Climate Change Adaptation Strategy for Built and Archaeological Heritage

An Roinn Cultúir, Oidhreachta agus Gaeltachta
Department of Culture, Heritage and the Gaeltacht

Stakeholder Workshop 1

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Ballinasloe Library

ABOUT

The Department of Communications, Climate Actions and the Environment recently published Ireland's first statutory National Adaptation Framework. Under the framework, the Department of Culture, Heritage and the Gaeltacht (DCHG) is one of 12 sector required to prepare a sectoral adaptation plan to increase Ireland's resilience to climate change. Carrig Conservation, the University of Lincoln and the Irish Green Building Council are now working in close cooperation with the DCHG to develop Ireland's first 'Climate Change Adaptation Sectoral Plan for Built and Archaeological Heritage'.

The objective of the stakeholder workshop was to discuss the potential impacts of climate change on Ireland's built and archaeological heritage, and prioritise the short- and long-term adaptation actions needed—A copy of the full running order is available here and the presentations can be downloaded here. The feedback collected from the workshop will directly inform the development of the sectoral plan. The draft plan will be widely circulated through a public consultation scheduled for May 2019.

The project team would like to thank all participants who attended and contributed to the workshop. These are listed here.

SUMMARY

Over 40 people took part in the first workshop organised to collect feedback on the development of Ireland's first "Climate Change Adaptation Sectoral Plan for Built and Archaeological Heritage".

In addition to the significant number of case studies collected on the day , the key findings of the day were as follows.

Key findings

- A significant proportion of Ireland's built and archaeological heritage is located by the sea and along rivers, and is hence extremely vulnerable to the impacts of climate change.
- Workshop participants were mainly concerned about the catastrophic impacts of climate change on the built and archaeological heritage, and more specifically by the impacts of storms and flood events.
- The impact of coastal erosion was another key area of concern.
- Workshop participants were also concerned about the impact of inappropriate retrofit works to traditional buildings, and by the impact of "ill-conceived" flood defences.
- A number of actions were suggested to better protect Ireland's built and archaeological heritage, including:

  - Increase funding and resources;

  - Take a multi-disciplinary, cross-sectoral approach;

  - Develop quality baseline data and monitor impacts;

  - Raise awareness in society about heritage sites, their vulnerabilities and what can be done to protect them;

  - Make sure we have the right skills to repair and maintain heritage sites, including traditional skills.

Q.1 & 2 What do you see as the main vulnerability of Ireland's built and archaeological heritage to the impacts of climate change? Can you give some examples of impacts on the built and/or archaeological heritage in your region which you believe may be due to climate change?

The objective of the first two questions was to gain a better understanding of workshop participants' key concerns in relation to the impacts of climate change on the built and archaeological heritage and to collect case studies.

Workshop participants were mainly concerned with the impact of flooding, storms and coastal erosion, and to a lesser extent with impacts relating to mitigation, e.g. inappropriate retrofit, and adaptation measures, e.g. "ill-informed" flood defences.

Direct impacts

- **Catastrophic**

Most workshop participants expressed concerns in relation to the impact of flooding, storms and extreme rainfalls.

They highlighted the impact of storms on ruins, roofs and thatch, the impact of flooding on bridges, as well as the potential impact of both on the structural stability of the built heritage. Soil saturation followed by drought leads to soil movement, which in turn impacts built and archaeological heritage foundations. Torrential rains compromise the ability of many historic buildings to shed water as historic rainwater goods (gutters and drainage systems) cannot cope with extreme rainfall and require higher level of maintenance, e.g. St Finbarr's Cathedral, Cork. The impact of extreme rainfalls can be even more damaging when they follow a dry summer. Storms and extreme rainfalls can also lead to landslides. E.g. Pullathomas' graveyard in Co.Mayo.

Various examples of damages to the built heritage caused by storms were given. These include the following direct damages to historic buildings, piers and harbours, but also some indirect damages, e.g. mature trees falling in Adare Manor Demesne and on Clonfert Cathedral:

- The collapse of Rathcannon Castle during storm Ophelia;
- Damages to medieval masonry ruins: Coolbanagher Castle during storm Darwin;
- Fallen and cracked roof slates at Locke's Distillery Kilbeggan;
- The roof truss of Limerick Rowing Club was peeled off by high winds;
- Damages to piers and harbours, e.g. Inishbofin pier;
- Damages to Salthill promenade in Galway.

One workshop participant suggested to look at historic, dramatic events to gain a better understanding of the potential impacts of storms on the built heritage. The Night of the big wind (1839) was given as a great example, during which even well-built buildings suffered structural damage, e.g. the newly constructed St. Mary's Roman Catholic Church in Derrytrasna was destroyed, one of the steeples of the Church of Ireland church in Castlebar was blown down, and many large country houses were unroofed.

