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Health Impact Assessment for Climate Adaptation

Examples from Practice

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Introduction

This briefing note focusses on adaptation to address climate change in Wales and the application of Health Impact Assessment (HIA) as a process that can support policy makers to maximise wellbeing benefits, minimise harm to health, and avoid widening health inequalities when designing adaptation policies.

Who is this for?

This note is primarily aimed at public bodies in Wales. It should also be useful to wider stakeholders including communities, businesses, third sector organisations, and academia.

What is the problem?

Climate change is recognised as an urgent challenge that creates risks to health, wellbeing, and equity for people in Wales, as well as globally. Adaptation to climate change is essential to protect health and promote wellbeing. This includes for climate related risks to health such as flooding and heat (that are already happening), as well as the significant projected potential increase in risks in future. Adaptation activity is increasing across government, organisations and communities and will need to continue to do so in future as the effects of climate change increase and are felt at a population level.

The impacts of climate change on health, wellbeing and equity are unevenly spread, and it should not be assumed that adaptation intervention will automatically affect everyone equally: without careful thought and planning adaptation measures can risk increasing health inequalities in Wales.

Health Impact Assessment (HIA) is a process for assessing and better understanding these potential and observed impacts. It is underpinned by a set of values and principles

for example, participation, democracy, sustainability and equity. These are directly related to the five ways of working in the Wellbeing of Future Generations (Wales) Act (2015). These include the need to safeguard the ability to meet long-term needs; integrated thinking across all wellbeing goals and policy sectors; involving people in achieving wellbeing; collaborating with others; and taking preventative approaches.

The Public Health (Wales) Act 2017 has mandated that regulations are put in place to require HIA to be conducted on specific policies and decisions of Public Bodies in Wales. Whilst the regulations have not yet been published, this may have implications for the planning and development of adaptation policy in Wales and provide the opportunity to strengthen the integration of health and wellbeing into adaptation activity.

Most people in Wales working on climate change adaptation action or sustainable development do not work in the health services or public health systems directly. Adaptation interventions for climate change require experts in water and flood management, education, planning and the built environment, energy, transport, sustainable land management, food production, and many more. In fact, climate adaptation affects every sector, and people working in every sector can help maximise health and wellbeing benefits from adaptation and act to minimise any unintended consequences for health and wellbeing.

This briefing note demonstrates how HIA can be used as a tool to; ensure that adaptation action maximises health and wellbeing benefits; mitigates any potential health harms, and addresses any health inequalities in distribution of impacts.

It contains five case studies - two international and three from Wales, and provide action-oriented examples of putting HIA into practice.

Glossary

Adaptation (to climate change): *“In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects.”* (IPCC, 2022, p.2898) Adaptation can be: planned, reactive, anticipatory, or spontaneous. (UKCIP, 2013)

Adaptation options: *“The array of strategies and measures that are available and appropriate for addressing adaptation. They include a wide range of actions that can be categorised as structural, institutional, ecological or behavioural.”* (IPCC, 2022, p.2898)

Climate change: *“A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer.”* (IPCC, 2022, p.2902)

Climate justice: *“...links human rights and development to achieve a human-centred approach, safeguarding the rights of the most vulnerable people and sharing the burdens and benefits of climate change and its*

impacts equitably and fairly.” (Mary Robinson Foundation, 2022)

Decarbonisation: *“Human actions to reduce carbon dioxide emissions from human activities.”* (IPCC, 2022, p.2905) NB: carbon dioxide is one of the main greenhouse gasses but not the only one.

Health Impact Assessment (HIA): *“...a combination of procedures, methods and tools by which a policy, program or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population.”* (European Centre for Health Policy, 1999, p.4)

Health and wellbeing: a holistic conception of health including positive wellbeing not just the absence of disease or illness. *“a positive concept which encompasses mental, physical and social wellbeing.”* (Chadderton et al., 2012, p.2)

Mitigation (of climate change): *“A human intervention to reduce emissions or enhance the sinks of greenhouse gases.”* (IPCC, 2022, p.2915). Climate change mitigation strategies include for example those reducing greenhouse gas emissions and sources, and those enhancing greenhouse gas sequestration.

Background

What are the potential and actual health impacts of climate change in Wales?

Any increase in global temperature is projected to impact human health with mainly negative consequences and these impacts are worse at 2.0°C compared to 1.5°C (IPCC, 2018).

However, currently the world is not on target for 1.5°C or even 2.0°C. Even if all the promises made by governments globally (Nationally determined contributions or NDCs) since COP26 in Glasgow were implemented, projected global warming remains at 2.4-2.6°C (United Nations Environment Programme, 2022). An extra 0.5°C beyond 1.5°C equates to 10 million more people globally exposed to risks from sea level rises (IPCC, 2018, para.B.2.1).

The evidence for the latest UK Climate Change Risk Assessment (CCRA3) identifies four groupings of impact from climate change in Wales (Netherwood, 2021):

- natural environment and natural assets
- infrastructure: networks, services, transport, energy,
- health, communities, and built environment
- international systems: food, exports, trade, finance

Within a wider determinants of health approach (Pineo, 2020; Barton and Grant, 2006; Dahlgren and Whitehead, 1991) all of these domains, not just health, are related to human health. These impacts are complex, like a spider's web of connections. Some of the more obvious risks to human health in Wales occur as a result of:

- high temperatures
- flooding
- sea level rise
- wind and rain
- air quality both indoor and outdoor
- vector-borne disease
- water quality and supply
- extreme weather

(Netherwood, 2021)

Public Health Wales has published a set of [infographics](#) that summarise some of the key health and wellbeing impacts for different population groups arising from climate change.

However more complex impacts should not be overlooked, or assumed not to exist, simply because they are less direct, less obvious or are yet to be identified.

Adaptation and why this is important to health and wellbeing?

Adaptation is the way in which people, communities, and societies will adjust to climate change. There are national, sectoral, and specific issue plans in Wales that all contribute to climate adaptation. However, the UK Climate Change Committee are clear that “action to improve the nation’s resilience is failing to keep pace with the impacts of a warming planet and increasing climate risks facing the UK” (2021), and gaps exist in Wales between what is needed and current plans, meaning they are not sufficient to address identified risks (Netherwood, 2021).

