



## Water Conservation Workshop One Report

**Workshop meeting 22<sup>nd</sup> June 2022,**

**Clayton Hotel, Dublin**

## Contents

Background .....	3
Workshop objectives and format .....	4
Workshop outcomes.....	4
Building Regulations.....	4
Government-led mandatory labelling.....	5
Smart metering as a non-pricing water conservation strategy .....	7
Appendix 1 .....	8
Appendix 2 .....	10

## Background

To support its statutory mandate to advise the Minister for Housing, Local Government and Heritage on water conservation, An Fóram Uisce - the Water Forum commissioned research to address a gap in scientific knowledge on the need for and benefits of water conservation. The objective of the research was to inform policy development to support more proactive water conservation in Ireland. Dr Sarah Cotterill from University College Dublin and Dr Peter Melville-Shreeve from Exeter University completed the research titled, '*A Framework for Improving Domestic Water Conservation in Ireland*<sup>1,2</sup>'. The research introduced issues around water scarcity in Ireland and the common misconceptions about the abundant availability of water. The research findings resulted in ten policy recommendations for improving domestic water conservation measures.

**Aim of the workshop;** to share the research on domestic water conservation with key national organisations and agencies and start the discussion on how to implement some of the policy recommendations. The workshop also aimed to explore existing water conservation measures in Ireland and the UK, and explore potential opportunities to make further progress in relation to the building regulations, water efficiency labelling and smart metering.

The **focus of the workshop** was on three key recommendations from the research;

1. Update Building Regulations to specify total water use per building and maximum ratings for fittings
2. Implement a mandatory, Government-led water labelling scheme linked to revised building regulations and fittings standards
3. Introduce smart metering as a non-pricing strategy to raise awareness on how and where water is used.

The workshop facilitated the discussion between the lead researcher, Dr Sarah Cotterill, members of the Water Forum's Water Services Standing Committee and key organisations and agencies with responsibility for Building Regulations, Green Building policy, Irish Water, Group Water Schemes and UK Government Department of Environment, Food and Rural Affairs (DEFRA) who implemented similar policies in the UK (Table 1).

**Table 1: List of Workshop Attendees**

Name	Organisation	Name	Organisation
Aaron Burton (online)	DEFRA UK	Keith Hyland	AFU & IW customer
Barry Deane	AFU & NFGWS Rep.	Kevin Murray	Irish Water
Brian Crowley	Irish Green Building Council	Ollan Herr	AFU & Zero Waste Alliance Rep.
Connie Rochford	AFU & IW customer	Paul O'Brien (online)	AFU & IFA Rep.
David Wright	AFU & Irish Social Housing Rep.	Paul O'Brien	DHLGH Water Policy
Denis Drennan	AFU & ICMSA Rep.	Sarah Cotterill	UCD
Dominic Cronin	AFU & ICOS Rep.	Sarah Neary	Building Standards DHLGH
Donal Purcell	An Fóram Uisce	Sinead Egan	Irish Water
Gretta McCarron (online)	An Fóram Uisce	Sinead O'Brien (online)	AFU & SWAN Rep.
Joe Gallagher (online)	NFGWS	Suzanne Linnane	AFU & Education Rep.
John Fingleton	Irish Green Building Council	Triona McGrath	An Fóram Uisce

Abbreviations: AFU – An Fóram Uisce (Water Forum Member); ICMSA – Irish Creamery Milk Suppliers Association; SWAN -Sustainable Water Network; NFGWS – National Federation of Group Water Schemes; DHLGH – Dept. of Housing, Local Government and Heritage; ICOS – Irish Co-operative Society; EPA – Environmental Protection Agency; IFA – Irish Farmers Association.

