**NEWSLETTER****20 September 2021*****Welcome/Croeso/Fáilte***

Welcome to our Autumn 2021 Newsletter, bringing you up to date on the Dwr Uisce project.

The publication in late summer of the [6<sup>th</sup> Intergovernmental Panel on Climate Change assessment report](#) has sent out to the world a clear and powerful message: we need to take ambitious action against climate change now.

The Dwr Uisce team has continued in its commitment to provide solutions to improve the sustainability of the water sector and to spread the message.

Individually and collectively, we have engaged in numerous activities: from delivering outreach events to launching a Citizen Science project, from designing a new webinar to presenting our findings at research conferences and online meetings.

In this Newsletter, you can read about our call to action for Irish households to contribute to the reduction of greenhouse gas emissions in Ireland, and the launch of the survey on Water-Energy efficiency in Irish households. Then, Dr Nathan Walker takes us through the lessons learnt from international energy benchmarking of wastewater treatment. For an insightful economic assessment of the water sector in Ireland and Wales, do not miss Dr Annum Rafique's piece. Finally, you can read the latest research updates and publications from our researchers, including Dr Richard Dallison's timely findings on the impact of future climate change on water resources.

We take this opportunity to wish all our followers and cluster members a climate action-filled Autumn!

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**Roberta Bellini**

Editor

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Mae cyhoeddi 6ed adroddiad asesiad Panel Rhynglywodraethol ar Newid Hinsawdd ddiwedd yr haf wedi anfon neges glir a phwerus i'r byd: mae angen i ni gymryd camau uchelgeisiol yn erbyn newid yn yr hinsawdd nawr.

Mae tîm Dŵr Uisce wedi parhau yn ei ymrwymiad i ddarparu atebion i wella cynaliadwyedd y sector dŵr ac i ledaenu'r neges.

Yn unigol ac ar y cyd, rydym wedi cymryd rhan mewn nifer o weithgareddau: o gyflwyno digwyddiadau allgymorth i lansio prosiect Gwyddoniaeth Dinasyddion, o ddylunio gweminar newydd, i gyflwyno ein canfyddiadau mewn cynadleddau ymchwil a chyfarfodydd ar-lein.

Yn y Newyddlen hon, gallwch ddarllen am ein galwad i weithredu i aelwydydd yn Iwerddon gyfrannu at leihau allyriadau nwyon tŷ gwydr yn Iwerddon, a lansiad yr arolwg ar effeithlonrwydd Ynni Dŵr ar aelwydydd yn Iwerddon. Yna, mae Dr Nathan Walker yn ein tywys trwy'r gwersi a ddysgwyd o feincnodi ynni rhyngwladol ar gyfer trin dŵr gwastraff. I gael asesiad economaidd craff o'r sector dŵr yn Iwerddon a'r DU, peidiwch â cholli darn Dr Annum Rafique. Yn olaf, gallwch ddarllen y diweddariadau a'r cyhoeddiadau ymchwil diweddaraf gan ein hymchwilyr, gan gynnwys canfyddiadau amserol Dr Richard Dallison ar effaith newid yn yr hinsawdd yn y dyfodol ar adnoddau dŵr.

Manteisiwn ar y cyfle hwn i ddymuno Hydref llawn egni i'n holl ddilynwyr ac aelodau clwstwr!

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**Roberta Bellini**

Golygydd

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## WATER-ENERGY EFFICIENCY SURVEY NOW OPEN!



On September 13<sup>th</sup> we launched our survey on Water-Energy Efficiency in Irish Households, as part of our Citizen Science project. The survey will remain open until October 31<sup>st</sup>. You can read more about the project [here](#).

Use the QR code or the button below to fill in the survey, it takes less than 15 minutes and you could win a prize!

[GO TO THE SURVEY](#)

**NEW WEBINAR ON  
CLIMATE CHANGE AND FUTURE WATER RESOURCES:  
YOU CAN NOW REGISTER FOR YOUR FREE PLACE.**

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resources in the UK and Ireland. This webinar offers a great opportunity to learn about the Dŵr Uisce project's latest work in quantifying the impact of climate change on hydrology and water quality in Wales, and its implications for run-of-river hydropower operations and other water uses. This session will provide opportunity for themed discussions on the future challenges facing water abstractors across the UK and Ireland, as well as a Q&A. For more details and to register, click [here](#).