Flooding and **torrential rain** events were the second most common examples of climate change impacts given. These included:

- Architectural damages caused by flooding in Gort, Ballinasloe, Athlone, and at Mona Lodge, Thoor Ballyhee tower and King John's Castle in Limerick;
- Damages to bridges - e.g. Inisowen during 2017 and the collapse of. Leenane bridge, Mayo;
- Damages to weir, E.g. Ballincollig weir.

Other catastrophic events mentioned include damages to brickwork, sandstone and medieval masonry structures during **freezing conditions** - e.g. Rindoon gate house.

A handful number of workshop participants mentioned some positive impacts of extreme weather events, including the discovery of more archaeological features across the Bóinne World Heritage Site following dry weather in 2018 and the unearthing of ancient skeletons by Storm Ophelia at Forlorn Point.

Workshop participants felt that these events should be highly monitored as a significant proportion of Ireland's built and archaeological heritage is located by the sea and along rivers and is hence at risk.

♦ **Cumulative**

Of all cumulative impacts, **erosion** and to a lesser extent **sea level changes**, are of most concern. Many built and archaeological heritage sites in the west of Ireland are located on the coasts, and are hence very vulnerable.

A significant number of workshop participants gave examples of coastal and inland erosion impacting on built and archaeological heritage, e.g. Staad Abbey, Slieve Carran, Spiddal, the medieval graveyard on Omey Island and Spanish Armada wrecks in Co. Sligo.

Others highlighted the impact of sea level rise on the structure of low lying monuments, coastal piers and quays, e.g. Clonmines, Co. Wexford.

Increased rainfall and humidity lead to the faster erosion of some building materials, e.g. Monasterboice high-cross. The effects of freeze-thaw weathering (concrete spalling) and weathering of gravestones (inscriptions) were also mentioned.

An increase in relative humidity will lead to an increase in fungal and pest attacks on timber. Humidity increase is already leading to moss building up and paint deterioration on historic buildings. E.g. on Ballycurrin Lighthouse.

Higher temperatures will lead to higher vegetation growth on masonry monuments. Higher temperatures can also impact landscapes and soil conditions, e.g. desiccation of bogs. These changes, especially when associated with change of land-use, can impact low visibility subsurface archaeological remains. For instance, the lack of frost killing off algae and the deterioration of water quality is already damaging archaeological heritage in Lough Corrib.

Indirect impacts

♦ **Mitigation**

Many workshop participants expressed concern in relation to the inappropriate **retrofit of unprotected traditional buildings.** One workshop participant mentioned the contextual damage cause by windfarm infrastructure - E.g. A 19th century bridge was replaced in Co. Galway to allow for wind farm traffic. One participant added that further research was needed to assess the impact of wave energy development on underwater archaeology.

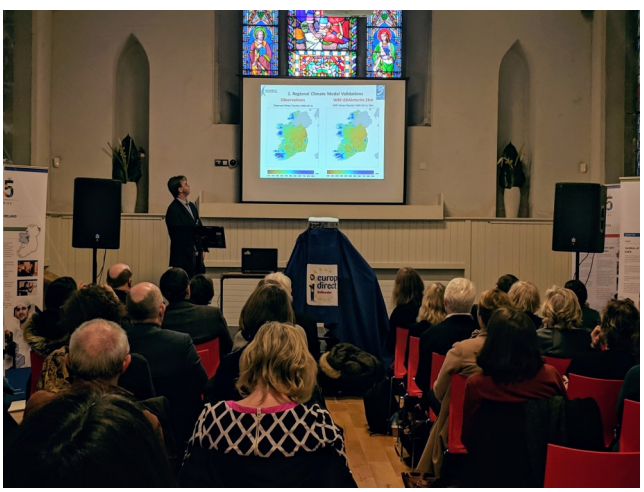
♦ **Adaptation**

Most workshop participants expressed concerns in relation to "**ill-informed and ill-conceived flood defence"**, e.g. ditching and dredging often impact archaeological remains, while flood mitigation measures may impact historic engineering structures like bridges, weirs and walls. Participants felt flood defence developments should probably operate under planning legislation, and that a more multidisciplinary approach is needed. Workshop participants felt that hard engineering approaches were often taken without even consulting with ecologists, archaeologists or architectural conservation professionals. One workshop participant said that cement was often poured onto historic structures and piers following storms.

Examples of the impact of flood mitigation measures on the built and archaeological heritage included: damage to bridges, e.g. Ballinasloe and Dunkellin; the sacrifice of historic areas to build flood defences e.g. Athlone and Clonmel; and the loss of medieval graveyards, e.g. Claregalway.

Most other adaptation measures mentioned related to land-use changes:

- An increase in tillage - e.g. Rathcroghan, industrial drainage and forestry developments can impact on partly levelled, partly buried features which make up a large part of our archaeological heritage in the mid-east and south of the country.



- Shelterbelt clearance associated with a change in land-use leads to a change in wind patterns, which in turn increases exposure and water penetration for local buildings.
- Increase recreational use of dry stone structures - tourism.