<sup>1</sup> Cotterill and Melville-Shreeve, 2021; [A Framework for Improving Domestic Water Conservation in Ireland - Research Report - An Fóram Uisce \(thewaterforum.ie\)](#)

<sup>2</sup> Cotterill and Melville-Shreeve, 2021 A Framework for Improving Domestic Water Conservation Policy Brief - [Water Forum Policy Brief \(thewaterforum.ie\)](#)

## Workshop objectives and format

The first session of the workshop consisted of a series of presentations, followed by round table discussions;

Person/Agency	Presentation
Dr Sarah Cotterill, UCD	Research Report on Domestic Water Conservation
Irish Water	Overview of domestic water conservation activities
National Federation of Group Water Schemes	Learnings from metering in the Group Water Sector
Irish Green Building Council	Water efficiency measures in the Home Performance Index
UK Dept. of Environment, Food and Rural Affairs	Mandatory water labelling and updating building regulations in the UK

The second session consisted of a workshop with three breakout rooms to focus on:

- (1) the changes required to the Building Regulations to address water conservation
- (2) how a Government-led mandatory labelling programme might be initiated and
- (3) the potential for implementing smart metering as a non-pricing strategy for water conservation

Groups moved between the three breakout rooms to allow everyone to contribute to the 'what, who, how and when' for each of these topics. The Forum secretariat and Dr Sarah Cotterill facilitated the breakout rooms and took notes from the discussion. *Notes of these discussions are also provided in the Appendix.*

## Workshop outcomes

### Building Regulations

#### *What needs to be done?*

Most contributors agreed that any changes to building regulations could only be applied to new buildings, however there was no agreement on the metrics that should be used, *i.e.* linked to occupancy or a whole building standard (such as 100 litres per household per day). There was broad agreement on the benefits for using rain/grey water to flush toilets in all new houses, however it was less clear whether such changes should be across the whole country or only in areas of water stress. There was concern if using Building Regulations was the right mechanism as it would take a long time even if the action was only focused on new builds and/or fittings and fixtures. Participants highlighted the need for a standardised approach that provides value for money, is sustainable and transparent, and meets the requirements for joined up thinking across government departments.

#### *How can it be achieved?*

The new recast Drinking Water Directive water safety plans could be an opportunity to address sustainability and climate change in the Building Regulations, not just 'hygiene' which is currently covered. Furthermore, it might be worthwhile looking for learnings from water neutrality case studies in England (e.g. <https://waterinnovation.challenges.org/winners/water-neutrality-at-nav-sites/>). A suggestion was made that the SR50-3 plumbing code could be written into the Building

Regulations, which could set requirements for the design, installation and commissioning of domestic cold-water and hot-water supply systems.

Recommendations to leverage the private sector to undertake water conservation initiatives, such as a trial scheme, for example a demonstration site (hotel, small business) if funding could be secured which could a) provide evidence base to demonstrate costs, impact, etc. and b) support behaviour change / mass awareness raising.

Participants highlighted the need for a strong evidence base to support the changing of Building Regulations, for example, a cost-benefit analysis (not just monetary benefits) could be conducted to demonstrate value for money. Financial schemes and mortgages conditional to certain standards may also be required to ensure action, but also ensure that the process does not add additional cost to the homeowner.

Concerns were raised that there is currently no standard certification scheme for plumbers, unlike for electricity and gas technicians. Recommendations were made to identify learnings from the energy retrofit scheme to determine if they can be applied to an element of water efficiency, for example leaky loos.

A further recommendation was to seek out the potential to create a link with the 'Housing For All' task force to explore options to incorporate domestic water conservation measures in new builds.

#### *Timeline*

There was general agreement among the contributors that actions should begin immediately, possibly with set milestones and dates for outcomes (set standards being implemented).

The workshop participants identified the following possible next steps for Building Regulations

- Determine if the new Drinking Water Directive can provide a potential pathway to include water conservation measures in the Building Regulations.
- Build an evidence base, including cost-benefit analysis (financial and environmental) for the need for and benefits of including water conservation measures in the Building Regulations for new building developments.
- Develop a plan, possibly based on UK case studies, for how to progress Building Regulations changes for water conservation measures including recommendations for standards (per capita water conservation targets), application (targeted areas or national), fixtures and fittings, funding options and mechanisms (to achieve cost neutrality), regulatory incentives and legislative pathways for delivery.

### Government-led mandatory labelling

#### *What needs to be done?*

Participants agreed with the research outcomes that mandatory, Government-led labelling on water using products should be progressed, with the aim that manufacturers would improve the water efficiency of products. Any such policy would need to follow/align with existing EU policies. If mandatory water labelling is implemented in the UK (as is currently being proposed by DEFRA), a similar approach in Ireland could support alignment with UK trade of water appliances and fittings.

