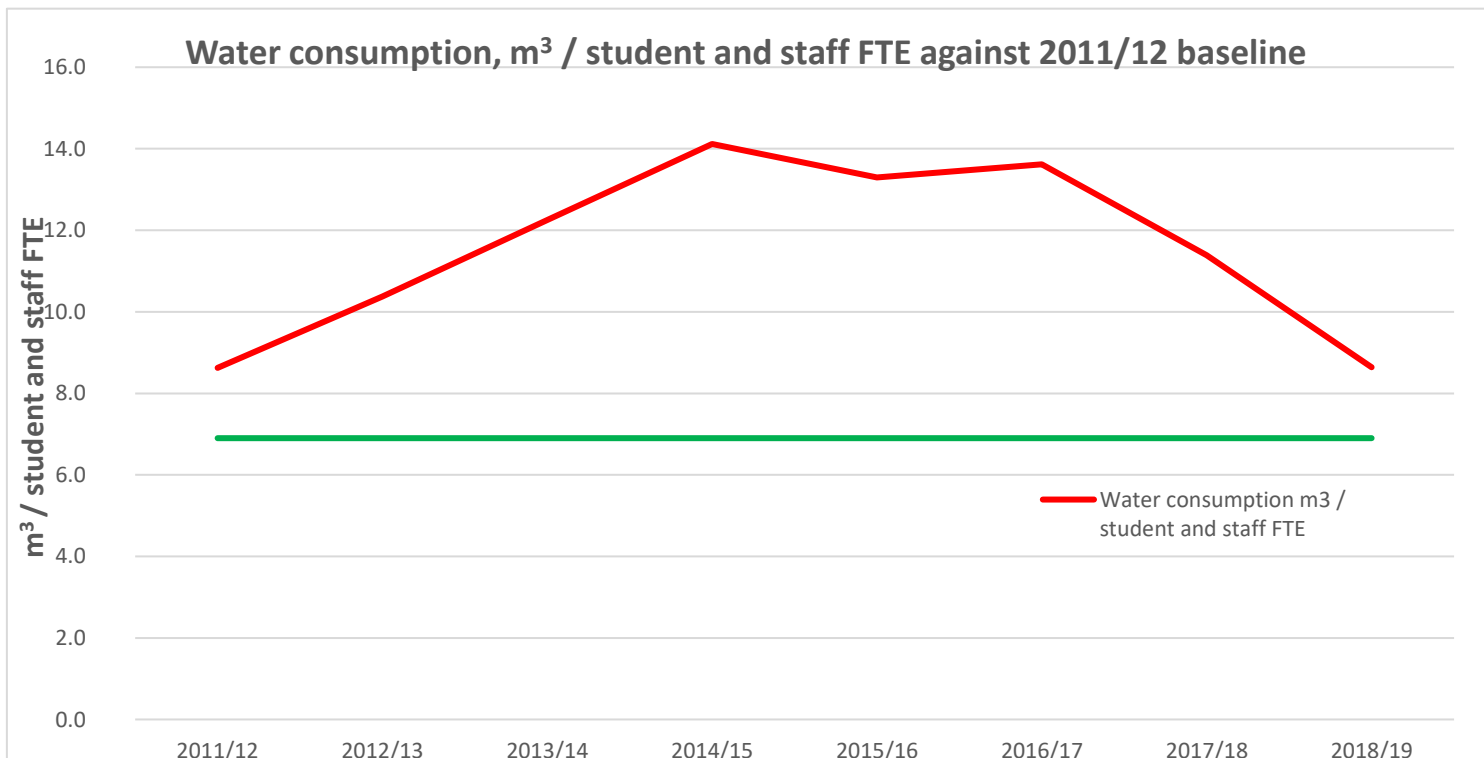
- Identifying leaks through stuck toilet cisterns in student accommodation.
- Identifying continual water flow through urinals.

