Scottish Environment LINK

Scottish Climate Change Adaptation Programme - Woodland

Purpose of this briefing

This LINK briefing from the Climate Adaptation Taskforce (CATF) is intended as a resource and reference to be used by LINK colleagues for information regarding Scottish Government policies relating to adaptation of interest to specific taskforce sectors. **Please note this briefing does not include any analysis of the specific adaptation policies**, although the CATF general concerns are detailed below, alongside links to our previous consultation response. The full Adaptation Programme can be viewed here: http://www.scotland.gov.uk/Resource/0045/00451392.pdf

Scottish Climate Change Adaptation Programme (SAP) background

Climate change impacts are being felt now in Scotland, particularly in the natural environment. Scotland needs to act urgently to address the consequences and impacts of our changing climate. Scotland must reduce GHG emissions but also adapt how we run our economy, our society and how we look after our environment. Adaptation is the term used to describe our responses to a changing climate and its impacts – including building resilience. Adaptation is inevitable – the important thing is to plan early and to do it in the right way. With the publication of the SAP, it's essential that climate adaptation becomes a higher priority within Government - **building the resilience of Scotland's environment to climate change must be a priority at a time when our natural resource base needs to be valued as an important asset.**

The Climate Change (Scotland) Act 2009[1] requires Government to lay before the Scottish Parliament '*programmes for adaptation to climate change*'. The Scottish Government has developed measures based on risks identified for Scotland in the UK Climate Change Risk Assessment (CCRA) 2012. The CCRA is however limited and does not adequately cover some impacts, such as sea-level rise or extreme weather events. Publication of the first Scottish Climate Change Adaptation Programme brings into force the adaptation requirement of the public bodies climate change duties, which requires that a public body must, in exercising its functions, act in the way best calculated to help deliver the Programme.

The programme contains an overall **Aim** – to increase the resilience of Scotland's people, environment and economy to the impacts of a changing climate. Within this are three **Themes** and relevant **Objectives** for the long-term (up to 2050), to facilitate achieving the Aim:

Natural Environment	**Buildings and Infrastructure**	**Society**
Outcome: productive, healthy, diverse natural environment able to adapt to change	*Outcome: well-managed, resilient infrastructure and buildings providing access to amenities and services needed*	*Outcome: strong, healthy, resilient communities which are well informed and prepared for changing climate*
N1: understand effects of climate change and impacts on the natural environment	B1: understand effects of climate change and impacts on buildings and infrastructure	S1: understand effects of climate change and impacts on people, homes and communities
N2: support a healthy and diverse natural environment with capacity to adapt	B2: provide knowledge, skills and tools to manage climate change impacts on buildings and infrastructure	S2: increase awareness of impacts of climate change to enable people to future extreme weather events
N3: sustain and enhance the benefits, goods and services the natural environment provides	B3: increase resilience of buildings and infrastructure to sustain and enhance benefits and services	S3: support health and emergency services to respond effectively to increased CC pressures

1 http://www.legislation.gov.uk/asp/2009/12/part/5/chapter/1

LINK'S general concerns with SAP

Some of our initial main concerns that the SAP contains few *new* policies or *new* resources and funding still stand - it is predominantly a collection of existing policies collected together to address the risks highlighted by the UKCCRA. In general there are also no specific **targets** and **timescales** attached to the programme, making progress difficult to assess. The CATF principle concerns are detailed below and our consultation response can be viewed here - many of our comments still apply: http://www.scotlink.org/files/policy/ConsultationResponses/LINKResponseDraftSCCAP13.pdf

- **Ecosystem approach:** We welcome that the SAP recognises that the natural environment provides benefits to Scotland in terms of resilience to climate change. However, we believe an ecosystem approach of 'working with nature' should be central to the SAP to; avoid maladaptation, ensure appropriate scale of action and provide a sustainable flow of benefits from ecosystems, such as flood attenuation (LINK Consultation: Section 1a/2a)
- **Greater clarity**: We welcome the long list of policies in the SAP, however, too many are vague, lack sufficient detail, and fail to outline the actions to be taken. This makes it difficult to confidently assess whether the SAP Objectives will be met. We recommend effort to further develop the policies (LINK Consultation: Section 2b/d).
- **Implementing existing legislation:** Whilst the SAP does include existing policies to improve the natural environment, LINK wants to see the SAP emphasise the need to fully implement all existing environmental legislation. Improving our environment will increase the resilience of the natural environment, society and economy to climate change impact (LINK Consultation: Section 2c).
- **Demonstrating action:** We welcome efforts to embed adaptation across Government but it is vital that adaptation is embedded throughout wider society too. Demonstration projects and an effective communication strategy must be included in the SAP to allow wider society to understand the need for effective adaptation and ensure appropriate adaptation action (LINK Consultation: Section 5b).

Major climate impacts on woodlands and forestry in Scotland

The productivity of our forests
A warming climate has the potential to improve growing conditions in Scotland and increase the productivity of our forestry. However, climate change will also pose a number of threats, from more variable and extreme weather to the spread of pests and diseases, which may limit this potential.

