

2022/2023



# Bangor University SDG Progress Report

# SUSTAINABLE DEVELOPMENT GOALS

**1** NO POVERTY



**2** ZERO HUNGER



**3** GOOD HEALTH AND WELL-BEING



**4** QUALITY EDUCATION



**5** GENDER EQUALITY




**6** CLEAN WATER AND SANITATION



**7** AFFORDABLE AND CLEAN ENERGY



**8** DECENT WORK AND ECONOMIC GROWTH



**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE



**10** REDUCED INEQUALITIES



**11** SUSTAINABLE CITIES AND COMMUNITIES



**12** RESPONSIBLE CONSUMPTION AND PRODUCTION



**13** CLIMATE ACTION



**14** LIFE BELOW WATER



**15** LIFE ON LAND



**16** PEACE, JUSTICE AND STRONG INSTITUTIONS



**17** PARTNERSHIPS FOR THE GOALS



# Introduction

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## The Sustainable Development Goals

**"We must leverage all our means to advance joint up action that will shape mutually reinforcing solutions to our environmental emergencies and developmental dilemmas"**

Mr. Li Junhua, UN Under-Secretary-General for Economic and Social Affairs

**"All the SDGs are deeply intertwined and interconnected. Progress on all SDGs is impacted by what we achieve in regard to the single SDG. If we fail on addressing climate change, other SDGs will be unachievable"**

Mr. Simon Stiell, Executive Secretary of the UN Framework Convention on Climate Change

Sustainability is at the heart of Bangor University and is central to our University Strategy 2030:

*"A globally connected University, realising opportunities for success through transformative, innovative, impact-driven research and teaching, with a focus on sustainability: safeguarding the environment, revitalising society's health, and promoting economic, social, bilingual, and cultural vibrancy."*

As a University community, we must act in a manner which ensures that the needs of our students, staff and local community are met, without compromising the ability of those in the future to meet their own needs.

Bangor University's aims are to educate and inspire the next generation, conduct leading research, be a great employer, and to take an active role in the community. Sustainability at Bangor University is therefore wide-reaching, and it involves everything: from the health and well-being of its staff, to recycling in its student accommodation; from the content of the curriculum to its research activities.

## Sustainability Strategy 2030

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## Sustainability reports are not just about looking back

This Report presents our fourth annual published SDG report to show a small sample of the many ways in which we are contributing through research, public engagement, learning and students, and operational elements, to the 17 UN Sustainable Development Goals. This SDG Report is a continuous work in progress, a way for Bangor University to track its impact and improvements over time.

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## Goal: End Poverty in All Its Forms Everywhere

### PUBLIC ENGAGEMENT

#### Roma, Gypsy and Traveller civil society organisations: Exploring experiences and challenges in Europe today

In September 2022, [Bangor University](#) organised and held an event that brought together Roma, Gypsy and Traveller civil society organisations from across Europe with academics, policymakers, and community members to hear about and discuss Roma, Gypsy and Traveller experiences in Europe.

The event foregrounds the experiences of Roma civil society organisations and included an audio-visual exhibition designed to highlight some of the voices captured in our research as well as a film screening and two days of discussions.

Organised through keynotes, roundtables and workshops, the event also reflected on two years of research funded by the Economic and Social Research Council WISERD Civil Society Research Centre examined Czech and Greek Roma, and UK Gypsy, Roma and Traveller, civil society organisations.

#### Wales Institute of Social and Economic Research and Data (WISERD)

Three [University staff](#) are part of WISERD, a national, interdisciplinary, social science research institute designated by the Welsh Government as a national research centre.

Using innovative approaches, research spans the fields of economics, sociology, geography and political science – working to improve the quality and quantity of social science research in Wales and beyond. Their research effects change by influencing the development of policy and practice across a range of sectors.

### RESEARCH

#### Coronavirus' exposure of food, place and community resilience: a Welsh local authority perspective

This [Bangor University paper](#) draws on multiple perspectives of those working to combat food insecurity, inequality and inaccessibility in Gwynedd. It explores food access initiatives and their responses to the pandemic, innovative food distribution collaborations and the role of maintaining fragile rural communities.

The study concludes that the need for transformative place-making to build stronger, more resilient communities has never been more pressing, with support from public sector funding to help alleviate some of the hardships and pressure with the rise in poverty and austerity, coronavirus imposed or not.



# LEARNING AND STUDENTS

## Cost of Living Campaign

A campaign helping students with a range of issues because of the cost-of-living crisis was made up of various initiatives from October 2022 to May 2023. Support in the following areas was provided: Financial advice and Student Finance applications, Access to free reusable period products, Access to cheaper meals, Free repairs for small electrical items, textiles and bikes through our Repair Cafés, Mental Health and Wellbeing support, free membership to Students' Union clubs and societies, 24/7 access to warm learning spaces.

As part of Undeb Bangor's cost of living campaign, the Students' Union also established an interview clothing library for students. This means that students will be able to access smart clothes to attend interviews, no matter their situation.



*Outfit Lending Library for students*

## Study

Our undergraduate Poverty and Inequality module examines the explanations for, and the experience of, poverty in the UK. It aims to address how poverty is defined, who is most at risk of being poor, what are the possible consequences, what it means to be poor in the UK today and the various dimensions of poverty, including income, wealth, health, education and housing.

# OPERATIONS

## Travel Savings

Students who wish to travel within or outside Bangor can purchase Arriva Student Saver tickets with up to 30% savings on bus fares. Staff members are also able to access Arriva discounted tickets and the scheme also allows free travel for up to two children on weekends and bank holidays.



## Scholarships, Studentships & Bursaries

Bangor University is keen to offer extra help to students and offers a range of bursaries and scholarships worth over £1M available for new and returning students.

As part of Bangor's Entrance Scholarships scheme, there are approximately 40 Merit Scholarships of up to £3,000 available to those who excel in the University's annual Entrance Scholarships examinations.

Bangor's Sports Scholarship scheme aims to recognise and support sporting excellence and achievement. The Scholarships, which are worth up to £3,000 a year, aren't limited to any particular sport or students on any specific courses.

## Hardship Fund

The University provides a Hardship Fund to support students to cover essential costs that could not be planned. Hardship Funds are one way we support our students along with our Bangor Bursaries, short-term loans and crisis grants. The fund is available to registered undergraduates or postgraduates whether they are studying full or part-time.



## PUBLIC ENGAGEMENT

### **Livestock Innovation Project awarded funding to transform the sustainability of ruminant farming**

The [Biocomposites Centre at Bangor University](#) is part of a team that has been awarded £2.8 million to fund a project which will look at ruminant efficiency, sustainable farming, and on-farm methane monitoring.

The consortium will work closely with farmers, industry stakeholders, and policymakers throughout the project's lifecycle to ensure alignment with the sector's needs and priorities. By fostering collaboration and knowledge exchange, the consortium aims to bring tangible benefits to the farming community while contributing to national and global sustainability goals.

### **Henfaes Research Centre**

[Henfaes Research Centre](#), Bangor University's research farm, is a study farm for the Sustainable Intensification Platform (SIP). SIP is a multi-partner Defra and Welsh Government funded research programme, meaning it tests and demonstrates to the public a range of alternative farm management practices that can potentially improve the economic, environmental or social performance of farming systems.

## **Goal: End Hunger, Achieve Food Security and Improved Nutrition and Promote Sustainable Agriculture**

## RESEARCH

### **Biodegradable plastic mulch films increase yield and promote nitrogen use efficiency in organic horticulture**

Plastic film mulches (PFM) are used extensively due to their ability to increase yield and suppress weed emergence. Their effects on plant-soil-microbial interactions, however, are less well understood. Research by [Bangor academics](#) investigated how conventional and biodegradable PFMs affected soil/crop N dynamics and assessed their usefulness as a tool for managing N in organic horticulture in a wet temperate region with rain-fed crops.

As they hypothesised, both PFMs changed the soil microclimate, increased crop growth, soil mineral N availability and the NUE efficiency of added poultry manure. This demonstrates the benefits of PFMs from a food security perspective.

### **Ecological intensification measures to improve productivity and decrease nitrogen surplus in wheat-maize/watermelon intercropping system**

Intercropping is a promising ecological intensification practice thanks to its improved crop yield and nutrient use efficiency compared with mono-cropping. However, there are constraints to achieving higher yields and efficiencies, and little is known about how to address such constraints.

[Research conducted with Bangor](#) examined the impacts of ecological intensification measures (pollination services and cover crop addition) on productivity and nitrogen (N) surplus in wheat-maize/watermelon intercropping.

# LEARNING AND STUDENTS

## Study

Our PhD Agricultural course has specialisms in sustainable development and peri-urban farming systems. Research into agricultural systems and practices ranges from the science of plant and animal production to rural policy and decision-making; with a focus on alternative crops, food and nutrition, farmer health, local knowledge and rural development.

Our Postgraduate Agroforestry and Food Security course is offered at Bangor but also by distance learning to enable students around the world access. The course is accredited by the Institute of Chartered Foresters and provides students with a detailed understanding of the principles and processes of agroforestry as part of a sustainable food production system, including its social and environmental contexts. It equips students to implement the latest research into sustainable production systems thinking and will facilitate entry into agroforestry-related careers.



The Agriculture and Environment postgraduate module reviews agricultural systems and practices, the scientific principles underlying them, their impact on the environment, and potential future trends induced by climate change. Students consider the scope of relevant EU and UK government legislation and codes of practice aimed at minimising negative effects, including the role of agri-environment schemes and discuss their impact at the farm level. The module addresses rewilding and nature-friendly farming systems, as well as optimal land use for delivering multiple ecosystem services.

# OPERATIONS

## Food Insecurity

Bangor University understands the cost of living concerns our staff and student population have. From November daily hot specials were available at two University catering outlets for £2 Monday to Friday throughout the academic term and summer holidays for students staying over the summer months.

'Meat Free Monday' continues with an offer of vegan or vegetarian options, and from Tuesday to Friday there is a meat and vegetarian choice available. Additionally, after 3pm there is 75% off fresh packaged food that has reached its sell by date in our catering outlets.

