

Institution: Aberystwyth University

Unit of Assessment: 17: Geography, Environmental Studies and Archaeology

a. Context

Research in Geography at Aberystwyth University (AU) encompasses pure and applied work that spans the physical sciences, social sciences and humanities, with relevance to a wide range of non-academic users, audiences and applications. The main impacts achieved include:

i. *Impacts on the environment and on health through contributions to tackling and mitigating pollution, monitoring environmental degradation, improving flood control and enhancing nature management.* This includes improvements to recreational water standards underpinned by research by the Centre for Research in Environment and Health (CREH); the application of research by the Earth Observation and Ecosystem Dynamics Research Group (EOED) to monitoring deforestation and mangrove depletion, and to habitat management in Australia and Wales; and the translation of research by the River Basin Dynamics and Hydrology Research Group (RBDH) into actions to remediate polluted land and rivers and on flood risk management. This impact has been promoted through contracted research for various agencies; presentations to committees and conference; and public advisory roles. Beneficiaries of this impact have included coastal, forest and riverine environments and the human communities that live in and use these environments for work and leisure.

ii. *Impact on public policy development and delivery, at successive scales from the local to the global.* This includes inputs to international policy-making on environmental protection and climate change policy by members of CREH and the Environment and Society Research Group (ESRG) through participation in advisory roles and policy conferences; contributions to policy-making at European, UK and Wales level on community governance, rural development, labour market policy and behaviour change strategies, underpinned by research in the New Political Geographies Research Group, facilitated by contracted research, policy seminars, submissions to public inquiries and consultations, and public advisory roles; and engagement with policy-making and delivery in the local community across a range of issues through participation on local committees, partnerships with local agencies, and co-sponsored research. Beneficiaries of this impact have included consumers, recreational water users, job-seekers and trainees, local councils and government organizations, and local communities.

iii. *Impact on commercial and organizational practice, through the development and dissemination of new techniques and applications, collaborative research, knowledge exchange and advising on corporate decision-making.* This includes, for example, the application of remote sensing and GIS technologies developed by EOED to environmental management, the application of glaciological research in the Centre for Glaciology to the analysis of glacial hazards, and the application of hydrological, geomorphological and geochemical expertise in RBDH and CREH to land management, construction and water quality problems, as well as training and applied research for local businesses and organizations on a range of environmental, social and environmental topics. These applications and impacts have been delivered through partnership working, consultancy and contracted research, and knowledge exchange programmes supported by the European Regional Development Fund (ERDF). Beneficiaries of this impact have included small businesses and third sector organizations in Wales, national and international corporations, government organizations in the UK and internationally, and communities affected by challenges of environmental change and hazards.

iv. *Impact on society and culture, especially public discourse and understanding of science, especially concerning climate change, environmental hazards and extreme weather.* This includes influence on the media representation of climate change impacts by members of the Centre for Glaciology, working closely with film-makers including the BBC, and supported by dedicated websites and public talks; and the contribution of expertise on environmental hazards and extreme weather events by members of the ESRG to media discussions on radio and television, as well as through public talks, schools events and articles in the popular press. Beneficiaries of this impact have included media organizations, schools and the general public.

These types of impact have been facilitated by the targeted engagement of research groups and individual researchers with a range of non-academic users, supported by departmental policies and resources, professional assistance from University offices (including the Communications Office, Commercialisation and Consultancy Services, and the Research Office), and funding and organizational assistance from the Climate Change Consortium of Wales (C3W) and the Wales Institute of Social and Economic Research, Data and Methods (WISERD).

b. Approach to impact

Impact has been facilitated by a number of initiatives and mechanisms that the department has implemented during the current assessment period to engage non-academic users, disseminate research findings, and contribute research expertise to addressing problems and developing policy. These include:

The establishment of partnerships with commercial and public bodies to support collaborative research, data and knowledge exchange, and the application of research findings to policy and practice. Partnerships with commercial partners including Environment Systems Ltd., Defiens A.G., Reynolds International Ltd. and Robertson Geologging, have facilitated the application of remote sensing and GIS research to environmental management, the development and commercial application of new remote sensing techniques, and the analysis of glacial hazards respectively. A partnership with Natural Resources Wales (formerly the Countryside Council for Wales (CCW)) has applied research in Earth Observation and Ecosystem Dynamics to habitat management, and a partnership with Forest Research has established the Dyfi Catchment and Forest Research Platform as an environmental management test site underpinned by research in River Basin Dynamics and Hydrology. This engagement has particularly facilitated impacts on commercial and organizational practice and on the environment.

The translation of pure research into applied contract work and consultancy for a range of commercial and public clients. This includes work by the Wales Rural Observatory, commissioned by the Welsh Government (and co-hosted with Cardiff University) to conduct original research to inform the delivery and monitoring of the Rural Development Programme for Wales; applied research by CREH on water quality and management for clients including UK government departments and the water industry (including Dwr Cymru and Yorkshire Water); and consultancy by Fluvio on environmental management for public, industry and community clients in the UK and internationally. This engagement has particularly facilitated impacts on public policy and on the environment.

