

**A Response to the Southern Water Consultation on draft WRMP**  
**17 February 2023**

**Executive summary:**

In response to this call for evidence on draft WRMP by Southern Water, we provide evidence and policy recommendations concerning the following questions:

**Question 6:** Do you support us achieving our WRMP target of reducing average personal daily use from 131 litres per person per day to a) 109 litres by 2040 or b) should we retain our more ambitious target of 100 litres per person per day by 2040?

**Question 8:** Our plan continues to rely upon temporary restrictions on water use to help lower demand during droughts to avoid further investment in new supplies. Do you agree with our approach to continue using temporary water restrictions during droughts?

**Response Author:**

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Carmine Ornaghi is a Professor of Economics at the University of Southampton. His papers have been published in leading scientific journals, including Energy Economics, the Journal of Applied Econometrics, the International Journal of Industrial Organization and the Journal of Industrial Economics. In the last five years, Prof Ornaghi has been the Principal Investigator in an ESRC funded research aimed at evaluating the impact of water metering on water usage and co-Investigator in an EPSRC funded research aimed at evaluating the impact of behavioural interventions on energy conservation in public offices.

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**Relevant Sustainable Development Goal(s):** SDG 6 and SDG 11.

**Responses:**

**Question 6: Do you support us achieving our WRMP target of reducing average personal daily use from 131 litres per person per day to a) 109 litres by 2040 or b) should we retain our more ambitious target of 100 litres per person per day by 2040?**

To answer this question, it would be necessary to do an exhaustive cost-benefit analysis that looks into the following:

- 1) How will be obtained and how costly will it be for Southern Water or for the households?
- 2) Would the reduction in consumption obtained by installing more efficient technology at home (such as shower regulators and aerators) or by information campaigns, including smart home visits?
- 3) What costs will be saved by such reduction in demand. Eg. is the reduction 109 to 100 vital for not building a new reservoir or making other capital investments aimed at increasing supply?
- 4) What are the benefits for the environment of not building a new reservoir?

In general, I am very sceptical about intervention that are reliant on people taking action and maintaining a lower level of water use and the evidence we describe below shows that *such interventions dependant on individual responsibility may not always succeed long-term*

Some years ago, Southern Water (SW) started a free water audit campaign where trained advisors, known as Green-Doctors, offered advice to households on how to cut water consumption. As a result of this initiative, SW carried out more than 50,000 water audits and installed more than 165,000 water-saving devices - such as water-efficient showerheads and tap aerators - into some 46,000 properties

In collaboration with SW, we studied the impact of such programme (Anskin, Ornaghi and Tonin, 2021) and we found that the information component of water audits (i.e. information provision on current water use, potential savings, and comparing water usage to similar households) had a large initial impact, but this was found to gradually fade over time, leading to a drop in consumption of less than 2% after 12 months. On the contrary, water-saving devices contributed to an average reduction of around 5-10 litres per day, with an effect that was persistent over 18 months. Given that average households had two devices installed, this amounts to a drop in consumption of 2-4%. We also found that some devices were more effective than others in reducing water consumption. A simple cost analysis of home visits showed that the information component was twice as expensive compared to the technology component (i.e. installation of water-saving devices) in reducing water consumption.

### **Reference**

Anskin E., Ornaghi C. and Tonin M (2021) "Technology vs information to promote conservation: Evidence from water audits". Tinbergen Institute Discussion Paper 2Q1/014 (<https://papers.tinbergen.nl/21014.pdf>)

**Question 8: Our plan continues to rely upon temporary restrictions on water use to help lower demand during droughts to avoid further investment in new supplies. Do you agree with our approach to continue using temporary water restrictions during droughts?**

Yes, I agree with your approach of using temporary restrictions to water use in the form of hosepipe bans during periods of severe droughts.

However, I think that the regulator and water companies should seriously consider the introduction of increasing block tariff. This will generate a reduction in water use that is not only efficient for the society (at aggregate level, we can assume the last "unit" of water is more costly to produce) but can also reduce inequalities, for wealthy households tend to consume more water than less wealthy households.

I have read some reports suggesting that there is limited evidence that UK households are sensitive to the price of water. I do not share this view. In another study in collaboration with SW (Ornaghi and Tonin, 2021), we investigate the dynamics of water consumption of more than 150,000 newly metered customers and we found an average decrease in water usage of 91 litres, from 403 to 312 litres, per household per day. This 22% reduction is substantially higher than the 12% that was found in previous small-scale studies and had represented the reference point for the industry.

### **Reference**

Ornaghi C. and Tonin M. (2021) "The effects of the universal metering programme on water consumption, welfare and equity" - Oxford Economic Papers, volume 73, 1, 399-422 (<https://academic.oup.com/oep/article/73/1/399/5620404>)