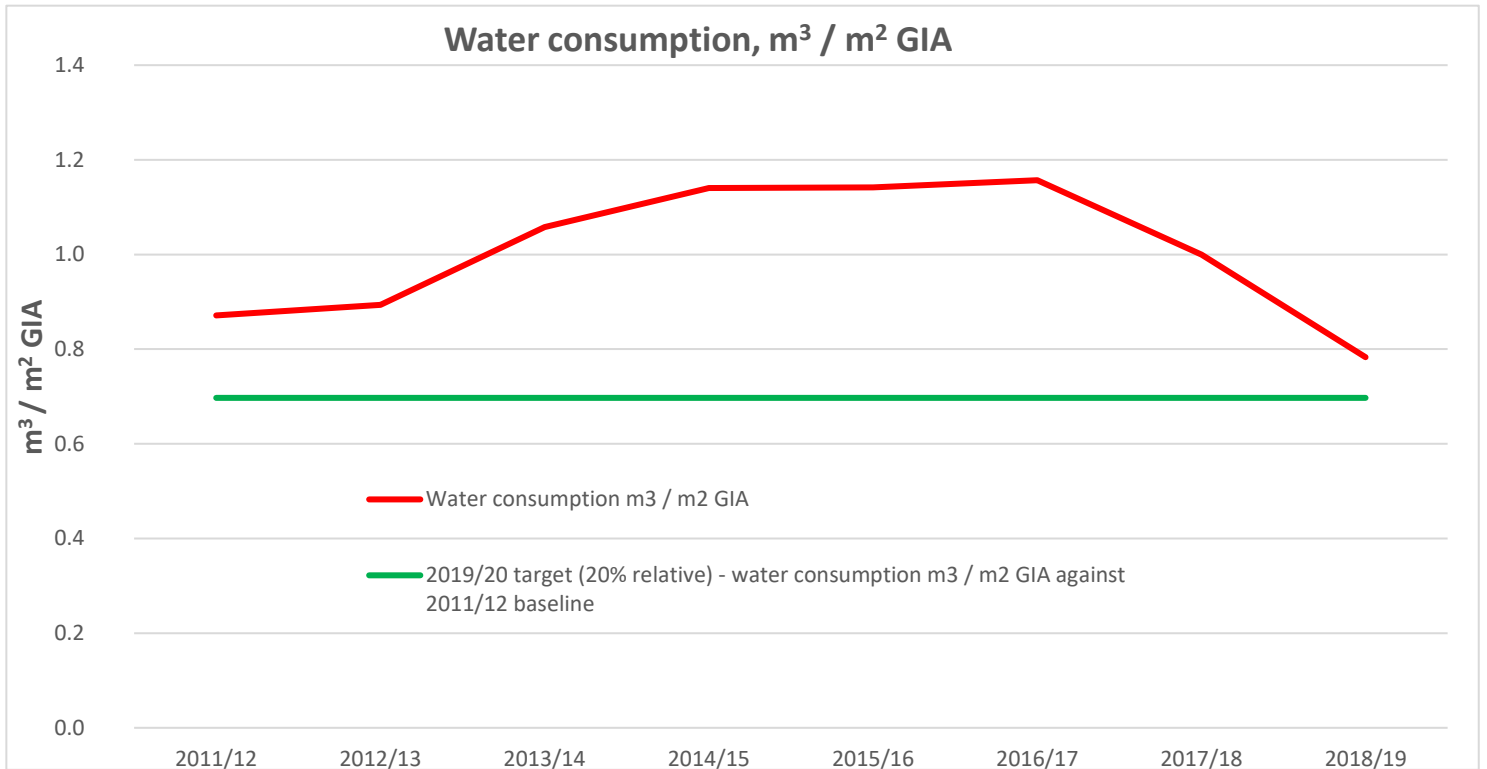




The above reduction was achieved against a growth backdrop between 2011-12 and 2019-20:

- 8% increase in FTE staff and student numbers
- 29% increase in floor area of campus buildings





Historical water consumption against 2012 baseline

The 2016 Water Management Plan called for a 10% reduction on baseline by 2020. The Plan used a baseline of 216,883m³ from 2011/12. This baseline did not include the since-acquired Frenchay West (aka ex-HP) supply, or the more recently constructed Wallscourt Park residences (phase 1 and 2) nor the Faculty of Business and Law. Removing these from the data set, the comparative consumption for 2018-19 was 8% below the 2011-20 baseline.

5. Measurement and management

Measurement

The water consumption at UWE is measured in main ways:

- Billing consumption data
- Meter data

Both are used as a means of monitoring and measuring water consumption. Water consumption is measured half-hourly across all fiscal (incoming) meters, and a large number of sub-meters across the sites.

This data is collected through the UWE IT network, and available for viewing on the E-sight energy management software. This data is available for all staff and students, through contacting the Energy Team (energyteam@uwe.ac.uk).

