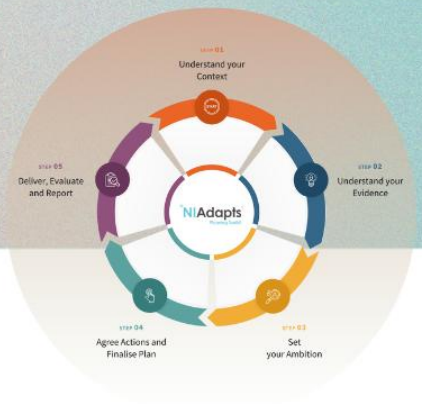

Guidance on Climate Risk Assessment

Your climate plan will need to include some assessment of how your organisation is at risk from the impacts of climate change. This involves looking at how climate change has affected your organisation and its functions before, how it might be affecting it now, and what could happen in the future. Example impacts include:

- Service continuity and access;
- Infrastructure, facilities and assets;
- Emergency responses;
- Health and safety risks for staff and the public;
- Consideration of any knock-on effects especially on vulnerable groups;
- Compliance or legal risks; and
- Strategic or financial consequences,

If this is your first climate adaptation planning cycle, you may find that much of your initial information is qualitative (more descriptive than numerical). It is likely that by undertaking this process you will identify risks for which you need further evidence and monitoring. Gathering this further information could be an action included in your adaptation plan (in Step 3).

Although you may choose to begin this step as a desk-based study, the quality and impact of this climate risk assessment will be greater if a wide range of services and departments play a role in its development. It is often the case that impacts are not fully gathered, and this is why getting validation from right across your organisation is so important, even from those who may not be the first groups to spring to mind. Climate adaptation is a key strategic priority that everyone has a part to play in delivering.

What is climate risk?

The UN Intergovernmental Panel on Climate Change (IPCC) defines climate risk as *"the potential for adverse consequences for human or ecological systems, recognising the diversity of values and objectives associated with such systems"*.[1]

This definition recognises physical climate risks arising from three key components, informed by real-world conditions which interact and combine to generate the risks of climate impacts.

These are:

1. **Hazard -** Potential occurrence of a natural or human-induced event that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems etc…
    - Acute events are hazards such as droughts, heatwaves, heavy rain events or storms.
    - Long-term changes can also be a concern, such an increase in mean temperature, sea level rise or an increasing aridity of a region.
2. **Exposure -** The presence of things which could be adversely affected. For example, people, livelihoods, species or ecosystems, environmental functions, services and resources, infrastructure, and economic, social, or cultural assets.
3. **Vulnerability –** The likelihood of a person, place or system being adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

Figure 1 – Components of Climate Risk. Source: South Gloucestershire Council Adaptation: ARP4 report[2]

For the purposes of introducing Climate Risk Assessment, NI Adapts will help you understand and develop a basic climate risk assessment. The intention is that your organisation will make this process more refined and detailed over time.

Example of Climate Risk in practice

Hypothetical Situation - An agricultural area is potentially affected by frequent and intense drought events with an absence of precipitation and high temperature, which causes yield losses and loss of income for farmers.

- The **hazard** is the drought itself, described by a rainfall deficit (meteorological drought), a resulting soil moisture deficit (agricultural drought) or low flows in rivers (hydrological drought).

- **Exposure** can be expressed by proportion of agricultural land potentially affected by the drought or by the proportion of people which depend on income from farming.
- The **vulnerability** of the system depends on many factors like:
    - Natural factors such as the drought resistance of crops
    - Technical factors such as the presence or absence or the efficiency of an irrigation system
    - Factors related to the capacity of farmers to cope and adapt, such as the

Future Climate Risk

Once you have considered how you are currently being impacted by climate change, it is important to look ahead at how things might change. This will enable you to think not only about how you need to change in the short term, but also what actions and evidence you may need to start gathering to address the larger and more long-term risks.

A 2°C world is the target from the UN Paris Agreement. This means global average temperatures are kept within no more than 2°C from pre-industrial levels. However, we are still on course for as much as 3°C or 4°C rises in global average temperature by the end of the century. Each degree of global warming has a significant impact on the weather we see in the global climate system and acts as a risk multiplier for our society, environment, and economy.

The Met Office has developed a tool called the Local Authority Climate Service (LACS) which can support an understanding of how certain weather hazards will change over future scenarios. This approach has been integrated into Step 2 of the NI Adapts toolkit, to provide organisations a set of future scenarios and consider how they might be impacted. These 'scenarios' can be used to understand how your organisation will need to respond over the coming decades and can provide some clarity about what kind of actions you can take when developing your action plan in Step 3.

References

1. IPCC *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. 2023. Available: https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf
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