Most people (82%) in Wales are fairly or very concerned about climate change. The top five concerns for population health resulting from climate change are: increased costs of heating homes; increased costs of food; reduced access to health and care services; increased spread of infectious diseases; and increased mental ill-health (Wood et al., 2022). Corner et al. (2020) also found that among the UK public the top three priorities for adaptation policies were:

- Health and wellbeing of UK citizens
- The wellbeing of vulnerable groups (e.g. the elderly and the very young)
- The smooth running of social and emergency services

People’s health and wellbeing in Wales will be materially negatively affected by climate change. More adaptation planning is needed urgently to respond both reactively and proactively. Understanding health in this context is vital as is ensuring that adaptation actions are human-centred resulting in fair and equitable health and environmental outcomes.

HIA is a valuable process that can support precisely these efforts and lead to co-benefits and ‘win-wins’ for all.

Health impact assessment (HIA) methods

The Wales HIA Support Unit (WHIASU), WHO Collaborating Centre on 'Investment for Health and Wellbeing', Public Health Wales have published HIA guidance based on internationally recognised HIA methodology. This follows a well-established series of sequential steps including:

- 1. Screening:** whether to undertake an HIA
- 2. Scoping:** deciding the focus, methods, and work plan
- 3. Appraisal of evidence:** gathering and appraising evidence and making the assessment of effects
- 4. Reporting and recommendations**
- 5. Monitoring and evaluation:** including quality review

Ethical standards for public health are underpinned by the use of "the best available evidence of information" (Faculty of Public Health, 2016, p.4) including that used within

HIA. However, what constitutes best available evidence is specific to context and new evidence relating to climate change health impacts continues to emerge. HIA draws on a diverse range of evidence including:

- Population health and wellbeing data: utilising a range of data to understand the existing health of the population to enable understanding of the relevance and significance of impacts on different groups.
- Stakeholder evidence: qualitative data including community expertise as well as technical specialists and professionals.
- Published evidence: using high quality, relevant research including peer reviewed and grey literature.

WHIASU provides guidance, advice, training and templates to support organisations in Wales with using HIA. Please see links below for further details.

Types and forms of HIA

HIA is a flexible and scalable tool and can be proportionate in applications. HIA is generally based on a platform of existing evidence and intelligence with stakeholder participation and insights to provide local context and knowledge. This makes it a time effective and resource efficient process. There are many [examples](#) of this type of HIA in Wales.

HIA comprises of one of three types, here linked to adaptation action:

- Prospective: in the design stage of adaptation actions and before implementation
- Concurrent: can be used as a review in parallel with adaptation policies or projects
- Retrospective: evaluating adaptation interventions once completed

HIA takes one of three forms depending on focus, time, and resource available:

- Desktop: typically completed in hours to days and using existing published data and evidence
- Rapid: typically completed in days to weeks and includes stakeholder engagement
- Comprehensive: typically completed in weeks to months and includes primary data/evidence collection

Whilst HIA is a flexible process it should not be simply a 'tick box' exercise or checklist - although checklist type tools can be helpful in the overall undertaking of an HIA as part of the initial screening or as guides for stakeholder discussions, but a checklist alone should not be presented as HIA.

Principles of HIA:

“the Gothenburg Consensus makes explicit the values of HIA: the HIA process should be **open**, involving a wide range of stakeholders; **transparent**, including the documenting of the process; ethical, in its use of evidence and methods of participation; **equitable**, through a presumption in favour of reducing health inequalities; **robust**, in its methods for consideration of evidence and participation; **participatory**, by actively engaging with and involving stakeholders from a wide range of organisations through appropriate methods; **sustainable**, through consideration of impacts that are short and long term, direct and indirect, in order to inform sustainable policies, programmes and projects; and **democratic**, emphasising the rights of people to participate in major decisions that affect their lives and, through HIA, enabling people to actively participate and contribute to decision making processes.” (Chadderton *et al.*, 2012, p.5)

Integrating HIA and climate change adaptation

There are a number of options for integrating climate change adaptation with HIA and this will vary by context.

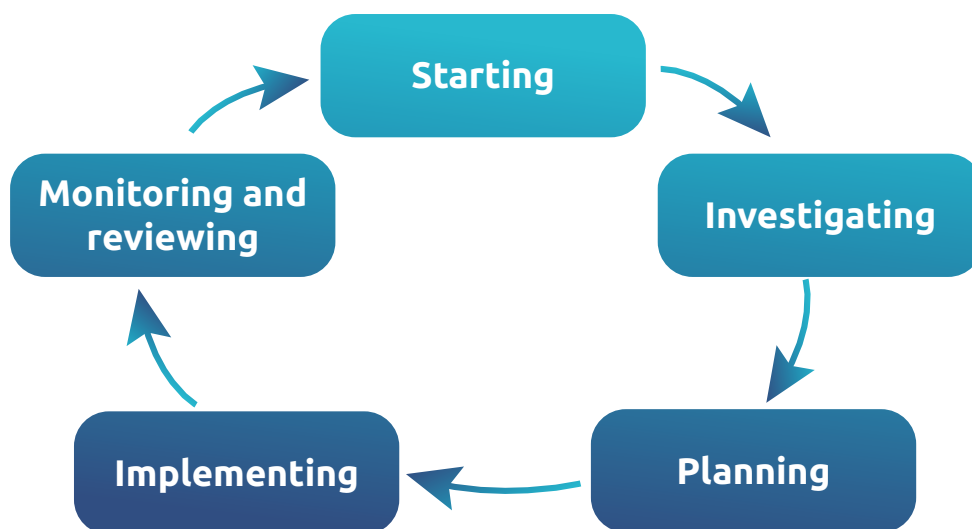
Sectoral approaches: first, there are opportunities for application of HIA in relation to the scope of a particular organisation’s role and duties to respond to climate change impacts: employers, local authorities, health boards, fire and rescue, Natural Resources Wales, and so on.