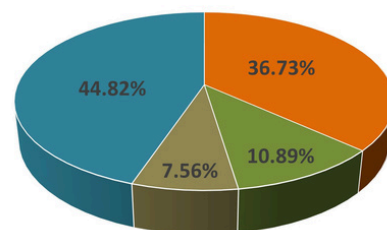


*Daily £2 Hot Meal Deal*

## Food Waste Data

In 2022/23 Bangor University diverted 100% of its waste from landfill. 7.56% of all waste was sent to a local Anaerobic Digestion facility in Gwynedd called Biogen Gwyrriad. We send our food waste to an Anaerobic Digestion Facility rather than an in-vessel composting plant as it is recognised by the government as one of the best methods for food waste recycling, producing electricity and heat as well as biofertiliser, making it a closed-loop system.

2022/23 Total Waste to each Waste Stream



■ Recycled ■ Composting ■ Anaerobic Digestion ■ Energy Recovery

*2022/23 Total Waste and Waste Streams*



## 3 GOOD HEALTH AND WELL-BEING



### RESEARCH

#### Wastewater monitoring programme extended to include hospitals and monitoring beyond Covid-19

A Welsh Government-led programme to test wastewater for COVID-19 in which [Bangor University](#) is a lead partner has added communicable diseases and hospitals to its capabilities.

The programme provides vital data on the prevalence of coronavirus in the community. Adding these key sites and additional communicable diseases to the monitoring already in place across Welsh health boards and local authorities will deepen the insight and localised knowledge required in public health decision-making.

As well as testing for SARS-CoV-2 and other variants, the team have now established methods for testing for other viruses of interest, including Polio, norovirus and other stomach bugs, influenza and the respiratory virus RSV and antimicrobial resistance. The next stage of the programme sees the existing programme partners work closely with Public Health Wales to monitor wastewater at nine hospitals in Wales and to expand on the surveillance of Polio viruses following the detection of a vaccine-derived polio virus in London earlier this year.

## Goal: Ensure Healthy Lives and Promote Well-being for All at All Ages

### PUBLIC ENGAGEMENT

#### Workplace development from psychological, physiological, and health perspectives

Businesses in Wales and Ireland attended a free [online event organised by Bangor University](#) in February to help them develop health and wellbeing in the workplace. The Celtic Advanced Life Science Innovation Network connects business, academia and healthcare with experts from six leading universities across Ireland and Wales.

A range of workshops, networking and consultations were delivered by experts in psychology, physiology and health, to support and encourage businesses to develop and improve workplace wellbeing.

#### A new Welsh language podcast shares experiences beyond a dementia diagnosis

A new Welsh-language podcast in the Am Iechyd (About Health) series by [Bangor University's College of Human Sciences](#), funded by the Coleg Cymraeg Cenedlaethol, shares experiences of life beyond a diagnosis of dementia from different perspectives.

The main message from the discussion on the podcast is the need to try to de-stigmatise the condition and talk openly about how to support people living with dementia.



*Am Iechyd podcast*

## LEARNING AND STUDENTS

### **Bangor University to recruit students for the North Wales Medical School in 2024**

In January 2023 [First Minister Mark Drakeford](#) visited the University and announced that the Welsh Government will fund up to 140 medical student placements each year at the new North Wales Medical School. Training will begin in 2024 with student numbers increasing until reaching capacity from 2029.

The establishment of the North Wales Medical School reflects Bangor University's commitment to providing educational opportunities that are deeply connected to the local community, in partnership with its healthcare partners across the entire North Wales region.

### **New pre-registration nursing programme in Powys as part of the NHS Wales 'grow your own' strategy to increase the Nursing Workforce**

To address NHS nursing shortages in rural parts of Wales, [Bangor University](#) is working with Health Education Improvement Wales and Powys Teaching Health Board to provide new learning pathways into nursing for people living in Powys.

From March 2023, people living in Powys who want to join the nursing profession can follow a pre-registration nursing programme for adult and mental health nursing, allowing students to gain a nursing degree while studying in their local community.

### **24/7 wellbeing resources and advice**

In addition to the [Wellbeing Service](#) based within Student Services with professionally qualified counsellors, mental health professionals, Chaplaincy Team and information specialists, students also have access to Student Space for 24/7 help and advice.

## OPERATIONS

### **Bangor University pledges to tackle mental health stigma in the workplace**

[Bangor University](#) signed the Time for Change Wales Employer Pledge in May. The pledge is a public declaration that the University is committed to tackling mental health stigma and discrimination around mental health, and is accompanied by an action plan outlining the steps that Bangor University will take as part of the pledge.

Time to Change Wales, funded by the Welsh Government, delivered by Adferiad/Recovery and Mind Cymru, held an awareness session for Bangor University's new staff wellbeing champions and wellbeing coaches.

### **Sport Facilities**

In addition to 55 student clubs, Bangor University also provides [sports facilities for around 50 local clubs](#), teams and groups. Canolfan Brailsford is the University's Sports Centre and provides sports and recreation facilities for both members of Bangor University and the general public.

There are indoor facilities, such as weight training, aerobic classes, indoor cricket, squash, and trampolining. In 2014 Bangor University part funded a new all-weather "3G" pitch at Bangor City's Bangor University Stadium, providing a valuable community resource for an even wider range of local clubs. The netball and tennis dome at Canolfan Brailsford is prioritised for local netball use by adult and junior clubs.



*Canolfan Brailsford Climbing Wall*

## 4 QUALITY EDUCATION



## RESEARCH

### **New Guidance to ensure Fieldwork in Environmental Sciences is inclusive and accessible for all students**

Fieldwork is at the core of teaching and research in environmental sciences however it can be a barrier to some students. Ensuring that teaching and learning, specifically fieldwork, is made accessible to all students including those that may have barriers such as physical difficulties or invisible barriers is hugely important.

A team of researchers led by Bangor University have developed a ten-point guide to make fieldwork more accessible to students. The NERC-funded project brought educators together for a research hackathon and workshop to collaborate and discuss how to break down the barriers that many students face in fieldwork.



*Sociology multimedia learning pack*

## **Goal: Ensure Inclusive and Equitable Quality Education and Promote Lifelong Learning Opportunities for All**

## **PUBLIC ENGAGEMENT**

### **Bangor University opens doors for aspiring young engineers**

Bangor University teamed up with the Institution of Engineering and Technology (IET) as an official host in June for Engineering Open House Week.

The event aims to help young people aged 5-13 and their caregivers and teachers understand what it's like to work as an engineer or technologist by working with a wide range of organisations across the UK, who open their doors to hold interactive exhibits, events, talks and workshops that encourage children to think differently about engineering and technology.

Children can see first-hand how engineering and technology are applied in a range of roles and jobs across different sectors and feel inspired by the breadth of creative and innovative careers on offer.

### **Multimedia learning pack created by Bangor University sociologists wins Excellent Welsh-medium Resource Award**

A multimedia learning pack on the essentials of Sociology has been awarded the top prize at Coleg Cymraeg Cenedlaethol's annual awards aimed at celebrating opportunities to train and study in Welsh.

Led by Bangor University's School of History, Law and Social Sciences, the resource pack includes e-books and videos featuring illustrations by the cartoonist Huw Aaron to support students studying sociology through the medium of Welsh at A level as well as those beginning their studies at university.

## LEARNING AND STUDENTS

### Bangor Business School student wins prestigious award

MBA Environmental Management graduate Richard Hughes won the Chartered Management Institute Outstanding Student of the Year 2022 at the CMI 2022 Awards and Presidents Dinner, which was held at the Natural History Museum in London in November 2022.

### ALPHAcademy

The Applied Learning for Preventative Health Academy (ALPHAcademy) developed in partnership with the Betsi Cadwaladr University Health Board is led by Bangor University. They offer a series of free online workshops for anybody on a range of topics related to preventative health. Topics include Coaching and Mentoring, Health Equity and Human Rights, and Mental Health and Wellbeing.

### Bangor University at the National Eisteddfod of Wales

In August, the University held several events at the National Eisteddfod of Wales. The Activity Zone included trying our free algae smoothies, getting inside the Bangor Human Bubble and making use of the piano for practice before competitions or for fun!

The Bangor Theatre Marquee was used for panel discussions, talks and events throughout the week, and was also where visitors, students and alumni could enjoy a panad and a chat.

Bangor also had a stand in the Science and Technology village which featured the University's research into the importance of peatlands in Wales and the rest of the world. We invited visitors to take part in our peat quiz and offered "Bog Juice" iced tea to try!

## OPERATIONS

### Former staff member receives honour from Coleg Cymraeg Cenedlaethol for widening access work

In March a former member of Bangor University staff, Delyth Murphy, was honoured for her special contribution to widening access and lifelong learning, and her work on a strategic level to promote Welsh-medium education.

Bangor University was a huge part of Delyth's life for decades: as a secretary, a mature student, an MA student, and in the Lifelong Learning department and Widening Access Centre, where she was Head until her retirement two years ago.

### Widening Access Strategy

The new University Widening Access Strategy recognises that students with a widening access background may not have the same support, awareness and experience as others when it comes to their journey into and through higher education and beyond. They are also less likely to have connections and networks which will benefit their career transition and progress. Our approach is to therefore ensure that widening access students in particular are signposted to the support which is generally available, but also ensuring that additional support is available when and where required.

### Learn Welsh - North West

Bangor University provides a variety of learning opportunities across Gwynedd, Anglesey and Conwy on behalf of the National Centre for Learning Welsh.





## RESEARCH

### Prevention of Postpartum Haemorrhage

Bangor researchers were involved in exploring the cost-effectiveness of a novel postpartum haemorrhage prevention device compared to usual care. The economic evaluation was conducted from a UK National Health Service (NHS) perspective.

### Pregnancy choices with kidney disease

This UK-wide mixed method study was undertaken to understand better the key factors that influence decision-making about pregnancy from women's perspectives, such as; the impact of pregnancy on their health and of their CKD on their pregnancy, family pressure, risk of passing on an inherited condition, miscarriages, anxiety, depression, feelings of shame and guilt, burden on relationships, and social care needs.