Concerns were raised over a mandatory approach, which could be counter-productive if public resist it being 'mandatory'.

*How can it be achieved?*

Research should be undertaken to determine if the EU/UK industry for appliances/fittings is ready for water efficiency labelling. Furthermore, an assessment of the costs of water efficient appliances is needed to ensure this transition would not add additional cost to the homeowner (particularly at this time while the costs of living is already steadily increasing). Estimates of the potential savings in electricity and energy use (and hence cost) by using water efficient devices should be determined to support the transition.

Information is needed on the practicalities of labelling within the industry. There could be an opportunity to take learnings from the UK. Information is also needed on how much trade of water appliances and fittings in Ireland is from the UK, so that water labelling between Ireland and the UK should be consistent.

A suggestion was made that water labelling could be linked to the sale of a house; a declaration of water efficiency, similar but smaller scale than Building Energy Rating (BER). However, the level of water efficiency will not have cost implications for the new owner, therefore may not have impact. It was noted it would be difficult to change BER as it follows EU policy. Therefore, a suggestion was made to have a water labelling scheme, separate to the BER which could be easier/quicker to implement.

A suggestion was made to create a table of appliances and fittings with the biggest users of electricity to support targeting of labelling to the higher water users. The Group Water Sector could be used to pilot the effectiveness of labelling (details of appliances/fittings would be required).

A further suggestion that water labelling could be used alongside the excess use charge, where it could then be sold as a price incentive. However, only 60% of households are metered and therefore this could be difficult to quantify.

There was agreement there is a need to identify ways to incentivise water efficient devices and labelling measures needs to be supported by water education and awareness, including knowledge of water use (meters) and the impact of high water usage on wastewater (both volumes and chemicals).

The workshop participants identified the potential next steps for Government-led mandatory labelling:

- Encourage the development of a Government-led demand management strategy to reduce water use through leakage reductions, metering, labelling and building targets (similar to the UK) possibly part of or contributing to Drought Management Plans/Climate Change Action Plans (driven by a National Water Efficiency Leadership Group).
- Explore learnings from the UK on mandatory product efficiency labelling and European plans for similar to assist with the identification of a pathway within Ireland's regulatory and legislative framework to expedite the implementation of mandatory water efficiency labelling on appliances.
- Future research is needed on a cost benefit analysis of consumer savings from the use of such products linked to increased energy efficiency and GHG reductions with a view to making using such products more attractive to consumers.

- Develop a water saving culture – deliver education and awareness programmes on the concept of **water neutrality**, to raise awareness of the increasing demand for domestic water, the need for water efficiency and the financial and environmental benefits of reducing domestic water use (systems thinking to drive behaviour change).

## Smart metering as a non-pricing water conservation strategy

### *What needs to be done?*

Homeowners frequently incorrectly estimate their water use and the variation in water used between households is more significant than that of other utilities such as gas or electricity. Smart metering leads to greater awareness by identifying norm-based data and presenting options to save water. Providing easily accessible data (such as on a phone app) would link action with outcome and encourage a change in behaviour. The recommendation is for the development of pilot smart metering such as in new housing schemes to assess effectiveness and outcomes. Such resources provide mechanisms for further awareness initiatives such as connections to wastewater volumes and other environmental impacts.

### *How can it be achieved?*

Concerns were raised on the potential for a significant cost to the development and installation of such technologies, with an additional challenge to encourage uptake and use by customers. A cost benefit analysis would need to be done on the savings for providing water versus providing meters (including energy and environmental benefits). Learnings are available from the NFGWS on the benefits of metering, which could be used to support the discussion. The upcoming recast Drinking Water Directive will make it mandatory to provide information regarding water use, so there may be more of an incentive to develop and implement the technologies when that Directive is enacted. Irish Water is planning Smart Network strategies by 2025/2026 and this could include a pilot initiative to inform these revisions. Furthermore, Group Water Schemes would also be interested in piloting smart meters.

