Response to the Scottish Government Consultation on Adapting to the Changing Climate: Consultation on the Environmental Impacts of Adaptation.

by the Scottish Environment LINK Climate Adaptation Taskforce

Date: February 2011

Summary of key points

- The Environmental Assessments show that too frequently the actions do not specifically target the challenges. We believe that this is because there are gaps in all of the Draft Action Plans and is a reflection that they list what is already happening in the sectors rather than identifying what needs to be done.
- The actions within the Action Plans are vague and do not provide sufficient detail to be able to confidently assess the full environmental impact.
- The Action Plans lack the urgency of action needed to respond to the impacts of climate change being experienced now, especially by the natural environment.
- There must be clear cross-referencing in sectoral Action Plans to relevant impacts, threats, policies and actions contained in other plans.
- Any positive outcomes of climate change must be presented in the context of the serious threat that climate change poses to society and the natural environment.
- Investment decisions regarding adaptation responses must factor in the intrinsic value of biodiversity as well as economic costs and benefits.
- LINK recommends that the Scottish Government works to build the capacity of all sectors to develop improved action plans before 2013 and embed adaptation action into their wider work. We recommend that all sector action plans are developed and reviewed on a 6-monthly basis and be guided by formal sector adaptation forums, with stakeholder representation.

Introduction

Scottish Environment LINK is the forum for Scotland's voluntary environment organisations, with over 30 member bodies representing a broad spectrum of environmental interests with the common goal of contributing to a more environmentally sustainable society.

LINK's Climate Adaptation Taskforce comprises a number of LINK members committed to working on adaptation issues. The vision of the Taskforce is that '**Biodiversity is enabled to adapt to the impacts of climate change'**. The Taskforce works to influence the policies and work of Government, Statutory Agency and other organizations to ensure this vision is realized.

LINK members welcome the opportunity to comment on this consultation. LINK has aimed to provide as much detail as possible, especially on the Draft Action Plans (APs), in order to support their development. We have not been able to fully review all sector action plans due to lack of expertise and time capacity in some cases. Furthermore, comments provided on some APs are fuller and more detailed than others.

Background

Wildlife and the natural environment are on the frontline of climate change. Wildlife and natural habitats are seeing the impacts of climate change now[1]. Human beings have the ability to alter their environment in order to respond and adapt to climate change. If the natural environment and especially vulnerable species are to survive a changing climate they need to be helped and provided with appropriate adaptation responses. Scotland's society has a responsibility to help Scotland's natural environment to adapt to the impacts of climate change.

In our report 'Time to Act on Climate Change'[2] we highlighted the need to adapt to the consequences of climate change and two key principles for helping the natural environment adapt to climate change. These principles are:

1. **Make wildlife resilient to the impacts of climate change**, and provide more options for dealing with uncertainty, by:
   - protecting and better managing what we have - bringing it into favourable conservation status;
   - restoring and expanding areas of habitat where these have been fragmented, damaged and degraded in the past.
2. **Accommodate change in species and habitat distribution** by:
   - providing a wider countryside that is more permeable to wildlife, with key habitat features present across all farmed, forested, urban and marine landscapes;
   - establishing new areas of habitat under conservation management, to provide for expected shifts in wildlife distribution.

An adaptation report by Defra[3] highlights three further principles:

3. Take practical action now
4. Integrate action across all sectors
5. Develop knowledge and plan strategically

[1] SPICe Briefing. Climate Change: The threat to species. http://www.scottish.parliament.uk/business/research/briefings-09/SB09-28.pdf

[2] Scottish Environment LINK, Time to act on climate change: A clarion call from Scotland's environmental movement, 2008. http://www.scotlink.org/files/publication/LINKReports/LINKctfStateClimateTimeAct.pdf

[3] Defra, England Biodiversity Strategy: Climate Change Adaptation Principles: Conserving biodiversity in a changing climate. http://www.defra.gov.uk/environment/biodiversity/documents/ebs-ccap.pdf

In addition to directly helping the natural world to adapt, Scotland must ensure that each sector does not indirectly have a negative impact on the ability of biodiversity to adapt to a changing climate. This is especially important now as sectors are developing action plans to adapt to climate change. LINK believes that all sectors must put in place plans which enable sectors to adapt to climate change in sustainable ways which increase the resilience of wildlife and accommodate change.

If we help nature it can help us to adapt to the impact of climate change. The natural environment can provide Scotland with sustainable and cost effective adaptation responses with social and economic benefits. For example, natural floodplain restoration can help to manage flood risk; farmland habitats harbour natural predators which can reduce the risks pest and disease. Efforts to conserve the natural environment and restore and protect functioning habitats not only helps biodiversity to adapt, it can also provide society with valuable ecosystem services.

The Climate Change (Scotland) Act 2009[4] requires the Scottish Government to produce an Adaptation Programme (section 53), which this consultation is a precursor to. Section 44 of the Act sets a duty on all Public Bodies in Scotland[5] to act to reduce GHG emissions, adapt to climate change and to do this in the most sustainable way. On the 1st January 2011 this duty came into force and LINK believes that this must result in public bodies acting to ensure that their direct and indirect actions do not have an impact on the ability of biodiversity to adapt to climate change. This duty is in addition to the duty on Scottish public bodies, through the Nature Conservation (Scotland) Act 2004[6], requiring them to further the conservation of biodiversity through the exercise of their functions.

General comments

LINK welcomes this consultation on the environmental impact of adaptation. We believe that it is an appropriate time to review the initial action plans in the Adaptation Framework published in December 2009.

We welcome the consistent and useful layout of each Action Plan. We recognise the limits of focusing work and action based on sectors. However, if this is to work well, and confusion avoided then relevant impacts, threats, policies and actions within other plans must be clearly cross-referenced and quoted.

The document and future iterations should aim to reference and inform the Scottish Government's Land Use Strategy (LUS) and National Planning Framework (NPF). We recommend that each AP more clearly defines how it relates to actions within the LUS and NPF.

The APs rightly highlight the threats posed by climate change and also list opportunities presented by climate change. Whilst we understand the use of the word 'opportunities' or the use of the term 'positive impacts' we recommend that the Scottish Government highlights within the document the caveats and conditions to using these terms. Climate

[4] http://www.legislation.gov.uk/asp/2009/12/contents
[5] http://www.scotland.gov.uk/Topics/Environment/climatechange/howyoucanhelp/publicbodies/publicsector
[6] http://www.legislation.gov.uk/asp/2004/6/contents

change and the rapidity of the change that the world is experiencing will, we believe, present a serious threat to society and to the natural environment. Any positive outcomes should be presented within this context.

LINK agrees partially with the economic rationale, outlined on page 8 of the document, regarding the need to weigh the costs of investing in adaptation actions against the benefits of adapting. We agree that in many cases this will present a strong case for employing the natural environment to provide cost effective adaptation solutions to society in addition to other benefits. We recommend that Government invests more to understand the financial benefits of these services provided by the natural environment. However, this economic justification for actions may not support investment in actions to help biodiversity adapt. LINK believes that there is a moral obligation to help species to adapt to climate change even where there is not an economic justification to do so.

Action Plan development and review

We believe that it is important that development of the action plans is an iterative process and updated regularly. We would like to see the Scottish Government working to build the capacity of the 12 sectors to improve the actions plans ahead of a statutory Adaptation Programme in 2013. LINK would like to support the Scottish Government and sector leads in the development of the APs over the next 2 years. Furthermore, we recommend that work carried out by NGOs is included in the AP actions.