Results found that women frequently felt unprepared and uninformed about their reproductive options. Conversations with healthcare professionals were commonly described as frustrating and unhelpful, often due to a perceived loss of autonomy and a mismatch in preferences and life goals. Outcomes are leading to the development of a new shared decision-making aid for use in clinical practice.

## Goal: Achieve Gender Equality and Empower All Women and Girls

## PUBLIC ENGAGEMENT

### International Women's Day 2023

On International Women's Day, Helena Miguélez-Carballeira, Sue Niebrzydowski, Thora Tenbrink and Zoë Skoulding, four women recently appointed as Chairs in the School of Arts, Culture and Language at Bangor University, presented their trajectories and their research, reflecting on the communities that have shaped and supported their work.

### Concert marks the release of a new CD of music by women composers

A concert in September was part of the Department of Music's Rethinking Women's Work in Music Workshop and marked the launch of Ty Cerdd Records CD Unbroken Threads, featuring all the pieces performed. A 2-day international conference on Women's Work in Music explores and analyses the diverse historical, cultural and political themes of women's work in music.



### Chair Appointment

Dr Morwenna Spear became Chair of the board of the Wood Technology Group of IOM3 in 2023. Dr Spear has spent many years working on novel treatments for timber. She also has a passion for promoting better use of homegrown timber and connecting the timber growers, processors and users, so all supply chain parts can work together and ensure this sustainable high-performance material is better understood.

## LEARNING AND STUDENTS

### Inclusive Bangor Scholarships Awarded 2022/23

Three [Inclusive Bangor Scholarships](#) have been awarded to three exceptional Bangor University 2022 graduates – Kaitlin Corry, Jaime Johnston and Evie Mainwaring. The scholarships (which cover up to £9,500 of course fees) support students who are continuing their studies at Bangor.

The scholarships aim to highlight and celebrate the diversity and inclusivity of our student population, to ensure the student voice and experience are embedded in our EDI (Equality, Diversity and Inclusivity) and Athena Swan agendas and to support the career development of our students contributing to these important agendas.

### Reclaim the Night

In March, to raise voices for safety and empowerment for all and stand against gender and identity-based violence and harassment, about 50 students and staff supported a [Reclaim the Night march](#). Reclaim the Night began in Leeds, in 1977, as a response to women in West Yorkshire being advised to stay indoors, due to murders carried out by the 'Yorkshire Ripper'.

### Student Data 2022/2023

Our latest [Student Equality Report](#) notes females account for 59.9% of all students, with 61.6% undergraduates and 57.3% female postgraduates.



## OPERATIONS

### World Menopause Day

To celebrate [World Menopause Day](#) in October, the University held an online event to discuss the importance of highlighting menopause in the workplace and offering an insight into the Menopause guidance document along with how the document can help all staff.

The University now offers practical Menopause Awareness Training sessions specifically for line managers, to enable them to support colleagues during menopause and to help keep them well in work. A new monthly Menopause Lounge was also launched, offering space for learning and peer support.

### Gender Pay Gap Report 2023

At Bangor University, we are committed to equality, diversity and inclusivity and continue to work towards advancing equality of opportunity and supporting staff to thrive in an inclusive, diverse, bilingual workplace.

The [Gender Pay Gap Report 2023](#) provides insight into our progress toward meeting this commitment. Once again we saw a reduction in our Institutional-level Gender Pay Gaps; our median gender pay gap has reduced from 5.8% last year to 5.6%, and our mean gender pay gap has reduced from 13.2% last year to 10.9%. Since we began reporting our gender pay gap six years ago, the University's median gender pay gap has decreased by 5.5% and our mean gender pay gap has decreased by 4.5%. While the University recognises these positive changes, it is focused on further reducing pay disparities.

### Athena Swan

Following successfully achieving [7 Athena Swan Bronze Awards](#) over the years, 2023 saw Bangor University applying for the Athena Swan Institution-level Silver Award.

# 6 CLEAN WATER AND SANITATION



## RESEARCH

### Linking the mechanics of lake heatwaves and potentially poisonous blooms

One of the world's largest freshwater lakes is proving to be a useful model in predicting how heatwaves trigger potentially harmful blooms in freshwater lakes. The study of one lake in China, an important source of water for over 20 million people and industry, establishes the mechanisms between lake heatwaves and potentially poisonous cyanobacteria 'blooms'.



Lake Taihu, China

The [research by Bangor University](#), the Chinese Academy of Sciences, Nanjing, China and Aarhus University, Denmark, studies the heatwave experienced in 2022 in Lake Taihu, one of China's largest freshwater lakes situated in the Yangtze Delta, and the associated cyanobacteria blooms. Increasing surface air temperature is one of the most recognised consequences of man-made climate change. An increase in lake surface water temperature has a knock-on effect on the entire lake environment.

## Goal: Ensure Availability and Sustainable Management of Water and Sanitation for All

## PUBLIC ENGAGEMENT

### Water going down the drain isn't money down the drain for National Trust Cymru's Penrhyn Castle

Researchers from Trinity College Dublin and [Bangor University](#) are leading a six-year project aiming to stop useful energy from going down the drain. They have piloted a system that recovers energy from wastewater at Penrhyn Castle and Garden – a fantasy castle and garden owned by National Trust Cymru in North Wales.

Using the new technology, the researchers are extracting heat from the hot wastewater flowing out of the kitchens at between 20°C and 55 °C, and use this to preheat the cold water coming into the kitchens. The heat recovery system has been operational since February 2022 at Penrhyn Castle and Garden. A formal launch event was held in October to highlight the energy-saving and climate impacts that the technology achieved in the past year.

This project is being supported by several companies who have provided expertise in developing this scheme, including Detectronic, whose technology has been used for wastewater flow monitoring, and Showersave, whose technology will be adapted for heat recovery at the Castle.



# Dŵr Uisce

**Energy recovery in water services  
Adennill ynni yn y diwydiant dŵr**

The Dŵr Uisce Project

# LEARNING AND STUDENTS

## Tackling Period Poverty and Period Dignity for all

The Period Poverty and Dignity Pilot Scheme was launched in January 2020 by the Students' Union, Undeb Bangor, funded by the Higher Education Funding Council for Wales (HEFCW), and a Graduate Internship Project Officer was appointed to help manage the pilot scheme.

Its primary aim was to tackle period poverty by ensuring all students have access to free period products as a necessity. This included offering a range of plastic-free, single-use and reusable products. Secondary to this, as part of a journey to achieving period dignity for all those who menstruate, it launched a campaign to educate, empower and inspire students on menstruation.

Since then the scheme has grown and been funded by the University. Period products are now available in a range of female, male, gender-neutral and accessible toilets across the Bangor and Wrexham campuses as well as shops on the Bangor campus.



On Campus Single Use Period Products

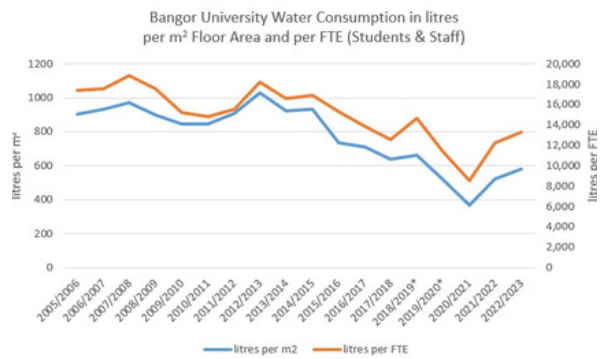
## Free drinking water

The University provides free drinking water in the majority of its buildings. Additionally, there are several water refill points across the site at catering units and other places for refilling water bottles.

# OPERATIONS

## Water Usage

During the 2022/23 academic year, Bangor University used more than 129,867 cubic meters of water. The University sets itself targets to reduce water use as part of its Environmental Management System. Between 2005 and 2023, total water use was reduced by 35.6% per m<sup>2</sup> floor area.



Bangor University's Water Consumption

## Water Conservation Standards

Our Water Conservation Standards (WCS) objectives are to promote and implement sustainable water management practices that reduce water consumption and encourage responsible water usage on the University campus.

The WCS will also assist the University in supporting its and the Welsh Government's net zero carbon strategies and local, national, and global sustainable water initiatives.



Bangor University's Water Refill Point Map



## 7 AFFORDABLE AND CLEAN ENERGY

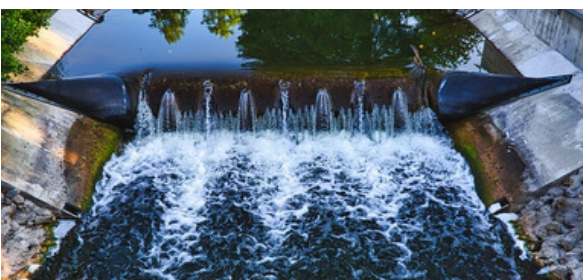


### PUBLIC ENGAGEMENT

#### **Small hydropower in the UK and Ireland: The impact of future climate change on water availability and power generation**

Small-scale run-of-river hydropower a growing sector in the UK plays a small but important role in decarbonising the grid, contributing to emissions reduction targets, and providing local community benefit. However, future climate change threatens to alter streamflow volumes and timing, impacting the amount of water available for use by such schemes, and therefore their power generation potential.

A [public seminar](#) in October presented work that quantifies the impact of future worst-case scenario climate change on water abstraction and hydropower generation at over 500 UK and Irish sites. Using hydrological modelling and the latest UK climate change projections, national results were presented. Thoughts on how to best plan and design future run-of-river hydropower schemes for optimal power generation, while maintaining environmental protection were also discussed.



### **Goal: Ensure Access to Affordable, Reliable, Sustainable and Modern Energy**

### RESEARCH

#### **Learning from the past, to power up the future**

The Department for Energy Security and Net Zero has commissioned global sustainability development consultancy Arup, the UK's laboratory for nuclear fission, the National Nuclear Laboratory and the [Nuclear Futures Institute at Bangor University](#) to work to identify and map the availability of historic nuclear research, that could support the development and deployment of Advanced Nuclear Technologies as part of a secure, low carbon energy mix.