Dŵr Uisce | Energy Recovery in Water Services  
Adennill Ynni yn y Diwydiant Dŵr



## Dŵr Uisce Sustainability Webinar Series

**FREE SUSTAINABILITY WEBINAR**

**RESEARCH BASED PRACTICAL SOLUTIONS TO IMPROVE ENERGY EFFICIENCY OF WATER SERVICES**

Logos: EU Funds for Growth and Employment 2014-2020, Tionól Dáilíneach na Dáilí Southern Regional Assembly, Clár Chlár Iascaíochta Struchtúrtha Laga Iascaíochta na hÉireann, Creada Dattáyo Bhabraethol Ewrop European Regional Development Fund

### TACKLING CLIMATE CHANGE: HOW THE DŴR UISCE TEAM IS RAISING AWARENESS

#### HOW CAN HOUSEHOLDS TAKE CLIMATE ACTION AND HELP CONTRIBUTE TO REDUCING GREENHOUSE GAS EMISSIONS?

**Aisha Bello- Dambatta & Roberta Bellini**

It is clear that climate change is happening, and it is likely that most of us have already directly felt some of its impacts. The extreme events like the [recent catastrophic floods in central and western Europe](#), the wild fires raging in [Canada and the western U.S. states](#), and in the [entire Mediterranean region](#) are [projected to increase](#) in both likelihood, frequency and magnitude in the future and will continue to do so unless we do something to limit emissions. And these are just a few of the extreme weather events that occurred in this month alone!



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increasing extreme heatwaves, droughts, and flooding; and the real risk of the Paris Agreement to limit global warming to well below 1.5°C above pre-industrial level being broken in just over a decade. The UN Secretary-General calls this report a “Code Red for Humanity”, stressing the overwhelming evidence of human influence on GHG emissions. Continue reading [here](#).

## SPREADING THE WORD TO THE FUTURE GENERATION: WATER-ENERGY WEBINARS WITH THE CHILDREN OF RATHNURE PRIMARY SCHOOL, CO. WEXFORD (IRELAND)




**Roberta Bellini**

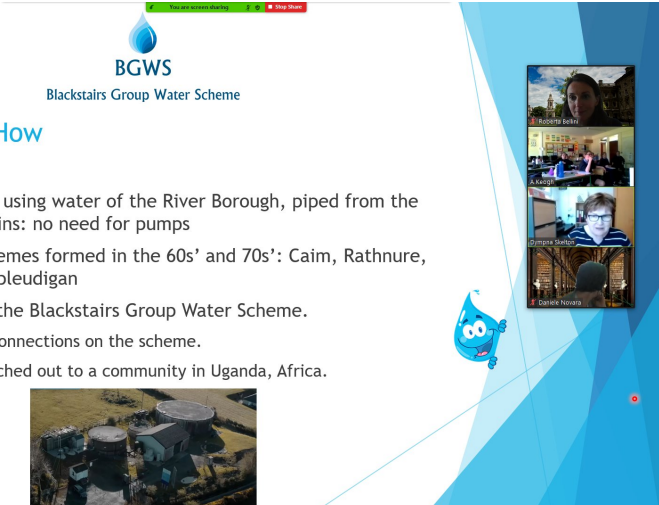
Sharing research findings with the wider public is one of the objectives of the Dŵr Uisce project. In particular, engaging youth in activities that are educational but at the same time interactive, fun and stimulating, offers the opportunity to explore environmental issues and to appreciate innovative solutions. Furthermore, using a place-based learning approach in designing learning events, learners can connect the different topics and themes to their locality from an environmental, geographical and historical point of view. Embracing this educational challenge, the Dŵr Uisce Team, in collaboration with Blackstairs Group Water Scheme (GWS), looked at ways of presenting the recently installed pump-as-turbine (PAT) system at an age- appropriate level to which the children could relate and link to their own lives and experiences. Read more [here](#).