A commitment to continually develop the APs from now onwards will demonstrate to sectors that these documents are important, ahead of them becoming a statutory document. This focus on developing and improving the APs should also result in improvements before 2013. LINK is concerned that these APs should be used and developed and not simply ignored until the next phases of development. In order to achieve this we would like see progress on implementation of all 12 APs monitored and 6-monthly feedback reports submitted to the Scottish Government.

LINK recommends that a Stakeholder Group is established to oversee Government led work on adaptation and in particular to follow the review, development and embedding of the APs. We would also like to see established, and be involved in, formal sector AP development groups to take forward the development of the APs.

We understand the value of collating all 12 APs into one document and environmental assessment. We agree that this should be the last time that these are consulted on as a whole. The length of the document has resulted in difficulty in producing a full response to the consultation. It may also have resulted in some important detail being lost. We would like to see in future, each AP fully developed into a standalone document which fully cross references other APs and has an environmental assessment of its own.

Actions

LINK members in general welcome the actions within the APs. We agree with the majority of the content of the APs and believe that these will move Scotland in the right direction towards adaptation to the impacts of climate change. However LINK does have a number of overarching criticisms of the APs as follows:

- **Lack of Urgency** – The APs need to include more immediate practical actions which will move Scotland more quickly towards implementation of adaptation responses. This is especially important to ensure that sectors provide the right

conditions to help biodiversity to adapt to climate change now. Biodiversity is experiencing the impact of climate change now.

- **Overuse of existing measures** – LINK is disappointed that on the whole the APs contain few new measures or actions to realise appropriate adaptation responses.

- **Focus on research** – We recognise the importance of understanding the consequences climate change and welcome that actions with regard to this are included in Pillar 1 of each AP. However, whilst further research is important a number of APs focus too heavily on research to the detriment of implementing actions. A particular example of this is the Agriculture AP. Research will enhance our knowledge and understanding of adaptation but it must not be used as an excuse for inaction. Furthermore, APs should be more specific as to how the results of research will be disseminated and communicated to end users.

- **Lack of strategy and gap analysis** – As already stated, we believe that the APs are a collation of existing sectoral actions which can support climate adaptation. LINK is disappointed that the APs do not do enough to take a strategic view of the needs of the sector and identify gaps to achieve sectoral adaptation objectives. As a consequence the actions identified in the 3 pillars of the AP do not clearly relate to the identified threats.

- **Vague actions** – LINK believes that on the whole the actions identified in the APs are too vague and provide insufficient detail. Because of this it is difficult to determine the likely environmental outcomes of the actions and therefore have full confidence in the results of the environmental assessment. Furthermore, the lack of specificity in the wording of actions and deliverables is unlikely to galvanise Scotland's public and private sector into action.

Environmental Assessment

LINK does not believe that the Action Plans deliver sufficient measures for adaptation. The Environmental Assessments show that too frequently the actions do not specifically target the challenges. We believe that this is because there are gaps in all of the APs and is a reflection that the APs list what is already happening in the sectors rather than identifying what needs to be done. LINK recommends a strategic review of all APs in order to give confidence that threats identified by SCCIP and others will be addressed by sectors in the future.

On the whole the environmental assessment paints a positive view of the impact of the APs on the environment. LINK broadly agrees with this assessment of the sector impacts as they are currently presented and where we have been able to provide comments. However, as already stated, the sector AP actions, in their current form, do not provide sufficient detail to be able to confidently assess the full environmental impact.

The wording of the assessment of impact summaries on the wider aspects of the environment are particularly brief and limited in use.

Specific comments

Our specific comments on the Environmental Assessment and on individual Action Plans are included in the format provided in the consultation document. See pages 7 -30.

This response was compiled on behalf of LINK's Climate Adaptation Taskforce and is supported by:

List sign up organizations:

RSPB Scotland
Buglife
Soil Association Scotland
Plantlife Scotland
Scottish Native Woods
Scottish Allotments and Gardens Society
WWF Scotland
National Trust for Scotland
Living Streets Scotland
Woodland Trust Scotland
Butterfly Conservation Scotland
Bumblebee Conservation Trust
Scottish Wildlife Trust
Association for the Protection of Rural Scotland
Hebridean Whale and Dolphin Trust
North East Mountain Trust

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Adapting to the Changing Climate:

Consultation on Environmental Impacts of Adaptation

Response Form

This consultation invites responses about the SEA Environmental Report on the draft Sector Action Plans. We also welcome your comments on the draft plans. This form has two parts – the firsts asks for comments on the Environmental Report and the second asks for comments on the draft Sector Action Plans. Please use this form in responding to this consultation as it will aid our processing of the responses received.

Part 1 - Please provide your feedback on the SEA Environmental Report by completing the following sections

1.1 - Is there any other baseline or environmental information which could be used to further inform the Strategic Environmental Assessment?

Yes ☐ No ☒

1.2 - If you answered yes, please provide details and evidence to support your response.

We welcome the use of the key threats listed on the SCCIP website for each sector as a basis for assessing the sufficiency of the APs. We believe that as more knowledge emerges of the impacts and key threats of climate change and more specific detail of these is understood the baseline or starting point for action must be altered to reflect these. The UK Climate Change Impact Assessment 2012 work will be especially useful with regard to this.

In general we believe that the APs need to identify more clearly and in more detail the key environmental challenges for the sectors.

LINK and LINK member organisations are willing, where possible, to work with the Scottish Government to develop baseline knowledge of the impacts of climate change, especially on biodiversity and the natural environment.

1.3 - Do you think that the Environmental Report has fully captured the significant effects of the Action Plans?

Yes ☐ No ☒

1.4 - In your opinion has anything been overlooked?

Yes ☒ No ☐

1.5 - If you answered yes, please provide details and evidence to support your response.

General Comments

The Environmental Assessment aimed to answer two key questions:

1. Will the plan deliver sufficient measures for adaptation, taking into account projected climate change?
2. Will any of its actions inadvertently impact on other aspects of the environment?

Sufficient measures

In the majority of cases LINK does not believe that the Action Plans deliver sufficient measures for adaptation. When posed with the question 'Are these challenges addressed in the Action Pan?' too often the Environmental Assessment shows that 'The actions do not specifically target this challenge' or 'The actions do not specifically consider..'. We believe that this is because there are gaps in all of the APs and is a reflection that the APs list what is already happening in the sectors rather than identifying what needs to be done. **LINK recommends a strategic review of all APs in order to give confidence that threats identified by SCCIP and others will be addressed by sectors in the future.**

Furthermore, in Section 16 where Cumulative and Synergistic effects are considered the same question is posed but is not actually answered. Instead the document lists how some threats are addressed by multiple APs.

Impact on the environment

On the whole the environmental assessment paints a positive view of the impact of the APs on the environment. LINK broadly agrees with this assessment of the sector impacts as they are currently presented and where we have been able to provide comments. However, as already stated, **the sector AP actions, in their current form, do not provide sufficient detail to be able to confidently assess the full environmental impact.**

The wording of the assessment of impact summaries on the wider aspects of the environment are particularly brief and limited in use.

Specific Comments

Agriculture

The actions described for the Agriculture Action Plan are sufficiently vague to mean that assessing their environmental effects proves difficult in the Environmental Assessment. For example, the section on research simply states that additional research will be carried out. The policy section states that climate change will be a priority for CAP negotiations without saying how e.g. suggesting ways to better direct funds towards encouraging positive actions.