The Advanced Modular Reactor (AMR) Knowledge Capture project is designed to support the programme and wider AMR deployment in the UK, to help deliver the government's target of net-zero gas emissions by 2050.

#### **£2m project will assess the Impact of Offshore Wind Farms on the Ecosystem**

[Bangor University scientists](#) are leading the research for the new £2m ECOWind-ACCELERATE four-year project to identify opportunities that benefit the conservation of species and biodiversity net gain around windfarms whilst also supporting windfarm developers to design their environmental monitoring strategies which go beyond the lifespan of this project.

With offshore wind farms developing at an accelerated schedule to switch away from fossil fuels and the cumulative effects of climate change, we must understand how modifications to the seabed affect the wider marine ecosystem. The seabed provides us with seafood, aggregates, stores carbon, recycles nutrients and protects our coastlines.

## LEARNING AND STUDENTS

### Prince Madog research vessel to be powered by hydrogen in £5.5m Transship II project

The UK's only fully seagoing research ship within the UK's higher education sector, the Prince Madog, is set to reduce its emissions by up to 60% thanks to a pioneering £5.5 million hydrogen power initiative that could help reshape the future of shipping.

The Prince Madog, co-owned by Bangor University, recently celebrated 20 years of service to education and science. The research vessel has changed the way we understand marine and coastal sciences and is the only one of its kind in the UK and one of the largest in Europe.

The new hydrogen propulsion system, which will work in conjunction with a diesel-fuelled main engine, will enable zero emission operation at slow speeds or over short distances - such as daily teaching trips with the students from the School of Ocean Sciences at Bangor University. In normal operation, the hybrid system and new novel propulsion design will reduce emissions by up to 60%.

### Study

Our MSc in Marine Renewables enables students to research aspects of the subject in which they are particularly interested. The course emphasises assessing wave & tidal energy resources, and the geophysical nature of sites, providing students with the necessary skills for marine renewable energy resources and site characterisation from a theoretical, technical, and practical perspective.

Renewable Energy examines current energy resources, use, efficiency and policy looking at alternative renewable resources for fossil fuels involving combustion and non-combustion technologies and energy storage.

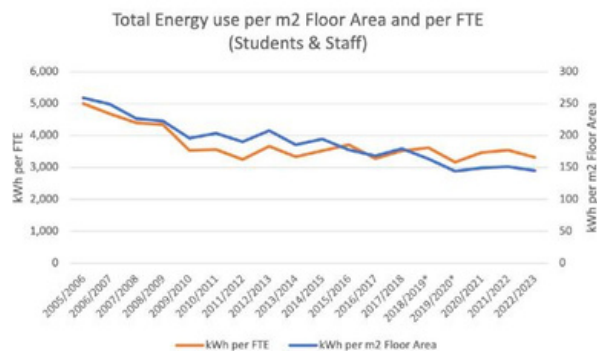
## OPERATIONS

### Energy Use at Bangor

During the 2022/23 academic year, Bangor University used around 32.4 million kWh of energy. That's equivalent to the annual energy use of around 2,288 medium UK homes. Most of this energy (17.96 million kWh, approximately 55.3%) was in the form of natural gas for heating buildings and providing hot water. Carbon emissions associated with the University's use of natural gas totalled 3,286 tonnes CO<sub>2</sub>e for 2022/23.

Electricity for lighting, computers and other equipment was the next most significant form of energy use at the University (13.9 million kWh approximately 42.9%). The other 1.8% of energy use was in the form of LPG and Heating Oil, to provide heating to our properties that are not connected to mains gas.

An additional 110,337.64 kWh was generated by rooftop solar panels, and used solely by University buildings.



### Bangor University's Energy Consumption

#### Reducing Energy Consumption

Energy is one of the three key strands in our staff and student 25 by 25 sustainability campaign. The University aims to cut 25% of its production of carbon dioxide equivalent (CO<sub>2</sub>e) emissions within just three years. This is an ambitious target but we believe we can make it, looking at different ways of living, studying and working more sustainably, simply by forming a few new habits.

## 8 DECENT WORK AND ECONOMIC GROWTH



### PUBLIC ENGAGEMENT

#### Plans unveiled for ambitious second Science Park building

Wales' first dedicated science park reveals [plans for developing a second building](#) on their Anglesey site. The additional space will enable Bangor University's Science Park; [M-SParc](#) to continue their work supporting businesses to grow, create well-paid careers for locals, and inspire future generations.

Just 5 years after opening the doors of its first building, M-SParc is ready to grow again. With a focus on supporting companies and research in the low-carbon sector, and developing skills and employment opportunities, M-SParc 2.0 will help deliver M-SParc's mission to ignite ambition and innovation for a sustainable Wales.

Companies at M-SParc pay salaries of over £5,000 per year more than the Wales average. M-SParc 2.0 will focus on the low carbon sector and build upon the University's research strengths.

M-SParc already has an established Low Carbon 'Egni' team who have been researching and hosting events in the sector, conducting Low Carbon reviews for companies across the region, and working towards M-SParc becoming the first science park in the UK to reach NetZero by 2030.

**Goal: Promote Sustained, Inclusive and Sustainable Economic Growth, Full and Productive Employment and Decent Work for All**

### RESEARCH

#### The role of SMEs in the UK economy

Small and medium-sized enterprises (SMEs) are considered the backbone of the UK economy and play a vital role in enhancing employment and economic growth in the UK. This [webinar presented](#) how best firms could use open innovation to expand internationally and exploit their resources and capabilities to achieve success in foreign markets and gain superior performance. Open innovation was discussed as a key factor that might significantly impact the SMEs' survival.

#### Heat recovery and water reuse in micro-distilleries improve the eco-efficiency of alcohol production

The number of micro-scale spirit distilleries worldwide has grown considerably over the past decade. With an onus on the distillery sector to reduce its environmental impact, such as carbon emissions, opportunities for increasing energy efficiency need to be implemented. [This study](#) explores the potential environmental benefits and financial gains achievable through heat recovery from different processes and by-product streams, exemplified for a Scotch whisky distillery, but transferrable to micro-distilleries worldwide.



*Whisky Distillery*

# LEARNING AND STUDENTS

## Graduate Support Programme

The University's Graduate Support Programme offered a [Summer Skill Series](#) in June, where students learnt about how to build a network, stay motivated and resilient, and even overcome imposter syndrome.



*Summer Skills Series*

## Employability

All [Bangor University graduates](#) can take advantage of a 'for life' account of our CareerConnect platform, where you can search for jobs and other opportunities, and access a host of useful tools and resources. In addition, you can access a 'boost' of tailored support and resources for a whole three years after graduation.

Our three-year support includes:

- CV and application support and feedback
- Interview preparation
- Assisting unsure / worried graduates 'what to do next'
- Improving job / opportunity searching techniques
- Trying new approaches where graduates have been unsuccessful with their applications
- Helping explore ways of gaining experience and establishing/improving networks

# OPERATIONS

## Policies and Practices

Bangor University has numerous employment policies and practices. It is an [Accredited Living Wage Employer](#), and three trades Unions are recognised: Bangor: UCU, Unite, and Unison. Committed to equality, there are policies on [pay scale equity](#), a [Slavery and Human Trafficking Statement](#), an [Equality Policy Statement](#), and annually [tracked gender pay](#).

Bangor University has an extensive suite of [employee support policies](#) including Maternity, Paternity, Adoption, Shared Parental and Parental Leave, Carer's Leave and Flexible and Hybrid working options.

## Civic Engagement Activities

Our Civic Engagement work is wide and varied and the work under the [Civic Engagement Strategy](#) falls under three 'umbrella' themes:

- Working with stakeholders to identify and address societal challenges (e.g. the 'big' challenges of public health, climate change, Welsh language, housing, poverty, post-Covid recovery, ageing population and others);
- Working with stakeholders to ensure economic growth and sustainability; and
- Improving the quality of life through social and cultural engagement

## M-SParc

[M-SParc's mission](#) is to ignite ambition and innovation for a sustainable Wales. Known and respected for its work, culture, processes, and impact, businesses in M-SParc have grown. They're employing more people in better-paid jobs, the gender and language pay gap is reducing, and turnover & productivity have rocketed. There's not a single area of support that they are unable to provide from Finance, IP, Skills, Research Collaborations, Events, Investor Readiness, HR to International Soft-Landing and more.

## 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



### PUBLIC ENGAGEMENT

#### Science Park and AMRC Cymru join forces to ignite innovation across North Wales

M-SParc, Wales' first Science Park owned by [Bangor University](#), and AMRC Cymru signed an agreement in May to allow them to work in partnership. This will ensure companies receive wider access to support, skills, expertise and facilities to boost growth.

#### Welsh Government and M-SParc announce £2.5m to support innovation

In July the Welsh Government Minister for the Economy, Vaughan Gething, visited [M-SParc on Ynys Môn](#) to announce Welsh Government Support and £2.5 million funding towards a second building for the innovative science park, continuing on the journey to create further economic opportunity in North Wales.

This funding means the ambitious project can now take its first step towards developing a facility focused on low and zero-carbon innovation, ensuring more companies can access office and laboratory space including a full suite of dedicated business support services. With a focus on supporting companies and research in the low-carbon sector, the Minister heard how M-SParc 2.0 will support the science park's mission to ignite ambition and innovation for a sustainable Wales.

### Goal: Build Resilient Infrastructure, Promote Sustainable Industrialisation and Foster Innovation

### RESEARCH

#### Working with Meta on mixed reality ocean worlds

A [Bangor University Lecturer](#) from the School of Computer Science and Electronic Engineering has been working with tech giant Meta on new features as part of the virtual reality (VR) aquatic safari park, [Ocean Rift](#).

The new 'mixed reality aquarium', allows users to experience mixed reality, which is similar to virtual reality but where you can still see the world around you via cameras and depth sensors. For Ocean Rift, this means that users will be able to create SeaWorld-like aquarium displays in everyday living spaces by placing virtual windows wherever they like.