Place-based approaches: second, place-based approaches can focus on integrated and cumulative impacts of climate change on people in a specified geographical community and this can enable joint working based on localities, for example, on a Public Services Board footprint.

Ecosystem approaches: third, and more specific to climate adaptation is the need to focus on geography, ecosystem boundaries, and how human settlements and wellbeing relate to these. These include for example: natural systems that sit across administrative borders; coastal communities; river estuaries; river valleys and catchments.

HIA can be usefully applied at different stages of the adaptation planning cycle. The adaptation planning cycle adopted by the Welsh Government statutory guidance is represented in Figure 1, and the guidance notes that *“preparing for climate change is a cyclical, iterative process”* (Welsh Government, 2013, p.4).

Figure 1: Welsh Government Adaptation Planning Cycle:



The data and evidence on health and wellbeing impacts, and inequalities contained in a HIA can help support organisations with starting, investigating and planning stages. For example:

Step 1: Starting - the evidence and findings in a HIA can support the framing of key messages on climate change and scope for adaptation planning

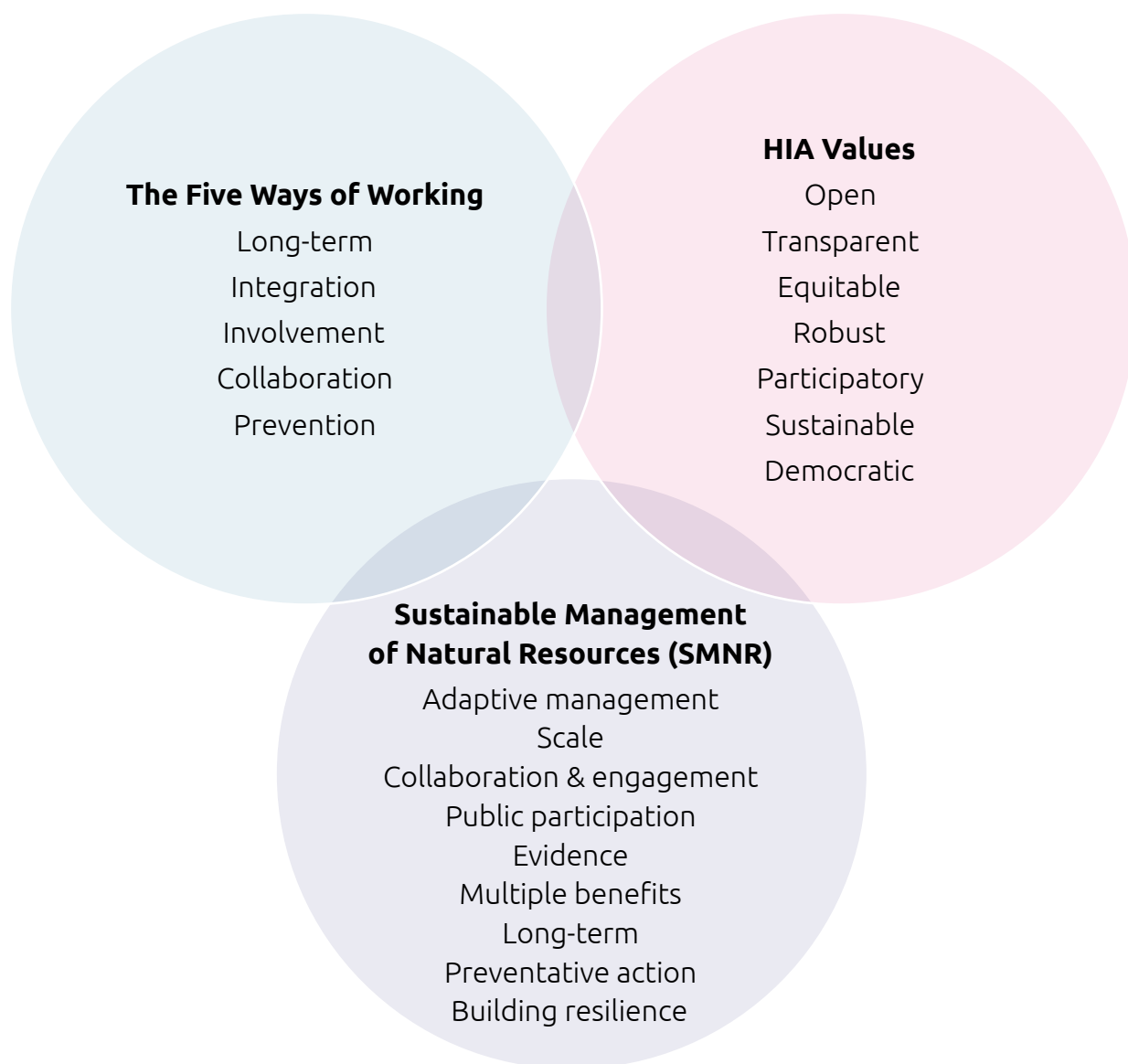
Step 2: Investigating - HIA can inform investigation of key relevant impacts of climate change on people, places and organisations alongside local and sectoral expertise and insights

Step 3: Planning - HIA may support prioritisation of impacts to be addressed in adaptation planning and the design and targeting of adaptation intervention

Step 5: Monitoring and reviewing: HIA could be used to evaluate adaptation interventions

In the next section case studies set out examples of how different organisations have addressed these challenges in different contexts. Figure 2 below provides three examples of frameworks relating to wellbeing, adaptation, and HIA that show how these three have shared goals and can be mutually reinforcing.

Figure 2: Alignment of approaches: this figure is intended to show synergies between independent frameworks that are relevant to the topic and relevant to public bodies in Wales addressing: wellbeing; HIA, and natural resources.



Case studies

Five case studies are presented that demonstrate a range of locations, organisations, scale, and extent of HIA integration with climate change adaptation planning. Case studies were identified purposively with three from Wales, one from Minnesota, and one from a healthcare organisation serving Indigenous peoples of Alaska. The case studies include three individual HIAs and two programmes of multiple HIAs. Table 1 below provides a summary description of the case studies.