This AP is a particularly poor example of the AP not addressing the threats caused by climate change. The assessment of adaptation measures states in response to each threat that 'The actions do not specifically target this challenge'. We are disappointed that

this AP's focus is so heavy on research rather than action.

As noted in comments on the Agriculture AP, it is possible that adaptation action in the agriculture sector could lead to both positive and negative environmental (and other) impacts given the inter-relationship between agriculture and the natural environment. The Environmental Assessment (EA) assumes that most adaptation actions will be positive e.g. for biodiversity, landscape, soils etc. Whilst we agree that there will be many positive effects, we also wish to see the EA acknowledge the potential for negative effects, as we discussed more fully below. The effects on biodiversity, flora and fauna are assessed as positive while it also states that they may be positive in some cases but negative in others.

Biodiversity and Ecosystem Resilience

On the whole the environmental assessment seems fair. We believe that the assessment needs more detail if we are to have confidence that the actions will meet the challenge. Currently we feel that there is not sufficient work on the ground to do what we know can build resilience help biodiversity adapt.

The environment underpins economic and social sustainability therefore we recognise that building a healthier environment which is able to adapt to climate change will be of benefit to all other sectors.

Biodiversity and ecosystems are a significant part of Scotland's natural and cultural heritage. Therefore, we would expect the actions from the AP to positively benefit cultural heritage.

Energy

In terms of impact on biodiversity, fauna and flora, the SEA anticipates that many of the actions are unlikely to have any direct effects because they relate to research or embedding these considerations in planning and policy. However, as mentioned in our comments on the AP (below), it is vital that this research and embedding of environmental considerations into planning and policy ensures that both climate change mitigation and adaptation measures in the Energy Sector do not inadvertently damage biodiversity interests through inappropriately designed and/or sited developments.

Forests and Forestry

LINK is concerned with the listed threat "Native species may be lost as climate conditions become unsuitable for their growth, the introduction of alternative species may be required." This threat seems to imply a solution of alternative species (These alternatives may also be a threat). This is confusing.

We believe that the assessment to this threat is met by seeking alternative species that can grow better is the wrong solution. We believe it is better to develop functional connectivity between native woodlands and other habitats (which is mentioned elsewhere) which will allow species to move and adapt. The sector must further develop its thinking and guidance on provenance and our perceptions of what 'native' woodland means.

Marine

A key environmental challenge that is not addressed by the plan is noise. Charting Progress 2 (CP2) states that a projection of an increase in ocean acidity of 0.3pH units by the end of the 21st century would decrease the capacity of the ocean to absorb low-frequency noise by almost 40%. This is of serious concern for the marine biodiversity and should be considered in the framework.

Spatial Planning and Land Use

The environmental assessment states that a relevant challenge to the land use sector is food security and that no action directly responds to it. It proposes that this issue could be considered by the Agriculture Action Plan and in future updates of the Spatial Planning and Land Use Action Plan. We support this as it will be important to understand the implications of climate change for food security in Scotland. However, it is important that this issue is considered in an appropriate and wider context.

For a developed country such as Scotland, which already produces significant amounts of food and has the economic wherewithal to purchase the food it needs, food security relates to issues such as affordability and access to and confidence in, food supplies. The debate must recognise, for example, that agriculture is highly dependent on inputs such as fuel, fertilisers and feed, most of which is not produced in Scotland, and that a significant amount of food produced is wasted throughout the food chain. Food security is not therefore simply a matter of '....*considering the land use requirements for food production to meet the needs of a growing population in the long term'* although these issues are relevant.

Transport

There are potential gains for biodiversity from some of the natural solutions suggested in our comments on the Transport AP (below) e.g. SUDs, habitat restoration. These may actions within other action plans but have relevance to Transport.

Addressing the threat to the transport sector of landslides and flooding in an appropriate way is likely to have a significant positive impact on soil and water. Therefore, these should probably not be scored 'neutral' but rather positive.

Water Resource Management

Much of the assessment summary of the impact of this AP is overly vague about how measures will be delivered. It suggests a lack of commitment to going beyond the planning stage to actual implementation. Furthermore it relies heavily on other plans to deliver its objectives. If this has to be the case then the relevant sections within these plans needs to be clearly referenced and quoted.

When considering whether there will be impacts on other aspects of the environment, the Environmental Assessment says that no significant effects on biodiversity are expected and there will be potential benefits. While it is true that there are likely to be benefits, we believe that more consideration must be given to the details especially to the potential adverse effects. For example, situations are likely to arise where adaptation measures, such as managed coastal realignment is used to cope with increased flood risk. This could result in encroachment of saline habits onto freshwater Natura sites or important

freshwater habitat. These situations where habitat change may take place need to be assessed carefully and in detail.

Cumulative effects – Landscape and Cultural Heritage

LINK notes with concern that in individual sections and in the section on Cumulative & Synergistic Effects that most of the impacts on Landscape and Cultural Heritage are described as uncertain or neutral. We also note that under many of the sectoral adaptation action plans that further research is proposed to assess the impacts.

We urge Government to give greater priority to understanding the baseline quality and character of landscapes and historic environments in order to inform the environmental assessment of the action plan impact. Only in this way can appropriate weight be given to assessments and decisions on whether negative impacts should be avoided, reduced and/or how they might be ameliorated, before any action is implemented.

1.6 - Do you agree with all of the recommendations for enhancement or mitigation proposed for the Action Plans?

Yes ☒ No ☐

1.7 - If you answered no, please provide details and evidence to support your response.

The Environmental Assessments do not find any negative effects as a result of planned actions within the APs. Therefore there is no need to mitigate for these.

However, we would welcome more clarity on the timescales for further assessment of impact where actions are identified as having uncertain or mixed effects.

1.8 - Do you agree with the proposed arrangements for monitoring indentified in the Environmental Report?

Yes ☐ No ☒

1.9 – If you answered no, please provide details and evidence to support your response.

On the whole LINK agrees with the proposal to monitor the environmental impact of the APs on an annual basis. We would however, like to see the APs themselves developed further and rapidly. In order to monitor progress on AP development we would like monitoring on a 6-monthly basis.

We also recommend that each Sector Lead establishes a formal Stakeholder forum for the sector to review and develop the AP for the sector they are responsible for.

Part 2 – Please provide any comments on the content of the draft Sector Action Plans by completing the relevant section(s)

2.1 - Comments on the draft Agriculture Action Plan:

General comments

The Agriculture Draft Action Plan identifies some of the key steps that must be taken now to help Scottish agriculture - and the natural environment on which it depends - adapt to a changing climate. Encouraging a shift to more environmentally sustainable farming systems is key to climate change adaptation.

Impacts

Agriculture has a key role to play in both climate change mitigation and adaptation. Adopting certain crop and livestock production methods and soil management practices can reduce GHG emissions whilst enhancing the removal of GHG through sinks. The Scottish Government Report on Proposals and Policies sets out how the rural land use sectors will be expected to contribute to meeting the emission reduction targets established by the Climate Change (Scotland) Act 2009. We welcome the RPP although wish to see Government go further in introducing policies that will enable the targets to be met. However, even if mitigation measures begin to reduce GHG emissions as required, changes in climate are anticipated that will require significant adaptation in the agriculture sector. As the Draft Action Plan acknowledges, changes in temperature and precipitation will have major implications for agricultural production here in Scotland (and globally).