**Dympna Skelton:**  
Blackstairs Group  
Water Scheme

### When -What and How

- ▶ 1960s
- ▶ Gravity fed system using water of the River Borough, piped from the Blackstairs Mountains: no need for pumps
- ▶ 4 Group Water Schemes formed in the 60s' and 70s': Caim, Rathnure, Poulpesty and Templeudigan
- ▶ Joined up to form the Blackstairs Group Water Scheme.
- ▶ We now have 1600 connections on the scheme.
- ▶ The Scheme has reached out to a community in Uganda, Africa.





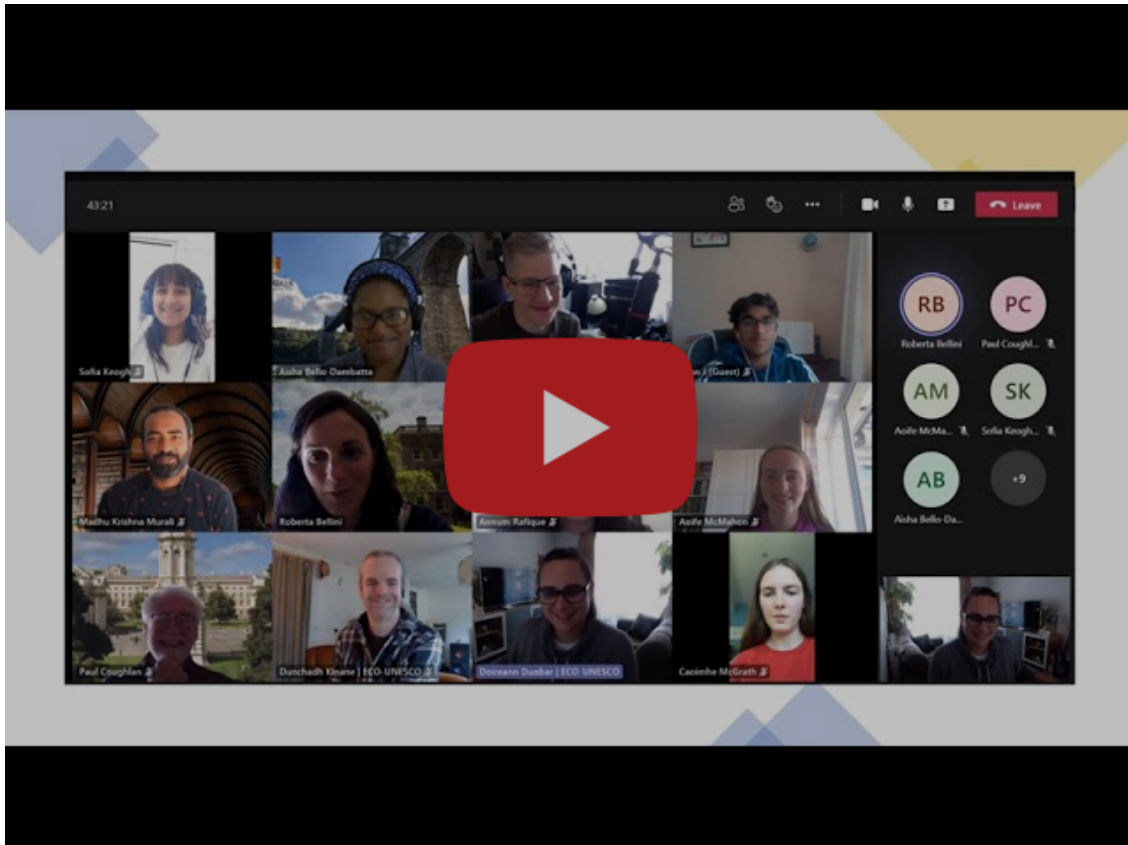
## CLIMATE ACTION THROUGH WATER EFFICIENCY: DŴR UISCE HACKATHON WITH YOUNG PEOPLE FROM ECO-

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### Roberta Bellini & Aisha Bello-Dambatta

Engaging young people during their summer break by sharing research findings while stimulating their creativity and fostering activism to combat climate change can sound like a challenging objective. But when you pull together passionate young people, enthusiastic academics and researchers for over three hours, the outcome may positively surprise you: they can collaborate on practical solutions to raise awareness on the climate action potential of being more water efficient.