The occurrence of pests and disease
As our climate changes, it will create new conditions that may allow existing pests and disease to spread and new threats to become established in Scotland. This may impact on the health of our people, animals, plants and ecosystems if risks are not properly managed.

The quality of our soils
We rely on soils to sustain biodiversity, support agriculture and forestry, regulate the water cycle and store carbon. Soils also have an historic environment value, as a proxy record of environmental change and for the preservation of archaeological deposits and artefacts. Soils and vegetation may be altered by changes to rainfall patterns and increased temperatures - as well as the way we use the land.

The health of our natural environment
Climate change may affect the delicate balance of Scotland's ecosystems and transform Scotland's habitats and biodiversity, adding to existing pressures. Some distinctive Scottish species may struggle and could be lost, invasive non-native species may thrive, while a degraded environment may not be able to sustain productive land or water supply.

Registered HQ office: 2 Grosvenor House, Shore Road, Perth PH2 8BD tel 01738 630804 email enquiries@scotlink.org
Parliamentary office: 3rd Floor, Gladstone's Land, 483 Lawnmarket, Edinburgh EH1 2NT tel 0131 225 4345 email parliamentary@scotlink.org

The availability and quality of water
As our climate warms and rainfall patterns change, there may be increased competition for water between households, agriculture, industry and the needs of the natural environment. Summer droughts may become more frequent and more severe causing problems for water quality and supply.

The increased risk of flooding
Flooding can already have a devastating effect on those affected. With climate change likely to alter rainfall patterns and bring more heavy downpours, we expect flood risk to increase in the future.

Areas of the SAP relevant to the Woodland Taskforce

Relevant sections of the Programme are reproduced, verbatim, below. SAP references are included and, where applicable, the LINK consultation response references.

Role of Scottish Government
It is vital that the Scottish Government provides clear leadership in promoting a sustainable approach to climate change adaptation (p24).

Forestry - In Scotland the key risks and opportunities for the forestry sector and woodlands from climate change appear to be increased problems of windthrow and drought, wildfire, pests and diseases (p41).

An increase in productivity in tree species that are matched to the new conditions could also be observed. A programme of related research is currently underway to improve our understanding of climate change impacts on woodlands and forestry and how resilience to threats, such as extreme weather events and pests and disease affecting trees and forests, can be improved in future. We need a move towards planned adaptation in woodland creation and management, as well-structured and diverse forests that can better withstand change and extreme events.

Agroforestry is an integrated approach of using the interactive benefits from combining trees and shrubs with crops or animals. This land use is based on long-term planning to create more diverse, productive, profitable, healthy, and sustainable land-use systems. Online guidance has been developed to assist land managers in making decisions on appropriate adaptation strategies for the longer term.

What's already being done
The below sets out what is already being done to achieve the natural environment objectives in relation to impacts on the woodland sector:

Policy: **Increase understanding** of the implications of climate change for nature through data gathering, analysis and research.
How it will deliver: Continuing research and data gathering is needed to detect, quantify and understand the impacts of climate change on nature to inform adaptation policy and management (N1-2, p45).

Policy: **Undertake spatial modelling, based around different scenarios, of potential risks to existing forests** in order to evaluate the impacts that climate change could have on different forest types.
How it will deliver: Will provide forestry-specific interpretation of climate impacts so that forest managers are clear on what changes are happening and can be expected and can plan in the long-term accordingly (N1-3, p45).

Policy: Improve understanding on how we can **develop more resilient forests, identify adaptation strategies for all types of woodlands, and demonstrate these in forest settings.**
How it will deliver: Will allow forest managers to make the required changes. Much of this will be taken forward through the new Research Forest in Queen Elizabeth Forest Park which will be trialling and demonstrating adaptation actions (N1-4, p45).

Policy: **Enhance collaborative research into tree pests and diseases** to develop understanding of the etiology, pathology, epidemiology and management of pests/diseases in a changing climate.
How it will deliver: Will ensure that we are as prepared as possible for managing forests and other ecosystems in the presence of pests and diseases (N1-5, p45).

Policy: **Supporting citizen science and voluntary environmental monitoring**.
How it will deliver: Biological records are a powerful tool in assessing the impact of climate change and are highly valued by research scientists. Nature's Calendar is a Citizen Science project in collaboration with the Woodland Trust and the Centre for Ecology and Hydrology (CEH) (N1-9, p48; LINK 1).

Policy: **Reduce the pressure on ecosystems from invasive non-native species (INNS).**
How it will deliver: A co-ordinated approach will be used for managing non-native species, using new regulatory powers under the WANE Act and more accessible advice and promotion to support the Code of Practice, will help build resilience to climate impacts. Priority will be given to preventing the establishment and spread of INNS but priorities will also be developed for restoring ecosystems degraded by INNS where it is feasible and appropriate to do so. This approach will help to enhance the resilience of ecosystems by reducing the pressure from INNS (N2-7, p51).

Policy: **Implement the Land Use Strategy (LUS) and associated action plan** - incorporates principles for sustainable land use and includes a commitment to investigate the relationship between land use change and ecosystems processes to identify adaptation priorities.
How it will deliver: The LUS Action Plan Proposals contain a number of specific milestones such as the publication of Achieving Diversity in Scotland's Forest Landscapes which provides guidance on planning future forests in a changing climate (N2-8, p52).