In order to continue food production, in the face of climate change, a range of adaptation strategies are likely to be adopted by the farming sector. These may include: water conservation; changes in planting dates and cultivars; changes in external inputs e.g. nitrogen; and, changes in animal husbandry e.g. housing and grazing regimes. In the longer term, there may be more significant changes in land use required including, for example, crop substitution or the cessation of certain types of crop or livestock production.

Adaptative responses to climate change in order to continue food production are likely to have far reaching environmental impacts due to agriculture's intrinsic relationship with the natural environment – its reliance on soil, air and water resources and its influence on farmland biodiversity and landscapes. Depending on the nature of the changes, impacts may be both positive and negative. For example, the Draft Action Plan notes that increasing temperatures may result in increased drought and water stress in the east of Scotland and suggests this will increase demand for irrigation. Increased rates of water abstraction for irrigation can lead to lower water tables and river flow, the destruction of wetlands and damage to terrestrial and aquatic habitats upstream and hence impact negatively on the environment. Alternative water conservation methods including collecting water from farm buildings, on-farm reservoirs and conservation tillage are likely to have fewer negative environmental impacts and may, in some cases, be environmentally positive. **Any adaptation response must therefore be considered in terms of its overall impacts, not just its potential to enable continued food production, and**

emphasis must be given to those responses which sustain both food production and the natural environment.

Actions for the Sector

We believe that adapting to climate change in the agriculture sector will be best achieved by encouraging a shift towards more environmentally sustainable farming systems. Such farming systems are, in our view, those which:

- Help sustain species in the farmed environment – including pollinators and natural predators of crop pests as well as other species such as farmland birds and the habitats they depend on
- Utilise a variety of crop types and livestock breeds to maintain genetic diversity – to increase resilience e.g. to pests and diseases and drought
- Protect and enhance carbon stores – through appropriate soil and land management practices and through the maintenance and restoration of significant soil carbon stores such as peatlands
- Minimise GHG emissions – through a range of practices e.g. improved nutrient, manure and soil management and improved crop and grazing management
- Minimise the export and impact of pollution – such as reducing nitrate and pesticide pollution and improving air quality through best practice management
- Minimise the direct and indirect effects of pesticides – through approaches such as Integrated Pest Management and an increase in organic farming
- Minimise the impact on the water environment – through water conservation methods and alternative cropping patterns, for example

In our view, greater emphasis on such farming systems (and the practices that underpin them) would begin to address the wide range of environmental problems already apparent in the agriculture sector including loss of biodiversity, diffuse pollution and soil erosion. Such systems would also, at least in part, help to respond to many of the environmental challenges for the agriculture sector identified by the Environmental Assessment (Section 4.2) such as drought, increased pests and diseases and increased flooding. Responding to current environmental problems and adapting to climate change are therefore complementary.

Organic Farming

Low carbon farming based on organic principles has a critical role to play in meeting the Government's emission targets and adaptation objectives. Organic farming should be included as a policy in the AP and as an adaptation action.

In addition to enabling primary producers to adapt to climate change, evidence promoted by the Scottish Government recognises that there are significant biodiversity, pollution control, energy efficiency, water management and soil protection benefits associated with

organic farming.

http://www.scotland.gov.uk/Resource/Doc/197434/0059181.pdf

Skills development and knowledge transfer to inform good decision making by land-based businesses are paramount in adaptation responses, and must continue to be supported through the SRDP and the structural funds. An example of this is the *Adapting to Climate Skills Programme* for farmers and growers.

http://www.soilassociation.org/Scotland/tabid/269/Default.aspx

Balancing research and action

The Draft Action Plan identifies some of the steps that can be taken now to put Scottish agriculture on a more sustainable footing and begin progress to adaptation. The Plan identifies three priorities:

- Enhancing research on agriculture and climate change adaptation
- Improving the adaptive capacity of farmers; and
- Strengthening the role of agriculture as a provider of ecosystem services

Further research is important and will enhance our knowledge and understanding of agricultural adaptation but it must not be used as an excuse for inaction between now and 2016 (the end of the next Strategic Research Programmes). We therefore welcome the action to review current research programmes to strengthen the evidence base for adaptation. However, **the Action Plan could be more specific as to how the results of research will be disseminated and communicated to end users.**

Farming for a Better Climate

Improving farmers' understanding of climate change impacts and how they can adapt is as critical as helping the farming industry reduce its GHG emissions through mitigation actions. We are therefore pleased that the Draft Action Plan includes a commitment that the Farming for a Better Climate initiative will be further developed to integrate adaptation and provide guidance and advice to farmers. However, in order to be effective this initiative will need to be adequately resourced. For example, we believe further effort will be required beyond website information, open days and Focus Farm events in order to reach all Scotland's farmers with information and advice. The Draft Action Plan should set out further advisory actions in this regard.

CAP

Information and advice provision on adaptation will not, on their own, result in the level of response needed within the agriculture sector and will need to be backed up by both appropriate regulation and incentives. The EU Common Agriculture Policy (CAP) will have a key role to play in future in relation to both climate change mitigation and adaption and in supporting the provision of ecosystem services. We welcome reference to both these in the Action Plan but call on the Scottish Government to make a clear commitment to pursuing a reform of the CAP that will deliver them. In particular, we wish to see the final Action in the Pillar 3 table amended and worded as follows: 'Support climate change adaptation ***and***

ecosystem service provision objectives during the negotiations for the EU CAP, including ***both Pillar I support*** and the Rural Development Programme, post 2013.'

We welcome the efforts made by the Scottish Government to initiate thinking on the future of the CAP and have contributed to the Inquiry into the Future Support of Agriculture in Scotland. However, the final report and its recommendations do not, in our view, set out a CAP reform proposal that will sufficiently address either climate change objectives or the provision of ecosystem services. Whilst recognising both of these as legitimate concerns for the CAP, the Inquiry has constructed a system of payments that largely ignores them and is, instead, focused on maintaining or enhancing food production in Scotland. We disagree fundamentally with the principle in the report (Section 5.2) that the more active farmers should receive the most direct support, as they face higher costs and have the greater potential to contribute to meeting global challenges. We challenge both the principle itself and the assertions that underpin it. This principle, and the proposals that flow from it, will essentially perpetuate the current system that allocates the most funding to the more intensively farmed areas in the east and south-west of Scotland and the least to the more extensive and, in many cases, High Nature Value (HNV) livestock farming systems in the north and west of Scotland. We believe this will result in the most environmentally sustainable but economically vulnerable farming systems receiving the least public support. We therefore call on the Scottish Government to reject the Inquiry recommendations and argue for a CAP better designed to meet environmental (including climate adaptation) objectives through both Pillars of the CAP.

LINK believes that the AP should present more information on how Government is working to ensure that CAP reform will help to deliver actions to increase the resilience of habitats and species in the face of climate change.

SRDP

With regard to the SRDP, we have been led to understand by Scottish Government officials that any further modifications to the current plan are unlikely. Further integrating climate change adaptation measures will therefore be a matter for the next SRDP from 2014, as suggested in the Draft Action Plan. The Action Plan should therefore set out a timetable for review and development of the next SRDP.

2.2 - Comments on the draft Biodiversity and Ecosystem Resilience Action Plan:

General comments

This AP is of particular interest to LINK. On the whole LINK welcomes this AP and its contents but we believe that it must contain more detail if it is to be of real use. It must also include more practical action now, in order to counteract the threats to biodiversity with the urgency required.

