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The Water Forum
AN FÓRAM UISCE

Ms Marie Donnelly and Prof. Thorne
Climate Change Advisory Council
McCumiskey House
Richview
Clonskeagh Road
Dublin 14
D14 YR62

15th June 2023

Dear Ms Donnelly and Prof. Thorne,

The Water Forum (An Fóram Uisce), established on a statutory basis in June 2018 in accordance with the Water Services Act 2017, facilitates national stakeholder input to water policy development in Ireland. The Forum has advisory functions to the Minister for Housing, Local Government and Heritage, the Water Policy Advisory Committee, Uisce Éireann and the Commission for Regulation of Utilities. The Forum consists of 25 members including representatives from a wide range of organisations with direct connection to water. We provide an opportunity for stakeholders to debate and analyse a range of issues, including the implementation of the Water Framework Directive and Ireland's River Basin Management Plan. The Water Forum's vision is for clean and healthy waters, supporting biodiversity, community wellbeing and economic sustainability.

One of the roles of the Forum is to analyse water issues related to climate change and to develop appropriate policy advice. The global climate change crisis is inextricably linked to water. Latest research indicates Ireland will see increased incidence of extended periods of abnormally low precipitation, more and greater precipitation extremes and flooding, heatwaves and storms (Nolan and Flanagan, 2020). The impacts of climate change will occur in conjunction to an existing adaptation deficit for the sustainable management of Irish water resources. For instance, there is currently a lack of resilience in our water supplies with significant insufficiencies in supply and wastewater treatment infrastructure For example 38% of treated water from public supplies is lost through leakage. Uisce Éireann has stated that 58% of public water supplies have a supply demand deficit in normal conditions, which increases to 66% during drought. Increased frequency and magnitude of drought conditions will add additional pressure to water availability for sustainable abstraction during summer months. Moreover, increased demand from both population growth and economic development, will add additional challenges to the management of our water resources. Furthermore, only 54% of Ireland's waterbodies are achieving at least good ecological status as required by the EU Water Framework Directive (EPA, 2022), where climate change will exacerbate existing pressures on water quality, altering the mobility and pathways of pollutants from land into our waterways, with resulting impacts on aquatic biodiversity.

In order to formulate policy advice, the Water Forum commissioned research to evaluate if and how Ireland's national policies and climate change adaptation plans address the future risk to water resources from climate

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change. One research project focused on projected impacts of climate change on water quantity (led by Dr. Fiachra O'Loughlin, University College Dublin[1]), while the second project focused on impacts on water quality (led by Dr. Michelle McKeown, University College Cork[2]). Outputs from these research projects have supported the Forum to develop its policy recommendations, which we would like to share with the Climate Change Advisory Council to contribute to your own deliberations.

## Water Forum Recommendations to the Climate Change Advisory Council

### 1. Integrated Catchment Management

- Integrated catchment management should be central to decision making around climate adaptation in Ireland. The catchment should be used as the management unit for climate adaptation planning to take account of spatial variability in projections in storms, flooding and drought across the country.
- In order to better integrate water management with biodiversity and climate change action, the Water Forum adopted the Framework for Integrated Land and Landscape Management (FILLM)[3] as a framework for environmental management to address the interconnectedness of natural systems. This integrated approach facilitates the identification of co-benefits of various measures to ensure optimum benefits for water, climate and biodiversity for efforts and resources used, while also supporting decision-making around trade-offs, where required.
- FILLM recommends that measures required for sustainable management of water resources, biodiversity management and climate change adaptation and mitigation should be developed and implemented in an integrated manner. The Forum believes that the Climate Change Advisory Council should consider this approach for climate mitigation and adaptation actions.
- Aligning action for climate, water and biodiversity would also benefit communities, making environmental management more understandable, less fragmented and thus more achievable. Communities should be informed of the different co-benefits that may exist from the measures or actions they are being asked to implement.
- The 3rd River Basin Management Plan (currently being finalised by the DHLGH) proposes to develop 46 catchment management plans to address water quality and quantity in Ireland: these would provide an ideal base to incorporate climate adaptation planning into water resource management.

### 2. Governance and Adaptation Planning

- There should be a commitment within the Climate Action Plan for greater policy coherence and alignment of climate, water and biodiversity objectives, which would support greater integration of resources with optimum environmental benefits. This will require improved collaboration between government bodies, state agencies, non-government organisations and other relevant stakeholders at

[1] Projected-climate-change-in-Ireland-and-associated-risk-to-water-quantity_final.pdf (thewaterforum.ie)
[2] Addressing Projected Climate Change Risk to Water Quality in Ireland (thewaterforum.ie)
[3] Framework for Integrated Land and Landscape Management - An Fóram Uisce (thewaterforum.ie)

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national and catchment scale. An assessment of timelines for revision of existing relevant policies should be undertaken to identify opportunities for better integration of these policies.