Policy: **Implement the Scottish Biodiversity Strategy** which promotes action to enhance the health & resilience of the terrestrial and marine environments, and the benefits they provide to people, taking account of climate risk & principles for helping nature adapt.
How it will deliver: Climate risk is fully integrated into the Scottish Biodiversity Strategy. Research under the strategy will contribute knowledge regarding the priority risks for biodiversity that need to be managed (N2-9, p52; LINK 2c).

Policy: **Promote the UK Forestry Standard and Climate Change guidelines.**
How it will deliver: The guidelines help raise awareness of the Standard to build the resilience of forests to the impacts of climate change (N2-10, p52).

Policy: **Embed climate change adaptation** considerations, and potential responses such as habitat networks and green networks, into wider land use planning decisions through the use of Forestry and Woodland Strategies, regional land use strategies, and Strategic and Local Development Plans and development master-plans.
How it will deliver: Habitat Network information will be used to inform land use plans so that the creation and management of woodland and other habitats can be targeted to further strengthen these networks and increase their resilience to climate impacts (N2-11, p52; LINK 2c).

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Policy: **Improve the condition and connectivity of native woodlands**; promote natural regeneration as a means of increasing resilience to climate change, and take other steps to increase adaptive capacity in woodlands.
How it will deliver: More native woodlands in favourable condition will increase their capacity to adapt to climate impacts (N2-12, p53; LINK 2c).

Policy: **Promote the use of Ecological Site Classification, Forest GALES** and other decision support systems to help forest managers to determine appropriate species and silvicultural systems in a changing climate.
How it will deliver: Forest managers will have access to existing decision support systems to help decide on species suitability in a changing climate (N3-4, p59).

Policy: **Implement the Scottish Windthrow Contingency Plan** to help minimise the financial impact of wind damage to commercial forests.
How it will deliver: Will help minimise the financial impact of wind damage to commercial forests (N3-5, p59; LINK 2d).

Policy: **Support the Scottish Wildfire Forum** to help ensure that land managers and the emergency services work together to prevent and manage wildfires.
How it will deliver: Enhance preparedness for forest fires through partnership working (N3-6, p59).

Policy: **Publish resources for managers of productive forests to help them develop more resilient forests** in a changing climate and in the face of tree health threats. Promote these resources, and provide support to forest managers.
How it will deliver: Will help forestry management practices adapt and will help reduce the impact of tree pests and diseases on forests, woodland and related open ground habitats (N3-7, p59).

Policy: **Promote tree health response contingency planning** to enable rapid on-the-ground action to deal with new tree health threats and to enable targeted deployment of emergency measures.
How it will deliver: Will ensure that forest managers make the most effective response to tree health threats (N3-8, p59).

Policy: **Enhance operational capacity to enable earlier detection and subsequent management of tree pests and diseases.**
How it will deliver: Will ensure that forest managers make the most effective response to tree health threats (N3-10, p60).

Policy: **Local Forest Management Strategies to tackle slope instability**. Focused work at key locations on the National Forest Estate.
How it will deliver: Will help combat slope instability to prevent damage to the transport network (B2-14, p74).

Research
The Scottish Government is funding research into the resilience of Scotland's biodiversity to climate change and land-use change. Other forestry/woodland specific research projects (p62):

- **The Forest adaptation research programme**, run by Forest Research, will evaluate future climate impacts, identify adaptation strategies and understand how we can develop 'resilient forests'.
- **The Scottish Research Forest**, managed by Forest Research. Forest management approaches to enhance resilience can be trialled and demonstrated in the context of a working forest. Plans for the research forest include trials and demonstration of species,

provenance and management system suitability; and how to enhance resilience to, plan for and deal with extreme events.

Proposals - potential new policies
There are currently only 3 proposals detailed which may become policies if needed during the lifetime of the SAP, 2 of which are relevant to this sector:

1) Encourage the consideration of climate change impacts (and how they will be addressed) in Forest Plans, and support this with grants and regulations so as to ensure that forest plans support ecosystems and habitat resilience and allow resilience- building measures to be trialled by forest managers. This will be important in ensuring that forest plans support ecosystem and habitat resilience (N2-23, p63).

2) Greater recognition of the role of integrated land management in tackling climate change (as opposed to sector-based responses) and this being backed up by Scottish Government policy and support mechanisms. Land Use Strategy Regional Land Use Framework pilots will be utilising the LUS principles and taking an ecosystem approach to consider land use and land use change in their area in an integrated manner (N3-17, p63).

UK Climate Change Risk Assessment

Risks that are not considered an issue now in Scotland may become problems in the future, one reason why LINK called for the SAP to set a long-term direction (LINK Consultation[2] Section 2). There may also be other potential climate change risks to your sector that are not addressed on top of the above, especially those not identified in the UKCC Risk Assessment. Of those risks that are addressed in the programme, many may be inadequately dealt with.

[2] http://www.scotlink.org/files/policy/ConsultationResponses/LINKResponseDraftSCCAP13.pdf