

The University of the West of England, Bristol

Water Management Plan 2013–2020



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Version: 00



University of the
West of England

Executive summary

This is UWE's first Water Management Plan (WMP) to set a baseline for our water consumption and monitor water reductions.

This Plan sets the water consumption baseline in 2011/12 and provides a breakdown and benchmarking against other standards. It sets the standard for monitoring annual water consumption, and the governance structure for reporting.

This Plan is in response to the UWE Sustainability Plan 2013-2020 which sets targets for reductions in water consumption. Therefore the Plan includes Action Steps and identifies Water Reduction Projects to achieve these targets.

As reflected in the UWE Bristol Strategy 2020, meeting these targets is not only important for our staff and students, but the local and global communities that we live in.

We believe that UWE Bristol is in a unique position to make a dramatic difference to water and carbon reductions, not only within our own estate, but through our research in energy and water management; our partnerships with Bristol Green Capital and wider businesses; and, through inspiring our students to become responsible global citizens.



Chris Abbott,
Director of Facilities
April 2016.

Progress against 2020 targets

Our baseline year is 2011/12 and since then, our water consumption has increased by 50% rather than reducing by 10%. This is largely due to the University taking on significant new buildings such as the former HP site at Frenchay campus, and wider campus development projects include new Students Union and new student accommodation. There are further expansion plans for Frenchay and Bower Ashton campuses which will continue to make this a challenging, but achievable, reduction target.

The UWE Estates Team continue to work with the International Water Security Network at UWE to ensure cutting-edge thinking is applied to our projects. Currently, we are working on analysis of water consumption data within the Student Village in particular, as well as methods of student engagement using gamification.

Opportunities for student involvement in terms of projects related to data analysis, engagement tools and water saving initiatives are available. If you would like to find out more, please contact the energy team at energyteam@uwe.ac.uk.

This Water Management Plan begins to monitor and report this water consumption, and future revisions will map a route to meeting the reduction targets by 2020.

Targets	2011/12 Baseline	2014/15 Performance
<p>Reduction in absolute water use from the supply network</p> <p>Targets</p> <ul style="list-style-type: none"> • 10% absolute reduction in supplied water use by end of 2019/2020 	Absolute supplied water usage: 216,833 cubic metres	Absolute supplied water usage: 324,976 cubic metres (50% increase over baseline)
<p>Reduction in relative water use per student FTE</p> <p>Targets</p> <ul style="list-style-type: none"> • 20% relative reduction in supplied water use by end of 2019/2020 	Relative supplied water usage: 7.9 cubic metres/FTE student	Relative supplied water usage: 11.71 cubic metres/FTE student (48% increase over baseline)
<p>Increase in total rainwater harvesting capacity</p>	R2 rainwater harvesting	No current increase.

Baseline

This is the first Water Management Plan for UWE Bristol setting a water consumption baseline to set targets against.