In late June, the Dŵr Uisce Team decided to host a Climate Action Hackathon aimed at young environmental activists from ECO-UNESCO. Read [more...](#)



Summary Video of the Climate Action Hackathon with ECO-UNESCO

## RESEARCH UPDATES

### THE CONTRIBUTION TO THE WATER SECTOR TO THE ECONOMY IN IRELAND AND WALES

#### Annum Rafique

The water sector plays an integral role in the economy by providing clean and safe drinking water to households and businesses. The water producers are responsible for collecting, storing, extracting, pumping, treating and distributing water and

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through the employment of individuals, taxes paid to the government, purchases made from other sectors, assets acquired and, indirectly, by providing water as a resource required by other industries. Read more [here](#).

## LEARNING FROM INTERNATIONAL WASTEWATER TREATMENT ENERGY BENCHMARKING

**Nathan Walker**

The team have conducted an international energy efficiency benchmarking exercise on wastewater treatment. The results showed that EU states have the highest electricity intensity (i.e. kWh per m<sup>3</sup> treated) seemingly due to higher wastewater effluent standards however, the impacts on greenhouse gas emissions are widely varied depending on individual country fuel mixes. These findings inform future research by suggesting improvements around data reporting and sharing, particularly influent vs effluent, and gross vs. net energy consumption data. Continue reading [here](#).



## RETHINKING THE ANALYSIS OF THE FUTURE OF HIGH FLOWS IN WALES



**Richard Dallison**

In the past few months, Dr Richard Dallison, a postdoctoral researcher in our Bangor team, has been revisiting some analysis completed during his PhD with Dŵr Uisce. This work aims to improve our understanding of changes in the characteristics of high flow events in Wales under future climate change. It is important to understand such events, as very large streamflows can result in inundation and flooding, bringing economic and social costs, implications, and distress. Read more [here](#).

## WATER AND ENERGY MANAGEMENT IN LEISURE CENTRES

[Subscribe](#)[Past Issues](#)[Translate](#) ▼**Aisha Bello-Dambatta**

Leisure centres are large users of water and energy and are very expensive to run. Much investment and improvements tend to focus on energy management, especially given the current focus on emissions reduction and net-zero targets. Local Authority-run centres, in particular, face increasing pressure to reduce their carbon emissions as public bodies. Continue [reading...](#)

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## SPREADING THE MESSAGE

### BEYOND ENVIRONMENTAL SUSTAINABILITY- ISABEL AT THE SETAC EUROPE ANNUAL MEETING 2021

**Isabel Schestack**

How can we make a decision about the most suitable “green” solution of a problem if there are multiple interests at stake, of environmental, social and economic nature? This was one of the hot topics discussed at the *SETAC Europe Annual Meeting 2021*, which was held online. An example for a method combining environmental and economic objectives is the eco-efficiency assessment.

Isabel presented a poster on her study looking at how the eco-efficiency of water and energy use in a distillery can be improved by recovering heat. Read more [here](#)

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Trinity Team members working on Work Package 2 have presented their work at the *AQUA360: Water for all- Emerging Issue and Innovation* online conference held from 31 August to 2 September 2021. Dr Ajeet Singh presented a poster on his research advancement on thermal recapture from wastewater, while Dr Madhu Murali's poster presentation was about 'DAFT ideas: improving Heat Recovery from Industrial Wastewater Using Process-Oriented Modelling and Experiments.

Further updates on WP2 research in our Winter Newsletter!

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## CONGRATULATIONS TO...

Nathan Walker, from our Bangor University Team, for successfully defending his PhD thesis at his Viva on the 28<sup>th</sup> May, passing with minor corrections. His thesis, entitled 'Analysing the water-energy nexus: Benchmarking efficiency in water services', explores and pushes the boundaries of how efficiency is measured via methodological testing and sustainability-focussed KPI use.



