



# CLIMATE CHANGE AND HISTORIC PLACES

## STAKEHOLDER WORKSHOP WORKBOOK

Workshop location \_\_\_\_\_

Workshop date \_\_\_\_\_

Case study site \_\_\_\_\_



## Adapt Northern Heritage

Adapting northern cultural heritage to the environmental impacts of climate change and associated natural hazards through community engagement and informed conservation planning

### Objective 1

#### Assessment tool and adaptation guidance

Develop procedures for risks and vulnerabilities assessments and sustainable adaptation planning of historic places and make the procedures accessible through online software

### Objective 2

#### Demonstration case studies



Produce adaptation action plans to demonstrate how the environmental impacts of climate change and associated natural hazards can be integrated into conservation planning

### Objective 3

#### Community network

Create a network for stakeholders concerned with the conservation of northern cultural heritage in the context of a changing climate to contribute, engage, learn and network

 [www.adaptnorthernheritage.org](http://www.adaptnorthernheritage.org)  
 [mail@adaptnorthernheritage.org](mailto:mail@adaptnorthernheritage.org)

 AdaptNHeritage  
 AdaptNHeritage

## Project in details

- Running from June 2017 - May 2020
- 4 Project Partners
- 11 Associated Partners
- 9 case studies active across the Northern Arctic periphery:
  - Threave Estate, Scotland
  - Inveraray Town, Scotland
  - Ballinskelligs Abbey and Castle, Republic of Ireland
  - Solovetsky Monastery, Arkhangelsk, Russia
  - Hiortham, Svalbard, Norway
  - Aurlands commune, Norway
  - Bartjan Summer Camp, Jämtland, Sweden
  - Skaftártunga Landscape, Iceland
  - Snæfellsjökull National Park, Iceland



Northern Periphery and  
Arctic Programme  
2014–2020



EUROPEAN UNION  
Investing in your future  
European Regional Development Fund



## Group work 1a – Hazards, conservation challenges and environmental drivers

Please identify damage events and deterioration processes relevant to the case study site. Then identify environmental hazards and their associated climate drivers.

Damage and deterioration Observed at historic place	Environmental hazard Relevant to observation	Climate drivers <i>Precipitation, frost days ...</i>	Has this changed in recent decades? ↘ decrease, ↗ increase, → no change, ↑ no idea	Will this change going into future? ↘ decrease, ↗ increase, → no change, ↑ no idea
Freeze-thaw spalling of masonry surfaces	Frost weathering	Precipitation	↗	↑ maybe

## Group work 1b – Hazards, conservation challenges and environmental drivers

Please mark, with a different colour pen, in the table above, if and how your prediction would change, after being presented with climate data.



## Group work 2 – Define and prioritise risks

Risk is the likelihood of harm occurring in defined circumstances. It can be calculated based on impact intensity, vulnerability and likelihood.

Rating scale for impact intensity	
Rating	Description for damages and deterioration respectively <i>The impact can cause...</i>
0 Insignificant	...only negligible deterioration, even over a period of several decades
1 Minor	...minor damage in one day ...minor deterioration in a year
2 Moderate	...moderate damage in a day or progressively minor damage in a few days ...moderate deterioration caused in a year
3 Major	...major damage in a day or progressively minor or moderate damage in a few days ...major deterioration in a year
4 Extreme	...extreme damage in a day or progressively moderate or major damage in a few days

Rating scores for vulnerability	
Rating	Description
0 Negligible	Can withstand the impact
1 Slight	Can mostly withstand the impact, with only minor damage/deterioration
2 Moderate	Can withstand the impact, with some damage/deterioration
3 Severe	Can hardly withstand the impact, with major damage/deterioration and/or some collapse/destruction
4 Extreme	Cannot withstand the impact, with collapse/destruction/loss

Rating scores for impact likelihood	
Rating	Description of impact likelihood
0 Essentially impossible	Annual chance of less than 0.2%
1 Very likely	Annual chance of 0.2% or more
2 Unlikely	Annual chance of 1% or more
3 Likely	Annual chance of 5% or more
4 Very likely	Annual chance of 20% or more

Matrix for severity rating						
Intensity rating	4	0	4	4	4	4
	3	0	2	3	3	4
	2	0	1	2	3	4
	1	0	1	1	2	4
	0	0	0	0	0	0
		0	1	2	3	4
		Vulnerability rating				

Inherent risk rating matrix						
Severity rating	4	0	4	8	12	16
	3	0	3	6	9	12
	2	0	2	4	6	8
	1	0	1	2	3	4
	0	0	0	0	0	0
		0	1	2	3	4
		Likelihood rating				



Using the provided matrixes, please identify the place's vulnerability and impact intensity to a hazard, to calculate the hazard's severity. Using the resulting severity, please calculate the inherent risk rating.

Risk register for multiple time horizons					
Impact	Time horizon #1: TODAY				
	Vulnerability rating	Intensity rating	Severity rating	Inherent risk rating	Risk ranking

Considering the climate projections which have been presented to you, please recalculate the risk for hazards chosen in the previous exercise, for 50 years from now.

Risk register for multiple time horizons					
Impact	Time horizon #2: 50 years from now				
	Vulnerability rating	Intensity rating	Severity rating	Inherent risk rating	Risk ranking



## Group work 3 – Identifying adaptation options

### PROTECT historic place

**PROTECT** historic place from the consequences of potential hazardous incidents, by reducing or eliminating the place's exposure to the consequences. Such adaptation measures are generally installed in the surroundings of the place (and not to the place itself).

### RESPOND TO DAMAGE to historic place

**RESPOND TO DAMAGE** to historic place. Damage can be rapid / sudden or a longer-term process. Corresponding adaptation measures include response preparedness, repair and reconstruction.

### STRENGTHEN historic place's material fabric

**STRENGTHEN** historic place's material fabric to withstand better the consequences of potential hazardous incidents, by reducing the place's vulnerability to the consequences. Such adaptation measures will be installed directly to the historic place, thereby altering it.

### MANAGE LOSS of historic place

**MANAGE LOSS** of historic place. Loss can be rapid / sudden or a longer-term process. Corresponding adaptation measures include bereavement community counselling, making accessible replicas and doing nothing, all to develop capacity to cope with loss of the historic place.

### RELOCATE historic place or its elements

**RELOCATE** historic place to remove it from the consequences of potential hazardous incidents. To **RELOCATE** a historic place is a preventive adaptation measure, which moves the place's material fabric from its current context and location and risks damaging the fabric.

### MANAGE UNCERTAINTY at the historic place

**MANAGE UNCERTAINTY** at historic place to support the evaluation of, decision-making regarding and design and implementation of future adaptation. This helps reducing the uncertainty about a place's future and inform decision-making processes, e.g. by climate change modelling, on-site monitoring, site recording and feasibility studies.



3a Using risks identified in the previous discussion,  
identify adaptation options for each adaptation type

3b Applying the adaptation identified, please describe the change to impact intensity, vulnerability  
and likelihood and recalculate the associated risk rating.

Adaptation type	Impact intensity change?		Vulnerability change?		Severity	Likelihood change?		Risk
	Description	Rating	Description	Rating	Rating	Description	Rating	Rating
PROTECT								
STRENGTHEN								
RELOCATE								
RESPOND TO DAMAGE								
MANAGING LOSS								
MANAGE UNCERTAINTY								