



P6.5 Rural Communities

Characterisation of impact on rural communities

Intensity	Likelihood	Duration	Intensity	Likelihood	Duration
Positive impacts/opportunities			Negative impacts		
No evidence identified		S to L			S to L

Confirmed
 Probable
 Possible
 Major
 Moderate
 Minimal
 S Short term
 M Medium term
 L Long term

? How does climate change impact the health and wellbeing of people living in rural communities?

Positive impacts / opportunities

- Possible growth of new crops or extended growing seasons
- New opportunities for sustainable land management

Negative impacts

- Flooding
- Wildfire
- Air quality
- Economic security
- Uncertainty and anxiety regarding the future of key sectors in the rural economy
- Disrupted access to services
- Water quality and supply

Rural areas of Wales account for 82% of the land area of Wales and are home to 1,022,000 people, or 32% of the national population (Woods et al., 2021). The nine predominantly rural counties include Anglesey, Carmarthenshire, Ceredigion, Conwy, Denbighshire, Gwynedd, Monmouthshire, Pembrokeshire and Powys (Woods et al., 2021). Therefore, the health and wellbeing impacts of climate change on rural communities are highly relevant to the health and wellbeing of climate change in Wales.

The impacts of climate change across the social determinants of health appraised in the HIA (See Section D1 –D8.2) are all relevant to people living in rural communities. The appraisal chapters on specific population groups (See Section P1.1 to P6.6) such as Babies, Children and Young People and People Living on a Low Income are also relevant to those groups living in rural areas. There are a range of interacting impacts across the social determinants of health such as Water Supply, Wildfire, Green Infrastructure and Biodiversity, therefore, this section should not be read in isolation.

Rural communities are more vulnerable to a range of health and wellbeing impacts from climate change via number of pathways in the social-spatial and climate vulnerability model, including sensitivity, exposure and adaptive capacity (Lindley et al., 2011) and these are explored below.

Older adults

The population of rural Wales (including rural coastal areas) is older than that of urban areas (Woods et al., 2021), and older people are more sensitive to a range of health impacts arising from climate change including flooding (Int. 10¹) (See Section P1.2). Older adults are also more likely to have a long-term health conditions (Welsh Government, 2022; Public Health Wales Observatory, 2022; MacBride-Stewart and Parken, 2021) that increase physical vulnerability to climate change and require regular access to health and social care services that may be particularly disrupted in rural areas during extreme weather (See Section P3.2 and D7.1. Older adults are more sensitive to health impacts of extreme heat (See Section P1.2). Impacts on mortality from heat in the recent past are observed to be lower in rural areas (Gasparinni et al., 2022), however, further surveillance is needed in Wales to understand the distribution of morbidity and mortality impacts across different population groups as the climate warms.

The resources and capacity of older people in rural areas to prepare, respond and recover from climate change impacts are influenced by recognised drivers of health inequalities in this group including social isolation, low levels of mobility, existing long-term health conditions, barriers to access to services, lack of transport and poverty (Public Health England, 2019). Sources of resilience for this group (not specific to climate change) include strong social networks, a sense of community, accessible community based services, informal care, access to transport and green space (Public Health England, 2019).

Occupational groups: outdoor workers

Outdoor workers such as farmers and foresters are more likely to live and work in rural areas (Woods et al., 2021) and are exposed to a number of climate change related health and wellbeing impacts (See Section D6.1).

Rural poverty

Poverty, that is often hidden, is an identified issue influencing health and wellbeing in rural areas (Green et al., 2022; Williams and Doyle, 2016; Woods et al., 2021). This is likely to impact on the resources that people have to prepare, respond and recover in relation to increases in extreme weather arising from climate change. Fuel poverty is also a significant issue in rural Wales (Williams and Doyle, 2016), linked to a number of factors including older, poorly insulated housing and lower levels of connection to the mains gas grid (Roberts et al., 2022). In addition, evidence suggests that rural communities in Wales are being harder hit by rising energy, housing and transport costs compared to those living in towns and cities, in part due to a greater reliance on cars and not being connected to gas (Roberts et al., 2022). Rural areas will also be affected by climate change through impact on agriculture-related livelihoods and impacts on employment (Mbow et al., 2019; Pozarny, 2016).

Water Quality and Supply

Rural areas are exposed to a number of health impacts arising from climate change related impacts on water quality and supply. Firstly, because there are higher numbers of people reliant on private water supplies in rural areas where connection to the public mains network may be difficult. (Drinking Water Inspectorate, 2021). Private water supplies are more vulnerable to current and future climate change impacts affecting water quality, such as contamination (Kovats and Brisley, 2021) and supply interruptions (Netherwood, 2021) (see Section D5.5).