## Workshop participants identified the possible next steps for Smart meter pilots

- Irish Water will consider smart meter pilots as an option in its planning Smart Network Strategies for 2025/2026.
- GWS would be interested in piloting smart metering for domestic water conservation.
- More research is needed such as a cost/benefit analysis of smart metering for domestic water conservation.
- Any smart metering pilots would have to be supported with education and awareness around the need for water conservation, where language and framing will be important to encourage behavioural change.

## Appendix 1

### Presentations summary and recommended actions

Notes from water conservation workshop 22/6/22	Possible follow up actions in BLUE
<p><b>Kevin Irish Water Presentation Notes:</b>            90 day readings of meters on 60% of properties (900k) domestic meters. Can detect leaks. But no access to households, first fix scheme only. Can repair outside property leaks.            Other conservation activities: Green Schools; website water use calculator; public awareness; water stewardship programmes; local engagement (Achill); research and innovation            Future: Recast Drinking Water Directive; smart network strategy</p> <ol style="list-style-type: none"> <li>1. Smart network trials in appt block. Fixed leaks reduced use by 10%</li> <li>2. Efficient fittings to be supported by education</li> <li>3. Theft is an issue in places</li> </ol>	<ul style="list-style-type: none"> <li>• <i>Some data is available for potential case studies – used for targeted actions or pilots?</i></li> </ul>
<p><b>Barry NFGWS</b>            Data is key to water management – 2019 90% GWS are metered UFW fell from 40% to 21% in these GWS. Key;</p> <ol style="list-style-type: none"> <li>1. Capital investment; 2. Capacity building; 3. Awareness; 4. Charging linked to use</li> </ol> <p>Awareness – All about water in schools; water use calculators - Need to be taught how to read a meter and telemetry is needed to reduce use. Research found that 90% of the waste was on the customer side.</p>	<ul style="list-style-type: none"> <li>• <i>NFGWS learnings could be used for awareness initiatives</i></li> </ul>
<p><b>Aaron DEFRA</b>            UK is developing regional plans for water resources. Key aim is to reduce use by 2050 through demand management strategies. demand drivers are pop increase; drought, impacts of climate change. Statutory target of 20% reduction by 2027 through leakage reductions, metering, labelling, building targets.</p> <ul style="list-style-type: none"> <li>• Labelling – important to achieve water demand targets; held a workshop to discuss minimum standards, testing, enforcement and links to building regs (use energy labels as a template)</li> <li>• Water Efficiency – Part G Building Regs, 110 litres per day in stressed areas. Need to engage Las.</li> <li>• Roadmap for retrofitting – targeting social housing initially (50 Litre homes – 50 litres pp per day)</li> <li>• Targets for new homes</li> <li>• Water neutrality – new development systems thinking needs behaviour change</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Could find out more about the processes they used to develop mandatory labelling and how they implement water efficiency as part of the Building regs;</i></li> <li>• <i>How do they select the targets for the new homes and how do they engage with consumers to implement the change in practice</i></li> </ul>
<p><b>John IGBC</b>            Green Home Performance Scheme 500 homes currently certified and a further 500 registered. Based on a home performance</p>	<ul style="list-style-type: none"> <li>• <i>Key knowledge gap around water efficiency – there is a need to spread messages</i></li> </ul>



<p>index of 40 measures: Environmental; Health and Wellbeing; Economic and Quality ambience.</p> <p>Measures internal water use – smart monitoring and water quality testing – limit currently 125 litres pp per day; new level 110 litres pp per day; 95 by 2025 and 75 by 2030 - use a water use calculator based on SEAI calculators – <a href="#">Need to harmonise calculators between IW, GWS, IGBC, SEAI</a></p> <p>Surface water runoff aiming for 20% reduction in runoff through SUDS measures</p>	<ul style="list-style-type: none"> <li>• <i>Find out more about the water use calculators – can the Green Performance Scheme be used in other buildings (state owned for example)</i></li> <li>• <i>Find out more about the SUDS measures particularly for new builds currently being put in place by Las etc.</i></li> <li>• <i>Explore how to address the knowledge gaps for water efficiency</i></li> <li>• <i>How to incentivise good behaviour and penalise bad behaviour?</i></li> </ul>
<p><b>Sarah Neary Building Regs</b></p> <p>BER already includes minimum standards for water use, includes simple straightforward best practice, not targets as such but follows the EU legislative requirements.</p> <p>Product labelling is regulated by the EU, needs to be driven by product innovation. Affordability would also be an issue.</p> <p>There needs to be specific clear measures that are easy to implement, ideally driven by policy.</p>	<ul style="list-style-type: none"> <li>• <i>Identify clear implementable measures</i></li> </ul>

## Appendix 2

Breakout session notes: Building Regulations, Labelling and Smart Metering.