Table 1: Case study descriptive summary.

| Location | Title | Date | Focus | Type | Population |
|---------------|---|----------------|--|---|---|
| Wales | Climate Change in Wales: Health Impact Assessment (Edmonds and Green, 2023) | 2023 | HIA at a country level | Comprehensive HIA | Population of Wales 3.2 million people |
| Wales | Health Impact Assessment of drought/ water scarcity in Wales | 2019 | HIA at country level on environmental determinant of health | Comprehensive HIA | Population of Wales 3.2 million people |
| Alaska | Climate change health assessment with Indigenous population groups. Comprehensive community assessment of climate change impacts. | 2010 – present | Prioritised programme of community assessments including adaptation planning | Comprehensive population focused HIAs | 10+ small communities of 70-800 Indigenous peoples |
| Wales | Ways of working to integrate HIA into workflows / project assessment and planning of a public body in Wales (NRW). | 2019 – present | HIA within environmental sector adaptation project & programme delivery | HIA methods integrated in practice across a programme of work. Capacity building | Varies from individual project to whole of Wales |
| North America | South Central Minnesota, Climate Change Vulnerability Assessment & Adaptation Plan, Health Impact Assessment (Region Nine Development Commission, 2016, 2017) | 2016 | HIA at a regional level | Rapid HIA Adaptation Strategy | South Central District 9 population, 230,000 people |

Case study

Climate change in Wales: Health Impact Assessment

Context:

In 2019 Welsh Government declared a [climate emergency](#) with an aim of triggering a “wave of action at home and internationally”. Public Health Wales responded to this declaration by asking the Wales Health Impact Assessment Support Unit (WHIASU) to undertake a comprehensive health impact assessment to consider the public health implications of climate change in Wales. Public Health Wales has subsequently made tackling the public health effects of climate change a priority in its [Long Term Strategy from 2023 – 2035](#) and is committed to working with partner agencies to facilitate action on climate adaptation and mitigation.

Drivers for change:

- Wellbeing of Future Generations (Wales) Act 2015
- Public sector socio-economic duty in Wales which requires assessment of equality of outcome
- Public Health (Wales) Act 2017 anticipating a future duty to implement HIA on plans of national or major significance
- A Climate Conscious Wales, Wales National Adaptation Plan 2020-2025
- Public Health Wales NHS Trust (2023) Long Term Strategy 2023-2035
- Environment (Wales) Act 2016
- “One Health” approach endorsed by the Chief Medical Officer for Wales

Why HIA?

A key strength of HIA is its ability to support strategic planning on complex and uncertain issues in relation to public health. For example, an earlier HIA on the [implications of Brexit](#) exemplifies this.

- HIA specifically aims to achieve integration of health in all policies (HiAP) so was ideally suited to address the challenge. It also responded to the identified problem that health is poorly integrated into adaptation planning (European Academies Science Advisory Council, 2019).
- HIA was relevant to the complex and wide-ranging health effects of climate change because it could consider the full range of social determinants of health. This meant not only physical living environment factors like clean water and air but social and community influences too.
- In a similar way for health outcomes, HIA supported consideration not just of physical health but also mental health and social wellbeing outcomes.
- Health equity is central to the HIA process and HIA had the necessary tools to assess impacts on different population groups.

What happened?

- **Strategic Advisory Group (Autumn 2019):** a multi-agency group was established including climate change policy leads from Welsh Government and Natural Resources Wales.
- **Phases 1/2 screening/scoping (Autumn 2019):** screening and scoping stages of the HIA (using Public Health Wales checklists) were completed. At this point the necessary resources for the HIA were identified and additional research / staff capacity was secured to support the HIA.
- **Phase 3 appraisal, evidence gathering (January - March 2020):** this phase included: a systematic literature review; interviews with experts and other stakeholders; two large participatory workshops with stakeholders.
- **Phase 3 appraisal, evidence appraisal (April - June 2020):** initial appraisal, identification, and characterisation of impacts.
- **Responding to a global pandemic (June 2020 - September 2021):** HIA work paused due to the COVID-19 pandemic response with many staff reassigned to health protection duties.
- **Key Findings for COP26 (November 2021):** [infographics published](#) in time for COP26 summarising a selection of key findings.
- **Phase 4 reporting and recommendations (Sept 2022 – July 2023):** final report published in July 2023 (Edmonds and Green, 2023).
- **Phase 5 Monitoring and Evaluation (beyond 2023):** in line with guidance and using tools published by Public Health Wales.

Vision and next steps:

- **Publication and dissemination:** focus on supporting public bodies in Wales to integrate the HIA findings in their adaptation plans.
- **HIA / adaptation guidance:** a practice focused guides (including this document) on integrating health and wellbeing into adaptation planning across sectors complements the main HIA report.
- **Areas for action:** key recommendations of the HIA. Focus on strengthening action on the health and wellbeing impacts of climate change across systems and sectors.
- **Future work planning:** the HIA will provide a robust basis to inform future work plans on climate change, health, wellbeing and equity within Public Health Wales.
- **Future areas of focus:** continued and ongoing work to assess and update the health impacts where evidence has shifted or beyond the scope of the original HIA. For example, considering the impact of mitigation actions as these are scaled up.

Reflective learning:

- **Climate change impacts are complex:** being clear and realistic on the scope of any HIA on climate change and agreeing objectives and expectations with key stakeholders is important.
- **Intentional enquiry and engagement:** this HIA has reinforced the value of HIA as a process of intentional enquiry and engagement. It is not only the final output of a report and set of recommendations that matter: the engagement and relationship building with stakeholders and policy development processes happening during the timeframe of the HIA are vitally important.
- **Considering the audience:** identifying priority audiences early in the HIA process was beneficial. This also made it possible to identify opportunities where value could be added to climate change adaptation planning.