Management

Water is managed by the Energy Team using a variety of techniques including:

- Comparing consumption to historical periods
- Alarms for changes in consumption patterns (including minimum flow rates)
- Active leakage control, to assist in identifying leaks on the system
- Bill validation
- Telemetry validation, ensuring correct data is being used

Anomalies (identifying potential leaks or equipment malfunctioning) are investigated and resolved in good time to minimise waste (and potentially avoid water damage to buildings).

The data collected by the Energy Team is also available to the Maintenance Team for capacity control, to understand the universities requirements, with a view to legionella and water quality.

6. Targets & KPIs

KPIs

Key performance indications that will be reported on for water consumption specifically are:

Focus	KPI	Data required	Responsibility	Reporting to
Annual absolute water consumption across UWE sites	Annual total water consumption, m ³	Water consumption data from billing records.	Energy Team	Sustainability Board (this data will feed into the Scope 3 carbon data collected for wider reporting purposes)
Relative water consumption	Annual water consumption per FTE staff & student, m ³ /FTE	a. Water consumption data b. FTE data	Energy Team collate data from: a. Energy team b. Business Intelligence	Sustainability Board
Relative water consumption for Accommodation	Annual water consumption per bedroom, m ³ /room	a. Water consumption data b. Number of bedrooms on site	Energy Team collate data from: a. Energy team b. Accommodation Services	Sustainability Board
Rainwater harvested on site	Annual water harvested, % rainwater to total	a. Rainwater harvested data b. Total consumption data	Energy Team	Sustainability Board

Baseline data

Focus	KPI	2018/19 baseline
Annual absolute water consumption across UWE sites	Annual total water consumption, m ³	235,358 m ³
Relative water consumption	Annual water consumption per FTE staff & student, m ³ /FTE	8.64 m ³ /FTE
Relative water consumption for Accommodation	Annual water consumption per bedspace m ³ /room	27.10 m ³ /room
Rainwater harvested on site	Annual water harvested, % rainwater to total	0.1% using 2019/20 data (data not available for 2018/19) <i>2019/20: Rainwater = 161 m³ Total water = 209,418 m³</i>

2030 Targets

The baseline year for carbon emissions is 2018/19 as the last full year of data pre-disruptions due to Covid-19.

The target for 2020 through to 2030 is to maintain relative water consumption figures throughout this period.

Rainwater harvesting is to be installed in new academic buildings. The impact of this will be monitored.

7. Measuring the impact of water consumption

UWE use the GHG Protocol to measure carbon emissions. The associated carbon impacts of water are captured as a Scope 3 emission under GHG category 1 "procured goods and services".

Carbon associated with the supply and disposal of water is quantified in the annual carbon conversion factors published by the UK Government Department for Business, Energy and Industrial Strategy (BEIS) each year.

APPENDIX 1 – Water Management Plan impact on the seven sustainability commitments in Strategy 2030: Transforming Futures.

Transforming Futures Sustainability Commitments	How the WMP impacts on these
Be carbon neutral as an organisation, with net-zero emissions of greenhouse gases by 2030.	Water management contributed to meeting the Scope 3 carbon emissions.
Work through the ISO 14001 standard to set clear targets and plans to reduce water and energy use, cut waste generation including food waste, and support biodiversity.	The Water Management system aligns with the ISO 14001 principles, practices and processes.
As signatories to the UK Plastics Pact, eliminate all but essential single-use plastic and meet the 2025 targets for recycling and reuse.	Having drinking water available throughout the UWE sites will reduce the requirement for students and staff to purchase bottled water.
Establish all our campuses as clean air and smoke-free zone.	n/a
Invest in and secure year-on-year improvement in travel sustainability for staff, students and visitors.	n/a.
Work with our students to explicitly address climate change and environmental challenges through our teaching, learning and curriculum.	Water management will feature within the Carbon Literacy Training for all staff, and all students to support the development of capability, confidence and capability to understand and act on the carbon consequences of actions and decisions.

<p>Support research that addresses issues relating to climate change, environmental challenges and biodiversity.</p>	<p>Promoting the use of the university as a living lab, ensuring water data is available to academics and students. Encourage water projects on site (behavioural and technical). Engage academics and students in operations and projects where possible. Ensure we tap into leading research available through academics for the operation of our estate.</p>