### BUILDING REGULATIONS

#### What?

- Most people agreed it should only apply to new builds
- There was some disagreement on what the metric should be .... should it be 110 l/p/d (or more ambitious such as 100 l/p/d)? should it be linked to occupancy or be a whole building standard?
- There was broad agreement for using rain/grey water to flush toilets in all new houses
- Some suggestions for mandatory (low cost) rainwater harvesting
- Disagreement as to whether changes should occur across the country or be targeted in areas of water stress.
- There were some questions as to whether building regs is the right mechanism - e.g. it could take a long time to drive change, particularly if only focusing on new builds and/or fittings and fixtures.
- Some suggestions of whether building standards should be considered more broadly (i.e. part of the environmental element in the planning application)
- There was an observation that they must offer value for money, be specific (clear), be sustainable/future proof and that they should be delivered in a transparent, standardised approach (requiring joined up thinking across departments)

#### Who?

*LOTS of stakeholders involved including:*

- Department of Housing, Local Government and Heritage
- Department of Environment, Climate, and Communications
- Department of Enterprise, Trade and Employment (DETE) - products/ fittings/fixtures
- Office of Planning Regulator (OPR)
- National Standards Authority of Ireland (NSAI)
- Environmental Protection Agency (EPA)
- Sustainable Energy Authority of Ireland (SEAI)
- Land Development Agency
- Construction Industry Federation (CIF)
- Irish Business and Employment Confederation (IBEC)
- Citizens
- European legislators (product labelling, drinking water regs)
- Plumbing trade
- Local authorities

#### How?

- General consensus was that the focus should be mandatory for new builds only, rather than existing housing stock - due to cost associated with retrofit and difficulty in implementing systems/processes to support it.
- Suggestions to explore options to incentivise changes in retrofit properties (e.g finance schemes, green mortgages conditional on certain standards, must be cost-neutral )

- There's an expectation that the SR50-3 plumbing code could be written into the building regs - could this be a driver?
- The Drinking Water Directive water safety plans could be an opportunity to address sustainability and climate change in the building regs, not just 'hygiene' which is currently covered.
- Might be worthwhile looking for learnings from water neutrality case studies in England (e.g. <https://waterinnovation.challenges.org/winners/water-neutrality-at-nav-sites/>)
- Recommendations to leverage private sector
- Undertake a trial scheme e.g. demonstration site at Centre Parcs (if funding can be secured) which could a) provide evidence base to demonstrate costs, impact, etc and b) support behaviour change / mass awareness raising
- Likely to need a strong evidence base to support the case - could a cost-benefit analysis (not just monetary benefits) be conducted to demonstrate value for money?
- Look at parallels with prior changes to electrical regulations acknowledging there are different challenges (e.g. no standard certification scheme for plumbers as with electricity and gas)
- Take learnings from energy retrofit scheme - could this be applied to an element of water efficiency - e.g. leaky loos?
- Link in with Housing For All task force

#### When?

- General acknowledgement that this will take some time, but the process needs to be started immediately.
- Would like to see milestones and dates agreed (e.g. by [date] ... appliances/fittings must be .... [insert standard])
- More discussions required to determine a realistic timeline.

## WATER EFFICIENCY LABELLING

#### What?

- Mandatory, government led labelling
- Must follow/align with EU approach/policies
- Could support alignment with UK trade\* (if mandatory labelling is implemented there)
- Concerns over mandatory – could be counter productive if public resist 'mandatory

#### Who?

*LOTS of stakeholders involved including:*

- DHLGH (Building Regs, Water Policy)
- DETE (Trade)
- BER (Building Regs?)
- SEAI (links to energy savings from less water heated)
- IGBC (learnings from what appliances/fittings are used to meet water efficiency targets)
- Industry \*\* (this will be key, links to industry selling products)
- IBEC (follow up with Forum's Rep for Industry)
- Trade/Employment
- Drinking Water Directive (DHLGH / EPA?)
- Links to EU Sustainability
- Green Public Procurement (incentivise low water users, penalise high water users?)
- Government – VAT on green goods.