- **“How climate change will impact on people’s lives where they live, work, learn and play”:** this was a foundational framing question for the HIA and highlighted the particular benefit of a population health lens and HIA – this resonates with a range of stakeholders.
- **Climate justice:** the focus on climate justice more widely amongst stakeholders and policy makers over the course of the HIA. Therefore, the original strength of HIA in addressing health equity has proven invaluable in being able to start to address issues of climate justice.
- **Advocacy for health and wellbeing:** in the climate change arena and in climate change adaptation in the health sector has been a key outcome of the HIA.
- **Sharing early findings with rigour:** a set of infographics to communicate key messages during COP26 led to widespread dissemination and recognition, whilst the full HIA remained in progress.
- **In-house capacity building:** [The UK Faculty of Public Health](#) (2021) has recognised the need for workforce development in public health in order to ensure that “the public health workforce has the knowledge, skills and capability to work on the climate emergency”. The HIA has strengthened the skills, knowledge and capacities within the WHIASU team to engage in knowledge, policy and strategy development on climate change.
- **New evidence / sources of evidence:** seeking relevant evidence and data for a specific population has enabled identification of previously unknown data to aid future adaptive planning.
- **Working with continual updating:** a constantly evolving evidence base, practice guidance, and so on can be challenging. COVID-19 exacerbated this as evidence continued to be published whilst the HIA was on pause during the pandemic. As well as a technical challenge this is also challenging for staff resilience and capacity.
- **Policy change:** globally, policy continues to develop in the area of climate adaptation and HIA practitioners need to anticipate and be flexible to this, considering how best to present findings that can inform policy development.

Case study

HIA of drought/water scarcity in Wales

Context:

The Climate Change Risk Assessment for Wales (ASC, 2016) identified a likely increase in extreme weather events that may influence water availability. The risk to water supplies in Wales is increasing – this includes not only the risk of too much water (flooding), but also the risk of water scarcity and drought.

The drivers for change:

The Water Strategy for Wales (Welsh Government, 2015) provides the policy framework for sustainable water management in Wales. The responsibility for ensuring proper use of water resources lies with Natural Resources Wales. Water companies are required to develop and follow drought plans to supply adequate quantities of wholesome water to customers when water supply becomes depleted. Local Authorities are required to inspect only a small proportion of Private Water Supplies, which provide around 3% of water supplies in Wales (population supplied: 77,000 in 2019).

During 2018, stakeholders in the health and water sectors were approached by water users from the public, private, recreational and agricultural sectors regarding health issues and disruptions related to water scarcity. Current arrangements to tackle health and water supply disruption enquiries were, however, fragmented and not universal across and between sectors. Members of the Water Health Partnership for Wales (WHP) subsequently requested a review of how their members responded to the extreme weather of 2018.

National drivers for action:

- Water Strategy for Wales (2015)
- The Climate Change Risk Assessment for Wales (ASC, 2016) identified a likely increase in extreme weather events that may influence water availability.
- Wellbeing of Future Generations (Wales) Act 2015
- Environment (Wales) Act 2016 including the duty of sustainable management of natural resources (SMNR) for both today's and the future population of Wales.

Why HIA

HIA was proposed as a useful approach to meet the following objectives:

1. Assess the likeliness of health impacts of drought in Wales
2. Identify any vulnerable populations and those particularly susceptible to the impacts
3. Assess current resilience measures to mitigate drought impacts
4. Assess if more action is needed to reduce health impacts and inequalities of drought in Wales
5. Provide recommendations



What happened?

- Policy stakeholders identified an evidence gap in adaptation activity:** the HIA was initiated in collaboration with the Water Health Partnership for Wales, who were interested in learning lessons from the response to the extreme weather of 2018.
- HIA process:** the HIA was conducted as part of a Comprehensive HIA training programme in 2019 and followed the HIA five step process, starting with screening and scoping.
- Appraisal of evidence included:** a literature review on the health impacts of drought; stakeholder knowledge and insights via questionnaires, and a population health profile.
- Stakeholder evidence and insights:** public health experts from across the UK were consulted on the health impacts of water scarcity and drought via email contact and questionnaires. Stakeholders from the water management sector in Wales were interviewed regarding their experiences of the 2018 weather events and regarding mechanisms in place to mitigate health impacts of water scarcity and drought.
- Report and recommendations:** Summary findings were circulated to *The Wales Government Drought Liaison Water Group* and the *Water Health Partnership for Wales*. These multiagency stakeholder groups can now use the HIA to inform future actions and interventions to help prevent or mitigate health impacts from drought and water scarcity.

Vision and next steps:

- All stakeholders should recognise that the risk of drought is increasing and that negative health impacts are likely among public or private water supply users, as well as agricultural and recreational water users.
- To protect public health, drought and water scarcity requires consideration in line with other extreme weather planning, preparedness and response – and with a particular focus on the potential health impacts and population groups that will be particularly affected.
- Existing evidence on actions that can help prevent or mitigate many of the identified health impacts should be collated and compiled for a drought context; similarly, current good practice and *lessons learnt* should be shared among stakeholders.



Subsequent Actions taken include:

- Information obtained on vulnerable groups has informed guidance for local authorities to help identify private water supply users who may be vulnerable. This was undertaken in collaboration with the Private Water Supply sub-group of the *Water Health Partnership for Wales*.
- The Drinking Water Inspectorate (DWI) has also developed its guidance on [Managing insufficiency of private water supplies](#).
- Public Health Wales has produced on-line guidance on [Coping without a private water supply](#). This is soon to be replaced by guidance on coping without a mains or private water supply due to loss of supply from a range of weather hazards.

Reflective Learning:

- Drought is associated with almost entirely negative health impacts. There are four main water using groups (mains, private, agricultural and recreational). Negative impacts are possible amongst these broad groups, but there are susceptible sub-populations. Mains water users (the majority) are the most protected by policy and practice, however, impacts upon other water users need to be acknowledged by all stakeholders, including how existing or new policy does or does not serve to protect them.
- Stakeholder experience indicates that more action is required to address these negative impacts and inequalities and to avoid unintended impacts. The HIA has provided a starting point for identifying vulnerable groups and taking collaborative action within existing partnership structures to improve resilience.