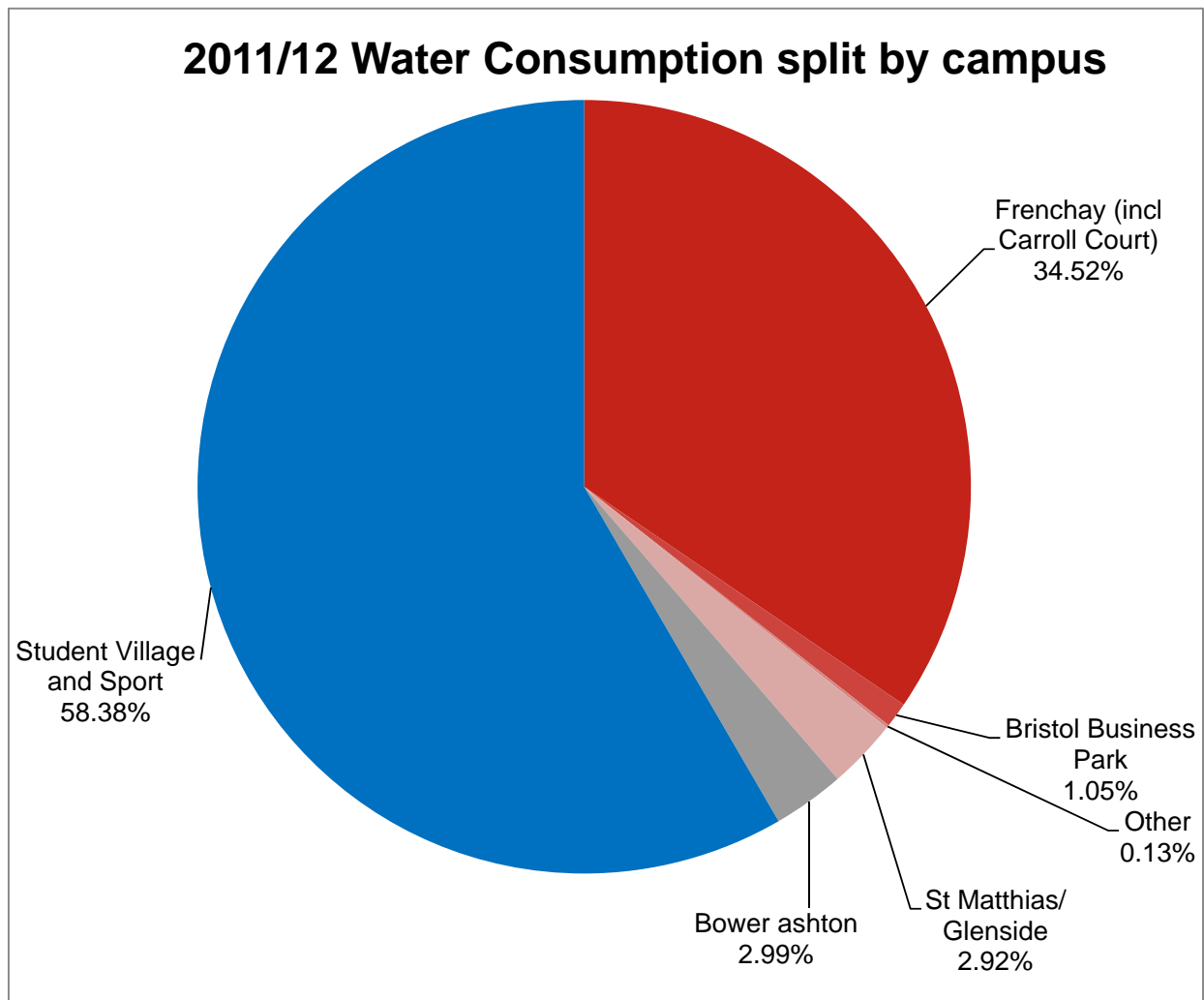
2011/12 Baseline

Our baseline for this Water Management Plan is the 2011/12 reporting year.

The total Water baseline for 2011/12 is 216,833m³/yr, or 7.9m³/yr/FTE student

We currently spend approximately £400K on our water and sewerage per year and this is set to rise with increasing water prices and increased number of buildings. This baseline can also be converted to carbon using the DEFRA guidance, as follows: 75TCO_{2e} (Water) + 146TCO_{2e} (Wastewater) = 221 TCO_{2e} Total water consumption carbon equivalent.

The chart below shows the split of water consumption by campus. This shows that the majority of the water consumption is related to the activities at the Student Village and Centre for Sport, and the Frenchay Campus. This indicates that the largest savings could be achieved by focusing water reduction projects in these areas.

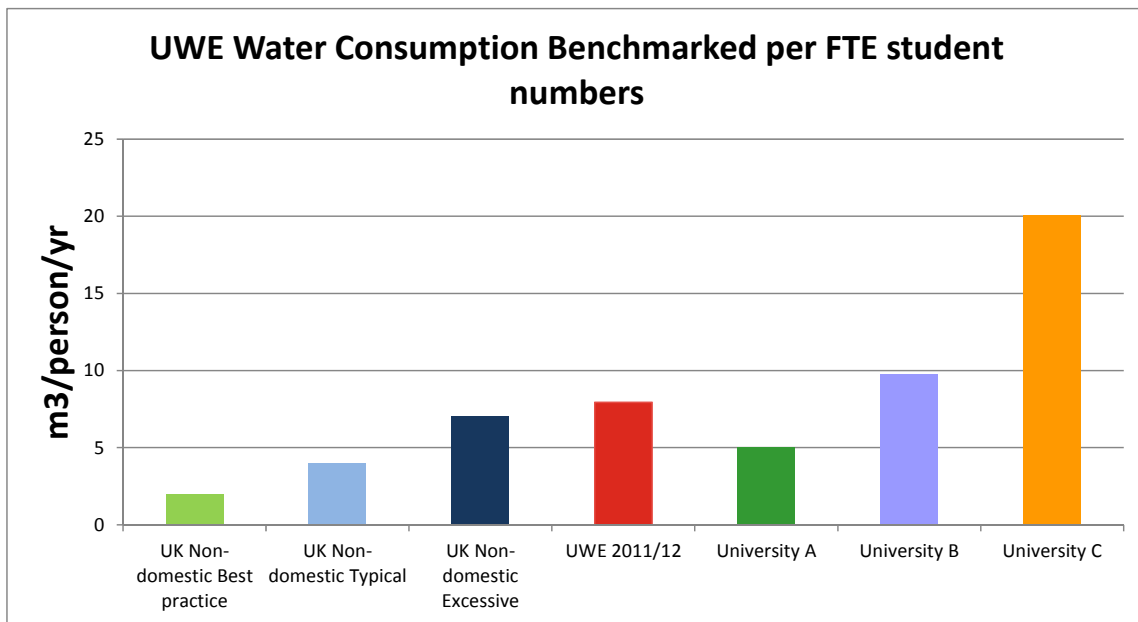


Benchmarking

To understand our baseline and set targets, we need to benchmark our consumption against similar buildings