Engagement with policy-makers through policy seminars and workshops and policy briefings. Examples include seminars co-organized with the Welsh Government on environmental behaviour, sustainability and knowledge exchange in rural development, and a policy seminar at the European Parliament on rural development and globalization as part of the DERREG FP7 project (supported by a Policy Briefing paper circulated to European Commission officials and articles in policy-focused publications). Additionally, Aberystwyth Geography staff have participated as invited speakers in policy seminars and workshops organized by bodies including the United Nations Convention to Combat Desertification (Thomas), World Health Organization (Kay), European Commission (Kay), Welsh Government (Whitehead), Scottish Government (Woods), ESRC (Woods), British Sociological Association (Howell), Polish Ministry of Regional Development (Woods), Countryside Council of Wales, C3W and WISERD. This engagement has particularly facilitated impacts on public policy.

Participation in formal advisory roles and committees for public and commercial bodies. Staff have been appointed to advisory bodies including the World Health Organization Expert Advisory Group (Kay); the Wales Flood Risk Management Committee (Macklin); the UK UNESCO Man and Biosphere Committee (Woods); the UK UNESCO Natural Sciences Committee (Macklin); the Government of St Lucia Ministry of Sustainable Development Advisory Board (Grove); and National Training Advisory Group for Town and Community Councils in Wales (Woods); and to advisory positions with the European Commission (Kay); the UK Department for Environment, Food and Rural Affairs (Kay); the US Environmental Protection Agency (Kay); the UK Environment Agency (Kay); and British Gas / Northern Powergen (Whitehead). The department is also represented on the Ceredigion Local Services Board Research, Information and Intelligence Sharing Group, inputting expertise and research findings to local policy formulation and delivery. This engagement has particularly facilitated impacts on public policy and on commercial and organizational practice.

Contributions to public inquiries and consultations through oral and written evidence. Geography staff have presented research-based evidence as invited expert witnesses to the National Assembly of Wales Legislation Committee on local government and to the House of Lords Science and Technology Sub-Committee on behaviour change, and in written submissions; and have been invited to present policy briefings to organizations including the Welsh Government Rural Health Plan Implementation Group, Higher Education Wales, One Voice Wales, the Society of Local Council Clerks and the Welsh Council for Voluntary Action. This engagement has particularly facilitated impacts on public policy.

Impact template (REF3a)

Provision of advice, training and applied research for local businesses. Funding from the ERDF Convergence Fund has been competitively secured to provide business support on environmental management practice through the SEACAMS, WISE and WISE II projects, engaging research and expertise in water quality, pollution and remote sensing and GIS. ERDF funding has also supported knowledge exchange through co-supervised postgraduate research with local businesses and agencies, on topics including environmental management, water management, sustainable development, economic development and heritage, through the Knowledge Economy Skills Scholarships (KESS) and Access to Masters schemes. This engagement has particularly facilitated impacts on commercial and organizational practice and on the environment.

Dissemination of research through traditional and new media to public audiences. The department has worked with the University Communications Office to publicise research projects and findings and to provide expert commentators for programmes. Aberystwyth Geography research has been featured in television programmes including *Frozen Planet*, *Operation Iceberg*, *Volcano Live*, *Rivers* and *The Secret Life of the Motorway* as well *BBC News*, *Fox News* and *Channel 4 News*; in radio programmes including *Material World*, *Frontiers* and *M1 Magic* and on BBC World Service, BBC Radio Wales and BBC Radio Cymru; and in publications including the *New Scientist*, *National Geographic*, *Daily Mirror*, *Daily Telegraph*, *Guardian*, *Independent*, *Metro*, *New York Times*, *Sun*, *Sunday Telegraph*, *Times*, *Times of India*, *Western Mail* and *BBC History Magazine*. To supplement these conventional outlets, researchers have also established public-facing websites on climate change in Greenland (www.aber.ac.uk/greenland/index.shtml) and Antarctica (www.antarcticglaciers.org), blogs on hazards ('Natural Hazard News') and behaviour change ('Governing Temptation'), Facebook and Twitter accounts for the Centre for Glaciology, and a You Tube channel with films on good practice in rural development (from the DERREG project). This engagement has particularly facilitated impacts on public discourse and understanding of science.

Public engagement through talks and events. The department has organized two public events on climate change, 'Climate Day' (December 2009) and 'Future Climate Dialogues' (June 2013), featuring talks by GES researchers and invited speakers, and staff have contributed to events for National Science and Engineering Week and the ESRC Festival of Social Science, primarily focused on school students. Aberystwyth Geography researchers have also given 8 talks to the Aberystwyth Science Café in the assessment period, over 20 schools talks, and over 20 public talks to organizations and events including the Royal Geographical Society, the British Museum, Manchester Science Festival and the Super-Collider Science Festival, and have contributed to Nature Live events at the Natural History Museum. Researchers have also collaborated with artists, including Nelly Ben-Hayoun ('The Other Volcano') and Judy Macklin ('Rethinking Mythscapes in a Watery Realm'), as creative ways of engaging the public, and have organized a public symposium on collaborations between artists and scientists in communicating research on climate change. This engagement has particularly facilitated impacts on public discourse and understanding of science.