#### New glass sensors could make commercial nuclear fusion viable

A new generation of durable sensors capable of monitoring commercial nuclear fusion reactors in real-time is being developed by a team led by [Bangor University](#) in partnership with Sheffield Hallam University.

The team plans to identify whether glass sensors developed in the 1960s could function in the extreme conditions of a nuclear fusion reaction. If not, the researchers will design and develop new glass sensors.



*M-SParc, Wales' first Science Park owned by Bangor University*

## LEARNING AND STUDENTS

### Can we repair the Planet? – students and staff explore

In the Planet Repair school event, students and staff at the School of Computer Science and Electronic Engineering, explored potential solutions, and unique designs, and created a short 'idea pitch' video. The event took place on the 1st of November 2022 and was held to celebrate 'National Engineering Day' 2022.

Three groups pitched their outcomes. The first group thought about the problem that methane brings to the environment. The second group focused on people's views, thinking about how they could change behaviours. The third group focused on waste, contemplating how they can improve how people recycle and throw away their rubbish, and developing a smart rubbish bin.

### Enterprise by design: Students shine at innovation and leadership

In collaboration with Bangor University's Innovation Leadership Training initiative, the Enterprise by Design programme reached its pinnacle with a thrilling grand final held at Pontio in May 2023.

Eight student teams presented their innovative business solutions which aligned with Bangor's #Bangor25by25 campaign, and the UN Sustainable Development Goals, to investigate and understand food in North Wales, including food production, sustainability, and opportunities for people to produce their own food.

The winning team, Trosi Coffi looking at turning coffee waste into useful products, was awarded £4,000 to further develop their business. Harvest Horizon, the creators of a service and app that predicts harvest periods for farmers using temperature sensors, was granted £1,000 for their innovative idea.

## OPERATIONS

### Bangor University and Adra, North Wales' largest social housing provider, have signed a Memorandum of Understanding (MoU) to advance skills and research into decarbonising housing stock

This agreement sees the University become a key collaborator in the Decarbonisation Hub, a facility established in Penygroes in 2021 with the building supplies giant Travis Perkins, supported by the UK Government's Community Renewal Fund and Welsh Government's Transforming Towns Fund.

The Decarbonisation Hub will act as a facility to innovate, provide skills training and develop and test new materials and their deployment in support of decarbonisation. It is within this particular area that Adra and Bangor University saw the opportunity to collaborate.

### Support for those thinking about developing a business idea, social enterprise or starting a freelance career

B-Enterprising's support for students and graduates includes An Enterprise Fund to support with development of an idea or business; Paid self-employment placements of £1,500; One-to-one business mentoring with our Graduate Start-Up Co-Ordinator; Free 12 months membership to IPSE for those interested in freelancing; Access to other opportunities and networks; Free desk at the Incubation Space at M-SParc for those who are close or have just started a business.





## RESEARCH

### Bangor University’s new open-source app facilitates research into regional and minority languages

A new open-source app has been launched which will facilitate the way researchers collect data on bilingual populations who speak a minority/minoritised or regional language as well as a majority language.

Developed by the Language Attitudes research team at Bangor University, School of Arts, Culture and Language. The app offers a one-stop-shop and includes four different data collection tools all of which are widely used in the field of bilingual research. According to the app’s developers, there is also great potential for it to be used as a teaching tool, particularly in relation to dissertation research.



*LGBTQ+ History Month*

## Goal: Reduce inequality within and among countries

## PUBLIC ENGAGEMENT

### Promoting diversity and understanding of immigration through opera

An event at Bangor University sought to explore the key themes of Bhekizizwe, an operatic monodrama on immigration, racism, and diversity – and to contribute to both public understanding and the development of a positive public conversation around these issues, particularly in the arts sector.

### Bangor University to lead the rollout of the Children’s University in North-West Wales

A ground-breaking new scheme that aims to inspire a love of learning among children and young people by promoting access to extra-curricular activities is being expanded after securing more than £800,000 of funding.

Bangor University will work with Wrexham Glyndwr University and several other partners to pilot the scheme as part of a shared civic mission commitment to work in partnership to end social inequality in the region. Working with schools, community groups and learning destinations across the area, it encourages children and young people to complete extracurricular and volunteering activities, with the overarching aim of raising aspirations and rewarding participation.

### LGBTQ+ History Month

A series of talks were held by Bangor University’s School of History, Law and Social Sciences, in February, to celebrate LGBTQ+ History Month. The talks were aimed at A-level students and considered religious, philosophical, and historical aspects of LGBTQ+. Discussions included Buddhist teachings and queerness, and how Hinduism has engaged with the LGBTQ+ community.

# LEARNING AND STUDENTS

## One World Gala celebrates diversity at Bangor

On the 9th of March, Bangor University celebrated the diversity and talent amongst its students, staff, and the local community with the annual One World Gala event. From Welsh clogs to Indonesian song medleys, Indian Bollywood dancing and Chinese traditional instruments, there were acts representing many corners of the globe. The event was packed as students, staff, and members of the local community enjoyed the free concert, which the International Student Support Team organised.

The University's International Student Support Office has been organising the Gala for over a decade, and the event keeps getting bigger and better. In addition to the varied performances on show, the event also raised money for the DEC Earthquake appeal to support those affected by the recent disaster in Turkey and Syria.



One World Gala performance

## Student Data 2022/2023

The latest Student Equality Report notes 8.1% of all UK-domiciled Bangor University students identified as Black, Asian, and Minority Ethnicity in 2022/23. 21.9% of students were recorded as having a disability.

# OPERATIONS

## Pride Month

The University supported the LGBTQ+ community by flying the Rainbow Flag during Pride month. Bangor University has its own LGBTQ+ Network for students and staff. The LGBTQ+ Network is open to anyone who studies or works at Bangor University and identifies as lesbian, gay, bi, trans, queer or questioning, plus friends and allies of the community.



Supporting the LGBTQ+ community by flying the Rainbow Flag during Pride month

## Black History Month 2022

Undeb Bangor, the Students' Union, marked Black History Month in Bangor with a mixture of cultural events, trips, and talks. As part of the campaign, Undeb Bangor also ran a social media campaign sharing information about Black History in the local area and throughout Wales.

Month	Event	Location
October 11 Open Day	Afro-Caribbean Society Cookout	BB2 area, Ffrindwood Bar
From October 4	A Lesson In Black History' On demand 3 part mini-series	UndebBangor.com
October 12	"Am I enough?" Discussion and workshop with Toluwa Oyeleye	Booking essential - UndebBangor.com
October 22	Black History Month Trip - International Slavery Museum, Liverpool	Booking essential
October 23 Open Day	Archives and Special Collections - New insights into the Penryn Jamaica Collection	Booking essential @penryn@bangor.ac.uk
October 24 Open Day	Afro-Caribbean Society Movie night	Artifolia Hub, Labare Bar (Unit)
November	Look out for Gwyl Watch Africa in the cinema during November	Pontio Cinema

*\*weather dependent - if the weather is looking bad, we will move the event to Barlow's Kitchens, St Mary's site. Please check the Afro Caribbean Instagram for details, @bangoracs*

Black History Month events



# 11 SUSTAINABLE CITIES AND COMMUNITIES



## RESEARCH

### **Energised Welsh communities: Making connections between place and community renewable energy**

A [presentation in December](#) focussed on the findings of a PhD study centred on identifying the roles and meanings of community and place attachment for Welsh communities within a community renewable energy (CRE) context, in these often place-based projects.

The study details the contextual setting for the renewable energy projects across the case studies, identifying the relationship between communities, their landscape and renewable energy. The findings importantly highlighted how place attachment was the context for, but also shaped the engagement of communities with CRE projects. This included how natural resources were utilised over time in post-industrial communities.

### **Biotwin project – building new biomaterials for construction**

As part of a funded feasibility project, the [Biocomposites Centre is working with the Biotwin company](#). The aim is to develop biobased, low-carbon construction elements for the UK market using low-cost carbon sequestering plant materials combined with state-of-the-art low-formaldehyde binders to produce complex shapes and structures.

## **Goal: Make Cities Inclusive, Safe, Resilient and Sustainable**

## **PUBLIC ENGAGEMENT**

### **AI has the potential to revolutionise the use of minority languages**

Experts from across Europe in fields ranging from AI and digital technology to linguistics and sociology met to discuss how the current, and forthcoming, revolution in language technologies will impact language use at an event [organised by Bangor University](#) in September.

AI or artificial intelligence is set to change every aspect of our daily life in the next five to ten years - even how we use language. Ensuring that minority languages are not overlooked is both vital and possible as the use of AI surges forward. Its use could revolutionise the use of minority languages, helping them to survive and thrive in the digital age, according to a Bangor University academic and researcher.

### **Bangor University collaborates with partners to improve green space initiatives**

[Bangor University](#) and the UK Centre for Ecology & Hydrology are working with Denbighshire County Council on a project to help inform and improve the development of green spaces in Rhyl, North Wales.

The partners will look at public perceptions of changes to green spaces around the area, and how this information can shape future nature recovery work. As part of its Strategy, Denbighshire County Council plans to develop new woodland and urban wildflower grasslands in Rhyl and across the county. Benefits of this climate and ecological work include improved biodiversity, carbon storage, air pollution removal and noise mitigation, as well as positive effects on health and wellbeing.

## LEARNING AND STUDENTS

### Training the leaders of the future in sustainable management of tourism destinations and businesses

Bangor University has developed a new Tourism Management degree to train new leaders to manage tourism destinations and businesses sustainably. The degree was designed in consultation with local tourism industry organisations, and launched in May.

It was essential to ensure that the course would help both students and others involved in the tourism sector to understand the need to balance the economic and socio-cultural needs of the host communities, whilst offering memorable experiences to tourists.