*With thanks to Kristian James,
Principal Environmental Public Health
Specialist, Public Health Wales*

Case study

Climate change health assessment programme, Alaska

Context:

Indigenous communities in Alaska live in areas that face some of the fastest changes due to climate change and these local populations face significant threats to health and wellbeing as a result. Indigenous peoples have lived in harmony with the environment for generations and are experts on the local climate and in adaptation. Working with communities has been essential not only to implementing action but also to spotlighting relevant local knowledge in the first place.

The drivers for change

An initial driver was simply a recognition of the limits of existing approaches. These included:

- A lack of local scale information and evidence
- The need to identify climate vulnerability
- The need to develop response capacity at local and regional levels
- An increasing awareness of climate change risks
- Methodological challenges of addressing complex health problems through existing methods
- The need to obtain climate data at a scale that is useful to support local level adaptation decisions
- The need for community consent and participation at a local level before, during, and after assessment.

Background

- A programme of work since 2010 by the Alaska Native Tribal Health Consortium (ANTHC): a not-profit health organisation serving Indigenous peoples in Alaska.
- The Center for Climate & Health at ANTHC is dedicated to supporting communities to adapt to climate impacts in ways that support health and wellbeing.
- Alaska's Indigenous population at 19% is the highest proportion of any US state, about 135,000 people.
- 65% of this Indigenous population live in areas that are remote and isolated, which means not accessible by main road.
- Most of these settlements are small, with fewer than 300 people.

(Brubaker *et al.*, 2011)

Why HIA?

HIA was ideally suited to being used to deliver an interdisciplinary approach that could address:

- Climate change impacts over both time and space
- Complex and multi-factored pathways to health impact
- Linking health outcomes to climate change impacts

What happened?

A specialised HIA approach was developed and published to demonstrate rigour and provide the opportunity for peer review (Brubaker et al., 2011).

- This Climate Change Health Assessment (CCHA) approach combined methods of both health impact assessment and environmental audit.
- Tools were also developed to support each of the four steps to the CCHA approach: scoping (desktop data); surveying (engagement & participatory); analysis (impact assessment); planning (adaptation interventions).
- The Climate Change Health Assessment approach was first carried out in the community of Point Hope in 2009, an Inupiat community of around 700 people (ANTHC Center for Climate and Health, 2010). The community is in an area experiencing rapid thawing of permafrost, coastal erosion, storm surge, and flooding.
- Over the next ten years over 10 communities have participated in Climate Change Health Assessments.
- Assessments have been undertaken over a wide area and often funded on a regional basis to address different needs in each region.
- Regional vulnerability mapping was undertaken as an early exercise to prioritise subsequent assessment work (ANTHC Center for Climate and Health, 2014; 2015).
- Integration of local knowledge: seasons were defined linked to traditional hunting seasons and, therefore, to people's needs and activities. Understanding and integrating such knowledge was essential to a high-quality assessment.
- Assessment by biome / ecosystem type: to provide a range of types of location, assessments were planned on a range of types of biomes / ecosystems (e.g., coastal, river delta, lake, river valley) which was quite different to how the scope of HIA might normally be defined.
- Adaptation planning: the CCHA approach goes beyond typical HIA methods and integrates planning and prioritising of future interventions.

Reflective learning:

- **Governance and community agreement were key:** the assessments were not started until the local Tribal representatives had agreed.
- **People live in dynamic landscapes:** people have often made their home in landscapes that are excellent places for human activities precisely because they are dynamic spaces like rivers, estuaries, and coastal places. Yet it is precisely these benefits that also expose communities to processes like tides, erosion, and storms. Assessment needs to consider the reasons people have settled where they have as well as the implied future needs those communities will have.
- **Community permission:** the Climate Change Health Assessment is undertaken with the permission of and in partnership with the community and through participatory approaches is able to integrate important community information. This is essential not only for governance but also to underpin quality assessment.
- More recently and taking several of these strands further, **ANTHC has worked with partners on Tribal Resilience with the aim of developing “a grassroots-based approach to community project development** based on the identified and prioritised needs of the community.” This Holistic Approach to Sustainable Northern Communities was piloted in an assessment project with the Yup’ik community in Oscarville and published in 2019 and takes some of the CCHA approaches further by integrating Traditional Ecological Knowledge in a way that “utilizes the traditional wisdom of the Yup’ik people and infuses the Western science and research into a new space for value-based decision making for adaptation” (ANTHC Center for Climate and Health, 2019, p.3). For example, Indigenous knowledge of topics like river levels, temperature, and precipitation were combined with other sources of data such as climate information to provide a wider understanding of the issues to inform adaptation planning.

If we take 10,000 years of our Indigenous knowledge and interface it with 150 years of modern science we have the ability to create solutions that can ripple across the globe.

(Alaska on the Climate Frontlines., 2021)

This case study was prepared using desktop information from publicly available materials.

The assessment reports archive is [accessible at this link](#).

Case study

Natural Resources Wales pilot HIA framework

Context:

Wales is renowned for its landscapes and nature. Air, land, water, wildlife, plants are Wales' 'natural resources' and support essential needs for people, including food, energy, business, leisure, tourism along with many aspects that are important wider determinants of health. Natural Resources Wales' job is to sustainably manage these resources so that they are in a good state for future generations. It is a multi-faceted organisation and the largest Welsh Government agency.

The drivers for change

Natural Resources Wales wants to think about how to further integrate thinking about health and wellbeing into its actions. With natural resources under increasing pressure, including due to climate and nature emergencies the organisation also faces the challenge of prioritising adaptation and mitigation actions whilst also leveraging positive health benefits and minimising health harms and unintended consequences of interventions.

The drivers also include good practice as well as responding to regulatory duties and organisational priorities. These include the collation of evidence as required by the Environment (Wales) Act 2016 such as the State of Natural Resources Report and a corporate aim for Wales to have *healthy places for people, protected from environmental risks*.

Why HIA?

HIA is seen as a valuable tool as it provides a rigorous and structured approach to health and wellbeing that can be consistently applied and is underpinned by values of prevention, participation and reducing health inequalities that are strongly aligned to the Wellbeing of Future Generations (Wales) Act 2015.