These activities have been complemented by University-wide activities and initiatives, including publicity for research through media releases and a Research Highlights newsletter, promotion at three major annual cultural events in Wales (the National Eisteddfod, Royal Welsh Show, and Urdd Eisteddfod) and at the National Assembly for Wales, and a public directory of expertise.

c. Strategy and plans

The promotion of our research to non-academic users and the facilitation of impact is a core element of the departmental research strategy. The approach described in section B above was flagged by the GES Research Strategy for 2008-2013 in commitments to 'support user-valued research and to expand collaborative links businesses and agencies' and to 'contribute to advancing public understanding of science and social science', and has built on an established record of engagement conducted primarily through actions initiated by individual researchers or research groups, or linked to specific research projects. The inclusion of the research impact measure in REF 2014 has prompted the development of a more formal and systematic approach that encompasses existing researcher-led engagements and that deepens and expands the four types of impact outlined above. Priority objectives for this strategy in the next assessment period include:

- Strengthening impact on public policy by contributing as a core partner to the Public Policy Institute for Wales (PPIfW), commissioned by the Welsh Government in May 2013 to produce reviews of evidence to support policy-making.
- Further support impact on public policy by consolidating links with the Welsh Government Land, Water, Forestry and Marine Division (based in Aberystwyth) through joint seminars and

placements.

- Developing a partnership with the UNESCO Dyfi Biosphere, to facilitate research impact in the local community, through links including the EU-funded COBWEB (Citizens' Observatory Web) project and an AHRC-funded collaborative PhD studentship.
- Developing the impact of research by early career researchers on environmental hazards and extreme weather, especially through public engagement, media work and policy engagement, supported by media training and other targeted mentoring and professional development.
- Extending impact on commercial and organizational practice by developing CPD and short courses on topics including climate change and environmental hazards and GIS skills.

The strategy also includes a number of initiatives and mechanisms to support research impact more generally, to be introduced over a two year period from 2013. These include:

- Funding for activities to promote research impact through the department's £15k p.a. Research Support Fund, using overheads from research grants.
- Provision for short leave from teaching and management activities for research impact activities, as part of the department's research leave policy.
- Development of a new section on the department's website to more clearly present research to the public and to provide resources for policy-makers, schools, the media and other non-academic users, and use of social media including a departmental blog and Twitter account to highlight our research and its relevance to contemporary issues and concerns.
- Appointment of an External Advisory Board to advise on research engagement and impact, building on assistance obtained through the appointment of industry contacts as Honorary Professors and Departmental Fellows.
- Encouraging applications for knowledge exchange funding from research councils, participation in the HEFCW Strategic Insight Programme for placements in partner organizations, and the inclusion of impact promotion in research grant proposals.
- Training and professional development for researchers to support impact, including nomination of outstanding mid-career researchers for the Welsh Crucible scheme, which includes specific coaching in public, policy and media engagement (www.welshcrucible.org.uk).
- Inclusion of research impact planning in research planning and monitoring meetings with academic staff.
- Training for postgraduate students on communicating science and policy engagement.
- Continuing participation in knowledge exchange and public engagement activities organized by the Climate Change Consortium of Wales (C3W) and WISERD.

The development and delivery of these activities will be supported by liaison with the University's recently-appointed Professors of Public Engagement in Science and Engagement with the Public Imagination. The department is also represented (by Woods) on a Welsh Government Task and Finish Group on 'Working Effectively with Stakeholders in Social Research', set up in June 2013, which will inform the development of the strategy with respect to promoting impact on policy.

d. Relationship to case studies

The nominated case studies demonstrate the impact of research by AU Geography, as supported by the approaches and mechanisms outlined above, and illustrate the four types of impact highlighted, but also their interconnection. 'Setting Quality Standards for Recreational Waters' demonstrates impact on public policy, and indirectly on the environment, through the translation of pure research into applied research, the engagement of policy-makers and participation in formal advisory roles. 'Enhancing the Capacity to Act and Democratic Accountability of Parish, Town and Community Councils' illustrates impact on public policy through the translation of pure research into applied research, engagement with policy-makers and contributions to public inquiries and consultations. 'Eradication of Child and Adult Mortality from Lead Poisoning' reports impact on public policy delivery and on public health, through the translation of pure research into applied contract work. 'Improving Professional Practice in Satellite-based Observation for Mapping Land Cover and Forest Structure' details impact on commercial and organizational practice, and indirectly impact on the environment, through partnerships with commercial and public bodies. 'Informing Public Perception of the Impact of Climate Change on the Earth's Ice Masses' documents impact on public discourse through dissemination of research through traditional and new media, and public engagement through talks and events.