LINK welcomes the emphasis on ecological networks, the promotion of ecological connectivity and the clear reference to the negative consequences of ecosystem failure. The lack of tangible deliverables throughout the AP, however, implies a serious and

worrying lack of urgency.

We have included the principles of ecological adaptation in the background section of our response on page 2. We believe that this AP should aim to work according to these.

The Challenge

We welcome statement that the 'effects of a changing climate are already being observed' especially on biodiversity. However, we would like to see this statement reflected in the urgency of the latter actions.

The final statement in this section is too weak. We strongly believe that a 'passive approach and relying on autonomous adaptation to guide the way for the sector' will result in disastrous outcome for this sector. We believe that biodiversity and ecosystems must be carefully and proactively helped and supported if they are to adapt to climate change and deliver services.

Key Policies and Drivers

We welcome the reference to SNH's approach and action plan. It would be more helpful if the list of points covering broad areas for action was more fully discussed here, including if they aim to support adaptation or delivering ecosystem services, or both.

Impacts

This section is too brief to fully cover the threats to biodiversity and ecosystems from climate change. The 'challenge' section in the AP provides more detail. Including only Freshwater and Upland ecosystems is a very limited way of describing the threats to ecosystems. We believe this section should include a much more detailed review even if the actions are covered in other sections.

The opportunities listed are very tenuous opportunities indeed. LINK believes that the arrival and spread of a few new species into Scotland will be dwarfed by the loss of biological diversity in Scotland and the impacts on the coherence of ecosystems. Furthermore, range expansion of a species may well be mirrored by range contraction elsewhere, even if outside Scotland.

We disagree with the simple statement that ecosystem services, in the form of agricultural production, will increase as a result of climate change and present an opportunity. Farmland ecosystems are, it must be remember, heavily modified and are more complicated and interrelated than crop growth. The impact of climate change on elements of the ecosystem which support crop growth such as pollinating insects, predatory insects and soil invertebrates in not fully understood.

Actions

We welcome the list of actions in all three pillars but are concerned that they are insufficient to meet the challenge. We would like to see more action now to support the adaptation of biodiversity and ecosystems in order to reflect the urgency needed. We also recommend that this AP includes work carried out by NGOs.

We recommend the development of useable indicators of ecosystem health in addition to

the current plan to “increase knowledge”. We would suggest that this work should be a measurable outcome of the Scottish Government’s Land Use Strategy. Our experience of work with a variety of habitats and ecosystems shows that an improvement in ecosystem ‘health’ underpins ecosystem services now and in terms of environmental resilience under challenge.

The proposed action, in Pillar 2, on ecological networks will produce guidance and plans, rather than real networks. We believe that the establishment of functional, healthy ecological networks should be a clear and SMART priority for this AP.

We recommend the inclusion of a timescale for the action plan to develop the ecosystem approach into a useable set of tools for decision makers.

A recent Parliamentary answer (S3W-38949) could identify only one large scale habitat restoration project further to National Planning Framework 2. We believe that this is not adequate and LINK wishes to see further progress in identifying further areas for large-scale habitat restoration as a matter of urgency. These should be included in the actions of the AP.

2.3 - Comments on the draft Built Environment Action Plan:

LINK will not be commenting on this AP

2.4 - Comments on the draft Business and Industry Action Plan:

General comments

LINK believes that this AP is too broad in scope and too general in its summary of impacts and unspecific actions. In its current form it is itself unlikely to drive change towards the implementation of widespread appropriate climate change adaptation responses in the business and industry sector.

Impacts on the sector

LINK welcomes the list of impacts but would like to see a much more detailed list for this sector due to the huge range in variety and type of businesses this covers.

We are sceptical about the opportunities presented for the tourism industry as a result of climate change. Whilst Scotland may experience slightly warmer temperatures in summer the variability of changes in rainfall projections will not necessarily mean that Scotland’s tourism benefits greatly in the short-mid term.

2.5 - Comments on the draft Emergency and Rescue Services Action Plan:

LINK is not commenting on this Action Plan.

2.6 - Comments on the draft Energy Action Plan:

General comments

The action plan lacks clarity and detail regarding what is being proposed (over and above research).

Introduction

LINK supports efforts to minimise energy consumption and improve energy efficiency. In addition, we also support the promotion of renewable energy generation as a means to mitigate the impacts of climate change on the natural environment. However, it is essential that renewable energy is delivered in a manner which does not significantly impact Scotland's sensitive wildlife, habitats and landscapes.

Energy Generation & Transmission

LINK believes that a move to low carbon energy generation is essential to safeguard biodiversity from the worst impacts of climate change. However, inappropriately designed and/or sited developments can also cause serious and irreparable harm to biodiversity and its ability to adapt to a changing climate. A recent report by Garrad Hassan[7] suggests that Scotland can comfortably grow to exceed its future electricity needs without endangering important environmental interests through a combination of increased renewable generation, improved interconnection and moderate investments in storage and deferrable demand. In addition, the use of renewable energy generated in Scotland could itself be an adaptation response to risk of climate change impacting on the importation of fossil fuels.

In terms of impacts of climate change on the energy generation sector, existing fossil fuel based power stations and CCS developments could suffer from efficiency losses due to cooling issues. We would suggest that Combined Heat and Power (CHP) technology is utilised wherever possible in order to utilise waste heat with the effect of improving efficiency of the plant and to address cooling issues that may arise due to climate change.

Key policies and drivers for the sector

Reference should be made to the Offshore Wind Energy Plan and Regional Locational Guidance for wave and tidal energy.

[7] The Power of Scotland Secured - A summary for policy makers (2010). Available from: http://www.foe-scotland.org.uk/power-secured

2.7 - Comments on the draft Forests and Forestry Action Plan:

General comments

Overall the Forests and Forestry Action Plan (AP) appears to be largely well considered, however there is a considerable degree of vagueness in the actions and this makes it difficult to determine what the outcomes will be.

We believe that the key to ecological adaptation in this sector is through ensuring functioning forest and woodland ecosystems through establishing landscape-scale approaches and habitat networks.

Diversity

The AP blurs the distinction between woodlands and forestry. In some instances the document would be clearer if a distinction was drawn between plantation forestry and native woodlands. For example, in Part 1's summary of action needed, the AP considers the need for genetic conservation but

Is not clear if this applies to native woodlands or plantation.

The AP needs to be clear regarding the wording associated with species diversity. Almost 50% of Scotland's trees are of a single species, and LINK believes that this is the single biggest climate change threat faced by Scotland's forestry sector. The AP should be considerably clearer about this issue, and about the actions and support required to diversify species selection.

An example of a failure to act appropriately is the announcement on 11 January 2011 of a 10% increase in the support for creation of "low cost" & "high cost" conifer woodlands and "productive" broadleaf woodlands. Had Government been minded to act according to the needs for climate adaptation, it might have used this opportunity to further differentiate between "low cost" (i.e. Sitka spruce) & "high cost" (i.e. other conifers). FCS estimates that to March 2010 1996ha of low cost conifer had been approved, against a total of 174ha of high cost conifer and productive broadleaves (i.e. more than 90% of proposed & approved new plantations will be predominantly of a single species). These figures suggest that current incentives and practice are not increasing the diversity of our plantations, and that even in the light of these figures Government is not taking action to alter the incentives to redress the balance between Sitka spruce and other timber species.