These impacts are accentuated in the high number of vacant protected buildings, especially in rural Ireland, which lack a conservation and maintenance plan. As the number of uninsurable historic buildings located in flood zone is set to increase over the next decade, vacancy and dereliction could become an ever bigger issue in the future.

Some workshop participants expressed concern at the lack of resources to monitor land-use changes and implement policies.

Q.3 Have you been involved in any actions / plans intended to address climate impacts on built and/or archaeological heritage? If so, would you say it was easy?

Approximately three-quarters of workshop participants had been involved in an action or a plan intended to address the impact of climate change on built and/or archaeological heritage prior to the event. A significant proportion of those involved in this type of actions had been involved in some sort of flooding prevention actions.

Working on these types of actions or plans is often perceived as challenging. Key difficulties included:

- A low awareness base
- Complicated regulations and planning rules
- Dealing with competing interests and potentially vicious media campaigns
- A lack of coordination - heritage officers and ecologists are sometimes involved very late in the process
- Difficulty finding qualified staff

What is required to make that process easier?



- **Funding and Resources**

Funding is needed for regular maintenance and repair, including for buildings in private ownership, e.g. participants felt that people who buy and restore historic buildings in Scotland receive far greater support.

Public bodies involved in heritage conservation need more resources to better support local community groups willing to protect heritage. More resources are also required for monitoring, enforcement and for research.

- **A multi-disciplinary approach**

A more inclusive, multidisciplinary approach is required to develop actions and plans to address climate change impacts. For instance, engineers, urban designers, ecologists, heritage and conservation officers should all be involved from the very beginning in developing flood prevention plans.

- **Skills and competences**

Many workshop participants talked about a lack of knowledge and expertise in the repair and maintenance of historic buildings and heritage assets. They felt that we should invest more in traditional skills training, which is critical to the appropriate retrofit of traditional buildings.

- **Quality data**

Many Many workshop participants expressed concerns about the lack of baseline studies and monitoring. Low knowledge of many sites, especially of sites in private ownership, can significantly increase the cost of interventions. The recording of all coastal heritage on the Wild Atlantic Way by Donegal County Council was perceived as a best practice. Archives (maps, photos and prints) are all of critical importance.

One participant suggested that early 19th century signal towers could be good indicators of change as they were built to "standard" condition, i.e. differential erosion and weathering conditions.

- **Long-term certainty**

Many workshop participants felt that the protection of built and archaeological heritage is often not perceived as a priority. This leads to a lack of strategic planning at a national and local level. Good, inclusive development plans are needed. At a local level, plans are also required for protected ruined structures and for vacant built heritage.

- **Awareness raising**

Local communities must get more involved in heritage protection. The Public Participation Networks could be used to support community engagement. The Tidy Towns Pollination Plan was also mentioned as a good example of how to engage local communities and how to create action at local level. Local communities should know about heritage sites near them, their vulnerability, what they can do to protect them and who to ask for advice. Kinvara Village in Galway was mentioned as an example of community engagement where citizens dug a channel to protect local heritage during a flooding event in 2010.

Finally, awareness raising and education are required to change attitudes toward flood prevention actions, drainage, etc.

- **Regulations, standards and policies**

One workshop participant said that new regulations should be introduced to better protect archaeology when new forestry developments take place or when wind farms are built.

Competing regulatory requirements (e.g. natural heritage protection, energy efficiency) mean it can be difficult to protect the built and archaeological heritage. For instance, changes to retrofit grants may be required to better protect historic buildings from inappropriate works.

WHO ELSE SHOULD BE PART OF THIS CONVERSATION?

WHICH IDEA WOULD YOU LIKE TO MAKE SURE WE DO NOT FORGET?

- Ignoring climate change puts our heritage in peril.
- Archaeological sites have different adaptation needs to buildings.
- We can't save it all so we need to prioritise, but aren't we focusing too much on catastrophic events?
- There is a strong connection between our natural and archaeological heritage. Both must be protected.
- Communication and coordination between all key stakeholders is critical.
- A multidisciplinary approach is needed. Engineers, ecologists, architects and archaeologists must all be involved.
- Engage with local communities.
- Adequate finance and resources are needed.
- Resources are required for education, awareness raising, baseline documentation of built heritage, development and implementation of monitoring schemes at the local level.

- Resource the plan to make it effective.
- Support private owners who undertake repairs and maintenance.
- Improve coastal erosion monitoring.
- Prioritise occupancy and re-use of protected structures over the perfect preservation of built heritage.
- A cross-departmental approach is needed. Unchecked economic growth impacts our cultural heritage, e.g. intense ploughing.
- We need an in-depth risk assessment and to prioritise actions.
- Look at opportunities for heritage across government spends, i.e. TII, OPW and port authorities.
- Engage with local authorities as they develop their adaptation strategies.

THANK YOU TO ALL OUR PARTICIPANTS

GET INVOLVED

For further information on this project, please contact Marion@igbc.ie.