### Volunteering Week

In February the Students' Union dedicated a whole week to volunteering, so everyone could have a taste of what volunteering in the Bangor community is all about. Throughout the week a variety of events connected students with volunteering projects. They teamed up with City to Sea, North Wales Wildlife Trust and The Marine Conservation Society to deliver interactive talks, a guided walk and a beach clean with a pollution survey. These were perfect for students with a keen interest in conservation or the environment to learn about volunteering opportunities and opportunities outside of the university.



*Volunteering Week Student Beach Clean*

## OPERATIONS

### Treborth Botanic Garden celebrates international accreditation success

Staff and volunteers celebrated a major landmark in Treborth Botanic Garden's history in April as they received the news that the Garden has been successful in its bid to become an Accredited Botanic Garden, one of only seven Accredited Botanic Gardens in the UK and one of only three in Wales.

The Botanic Garden Conservation International Accreditation demonstrates the Garden's conformity to the highest international standards as a botanic garden. Botanic Gardens are assessed on criteria encompassing leadership, specialist horticultural expertise, public education, collections management, community and cultural activities, conservation actions, scientific research, staff, networking and sustainability.



*Treborth Botanic Garden*

### Bangor University Community Fund

In 2023 the Bangor University Community Fund was established as part of the Civic Engagement Strategy supported by HEFCW through the Research Wales and Innovation Fund.

The fund is aimed at pump-priming civic engagement activities between University staff and external partners. Awards are available to all staff members to carry out civic engagement activities that will spark new collaborations or build on existing relationships with external partners.

# 12 RESPONSIBLE CONSUMPTION AND PRODUCTION



## PUBLIC ENGAGEMENT

### BioComposites Staff attend stakeholder meeting in Uganda

Biocomposites staff attended a series of workshops with local farmers, growers and nursery operators in the Mt. Elgon Region of Eastern Uganda in March, to promote the benefits of transitioning from single-use plastics to biodegradable alternatives to package and grow tree seedlings.

This has included briefing sessions on the issues of environmental damage caused by single-use plastics in the agroforestry sector in Uganda. In total 255 people (108 female, 147 male) attended these workshops in March 2023 and stakeholders included farmers, nursery operators, local community and religious leaders, local/regional Ugandan Government representatives and school children.



*Mussel Shells*

## Goal: Ensure Sustainable Consumption And Production Patterns

### RESEARCH

#### Seabed trawling's impact on the climate may be wildly overestimated – new study

Bottom-trawl fishing supplies one-quarter of fish landings globally and, as it occurs worldwide, is by far the most extensive way in which people disturb the seabed. Towing nets, chains and other heavy metal trawl gear along the seabed kill some of the clams, worms and starfish, but it also mixes and resuspends sediment in the water.

Globally, 1.75 times more carbon is stored in the sediment of the seabed than all the soil on land. Disturbing this carbon could increase CO<sub>2</sub> concentrations in the water, and in shallow well-mixed waters, where around half of trawling activity is concentrated, this CO<sub>2</sub> may be released to the atmosphere. While preventing bottom trawling from disturbing the seabed could reduce the emissions driving climate change, how much CO<sub>2</sub> it would prevent is uncertain – and previous predictions are likely to be overestimated.

#### An exciting new material that protects homes and the environment

An innovative new material, made from mussel shells, that protects homes is one step closer to being available on the market, thanks to a collaboration between sustainable product company Pennotec (Pennog Ltd), Bangor University's BioComposites Centre, supported by Innovate UK.

Through their research, Pennotec discovered that mussel shells can bind and release copper. Gradual release of copper from Pennotec's mussel shell-based composite material prevents the growth of green algae, and prevents the growth of moss on roofs, reducing the cost of home maintenance.

# LEARNING AND STUDENTS

## Students create products using sustainable Welsh wool

Tasked by a Welsh government-funded project 'Made with Wool', Product Design students at Bangor University accepted their challenge to create innovative products using Welsh Wool which included mountain bike mudguards, surfboard fins and fruit bowls.

Made with Wool is a Welsh government-funded pan-Wales project bringing together an extensive network of stakeholders that represent every part of the wool supply chain. The project is looking to realise the potential of wool as a natural, sustainable, and versatile material and challenges the student to produce either a new product or to consider wool as a substitute material for existing products.



A bowl created by combining wool with seaweed, designed by Leanne Melia

## Waste Awareness Week

**Waste Awareness Week**

- Oct 17th - Waste Awareness Week starts! Community Waste visits.
- Oct 18th - Working towards a circular future- Acapella St Mary's Village 7pm.
- Oct 18th - Reusable Period Product Giveaway (period cups and pads) 10-6pm. Outside the students Union (4th floor Pontio).
- Oct 19th - Litter Pick. Meet outside Ffridd and St Mary's Halls Office 2-3pm.
- October 20th - Repair Cafe 10am - 3pm Room 3, The Activities Hub, Ffridd Village. Access free IT support and bring any clothes, laptops, small electrical items and bikes for repairs. No large white goods accepted e.g. fridges.
- October 21st - Quiz Night! Bar Uno and Barlows 8pm.
- October 22nd - Beach Clean 11am Meet outside Main Arts. \*Book at [undeb6bangor.com](http://undeb6bangor.com).

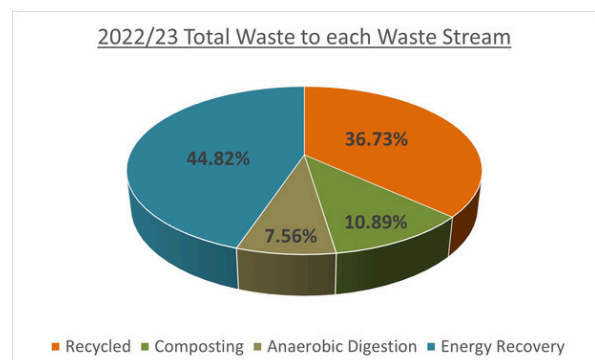
**17-23.10 #WAW22**

Waste Awareness Week 2022

# OPERATIONS

## Waste Data

In 2022/23 Bangor University diverted 100% of its waste from landfill. Out of the waste diverted, 55.18% was recycled and 44.82% was recovered. 724.1 tonnes of waste was generated in total, an 8.09% decrease from the previous year. The University raised awareness among staff, students and visitors through the core programmes Better Apart, Waste Awareness Week and End-of-Term Halls Reuse Drive.



## Bangor University's 2022/23 Waste Data

## Prince Madog research vessel to be powered by hydrogen in £5.5m Transship II project

The UK's only fully seagoing research ship within the UK's higher education sector, the Prince Madog, is set to reduce its emissions by up to 60% thanks to a pioneering £5.5 million hydrogen power initiative that could help reshape the future of shipping.

The Transship II project is the largest retrofit of its kind to date and will see the Prince Madog retrofitted with a hydrogen-electric hybrid propulsion system that will enable zero to low-emission operation by 2025.

The Prince Madog, co-owned by Bangor University, recently celebrated 20 years of service to education and science. The research vessel has changed the way we understand marine and coastal sciences and is the only one of its kind in the UK and one of the largest in Europe.

# 13 CLIMATE ACTION



## RESEARCH

### World's lakes experience excess warming

Over half the world's 117 million lakes experience ice cover for part of the year. However, with the rise in global temperatures, the timing of seasonal ice formation and loss is changing at rapid rates. Since 1979, the average timing of lake ice break-up across the Northern Hemisphere has advanced by 8 days. This 8-day advancement has resulted in excess lake warming with numerous implications for lake ecosystems.

A [new paper published](#) by Bangor University and Peking University concentrated on Northern Hemisphere lakes, using satellite images to study nearly a thousand lakes and modelling over 100,000 to calculate the effects of the increased ice-free days on the water temperature. They also suggest how changing temperature profiles within lakes might affect the processes within the lakes as well as the plants and animals living within the lake environments.

### Survey reveals perceived harmful impacts of climate change on mental health

A [Welsh national public survey](#) conducted by Public Health Wales and Bangor University has revealed that over three-quarters of Welsh residents believe that climate change will damage mental health and increase the costs of heating a home and buying food.

## Goal: Take Urgent Action to Combat Climate Change and Its Impacts

## PUBLIC ENGAGEMENT

### Outreach event: Linking castles and sea, people and science

The Clicher Project is a Natural Environment Research Council-funded project addressing how cultural heritage (castles, villages, slate), and the value we place on it, can help to inform a better understanding of our changing climate and the risk that it poses in terms of our cultural assets location on/or close to the north Wales coastline.

This [interactive workshop event in March](#) included meeting local people, practitioners, policymakers and academics to find out more about our coastal and heritage land and seascapes and attempt to co-create a practical toolkit for how to engage diverse communities with climate science and the threat to cultural heritage.

### Bangor University Researchers at the Forefront of Tackling Climate Change

A new case study series [highlights Bangor University projects tackling climate-related issues](#) through collaborative research in Africa. Researchers are in collaboration with the University of Antananarivo, Madagascar, working with local communities to ensure that forest conservation does not harm local livelihoods. In Uganda, collaboration with Uganda's National Agricultural Research Organisation is to develop single-use plastic replacement products from the waste material from maize production. Collaboration with Togo's National Potato Research Organisation is trialling high-yield disease-resistant potato varieties, and in Nigeria, Bangor is collaborating with the University of Jos to help conservation organisations and local communities plan for changing weather patterns predicted under climate change.

## LEARNING AND STUDENTS

### Bangor University student to Arctic Explorer

Bangor University student, [George Reese](#) was selected to undertake one of the world's most ambitious unconquered challenges: to reach the Northern Pole of Inaccessibility.

World-renowned explorer, Jim McNeill, chose Marine Biology & Zoology student George, to take part in one of the most important and ambitious polar expeditions of our time; to be the first expedition in history to reach the Northern Pole of Inaccessibility, collecting vital climate change data on route.

The expedition is not only a record-setting adventure but will gather "crucial datasets" to benchmark the condition of the ocean for the NASA-funded National Snow and Ice Data Center scientists, led by Nobel Prize-winning scientist, Walt Meier. These, along with weather data, measurements of pollution and counting polar bears, deliver the reality of climate change and make the whole endeavour worthwhile and purposeful.