Threats

The first threat listed in the AP states that "Tree species…being used on the edge of their climatic range are likely to become more vulnerable". This statement can be interpreted in two ways: ash & oak are native species on the northern edge of their range, but might actually become more robust in Scotland.

Another threat states that "Soil trafficability may reduce due to increased winter rainfall, reducing ability to undertake repeated stand management operations (such as thinning) on some soil types". We are concerned that this justifies the continuance of clear felling, without considering the impact of wetter winters on the bare ground that clearfell leaves,

or considering the desirability of making harvesting operations more attuned to weather.

Greater clarity is needed to define what is meant by “Increased leisure activities (negative & positive)”.

Action - Pillar 2

“Determine priority actions for the expansion and restoration of vulnerable woodland types, and apply this prioritisation to the allocation of support payments.” This action has a deliverable - “Rural Priorities: Woodland creation funding approval for 4385 hectares native woodlands planting in 2010”. This deliverable concerns woodland expansion with no deliverable against restoration of vulnerable woodland types. In this context, we believe that restoration should be prioritised over expansion and the deliverable expanded to reflect this with a target hectarage included.

LINK would like to see more explicit mention of the need for incentives to plant mixed species and woodlands in commercial forestry as an adaptation strategy. This will not only reduce some of the identified risks of climate change, such as the risk that increased pests and disease pose to single species plantation, but also increase provide more woodland habitat which can increase the resilience of woodland species to changes in the climate.

2.8 - Comments on the draft Health and Wellbeing Action Plan:

LINK welcomes that the Adaptation Framework is addressing the importance of health and wellbeing and considers both physical and mental health issues. In particular, proposed action to revise the Scottish Government’s Equally Well policy to further consider the health inequalities that may be caused, or exacerbated, by changes in climate is particularly welcome. It is essential that proposed and existing policies and plans undergo a process of “health inequalities proofing” to identify potential impacts on health inequalities.

The consultation paper suggests the impact of climate change may offer an opportunity to increase levels of daily physical activity for the people of Scotland. More people walking and cycling in their daily lives and decreased car use would help achieve to Government objectives to reduce obesity and greenhouse gas emissions. However, it could conceivably be argued that climactic uncertainty may also discourage active travel.

Adaptation requires actions being targeted at groups most at risk of obesity, that is, those groups with higher levels of deprivation. Likewise, decreased car use will only be achieved if efforts are targeted at substantially increasing sustainable modes of transport, including walking and cycling, and not just the wholesale replacement of combustion with electric vehicles. This would merely replace one environmental problem with another. (LINK has also addressed this issue in comments on the Transport AP).

Physical inactivity, an ageing population, obesity and the consequences of obesity will continue to be Scotland’s major health and health inequalities concerns for the foreseeable future. Adaptation to climate change should therefore continue to address

these key public health challenges.

2.9 - Comments on the draft Marine and Fisheries Action Plan:

General Comments

We are very grateful for the opportunity to be consulted on earlier drafts of this AP, and are very appreciative that some of our earlier comments have been taken on board.

LINK believes that it is essential that the AP helps us to meet our domestic, European and international obligations relating to the marine environment. In particular, successful integration with the requirements of both the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009 is vital. It should be noted that s4 of the Marine (Scotland) Act 2010 places a general duty on Scottish Ministers and public authorities when exercising any functions under the Act, to act in the best way calculated to mitigate, and adapt to, climate change. Further, s3 provides a general duty to protect, and where appropriate enhance, the health of the Scottish marine area.

Further, the AP must support the forthcoming National Marine Plan. The Marine (Scotland) Act 2010, requires the National Marine Plan to set objectives relating to the mitigation of, and adaptation to, climate change, as well as set economic, social and marine ecosystem objectives. These objectives have not yet been produced, but the framework should make clear how it will relate to, and take account of, the climate change adaptation objectives produced under the plan, and the plan itself. As currently drafted, we do not believe the AP does this.

Throughout the document there also needs to be a greater link with the findings from Charting Progress 2 (CP2) and the forthcoming State of Scotland's Seas Atlas, as well as the Marine Climate Change Impacts Annual Report Card. CP2 shows that a wide range of changes can already be observed in the marine environment which are related to climate. These include both direct physical and chemical changes, and indirect impacts on marine species and habitats. A major concern highlighted in CP2 is the lack of data available to draw robust links between climate change and impacts on marine ecosystems. It states that resolving these problems will be crucial if we are to learn how to adapt to impacts that are already inevitable. Greater research and monitoring will be essential.

As suggested on page 152, we believe that Scotland should go beyond legislative requirements to more proactively address key environmental challenges, and enhance adaptation opportunities. All three pillars of the nature conservation strategy, and the policies that implement them, including the National Marine Plan, Marine Nature Conservation Strategy and network of marine protected areas, have a vital role to play in building the resilience of species and habitats at risk from climate change impacts, by reducing other human induced pressures. It is clear healthier ecosystems will better adapt to the changes in climate.

We still believe the structure of this chapter would be improved by considering each sector individually. The current layout has led to a degree of repetition and comments in the wrong section. Looking at each sector individually could help solve these issues and our specific comments are laid out in this way to show how we believe it should be structured.

Cross cutting issues with other action plans need to be better addressed, for example protection of salt marsh and coastal defence/biodiversity/ecosystem resilience. It would be more helpful if these issues were identified, even if they were then referred for action to another group. Further, the main points from marine sectors covered in other actions plans should be summarised in this chapter. This would aid consideration of cumulative impacts and synergistic effects.

Specific Comments

The Challenge – reference is made here to the Marine Climate Change Impacts Partnership's Annual Report Cards, but reference should also be made to the assessments contained in Charting Progress 2 and the forthcoming State of Scotland's Seas Atlas. It would be useful if some of the top line findings of these reports were highlighted here to illustrate the scale of the challenge.

Aquaculture

Key Policies and Drivers - We welcome the statement regarding the need "*to develop sustainable feed sources for fin-fish aquaculture to alleviate reliance on those derived from wild capture fisheries if climate change puts greater pressure on the availability of marine fish." However,* it is essential that sustainable feed sources for fin-fish aquaculture are developed now. The pressure on wild stocks is already a major issue which will simply be exacerbated by climate change. Further, there is a need to reduce the associated carbon costs of feed production.

A pilot scale macro-algae farm is listed as a driver for the sector, but despite LINK's previous comments, there is still no mention of impacts/consequences from such biofuels.

Impacts of Climate Change (threats and opportunities) – Charting Progress 2 states that there will be major impacts on UK aquaculture beyond the current decade. In addition to increased risks of escapes and disease, rising sea temperatures could lead to an increase in the frequency of harmful algal blooms. Ocean acidification may also affect the suitability of shellfish species for farming.

We are concerned the environmental impacts of shellfish farming have been underestimated, as they are not bound by EIA regulations.

We hope the risk of damage to equipment will be mitigated by emerging technical standards and capital investment but this cannot be assumed. Technical standards must have a statutory basis and be enforced if they are to successfully mitigate these risks.

Opportunities involving new technologies and species, including micro-algae production, must be subject to stringent environmental assessment. To be truly precautionary, such assessments must be supported by increased research into innovations and their potential long term effects on ecosystems.

Actions for the sector - we reiterate our concern that there is a reliance on business to voluntarily invest in infrastructure. Statutory technical standards will be essential as a driver to ensure the industry adapts to climate change in an environmentally sensitive manner. An action must therefore be to produce and enforce technical measures.