- Land use planning is undergoing a revolution in Ireland, and future planning must take account of the implications for water, to ensure alignment with requirements of the Water Framework Directive.
- Flood management plans should be developed for every catchment, rather than at national or regional scale, to account for spatial variability in projected precipitation. They should be based on the range of expected change from the most recent climate projections.
- In line with requirements set out by the European Commission, drought management plans need to urgently be developed for Ireland to better adapt to projected increases in drought during summer months. These should be developed for every catchment and coordinated nationally due to the spatial variation expected, thus avoiding a 'one fits all' approach. It is likely this will highlight data gaps for adequate drought management planning, which can then support decision making about how to fill these data gaps. The roles and responsibilities of government bodies and agencies who have a role in drought management planning should be publicly available, with a clear timeframe for the development and implementation of the drought management plans. Drought management and supporting legislation is considerably more advanced in the UK and elsewhere in Europe than in Ireland at present.
- Large reservoirs for storing water will be required to adapt to the peaks and lows in precipitation expected with future climate change, to ensure resilience in water supply across the country.

## 3. Water Conservation

- By the first week of June 2023, there are 7 counties requiring local water conservation measures (e.g. night-time restrictions and water tankering to reservoirs) due to increased water demand and extended periods of warm, dry weather. Climate change is expected to increase the magnitude and frequency of droughts in Ireland, which will add additional pressure on water supply infrastructure.
- Water Conservation (i.e. using and wasting less potable water) should be used as a climate adaptation tool to support sustainable water management. Research commissioned by the Forum (Cotterill, 2021)[4] reports that the use of multiple simple water saving technologies in a domestic setting can reduce water demand by up to 25% per person per day.
- Ireland's Climate Action Plan should include water conservation measures; Action 57 for retrofitting public buildings should include water efficiency to help mitigate the impacts due to future droughts and potential water shortages; Action 58, to mandate the inclusion of green criteria in all procurements using public funds, should include criteria for water efficiency as well as energy efficiency. Both of these recommendations would help integrate the urgent challenges of mitigation and adaptation.
- There is a need for education of the bottom up understanding of water, from the processes that underpin treatment and supply, to the energy and resources required to produce drinking water. This, along with upskilling of plumbers and building contractors in water efficiency measures, is essential to

[4] Water-Forum-Domestic-Water-Conservation-Policy-Brief-Final.pdf (thewaterforum.ie)

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support the reduction in demand required from both domestic and non-domestic users. Action 13 (to develop a Green Further Education and Skills Development Plan) and Action 38 (to deliver a National Climate Change Action and Awareness Programme) in the Climate Action Plan should include education on water as a resource and how water conservation could be used for both climate mitigation and adaptation.

- The Water Forum has developed a policy position paper on water conservation and is calling on the Minister of Housing, Local Government and Heritage to develop a National Water Conservation Strategy, to include a revision of the building regulations to ensure future housing and developments are both water and energy efficient. 19% of energy used in homes is to heat water, cumulative impacts of water efficiency measures will help to reduce carbon emissions both directly in the home and indirectly through reduced volumes of treated water required.
- We would be happy to meet with you to discuss this policy position in more detail and how it dovetails with climate adaptation.

**4. <u>Sectoral Adaptation Plans</u>**

- The Government must ensure that adaptation plans are developed for all types of water supplies (public supplies through Uisce Éireann, group water schemes through the National Federation of Group Water Schemes and Private Wells through the Environmental Protection Agency). Future climate change will impact both the quantity of water available for use and also exacerbate existing water quality issues, such as trihalomethanes (THMs). Ireland already has the highest reported THM exceedances in potable water across the European Union, which could worsen with increased drying of organic rich soils expected with climate change.
- Future iterations of the Climate Change Sectoral Adaptation Plan for Water Quality and Water Services should include targets, metrics and key performance indicators to ensure transparency and accountability in adaptation planning.

- The Climate Change Sectoral Adaptation Plan for Water should be revised to include the following risks, which are currently omitted (highlighted by McKeown et al., 2023):

  - Increased lake water temperatures will alter thermal stratification patterns (lake mixing) resulting in major physical, chemical, and ecological effects in freshwater lakes and thus impacting on water quality, including an acceleration of lake deoxygenation with subsequent effects on nutrient mineralisation and phosphorus release from hypoxic and/or anoxic lake sediments.
  - Increasing temperatures and stratification will exacerbate effects of eutrophication and increased frequencies of cyanobacterial blooms. Some cyanobacteria produce cyanotoxins, which threaten the safe use of water for drinking and recreational activities. Cyanobacterial blooms can also reduce dissolved oxygen, reduce light penetration and increase the pH of water.
  - Increased temperatures and reduced precipitation will result in an increase in degradation (drying) of organic rich soils, i.e. peatlands, causing accelerated peat decomposition, export of dissolved

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organic carbon and particulate organic matter. Increased concentrations of dissolved organic carbon have implications both for the ecology of receiving waters and for the quality and treatment costs of water used for human consumption. In Ireland, 68% of the national population receives drinking water from a peat-fed water supply system, which includes water from the Liffey catchment supplying the Greater Dublin Area.

- Increased contamination and mobilisation of nutrients associated with high-intensity precipitation events and flooding should also be included for groundwater in karst regions.
- Atmospheric wet deposition of nutrients, particularly nitrogen and ammonium should be included as a pollutant source in surface waters.
- Marine and freshwater acidification should be considered as a challenge for climate adaptation. Ocean and freshwater acidification will impact aquatic and marine ecosystems and subsequent food sources; therefore, adaptation of economically important species such as shellfish should be considered.

Water is central to public health, a functioning environment, and a productive economy, and it should therefore be central in climate change adaptation.

The Forum would welcome engagement with the Climate Change Advisory Council to discuss its recommendations in greater detail when your schedule allows.

Yours sincerely,

Dr Matt Crowe
Chair