### Study

The [Life in a Changing Climate module](#) covers how climate change and aspects of zoology and biodiversity are connected and interact. National and international policy is covered, along with potential conservation and management practices needed to cope with a changing climate.



## OPERATIONS

### New Sustainability Campaign launched: 25 by 25

In November the University launched a new sustainability campaign for staff and students. The ['25 by 25' campaign](#) aims to reduce 25% of emissions by 2025. To achieve this the University will examine how it uses all types of power, fuel, and water, the waste we throw away, and just about anything and everything that creates a greenhouse gas emission.

25 by 25 kicked off its activities with an open invitation to all colleagues and students to offer their ideas on supporting this campaign, with thoughts and initiatives on how the University can reduce carbon footprint within our key target areas of Energy, Waste and Travel. The '25 by 25' logo appeared across our campus in the form of 'clean graffiti' which piqued interest in the campaign.



*25 by 25 clean graffiti*

### Carbon Management

During 2022/23 the [University's carbon emissions from Scope 1 and 2](#) decreased slightly to 6,749.20 tonnes CO<sub>2</sub>e, compared to 9,491.9 tonnes CO<sub>2</sub>e in 2018/19 on location-based electricity calculations.

A comparison of Scope 1 and 2 activities between 2021/22 and 2022/23 showed a slight reduction in natural gas due to various building use changes. Despite a reduction in electricity consumption, an increase in UK emission factors increased those carbon emissions compared to last year.



## PUBLIC ENGAGEMENT

### How the UK can reverse its biodiversity freefall

A [free public lecture](#) by Craig Bennett, CEO of The Wildlife Trusts took place in February to celebrate World Wetlands Day. Craig talked about where he sees the future of nature conservation in the UK and what needs to be done for the country to achieve its biodiversity targets.

### Using roaming robots to better understand the ocean

Professor Stephanie Waterman of the University of British Columbia, works at the forefront of a new robotic era, using remote robots for ocean observation. Professor Waterman visited Bangor University in June to present a [public lecture](#) on using roaming robots to better understand the ocean.

The oceans remain a mystery, as foreign to us as outer space but crucially intertwined with all life on Earth, playing a pivotal role in climate regulation and food production. Much of the mystery stems from the many significant challenges associated with observing the ocean. But the robot revolution is ushering in a new era of ocean observation, with the potential to revolutionize our understanding of ocean functioning.

## Goal: Conserve and Sustainably Use the Oceans, Seas and Marine Resources For Sustainable Development

## RESEARCH

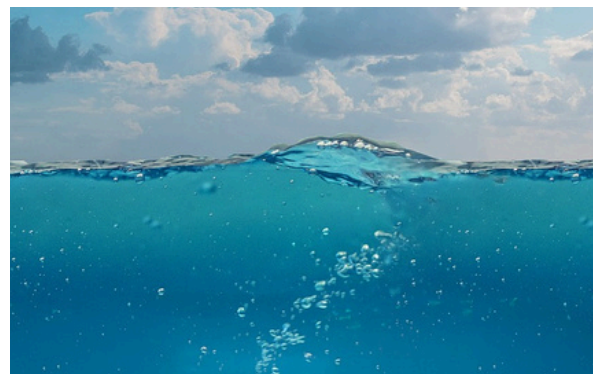
### Conservation project finds thousands of animals living alongside oyster nurseries

The Wild Oysters Project is celebrating a win for wildlife after finding over 27,000 marine animals living among their native oyster nurseries – indicating that the restoration project is helping more than just oysters.

The [conservation site in the River Conwy](#), delivered by the School of Ocean Sciences at Bangor University, found over 40 incredible species such as long-legged spider crabs, butterfish, worm pipefish, and chameleon shrimp living amongst the native oysters.

### Project to record the impact of noise on marine mammals

Working in partnership, [Bangor University](#), Natural Resources Wales and the Centre for Environment, Fisheries and Aquaculture Science have placed specialist recording equipment at three locations in the North Anglesey Special Area of Conservation to learn if human-made and natural noise affects marine mammals, to help tackle the nature and climate emergencies. As part of the Survey, recordings will be made underwater over 18 months to understand how mammals use the area.



# LEARNING AND STUDENTS

## School of Ocean Sciences

One of the largest university Marine Science departments in Europe, [Bangor University's School of Ocean Sciences](#) is a multidisciplinary marine science department located on the shores of the Menai Strait, in north Wales.

The School has excellent support facilities. These include well-equipped teaching and research laboratories, small inshore research vessels, a 35-metre seagoing research vessel, in-house electrical and mechanical workshops capable of designing and building state-of-the-art oceanographic equipment, and a filtered seawater supply direct from the Menai Strait to tropical and cool water marine aquaria.

Our academics and students are involved in research projects around the world. Their discoveries are helping shape government policies and changing the very way we think about the most important topics of the day.

## Study

Our [Marine Top Predator Ecology MSc](#) is where you study specialist modules, introducing both field and quantitative skills in the study of marine top predators and oceanographic research, and advanced topics in generic quantitative marine ecology.

The [Marine Environmental Protection MSc](#) provides theoretical and practical training in measuring and quantifying marine resources and the effects of conflicting usage upon them. It provides a sound scientific basis on which to develop policy and make decisions on marine resource exploitation and protection around the world.

[Undergraduates](#) can study Ocean Sciences, Geological Oceanography, Marine Biology, Marine Science and Conservation and more.

# OPERATIONS

## Water Conservation Standards

Our [Water Conservation Standards \(WCS\)](#) objectives are to promote and implement sustainable water management practices that reduce water consumption and encourage responsible water usage on the University campus.

Some of the functions of the WCS are to enable the University to prevent pollution, help protect local watersheds and terrestrial and marine ecosystems and biodiversity, help safeguard public health and ensure sanitation and discharge standards.

We will be conducting water audits and assessments, evaluating stormwater management and seeking continuous improvements to ensure our local aquatic ecosystems are maintained and supported.

## Sustainable Food Policy

Our in-house Catering Service recognises the importance of providing sustainable and healthy food to staff, students, and visitors. [Our Sustainable Food Policy](#) aims include procuring food from suppliers who proactively operate sustainably, maintaining the availability of seasonal & local produce within our menus, increasing the availability of vegetarian and vegan options on menus, maintaining the availability of fish from the MCS "Fish to Eat" list, and never serving any fish for the 'fish to avoid' list, and, recycling in all catering outlets in line with best practise.



*The Research Vessel Prince Madog*





## PUBLIC ENGAGEMENT

### Protecting and regenerating tropical mangroves

Mangroves were once seen as inhospitable malarial swamps and were among the fastest disappearing habitats in the world. Now, with input from [Bangor University](#), one community project in Kenya is working to restore mangroves in a project which benefits local communities. Thanks to investment and projects, organisations are paying for the planting and conservation of mangroves, to offset their carbon. This doesn't only help the mangroves; it helps local communities thrive.

### At Eich Coed / Tree Sense

[TREE SENSE](#) a multidisciplinary exhibition coordinated by Bangor University took place between March and May. Through a series of creative installations, discussions, workshops and performances, it communicated multiple perspectives on trees and inter-relationships with people, wildlife, and the wider environment. The exhibition encouraged visitors to take a different view of trees, including the health benefits of trees, their contribution to a sense of place, how trees can mitigate climate change, and how humans have used trees throughout history.

**Goal: Protect, Restore and Promote Sustainable Use of Terrestrial Ecosystems, Sustainably Manage Forests, Combat Desertification, Halt and Reverse Land Degradation, and Halt Biodiversity Loss**

## RESEARCH

### Smart technology aids research into nationally important seabird colony

UK scientists are rolling out an array of technology to understand if a charismatic seabird species will thrive or suffer under future climate change and extreme weather events. The research, [led by scientists from Bangor University](#), focuses on a nationally important colony of European shag (*Gulosus aristotelis*) on Puffin Island, near Anglesey. Numbers of European shags have been declining in recent years, putting them on the red list of birds under the highest threat of extinction in the UK.



*European shag*

### Using apple extracts to make some of the nation's favourite foods healthier, without compromising taste

[Bangor University](#) is collaborating with Pwllheli-based Pennotec, and baker The Pudding Compartment, Flint on using a by-product which may be otherwise discarded, in this case, apple pomace - the solid residue left after apple juice manufacturing, to turn it into something extremely useful.

## LEARNING AND STUDENTS

### Strictly winner Hamza returns to Bangor

Alumnus, honorary degree recipient, and Strictly Come Dancing winner, Hamza Yassin [returned to Bangor University in March](#) to give a talk to students from the School of Natural Sciences. In 'Life behind the Lens' - he talked about how he became a wildlife photographer and filmmaker.

The Sudanese-born Scottish wildlife cameraman, photographer, TV presenter and conservationist made his name in the competitive film-making industry. His dedication and skill at capturing incredible footage of Scottish and Welsh wildlife has helped him make his mark as a wildlife cameraman. But his talent in front of the camera was also quickly recognised- and to a generation of young children, he is CBEEBIES' Ranger Hamza!

During the last two and a half years, Hamza has been working on some of the sequences for Sir David Attenborough's new BBC series, Wild Isles. In last night's episode, Hamza was featured in the 'On location' segment where he was searching the Scottish Highlands for Golden Eagles.

### School of Environmental and Natural Sciences

Bangor's [School of Environmental and Natural Sciences](#) offers a diversity of degree programmes on topics relating to Agriculture, Biology, Conservation, Environmental Science, Geography, Forestry and Zoology. Research spans environmental and biological sciences, including molecular biology and ecosystem processes to name a few.

The School is unique in having a comprehensive collection of vertebrate and invertebrate material in the Natural History Museum, and access to the Treborth Botanic Gardens on the banks of the Menai Strait.

## OPERATIONS

### Biodiversity Policy

Bangor University recognises the crucial role biodiversity plays in maintaining the health and resilience of ecosystems and the benefits it provides for its students and staff, as well as for the local community and wider society.