National drivers for action:

- Wellbeing of Future Generations (Wales) Act 2015
- Environment (Wales) Act 2016 including the duty of sustainable management of natural resources (SMNR) for both today's and the future population of Wales.
- Public sector socio-economic duty in Wales which requires assessment of equality of outcome.
- Public Health (Wales) Act 2017 anticipating a future duty to implement HIA on plans of national or major significance.
- A Climate Conscious Wales, Wales National Adaptation Plan 2020-2025
- Climate Change Act (2008), which prescribes production of UK Climate Change Risk Assessment and empowers WG to require public bodies to report on climate risk and adaptation. As a Reporting Authority Natural Resources Wales must demonstrate it is considering risks posed by climate change in relation to its remit.



What happened?

A plan was made to develop and implement a HIA framework at the whole organisation level. For Natural Resources Wales this needs to respond to different spatial scales ranging from the whole country to regional Area Statements, as well as ecosystem geographies, and specific project locations.

- The first step was internal capacity building (using WHIASU and PHW training).
- An initial assessment was made against the scale, type, and risk level of project and programme interventions to determine the right level of population health significance and scope of HIA to be undertaken.
- Significant work was needed to align and embed HIA with existing internal systems and processes. This included the programme management office and project delivery. HIA stages and associated products were aligned to project lifecycle stages such as gateway reviews and business case development.
- Tools, processes, and approaches were developed to support this alignment. This was essential to support building the adoption of HIA in a proportionate, consistent and rigorous way. These are continually developing to become the Natural Resources Wales HIA Framework.

- A pilot to test application and development of the framework is underway with live projects and programmes. This pilot is focusing on the screening and assessment stages within the proposed intervention to support the development of the scheme and inform future decision making e.g., planning application process.
- The pilot is continually evaluated with the findings of this being incorporated into refinements of the framework and how best to support and share this within the organisation.
- The evaluation identified an additional benefit that HIA can also support a shift in behaviour, practice, and staff development to be empower people to take action for health and wellbeing.

Vision and next steps:

- Future actions include continued development of the supporting business / investment case for the framework;
- Responding to Welsh HIA regulations when these come into force, work already done means the organisation is proactively responding to this future change;
- Going beyond regulatory compliance the vision is to grow organisational capacity to fully support projects and programmes where HIA is mandated and/or recommended as good practice, empowering staff to take action for health and wellbeing and demonstrate being the change.

Example of Piloting the HIA framework in NRW: Flood risk management at Stephenson Street, Newport on the River Usk.

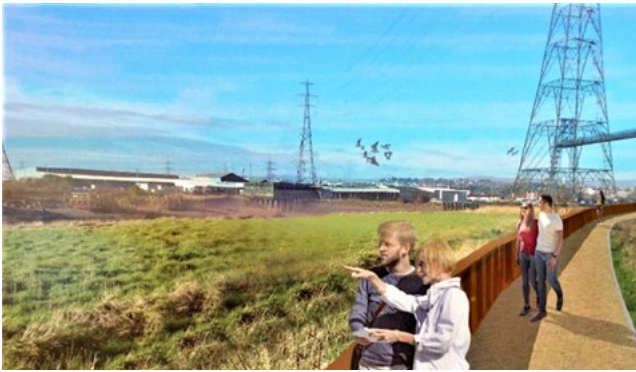


Image credit: Arup / Natural Resources Wales

Existing flood defences nearly a mile long that require enhancement in response to climate change and rising sea levels.

What happened: a HIA screening was conducted on the project to ascertain the potential effects of the project. The initial focus was on understanding potentially affected populations as part screening and scoping.

Specific recommendations from this were:

- Identifying the importance of stakeholder engagement when attempting to identify health impacts.

- The need for a ‘dual approach’ to infrastructure projects with physical interventions accompanied by social changes, such as through engagement activities.
- Community participation should be conducted in the design and implementation phases and factored into long-term maintenance considerations.
- Importance of communicating both activities and outcomes to affected communities, before, during, and after.

Benefits for the organisation:

- Project governance: being better informed with a clear approach to monitor impacts on wellbeing.
- Meeting responsibilities under the Wellbeing of Future Generations (Wales) Act 2015 and Environment (Wales) Act 2016.
- Plan for upcoming duty under the Public Health (Wales) Act 2017.
- Compatible with purpose to pursue the sustainable management of natural resources.
- Working to create a more equal and equitable society.

Reflective learning:

- Organisations thinking of integrating HIA into their work should recognise the value of investing time in developing a ‘fit for use’ HIA framework, which is embedded into internal processes and programme and project management trigger points.
- The potential significance of projects for human health and wellbeing was not well understood. Using HIA helped to build knowledge about this.
- It has been important to take a scaled and proportionate response and developing an HIA framework to support this based upon a “level of significance” matrix approach has helped.
- It has been important to recognise the ‘people’ side of change as well as the technical / process parts. This has included championing an increased consideration of people in Natural Resources Wales’ work and then drawing in as appropriate an evidence base to support this and improve understanding of population and human health. Recommendations from the pilot also identified the importance of timing in relation to involving community stakeholders.

This case study was prepared in collaboration with Natural Resources Wales.

Case study

South Central Minnesota Adaptation Plan HIA

This case study is of the South-Central Minnesota, Climate Change Vulnerability Assessment and Adaptation Plan, Health Impact Assessment (Region Nine Development Commission, 2016, 2017)

Context:

Climate change is having an increasing effect on communities in South Central Minnesota. A vulnerability assessment and adaptation plan was prepared based on national guidance. Region 9 has a population of over 230,000 people and includes 72 cities and 147 townships. Public bodies that will make use of the adaptation planning include counties, cities, townships, and school districts.

The drivers for change:

A Climate Change Vulnerability Assessment & Adaptation Plan was to be prepared. This followed the national approach of sector-based assessment and top priorities identified for the region were: business and economy, agriculture, water, human health, energy, transportation, forests, and ecosystems. Flooding has an identified potential risk of \$1.9 billion to critical facilities in the region and after a period of little flooding, there have been 12 disaster declarations in the previous 20 years. By contrast, drought is an equal challenge with dustbowl-like conditions periodically appearing.