The synergies between renewables and aquaculture should be highlighted in the 'threats and opportunities' section. An action should be to increase dialogue with other sectors where opportunities for synergy exist, and ensure the National Marine Plan enables the

exploitation of these synergies where appropriate.

Another action should be to carry out research into the environmental consequences of growing alternative fish species.

Fisheries

Key Policies and Drivers - Reference must be made to the need to ensure the sustainability of any 'enhancement of salmon and recreational fisheries', as referred to on page 141.

Monitoring, data collection, and enforcement of measures are essential to ensure commercial salmon fisheries do not undermine the resilience of marine ecosystems to climate change, or exacerbate "*an increase of marine mortality*". We also support monitoring and data collection by recreational fisheries in order to ensure their environmental sustainability.

Impacts of Climate Change (threats and opportunities) - Charting Progress 2 shows that distributions of some exploited and non-exploited North Sea fish already appear to have responded markedly to higher sea temperatures by moving northward and into deeper waters.

"New species may move into Scottish waters, providing new opportunities for exploitation" Reference must be made to the potential negative impacts of changes in species assemblage.

"There could be conflicts with other countries over access to fishing areas..." It should be made clear that this is occurring already (for example with Iceland and Faeroes over mackerel) – yet another reason why a detailed and directive adaptation framework must be put in place as a matter of urgency.

Actions for the sector – We would support a reporting system that encourages the recording of catches of exotic fish, however, its benefits should not just be related to the development of new fishing opportunities. Such a system would also enable more information on non-native invasive species and wider climate change impacts to be recorded. This should be noted here, or some link made to the statement on page 145.

It must be made clear that regionalised fisheries management systems must work in accordance with objectives set by the Scottish Government (eg the National Marine Plan and Marine Ecosystem Objectives) and by Europe (IMP, MSFD and CFP principles and requirements).

While we welcome the support for the EU commitment to MSY (and it would be useful to note the 2015 deadline for this) to improve stock resilience, there must also be a commitment to the ecosystem approach to fisheries management to ensure that fishing does not reduce the resilience of the marine environment through seabed habitat damage and bycatch of non-target species.

SEA/EIA of fisheries will ensure that these are not exacerbating the negative impacts of climate change and can help gain most benefit from new opportunities

Marine Nature Conservation

Key Policies and Drivers - It would be beneficial to expand on the '3 pillars' of nature conservation at this point. We note the three pillars are explained on page 145 but as the first reference of the system it would make sense to do it here.

'Flexible MPA networks' should be defined. We understand this to mean a network whose boundaries can adapt overtime according to the changing needs of the features they are designed to protect. We would only support changes to MPA boundaries on this basis.

There will need to be a focus on measures which help us achieve Good Environmental Status in order to meet the requirements of the Marine Strategy Framework Directive.

We strongly agree with the statement that there is a requirement to better understand both ecosystems, and ecosystem services.

We would like clarity on the reference to 'priority marine features' in this section and whether it relates to the SNH work on Priority Marine Features. If so this should be made clear. As stated in our previous comments, the recent peer review by SNH made clear that features for which climate change was considered the major threat were removed from the final PMF list on the basis that there was unlikely to be any practicable conservation measures that would mitigate against the effects. We strongly disagree with this assertion and believe conservation action must be taken for features sensitive to climate change impacts in order to build resilience and help their adaptation to the change in climate.

We are very supportive of measures to protect and build resilience in marine habitats which act as natural carbon sinks. As suggested previously, it would be beneficial to highlight interactions with other sectors, for example salt marsh and natural flood defence systems.

Impacts of Climate Change (threats and opportunities) – the second paragraph would be better placed in the 'actions' section.

Evidence from JNCC, MCCIP, SAHFOS and others shows that changes in bird breeding season and sandeel loss is already happening. This necessitates an urgent response.

Actions for the Sector – Would like clarity to understand the Priority Marine Features work and whether it relates to the SNH work. If so this should be made clear.

We would welcome a risk assessment for non-native species, but would be concerned if any cost/benefit analysis resulted in necessary measures not being taken. Reference should be made to the 'Invasive Non-Native Species Framework Strategy for Great Britain', which is Scottish Government policy. It states that '*Invasive non-native species of flora and fauna are considered the second biggest threat after habitat loss and destruction to biodiversity worldwide and the greatest threat to fragile ecosystems such as islands*." It is also well established that prevention is the most cost effective way of dealing with Invasive non-native species (INNS). As stated in the INNS Framework '*The* [Millennium Ecosystem Assessment] *also notes that control or eradication of an invasive species once it is established is often extremely difficult and costly, while prevention and early intervention have been shown to be more successful and cost-effective*.'

We reiterate that we would only support changes to the MPA network where they are based on the changing needs of the features they are designed to protect.

Marine Planning

Key Policies and Drivers - The statutory basis of the objectives relating to the mitigation of and adaptation to climate change that will be included in the national marine plan could be made much clearer.

The National Plan should not just provide an opportunity to highlight the importance of climate change mitigation and adaptation, it should help plan for it. Whilst we acknowledge both these documents are still in draft, as they are currently drafted there needs to be a much greater tie in and coherence between these two documents.

The National Marine Plan must consider **all** uses of the sea in the context of climate change. All uses of the sea have the potential to be affected by climate change and the National Plan will have to address this. Renewables and carbon capture and storage are relevant to climate change mitigation. It should also be noted that impacts of subsea storage of carbon are not fully understood, and the licensing regime is not yet in place.

It should also be noted that Marine Planning forms a central role in the 'wider seas measures' pillar of the 3 pillar approach to nature conservation.

Impacts of Climate Change (threats and opportunities) – This section looks more at 'actions' than 'threats and opportunities'. Threats for marine planning are changing environments making plans and interactions incompatible or inappropriate. An opportunity is for marine planning to manage interactions and consequential changes that are anticipated to result from climate change.

Actions for the Sector – There do not appear to be any actions for marine planning. Actions should include national and regional planning for all activities, and managing their interactions in the context of climate change; establish how the climate change objectives under the Marine (Scotland) Act will interact and relate to the adaptation framework; and ensure that as a central part of the 'wider seas' pillar of the 3 pillar approach to nature conservation, marine planning protects, and where appropriate, enhances the health of the Scottish marine area, building resilience in vulnerable species and habitats by removing further human induced pressures and protecting natural marine carbon sinks such as salt marsh, sea grass beds and kelp forests.

Part 2 – List of Current and Planned Actions

Pillar One - Marine Biodiversity – LINK recommends that research and projects carried out by NGOs is utilised and referenced in the AP, for example Marine Conservation Society's Seasearch project.

We would like to see which of these work streams is considering cumulative impacts as this is a very important consideration.

Pillar Two - State of Scotland's Seas Atlas – the Atlas should consider ecosystem goods and services, including those with Indirect and Non-use Value. As stated earlier this will help us meet our domestic, European and international obligations.

Pillar Three - Marine (Scotland) Act 2010 – We would like to see reference made to the need for the MPA network to proactively build ecosystem resilience.

2.10 - Comments on the draft Spatial Planning and Land Use Action Plan:

General Comments

We agree with the challenge set out in this Action Plan in relation to land use. In particular, we agree that, '...*The goal for decision makers should be sustainable land use that optimises economic, social and environmental returns*.' We do not agree however that, '*Detailed proposals for a sustainable land use agenda are outlined in the Scottish Government's Draft Land Use Strategy*.' We find the current draft insufficiently detailed and lacking in clear proposals, policies and timescales for delivery and have called on the Scottish Government to strengthen it significantly before it is laid before Parliament.

