

Water Neutrality for Sustainable Developments

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Conservation professionals, sustainability technologists and more, have been discussing [carbon neutrality](#) for a while. To achieve carbon neutrality, enterprises calculate the amount of carbon emitted and actively offset that amount, by either sequestering an equivalent amount or purchasing carbon credits to make up the difference. Similarly, nutrient neutrality has followed this approach to balance soil properties in sensitive areas.

The use of water has increasingly become an important environmental issue, in terms of quality and quantity available for new developments. Following on from the Carbon Neutrality (and Nutrient Neutrality) catchphrase, a similar term “Water Neutrality” was coined to indicate the need to reduce the overall water consumption and demand on our natural water resource.

The refined definition of water neutrality is “*for every new development, the predicted increase in total water demand in the region due to the development should be offset by reducing demand in the existing community*” (Environment Agency, 2009).

Reducing Water Demand

Reducing the water consumption on a new development is critical to achieving a sustainable design and protecting the natural water features in the area.

Building Regulations Part G has an optional requirement for maximum water usage limit of 110 litres per day on any new builds. Although this is only adopted by developers wishing to meet certain environmental targets.

Research by Water UK shows that 46 per cent of people believe their household uses under 20 litres a day (roughly equivalent to taking a 2-minute shower) when the true figure is closer to 142 litres per person per day. This means an average family of four in the UK could use more than 500 litres each day.

There are common sense things that the average person can do to reduce water demand on their property, such as:

- Taking shorter showers
- Turning off the tap when brushing your teeth
- Use water twice in the kitchen (where possible)
- Don't run your dishwasher/washing machine unless it is full
- Don't wash your hair everyday
- Have a less deep bath
- Use bath water to water plants, (but not fruit & veg) or flush the toilet with a bucket.
- Use your dual-flush

Of course, these things will help but cannot be quantified by the developer in a new Planning Application to demonstrate a reduction in water use.

The COVID Factor

Covid-19 has transformed the water usage in developed areas, with a shift from office water consumption to increased home consumption.

CIWEM indicate that average household water use increased by around 20 per cent and average business water use decreased more than 30 per cent during peak Covid-19 restrictions.

While things are returning to normal, data from smart meters indicates that water consumption is unlikely to return to pre-Covid levels. Therefore, the water usage baselines used for commercial and household water use will no longer apply in new calculations.

CIWEM have outlined a wish list and targets for addressing this issue and gaining a new set of baseline values, which can be explored further on the link below.

Neutrality Criteria

Water neutrality needs to be demonstrated on the Planning Application, through the submission of a statement or water budget (including calculations). This should typically include all/some of the following measures:

- Limiting water usage to 90 litres per person per day
- Incorporating low water usage WCs, showers etc...
- Incorporating rainwater harvesting
- Incorporating grey water recycling
- Off-set the remainder of any budget

All but the last of these points can be addressed in the initial design stages with a careful consideration of how water is to be used. Supported with guidance for new residents on how to reduce water use in their property, it can be shown that the new development can have a very low water use for its lifetime.

However, achieving total neutrality is almost impossible, there will always be a demand on the water supply from a new development. This has been considered by the final point on the list, which is the most difficult to comply with. Like the way that [nutrient neutrality](#) is approached, the applicant can apply for credits to offset the water demand from the development.

The Environment Agency study on water neutrality in the Thames Gateway (2007), indicated that it was technically feasible to achieve a state of water neutrality by offsetting a new development's demands for water in existing households, public buildings, and business properties.

So to achieve a neutral water demand for their development, the developer must investigate ways of offering water consumption reduction in existing buildings in the borough. For example, this could be through retrofitting of low water usage sanitaryware into existing schools or care homes.

The developer should be investigating low-cost remedial works solutions, as well as water reduction design strategies within the site, at the inception of their scheme to reduce water demand in the area if they are aware that there is a requirement for water neutrality in that catchment.

Why is it Important Now?

While water neutrality was a hot and quite fashionable topic 10 years ago, it was not progressed into a formal requirement. Now, some councils are revisiting the topic and discussing the criteria for water neutrality with Natural England.

Chichester Council (as an example) now take the view that all replacement dwellings and new build residential development, together with commercial uses with new floor area and high water uses, in the Sussex North water resource supply zone will need to be tested through a Habitat Regulations Assessment (HRA) and will need to demonstrate water neutrality. This requirement is because the Sussex North area is supplied by a water extraction at Hardham, which is identified as an area that is struggling with providing enough water to meet the demand.

Both the Local Planning Authority and Natural England understand that for new build on green field sites it is very unlikely that the development will be able to achieve neutrality without off-setting part of the budget.

Typically, the Council does not currently have a strategic mitigation scheme to provide any off setting. Continuing with the Chichester example, they state following: *“Chichester District Council does not have any appropriate buildings in the Sussex North catchment area [suitable for retrofitting low water use sanitaryware] and therefore this option is not available.”*

The emphasis from Natural England is to wait for the Local Plan review and the strategic mitigation proposals across all affected Local Planning Authorities, which will come through this process. It is therefore deemed unlikely that new planning development would be able to demonstrate water neutrality on this site and as such a refusal for any Planning Application in the catchment, on HRA grounds, is likely.

So, What Can We Do?

For now, not a great deal. If you are working on a scheme that encounters a water neutrality requirement, then you are likely to hit a brick wall. While the most eco-friendly development possible can be designed with low water use, grey water recycling, rainwater harvesting, water capture and retention from rainfall, it will still be incredibly difficult to demonstrate that the site is water neutral.

The key thing for us as consultants is to identify the issue and make our clients aware that there will be a problem. It is an argument for allowing more sustainable design and construction on the scheme, so it can be a way to facilitate the developer introducing a better scheme environmentally. However, the decision and the power to grant credits and ultimately approval, lies with the council and it is discussion with them that will determine if the proposed scheme is viable.

References

[Delivering water neutrality: measures and funding strategies, Environment Agency.](#)

[Reducing water demand - a water-efficiency wishlist - CIWEM](#)