Why HIA?

HIA was used with the aim of ensuring that the effects of adaptation planning were positive for human health as well as the environment. An HIA was undertaken of the adaptation plan strategies that were developed.

Adaptation plan objectives:

1. Soil and water conservation
2. Alternative crop choices (including perennials and resilient crops)
3. Infrastructure actions (especially on energy & transport)
4. Adaptive capacity for humans and livestock
5. Risk management and planning
6. 'Resilience Sector' (urban planning, renewables, energy conservation)
7. Increased local food production.

What happened?

Commencing in November 2015, the HIA followed established stages: screening, scoping, assessment, reporting, and evaluation. The HIA report was complete in July 2016.

Stakeholder mapping was undertaken, and a clear engagement plan produced. A HIA advisory committee engaged with the Climate Change Adaptation Task Force. This was found to have helped embed health considerations during the assessment process at all stages.

Pathways to health impact: mapping of health impact pathways were undertaken on six objectives identified in the adaptation plan. This enabled the linking of adaptation strategies with health outcomes across short and long-term timeframes.

Priorities for health impact: the pathway mapping enabled prioritisation of health considerations which were, in order of importance:

- Drinking water / pathogens
- Air quality including wildfires / respiratory illness
- Heat illness
- Injury due to extreme winter storms
- Flooding including mental health impacts
- Insect / vector-borne illnesses
- Injury due to other storms

As the HIA progressed resources meant it was possible to focus only on the first health priority and adaptation Objective 1: enhancing soil and water management. With 95% of drinking water coming from groundwater sources and the need for agricultural uses, soil and water quality are inextricably linked. The HIA report included a series of recommendations relating to maximising health benefit against the objective.

Reflective learning:

Process evaluation was undertaken as part of the HIA process. Reflections on the process included:

- The objective of the HIA was partially realised, making recommendations against one plan objective.
- An increased understanding of the links between climate adaptation and health was achieved.
- An increased network of actors and practitioners was valuable and linked up more people with skills and interest in climate adaptation and health. It also helped identify resources for implementation.
- An advisory committee was a valuable forum and helped the work progress, provide knowledge and peer-review of the HIA. The inclusion of elected members in the process was reflected as potentially beneficial given recommendations involved policy changes.

An impact / outcome evaluation is also stated as being planned. The questions this will seek to answer are:

- Did the HIA influence the Adaptation Plan strategies? How, if so?
- Were recommendations put into action by the relevant public body?
- Were there other impacts / outcomes resulting from the HIA?

This case study was prepared using desktop information from publicly available materials.

Criteria for effective application and quality outputs

Lessons from case studies

Quality outputs are essential to delivering the positive health, wellbeing, equity and planetary changes that are needed. Quality inputs like stakeholder knowledge and intelligence about local climate and health are fundamental to the former.

The case studies make clear the importance of:

- Allowing sufficient time for HIA to be undertaken and for the sequencing of climate change adaptation planning to allow for HIA findings to influence policies, plans and the planning of actions.
- Scoping the HIA to cover a holistic view of all health and wellbeing outcomes and all adaptation pathways.
- Application of HIA as early as possible in planning adaptation.
- The need for regional data to be combined with community level knowledge, and this in turn implies community consent, is participatory and can lead to social license.

Not doing this carries risks of low quality and therefore unreliable outputs and importantly potentially excludes the significant opportunity to identify intersecting and complex health and wellbeing impacts across the population and sectors.

If HIA is undertaken simply in response to existing planned adaptation interventions, then there will be other interventions that are not assessed and the 'win-wins' for both health and the environment might not all be captured.

The case studies show several different approaches; those that integrate HIA with adaptation planning appear to reap the biggest rewards from investing in the HIA approach. This requires health to be involved at the earliest stage.

Quality Assurance Review Framework for HIA

This framework has been developed by Public Health Wales as a critical appraisal tool for HIA. It aims to ensure that in Wales HIA practice is developed and undertaken in a way that is reflective of the methods, the principles and process that are of quality and rigorous as well as underpinned by the values that are integral to HIA as a way of working.

A link to the framework is provided in the resources section.

A procedural 'tick box' HIA is not a high-quality assessment, particularly if carried out by one person. The quality of an assessment can be judged using the framework which has a focus on aspects including: principles and governance; the appropriate use of relevant evidence; the importance of identifying the different groups in the population affected; the use of recognised methodology such as that developed by Public Health Wales.

Conclusion

The value of HIA can be seen not only in its methods, its evidence base but also its underlying principles including participation and sustainability. HIA provides a flexible approach and ways of working that can be applied in a proportionate way to the needs a specific context across all different sectors where action is happening and planned.

Application of HIA can help ensure that investment in climate change adaptation is responsive to specific population groups and geographies, maximises benefits for health and wellbeing, prevents unintended risks to health, and avoids widening health inequalities.

Links and resources

Public Health Wales, Wales Health Impact Assessment Support Unit website: this provides a comprehensive resource of training, guidance, and example HIA reports.

<https://phwwhocc.co.uk/whiasu>

These include:

Health Impact Assessment (HIA) Practical guide:

https://phwwhocc.co.uk/whiasu/wp-content/uploads/sites/3/2021/05/HIA_Tool_Kit_V2_WEB-1.pdf

Health Impact Assessment (HIA) Quality Assurance tool (open with Acrobat):

[QA Interactive PDF version eng.pdf \(phwwhocc.co.uk\)](https://phwwhocc.co.uk/whiasu/wp-content/uploads/sites/3/2021/05/HIA_Tool_Kit_V2_WEB-1.pdf)

Climate change infographics: highlighting importance of climate change impact on the health and wellbeing of the population of Wales.

phwwhocc.co.uk/wp-content/uploads/2023/07/Climate-Change-infographics-9FINAL.pdf

Training is also available from Public Health Wales including E-learning; HIA awareness and development sessions; and formal training conducted jointly with and accredited by the Chartered Institute of Environmental Health (CIEH).

<https://phwwhocc.co.uk/whiasu/training/>

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