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## TEAM MEMBERS JOINING...

Welcome to the Team to Dr Djordje Mitrovic, who joined the Bangor Team in August 2021. His background is in Civil Engineering, and Djordje conducted his PhD project in Trinity College as part of the REDAWN project. His thesis addressed some design challenges for Pump-As-Turbine (PAT) technology when used as hydropower energy recovery devices in water distribution networks (WDNs). He also estimated the hydropower energy recovery potential of existing pressure reduction infrastructure in Irish and UK WDNs and the environmental impact of the implementation of this technology. His current research as part of Dwr Uisce is focused on optimisation of WDNs and PATs; investigating whether it is possible to generalise the ratio between the best efficiency point of the optimal theoretical PAT and average operating condition at a pressure reduction valve from a WDN.

## ...TEAM MEMBERS LEAVING

We say goodbye to our colleague Dr Annum Rafique. Annum worked with the Bangor Team on economic assessments of the



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## RECENT PUBLICATIONS IN PEER-REVIEWED JOURNALS

- Rafique, A. & Williams, A.P. 2021. [Reducing household greenhouse gas emissions from space and water heating through low-carbon technology: Identifying cost-effective approaches](#). *Energy and Buildings*, **248**, 111162.
- Dallison, R.J.H., Patil, S.D. & Williams, A.P. 2021. [Impacts of climate change on future water availability for hydropower and public water supply in Wales, UK](#). *Journal of Hydrology: Regional Studies*, **36**, 100866.

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## JOIN (OR RECOMMEND) THE DŴR UISCE WATER SPECIALISATION CLUSTER



Are you a company, a consultant, a university, a scientist interested in saving water and energy? Are you in one of the regions in Ireland or Wales covered by the [INTERREG funding initiative](#):

- Ireland - Carlow / Cork / Dublin City / Dun Laoghaire / Rathdown / Fingal / Kerry / Kildare / Kilkenny / Meath / South Dublin / Tipperary Waterford / Wexford / Wicklow
- Wales - Carmarthenshire / Ceredigion / Conwy / Denbighshire/ Flintshire / Gwynedd / Isle of Anglesey / Pembrokeshire / Swansea / Wrexham

You may eligible to join our [SMART SPECIALISATION CLUSTER](#) and benefit from a range of services we offer.

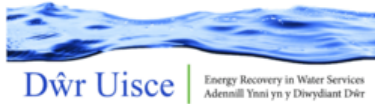
[Click here](#) for more information.

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Let us help you to reduce your water and energy costs. For free!



Our aim is to support your business in saving water, energy, emissions and money, and thus making it more resilient for the future. We are a team from Trinity College Dublin and Bangor University, Wales, experienced in working with industry.

The free consultation we offer only involves a little time from your side - no financial investment is required.

We offer a minimum of six hours free consultation time to:

Participation qualifies you to become part of the DWR UISCE network with the opportunity to link and learn from similarly-challenged businesses. You will hear about technology choices, cost and carbon savings, avoid the mistakes others have made and connect with trusted suppliers.

- Measure your current water and related energy use
- Identify opportunities to reduce your water and energy consumption
- Propose cost-effective solutions
- Advise on how to improve your environmental footprint, both in your business and along your supply and demand chains

Send us an informal request and start benefitting from our expertise, our support and our network.

Email: admin@dwr-uisce.eu
Phone: +44 (0) 1248 38 3219 (Bangor) +353 (0) 1 896 1311 (Dublin)
Web: www.dwr-uisce.eu/business-support



DWR UISCE stands for Distributing our Water Resources: Utilising Integrated, Smart and Low-Carbon Energy. The project is contributing to improving the long-term sustainability of water supply, treatment and end-use in Ireland and Wales. DWR UISCE is funded by the European Regional Development Fund through the Ireland-Wales Cooperation programme.

CONNECT WITH US

All project updates, progress, activities and events are posted regularly and shared widely on our @Dwr\_Uisce Twitter account.

Follow also the hashtags: #Dwruisce.

You can read more on our latest news @ our News section. Sign up for our newsletter here.

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