Benchmarking water consumption

There is limited benchmarking data available for water consumption relevant to University campuses including student accommodation. The charts below show the UWE 2011/12 relative baseline benchmarked against water consumption in non-domestic buildings, and three comparable University's data from the EMR/HESA¹ online portal. The three Universities were chosen based on having a similar split between residential and non-residential water consumption, and having a similar number of FTE students.



	Cubic meters per year	Litres per day
Typical use	4.0 m ³ /person/annum	15.8 litres/person/day
	0.6 m ³ /m ² /annum	2.4 litres/m ² /day
Best practice use	2.0 m ³ /person/annum	7.9 litres/person/day
	0.4 m ³ /m ² /annum	1.6 litres/m ² /day
Excessive use	7.0 m ³ /person/annum	27.7 litres/person/day
	0.8 m ³ /m ² /annum	3.2 litres/m ² /day

Table 1 Water consumption benchmarks for non-domestic buildings.

Source: (Wagget and Arotsky 2006)

This benchmarking shows that our water consumption is typical in the University Sector, but that some universities, of a similar size and profile, are achieving lower water consumption per person. The performance in the non-domestic sector (excluding any residential water uses), shows that lower water consumption per person is achieved, therefore further benchmarking could be done by splitting the residential and non-residential areas of the campus. This shall be done for the 15-16 review by collecting more data such as no. of students living on site.

¹ Estates Management Records / Higher Education Statistics Agency www.hesa.ac.uk

2020 goals

The fundamentals of this Water Management Plan are clear target setting with appropriate metrics.

2020 Targets

The 2020 targets set two clear goals for water reduction and maximizing greywater and rainwater recycling opportunities. These targets are:

10% absolute reduction in supplied water use by end of 2019/2020

20% relative reduction in supplied water use by end of 2019/2020 (by FTE students)

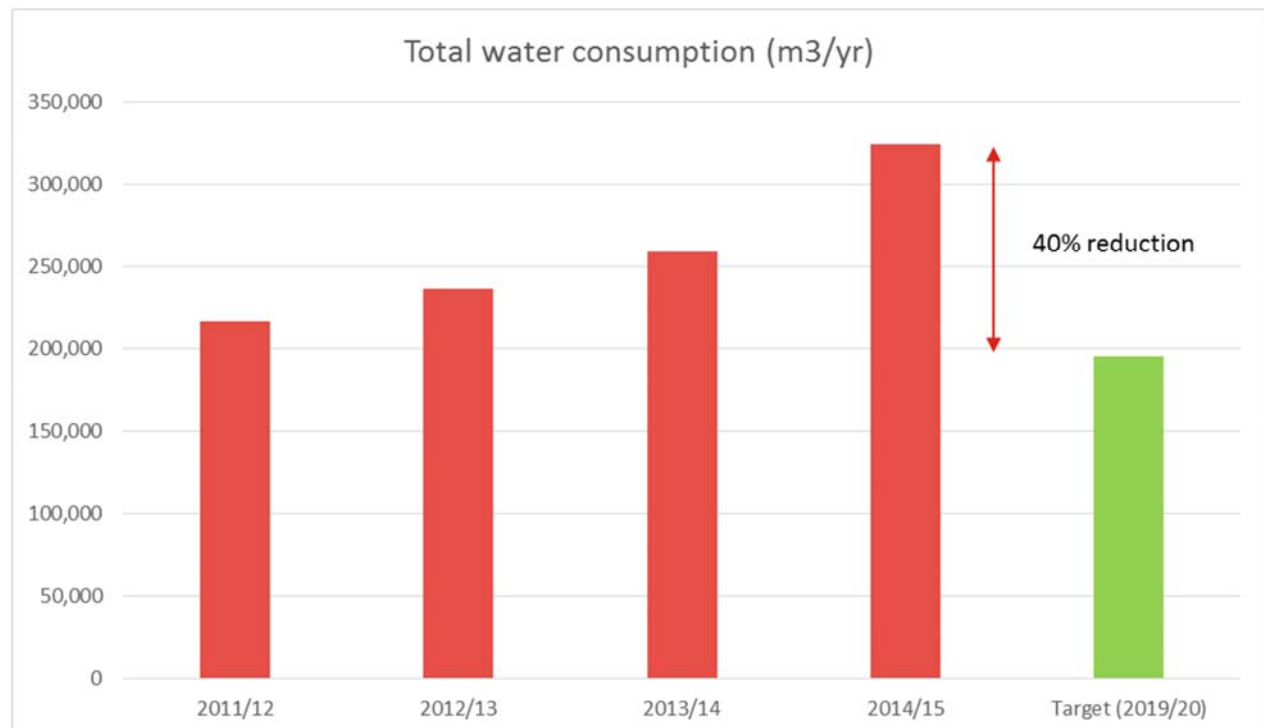
Introduce rainwater harvesting or greywater recycling for WC flushing in new and existing buildings where feasible.