1 Evidence from stakeholders is referenced in the appraisal sections as W1 and W2 for insights from participatory workshops, and Int.1 etc. for evidence from expert interviews

Secondly, farmers and rural communities are at high risk of experiencing negative mental health impacts related to water scarcity/drought (Cianconi et al., 2020; Ints. 3 & 4). Climate variabilities, particularly drought, is identified as one of four main risk factors affecting the mental health of farmers, with the pathway of impact linked to financial stressors (Daghagh Yazd et al., 2019) and “solastalgia” (Albrecht et al., 2007) (See Section D4 on mental health and wellbeing).

Flood Risk

In rural towns and fringes across the UK the present day Expected Annual Damages² from flooding is around £150 per person in flood risk areas, but rises to £280 for the most socially vulnerable neighbourhoods. In a scenario where the Current Levels of Adaptation (CLA) continues, the most socially vulnerable in rural settings (particularly rural towns) continue to face higher risks when compared to others (Sayers et al., 2020).

Flooding in rural communities can have significant impacts on transport infrastructure, and affect agricultural land and livestock, as well as the direct impact on people’s homes, businesses, and access to services (Netherwood, 2021) (see Section D5.3 on flooding).

Air Quality

People living in rural areas may also be at a greater risk of household air pollution and emissions from agriculture and wildfires (World Health Organization et al. n.d.).

Vector Borne Disease

A recent study of reported cases in Wales found that Lyme disease patients are more likely to live in rural areas (Tulloch et al., 2019). This may reflect both exposures and differences in help seeking behaviour as Lyme Disease is under-reported in the general population. As a result, rural areas may be more impacted by any changes to tick borne disease arising from climate change (see Section D5.9).

Access to services

The ability to respond to and recover from climate change related events is influenced by both personal mobility (including access to transport) and the accessibility of services, in particular the accessibility of healthcare in order to respond and recover from any health impacts (Lindley et al., 2011). Isolated rural communities are also more dependent on transport and internet and telecommunications infrastructure, which may be impacted by extreme weather arising from climate change (Kovats and Brisley, 2021; Int. 10). Rural (including rural coastal) areas in Wales are recognised as facing disadvantage in terms of access to transport and services (Welsh Government, 2019; Welsh NHS Confederation, 2018; Green et al., 2022; Woods et al., 2021; W2; Int. 10).

Having access to information about climate risks contributes to adaptive capacity, for example early warning systems (Lindley et al., 2011). 91% of households in both urban and rural areas of Wales have internet access (Welsh Government, 2022). However, there have been ongoing disparities in access to full mobile phone coverage and broadband in rural areas of Wales (Honeyman et al., 2020).

2 Costs of direct economic damage to residential and non-residential properties and associated indirect damages (Sayers et al., 2015).

Rural economy: changes to land management and food production

Climate change has significant implications for food production and agriculture in Wales, with implications for the rural economy and wellbeing (Green et al., 2022; Netherwood, 2021) (see also section D1 on food and nutrition). Agriculture accounted for 14% of Welsh emissions in 2019, and is a priority sector for achieving net zero in Wales with significant implications for both the land and economy in rural areas (Welsh Government, 2021). Initiatives to utilise land for climate change mitigation and carbon offsetting can create conflict and uncertainty in rural communities (Welsh Parliament Senedd Research, 2022). However, developing renewable energy projects and green infrastructure to support decarbonisation are identified as opportunities for rural areas in Wales (Woods et al., 2021). More evidence is needed to understand the opportunities for agricultural diversification in Wales (Netherwood, 2021).

Brexit has had major implications for both the agriculture economic sector and the wellbeing of rural communities, with a total reshaping of land management and agricultural policy (Green et al., 2019; Green et al., 2022; Woods et al., 2021). A new Agriculture (Wales) Bill is currently passing through the Senedd with a focus on sustainable land management and a new agricultural payments system (Welsh Parliament, 2022).

Therefore, rural communities including farmers and fishers are facing a range of change and uncertainty, which have implications for their health and wellbeing, particularly mental health (Davies et al., 2019; Green et al., 2022; Homolova et al., 2020; W1; Ints. 1, 3, 4 & 11). Impacts on economic security are a key pathway for the mental health impacts of climate change on farmers (Cianconi et al., 2020) (See also Section D4 on Mental health and wellbeing).

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