We also agree that spatial planning is important and consider that the Land Use Strategy should include spatial perspectives to help identify the opportunities and constraints in relation to land use at regional level and provide a starting point for considering land use conflicts and complementarities. We have suggested that, in the longer term, the national Strategy should be accompanied by regional land use strategies.

Key policies and drivers for the sector

The document states that the National Planning Framework and the Land Use Strategy together '...*consider the land-use aspects of sustainable development and economic growth, offering a strategic policy framework for addressing climate change adaptation*'. We agree that this should be the case but consider that the relationship between the NPF2 and the LUS is currently unclear and needs to be addressed. Together, we believe these two documents should set the direction for other plans, programmes and strategies relevant to land use, particularly for major land use sectors and activities such as agriculture, forestry, nature conservation and recreation.

LINK believes that Scotland has good policies on climate change (both mitigation and adaptation) in the NPF, Scottish Planning Policy and in many development plans. However, we are concerned that when making decisions on individual projects, decision makers are often not brave enough to make them in accordance with these policies. We wish to see examples of developments, such as the replacement forth crossing or housing developments on floodplains, assessed carefully with decisions made according to the policies agreed in these high-level documents.

Action

The Draft Action Plan states that '*The LUS will set out proposals and policies for sustainable land use which will support the objectives of the Adaptation Framework'*. There is however little reference in the LUS to climate change adaptation – as opposed to mitigation – and it is therefore difficult to see how it supports the Adaptation Framework. If this Action is to stand there needs to be better cross referencing and greater complementarity between the two.

2.11 - Comments on the draft Transport Action Plan:

General comments

The AP makes little mention of how natural solutions can be used to help the Transport Sector adapt to many of the predicted impacts of climate change. Natural solutions can be cost effective and provide multiple benefits. For example:

- Increased flooding on the road / rail network could be eased by adopting Sustainable Urban Drainage Systems (SUDS) and habitat restoration.
- Increased risk of erosion and landslides could be mitigated by habitat creation and restoration, especially higher up a catchment.
- Sea level rise (which affects shipping, etc) will result in increased flood risk and some loss of intertidal and coastal habitats. Cost effective natural solutions can help Scotland adapt to this. For example managed costal realignment projects can provide new habitat and also help manage the risk associated with high tides and potential flooding.

In response to the Scottish Government's plans for a low carbon economy, the AP should also consider the indirect impacts on our capacity to adapt as a result of planned large-scale climate change mitigation solutions, such as the electrification of the transport sector.

We would like to see the evidence to support the statement on page 167 regarding impacts of climate change for the sector - *"At the same time, transport mitigation actions, such as more cycling and walking, and increases in recreation and tourism, should increase the number of people using the public transport system."* We agree with the need to address the adaptation impacts of mitigation actions but we do remain to be convinced that there is a causal link between increases in cycling, walking, recreation and tourism and an increase in public transport use. Rather, increases in tourism and recreation may actually increase private car use.

2.12 - Comments on the draft Water Resource Management Action Plan:

General Comments

Overall, the AP needs to be more strategic and set out more clearly. It is difficult to identify gaps in the plan as the format is inconsistent. It sets out what is already happening rather than taking a strategic look at how adaptation could and should be addressed.

Impacts of climate change for the sector (threats and opportunities)

On a positive note, we believe that the plan does include the key issues relating to climate change impacts on water resources. However, the section on threats and opportunities doesn't identify opportunities. More needs to be included on how management of land and water can help us to cope with climate change e.g. implementing natural flood management measures to cope with increased flood risk - habitat management measures that reduce nutrient run-off thus lowering impact of 'reduced dilution' during low flows. We feel that this whole section could be clearer and suggest that it be summarised in a table.

Key Policies and Drivers for the Sector

This section fails to give a clear and comprehensive review of the key policies and drivers. For example, there is no mention of invasive non-native species which impact on the water environment and Water Framework Directive (WFD) objectives. An Invasive non-native species (INNS) plan is now in place as a supplementary plan to the River Basin Management Plan (RBMP) and this needs to be mentioned here.

The 'Water Efficiency' section should be expanded to take into account the huge role that the water industry can have in climate change adaptation. Discussion on the next investment programme (Quality & Standards IV which runs from 2015 to 2025) is already underway and much needs to be done to ensure that climate change adaptation is properly integrated into this programme.

LINK believes that creating communities more resilient to flooding should not just mean preparing existing residents. It must include more sound planning which takes into account all the consequences of the effects of housing and other developments in terms of more rapid precipitation run-off which can affect other communities downstream. Poor decisions in the past are largely responsible for difficulties in the present. Preparedness means planning, not just for immediate threats but to prevent further ones.

Actions for the sector

Similarly, we feel that this section is not clear and comprehensive. For example, while RBMPs are mentioned in Pillar 1, there is no mention of them in Pillar 3 (and they should be there). This action plan is a list of what is already happening or is planned rather than a strategic analysis to identify gaps and what needs to happen.

Pillar 1

- *Improved integration of climate change issues in RBMP* - This is much needed as there is no integration in current plans. It presents an opportunity to realise multiple benefits as many of the necessary actions can deliver more than one result - but only if this is clearly understood and written into the fabric of any plans. We suggest that future commitment is needed to monitor and assess the effects that climate change is having on water quality.

- *Investing in demonstration projects* – greater collaboration and dialogue is required between the people outlined in the delivery section. For example, immediate consideration should be given to how the Scottish Water Sustainable Land Management fund can be used to get land management underway to deliver multiple benefits, including climate change adaptation.

- Overall, this section highlights that various organisations and bodies intend to monitor climate change effects for different means e.g. SEPA's flood assessments, and Scottish Water exploring effects on the sewerage network. We believe that the Scottish Government must be responsible for collating, co-ordinating and sharing all the data that is being gathered, for all sectors including the water sector.

Pillar 2

- Water Resource Management Plans are proposed to consider how we cope with

reduced rainfall in future. These plans should cover aspects of climate change impacts. The content and quality of these will be important and we hope that there will be full engagement and consultation with stakeholders on the content of these.

- RBMPs should be included in this section.
- We welcome the proposal to reduce water leakages. However, it is proposed to reduce leakage to the Long Run Economics Level of Leakage (i.e. the level below which it would be more costly to fix the leaks than the benefits gained from doing so). We would argue that the method used to determine ELL needs to adequately value environmental costs and benefits including those associated with climate change. This should bring the ELL down to levels which would be favourable from a climate change adaptation perspective.
- *Develop an investment plan to address adaptation needs of water infrastructure* – this is welcome but needs to properly consider methods that are wider than Capital Expenditure e.g. sustainable land management.

Pillar 3

- The proposal to promote water efficiency is welcome. Water conservation and water use efficiency is a crucial step but we must reiterate the need to reduce leakage. Together these steps have the potential not only to reduce abstraction, thus helping to protect water environment, but also climate change adaptation and mitigation (as Scottish Water are the biggest energy users in Scotland and thus reducing leakage/ abstraction will be positive for Scotland's GHG balance).
- RBMPs need to be included here, as do the RBMP supplementary plans such as the INNS plan.

2.13 - Please provide any additional comments you have on the draft Action Plans:

Please see our General Comments outlined at the start of our response to the consultation.