Metrics

The metric chosen for the relative reduction target is Total Number of Students (FTE) rather than floor area (m²) as water consumption is usually affected most by number of users in the building, rather than the size of the building.

Progress against target

The chart below shows our water consumption since the baseline was set to the latest data available. This shows the total absolute water consumption is increasing and the 10% absolute reduction in supplied water use by end of 2019/2020 is equivalent to a 40% reduction from today's consumption. This is largely due to the University taking on significant new buildings such as the former HP site at Frenchay campus, and wider campus development projects include new Students Union and new student accommodation. There are further expansion plans for Frenchay and Bower Ashton campuses which will continue to make this reduction target a challenge. This Plan begins to set out how these targets can be achieved, and highlights areas required for more work.



Water Reduction Projects

This section provides the list of action steps already identified to put UWE Bristol on the path to meeting the reduction targets. There is still further project identification required, and this section of the Water Management Plan will be updated to reflect this.

Action Steps	Description	Timeframe
Showering Research Project	In collaboration with UWE Academics and Bristol Water, we are investigating water reduction methods at the Student Village and new student accommodation, Frenchay campus.	Long term and ongoing
Water surveys	Use of water specialists, to carry out surveys to inform water management strategies	2015/16
Completion of WMP project list	Completion of Water Management Plan project list showing the route to meet the Water Reduction Targets.	2016/17
Summer refurbishment projects	Identify opportunities for roll out of flow regulators, low-flow taps, urinal controls and WCs as part of summer refurbishment projects	2016/17
Water sub metering	Comprehensive sub metering across Frenchay, Bower and Glenside campuses, including water sub-meters in major water use areas such as catering and research labs.	2016/17/18
Identifying water leaks	Use of metering to reduce water leaks and identify source of leaks quickly	Ongoing
Astro-turf water cannons	<ol style="list-style-type: none"> 1. Sub-metering the Astro-turf water for reporting and monitoring 2. Analysis of water consumption at Astroturf water cannons to identify possible water reductions 	Complete (2014/15) 2016/17
Low water use specifications (new build and refurbishment)	Ensure low-flow water fittings and waterless urinals into refurbishment and building specifications where suitable.	2016/17
Rainwater recycling (R Block)	<ol style="list-style-type: none"> 1. Review rainwater recycling installation at R Block and produce lessons learnt for Projects team 2. Recommission of rainwater recycling system on R block phase 1 	2016/17
Rainwater recycling (new buildings)	Investigate opportunities for rainwater / greywater recycling for new and existing buildings	2016/17/18

How to get involved

- If you see energy and water wastage let us know by contacting the 222 Helpdesk or emailing energyteam@uwe.ac.uk
- Communicate with others on saving energy and reducing waste; join student Green Team and the UWE sustainability supporters network – email sustainability@uwe.ac.uk
- Switch off lights PCs and projectors and take part in student and staff energy saving campaigns e.g. UWE Student Switch off.
- Print only when really needed (double sided) to save energy paper and ink
- Shorten your showers in the Student Village to reduce energy and water consumption

How to find out more

- Go to our Sustainability and Energy webpages <http://www1.uwe.ac.uk/aboutus/visionandmission/sustainability.aspx>
- Explore our policies and strategies webpages <http://www1.uwe.ac.uk/aboutus/visionandmission/sustainability/facilitiesandoperations/energyandwater.aspx>
- Expand your understanding of carbon management with the Carbon Trust guides webpages www.carbontrust.com
- Follow us on Twitter [@UWEEnergyTeam](https://twitter.com/UWEEnergyTeam)

Contact Details

Energy Team:

Fabia Jeddere-Fisher, Energy Manager Fabia.Jeddere-Fisher@uwe.ac.uk

Melissa Clarke, Energy Projects Officer Melissa2.Clarke@uwe.ac.uk

Kirsti Norris, Carbon Budgets Manager Kirsti.Norris@uwe.ac.uk

Elaine Williams, Energy Administrator Elaine3.Williams@uwe.ac.uk



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