Our [Biodiversity Policy](#) contains many objectives including, protecting and enhancing biodiversity on the University estate, ensuring conservation, restoration and sustainable use of terrestrial ecosystems associated with the University, managing and improving existing green spaces on campus, and where practicable creating new habitats that are important for biodiversity. We will create a new Biodiversity Enhancement Plan, and support the 30 by 30 in 30 biodiversity initiative, which aspires to create 30 new locations to better support wildlife across the University estate by 2030.

### Henfaes Research Centre

[Henfaes Research Centre](#) is an area of 252 hectares owned by the University, about 7 miles from Bangor. The lowland area provides facilities for research and teaching in lowland agriculture (including arable crops and livestock grazing), forestry, hydrology, environmental science and conservation. It also has an extensive shoreline for studying coastal salt marsh processes. Henfaes is the location for the Centre for Hill and Upland Management, which is managed as a commercial sheep unit with 1,650 purebred Welsh Mountain ewes and 12 pedigree (Section A) Welsh Mountain ponies.

Henfaes represents one of Defra's key sustainable intensification platform (SIP) sites, where the potential to increase livestock production whilst also reducing greenhouse gas emissions is being explored. It is also an Innovation Centre for LEAF and an Innovation Site for the Welsh Government's Farming Connect programme.

# 16 PEACE, JUSTICE AND STRONG INSTITUTIONS



## PUBLIC ENGAGEMENT

### Giving your research a voice in parliament

A public lecture in June gave participants an insight into the complex relationship between researchers and politicians, an overview of how policies and laws are made in Wales, how to negotiate the two worlds of policy and research, tips and opportunities for engaging with the Senedd, and a case study.



### Rural policymakers encouraged to 'govern like a forest' in post-Brexit Britain

In contribution to a new open access book, *Rural Governance in the UK: Towards a Sustainable and Equitable Society*, a Bangor University team have highlighted the risk that single 'carbon-capture' purpose woodlands may not meet the breadth of society's future needs. The book provides a multidisciplinary view of rural governance and society in post-Brexit UK. It covers not only forest policy, but also rural digitisation, agricultural and environmental land management, rural social entrepreneurship, and energy.

**Goal: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels**

## RESEARCH

### Tax systems faced by visitor economies – how does Wales compare to elsewhere?

In a report commissioned by the Welsh government, researchers at Bangor University have been analysing tax systems faced by visitor economies and comparing Wales' situation with elsewhere. The analysis will be used as evidence in the consultation on a tourism levy in Wales, revealing that Wales' tourism sector is most similar to those of Denmark, Sweden, the Netherlands, Norway and France. Selected as 'comparators' it emerged that economically, Wales' tourism sector can be more closely compared with these five countries than that of neighbouring England, Scotland and Ireland.

### Teaching and learning in the outdoors: the current state of outdoor learning in Wales

A Welsh Government project was undertaken by two Bangor academics as part of the Collaborative Evidence Network. The findings are aimed at policymakers and Local Authorities, who can support schools and practitioners in developing outdoor learning policies, guidance, resources and professional development for the education workforce in Wales.



## LEARNING AND STUDENTS

### **The first cohort of PEQF officers graduate from Bangor University**

The first cohorts of North Wales Police 'Police Education Qualification Framework (PEQF)' students graduated in July with a [professional policing qualification from Bangor University](#).

Launched in 2020, the collaboration between North Wales Police and the university has allowed recruits to combine academic learning with work-placed learning. This dual pathway scheme provides formal recognition for the skills demonstrated by today's police professionals and the demands placed on them by an increasingly complex working environment.

### **Bangor students collaborate locally and internationally on youth empowerment**

Students from Bangor have collaborated with partners from across Europe to [develop a web course on successful youth work practices](#), hoping to ensure that the youth programmes of the future make a real difference to the confidence and aspirations of young people as they enter adulthood.

The aim of the Erasmus EMPYRE project (Empowering Youth - Successful Youth Work Practices in Europe) is to map, evaluate and develop youth work practices that have been successful, especially in social empowerment and employability of youth.

Students from Bangor University's School of History, Law and Social Sciences collaborated with students from institutions in Poland, Finland and Austria on the project, which will result in an 'empowering youth' web course. The course will be made available for students and people working in youth organisations across Europe and will examine the key elements of successful youth work practice and provide practical examples of good practice.

## OPERATIONS

### **Governance Measures**

The [Council](#) is the supreme governing body of the University as set out in the University Charter and is responsible for the exercise of the University's powers.

Functions of the Council include custody and use of the Common Seal, oversight of the management and administration of the revenue and property of the University, and oversight of the conduct of the affairs of the University.

The Council's membership as set out in the Charter consists of independent members, University Executive Board members, staff-nominated Academic and Non-academic members, and Students' Union elected Officers.

The [Court](#) is the stakeholder group for Bangor University, providing a forum in which members of the community can interact with the University. It includes representatives from local authorities, members of parliament and members of the Senedd, the local health board, university alumni, as well as other key stakeholders. The Court meets at least once a year. A Community Board has been in existence for many years to connect with our local communities.

### **Students' Union**

[Undeb Bangor](#) is the voice of the Students and the home of student life at Bangor, led by elected student representatives working to enrich and enhance the student experience.

Dedicated elected Sabbatical Officers (Sabbs) work to ensure student voices are heard and that the kind of activities that are needed are being developed. Supported by a team of professional staff, they run the Sports Clubs, Societies, Volunteering Projects, UMCB (Welsh Union), Undeb Bangor Course Reps and Networks and a Student Forum.

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## RESEARCH

### **Saving an ancient rice grown on the roof of the world**

An [expert from Bangor University](#) who has helped to provide food security for over five million smallholders and their families in India, Pakistan and Nepal over the years, has now had a hand in developing a rice variety which can be grown in Nepal.

Working with the National Rice Research Programme in Nepal, indigenous farmers and consumers, the farmers test the trial varieties by growing them on their own plots of land. This method of plant breeding ensures that new varieties are highly adapted to local conditions and preferences of local farmers, and in turn, improves their adoption and spread among the farming community.

### **Bangor University research informs RNLI safety warning**

The RNLI teamed up with [Bangor University](#) as part of a project to understand people's knowledge of the tide. Researchers talked to people who have experienced tidal cut-offs to explore some of the reasons why they get into trouble. The charity is calling on people to be extra careful in light of the statistic that 15% of the UK population reported having experienced tidal cut-off.

**Goal: Strengthen the means of implementation and revitalise the global partnership for sustainable development**

## PUBLIC ENGAGEMENT

### **Bangor University wetland project recognised at national awards**

A wetland creation project involving [Bangor University staff and students](#) has scooped a top accolade in a major environmental award ceremony. The Chester Wetland Centre will see the creation of valuable wetland ecosystems on and around a popular country park on the outskirts of Chester.

Besides the Land Trust, Friends of the Countess of Chester Country Park, Binnies and Bangor University other key partners in the project are the Environment Agency, Cheshire West and Chester Council, The Conservation Volunteers Merseyside and Canal and Rivers Trust.

### **New case study series highlights Bangor University projects tackling climate-related issues through collaborative research**

[Researchers from Bangor University](#) are successfully tackling a wide range of climate-related issues in Africa. In collaboration with the University of Antananarivo, Madagascar, we are working with local communities to ensure that forest conservation does not harm local livelihoods. In Uganda, collaboration with Uganda's National Agricultural Research Organisation is developing single-use plastic replacement products from the waste material from maize production. In Togo, Bangor are collaborating with Togo's National Potato Research Organisation to trial high-yield disease-resistant potato varieties to improve food security. In Nigeria, researchers are collaborating with the University of Jos to help conservation organisations and local communities plan for changing weather patterns predicted under climate change.

## LEARNING AND STUDENTS

### 70 years of volunteering by Bangor students

Students have been volunteering with Bangor University's Students' Union for 70 years. [The Tea Party Project](#) was launched in 1952 and was the beginning of the volunteering journey Bangor students have been following ever since. The Tea Party is an organised afternoon tea and entertainment for elderly residents at Christmas and around St David's Day. Over the years, the Tea Parties have provided the elderly community with an opportunity to get out and socialise and have helped reduce loneliness and isolation.



*Bangor University student volunteers*

### Study

The [Global Health](#) module engages with a broad range of topics related to global health, including The Millennium Development Goals, Global Health Strategy, Global Development Report, and Sustainable Development Goals.

Our [Sustainable Development: from Global to Local](#) module looks at sustainable development based on effective ways of protecting the environment, prudent use of natural resources, and maintenance of stable and flourishing communities where everyone's needs are met. The development of the concept of sustainability is examined with regard to the changing population, resource technology and development debate.

## OPERATIONS

### Dedicated Outreach Educational Activities for the Wider Community

Improving quality of life and sharing knowledge through social and public engagement comes in several forms at Bangor University.

[Alumni E-News](#) - The Development and Alumni Relations Office sends out monthly e-newsletters to alumni and friends.

[Pontio](#) - The University centre offers an exciting and unique blend of arts and culture, innovation, education, and community.

[BLAS](#) - funded by the Arts Council of Wales and Children in Need, is Pontio's youth art participatory programme.

[The Centre for Mindfulness Research and Practice](#) - A self-funding organisation based within the School of Psychology and Sport committed to the promotion of wellbeing through the application of mindfulness-based approaches. Numerous courses, events and free guided audio downloads are available.

[Enterprise Hub](#) - To support businesses outside of the low carbon, energy and environment, digital and life science sectors, M-SParc and Menter Môn have partnered on the Enterprise Hub. Funded by European Regional Development Funding through the Welsh Government, the Hub allows M-SParc to support new businesses in any sector by providing fully funded office space, events, and business support.

[Sport Bangor](#) - The University's sports centre provides sports and recreation facilities for staff, students, elite athletes, juniors, and the public.

[Treborth Botanic Garden](#) - More than 2,000 plant species within 18ha (44 acres), a resource for teaching, research, public engagement, and enjoyment.

[Student Volunteering Bangor](#) - Offering a variety of opportunities, including after-school activities, sessions for autistic children, one-to-one mentoring at local primary schools and days out for children affected by family illness.