### How?

- Difficult to change BER (large EU policy)
- Could make labelling mandatory separate to BER, easier/quicker to implement.
- Could it be linked to the sale of a house; a declaration of water efficiency (similar but smaller scale than BER). The level of water efficiency will not have cost implications for the new owner, therefore may not have impact
- Targeting industry (not the homeowner)
- Could it be used alongside the excess use charge (it could be sold as a price incentive then); problem that only 60% of households are metered.
- The GWS could be used to pilot the effectiveness of labelling (details of appliances/fittings would be required).
- The EU industry for appliances/fittings may already be ready for water efficiency labelling, need to research the EU/UK industry \*\*
- Links with Recast of the Drinking Water Directive
- Research into the costs of water efficient appliances (it can't cost the homeowner more money)\*
- Need figures on the savings in electricity (and hence cost) by using water efficient devices \*\*
- How much trade in Ireland is from the UK, labelling between Ireland and the UK should be consistent.
- Create a table with the biggest users of electricity (which appliances/fittings should be targeted)
- Identify ways to incentivise water efficient devices
- What are the practicalities of labelling (within industry)
- Needs to be supported by water education and awareness
- Needs to be supported by knowledge of water use (meters)
- Needs education on the impact of high water usage on wastewater (both volumes and chemicals)

### When?

- Now!
- Difficult timing now due to challenging time financially for people with the cost of living
- Difficult with the cost of building materials already (concern over adding additional cost to that)
- Could be difficult with energy crises (additional cost/stress), however could tie in with this crises and use the savings for hot water as measures to support water conservation
- Could align with climate objectives, illustrate savings in conserving hot water, and also reducing carbon emissions from water treatment and pumping, as energy saving initiatives

## SMART METERING

### What?

- Smart meters in households which indicate water use
- Pilot projects for smart metering – to indicate cost savings ..*Pilot initiatives like on the Islands or GWS*
- Consumers are aware of water usage and provides feedback to the user (smart relative to standard meters)
- smart meters to be available for your phone if you wished to use them.
- Information to be available to consumers on water usage with a link to environment
- Link between education & ownership

- Use bulk meters for housing estates. Move to Residents Associations
- Use term of Water monitoring rather than water metering
- Proposal from Land Dev Agency to install Smart meters in new housing schemes
  - Connection to wastewater - volume
- 

#### **Who?**

- Irish Water
- Householders
- NFGWS
- Department for HLGH (funding, awareness campaigns) Recast D/Water Directive Re Water Conservation. Art 17 Annex 4
- The Water Forum (advocating) Awareness & Lobby
- Industry – innovations for various technologies. Appliances/stewardship/ location (Data centres)
- Tech Developers
- Schools & Education
- 

#### **How?**

- Start with pilots – where should they be? pilot schemes used before to be revisited
- Available technology
- Challenges – costs
- Challenges – for implementation of this non-pricing meters (difficulty related to previous problems)
- Solutions – learnings from the NFGWS (metering in general)
- Additional research from pilots – to investigate the savings from smart meters as non-pricing strategy
- Additional technologies for feedback to users – e.g. smart showers
- IW to install – up to site boundary
- Encourage people- non-mandatory
- Cost is a challenge-
- Meters are a toxic concept for some people- need a for a pilot that works
- Recast DW directive makes it mandatory to provide info to public re water usage/ consumption etc.
- Inform people regularly- where information is available
- CRU innovation- volunteer sign up
- Impact on environment re energy cost to produce DW
- 

#### **When?**

- Pilots need to be start asap
- Provision of information of available technologies – can be started soon with Irish Water
- Incentives (government led) – for smart meters / technology
- Urgent- environment
- Pilots to start
- Population- Growth makes it urgent
- IW Plans- Smart Network strategies by 2025/26 could pilot smart meter initiatives
- Investigate re pilots & how
- GWS interested re pilots