Dear Roseanna,

SCOTLAND’S CLIMATE CHANGE ADAPTATION PROGRAMME – COMMITTEE ON CLIMATE CHANGE INDEPENDENT ASSESSMENT

I am writing to thank you and your officials for giving evidence to the Environment, Climate Change and Land Reform (ECCLR) Committee on 25 October 2016¹. The Committee welcomed the opportunity to discuss its recent work on climate change with you. This correspondence contains the conclusions of the Committee’s consideration of the Committee on Climate Change Adaptation Sub Committee’s (ASC) independent assessment² of the Scottish Climate Change Adaptation Programme (SCCAP)³.

Upon the publication of the ASC’s independent assessment on 27 September 2016, the ECCLR Committee took evidence⁴ from the chair of the ASC, Lord Krebs, Chief Executive of the CCC, Matthew Bell and Ece Ozdemiroglu, Member of the ASC. On 4 October 2016⁵, the Committee convened a panel of stakeholders to provide views on the ASC report.

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¹ Environment, Climate Change and Land Reform Committee, Official Report, 25 October 2016
² Committee on Climate Change, Scottish Climate Change Adaptation Programme: An Independent Assessment, 27 September 2016
³ Scottish Government, Climate Ready Scotland Scottish Climate Change Adoption Programme, 29 May 2014
⁴ Environment, Climate Change and Land Reform Committee, Official Report, 27 September 2016
⁵ Environment, Climate Change and Land Reform Committee, Official Report, 4 October 2016
The Committee welcomes the acknowledgement of the ASC of the “positive start” made in Scotland and that the Scottish Government is “taking climate adaptation and resilience seriously”.\(^6\)

Natural Environment

*Biodiversity – data and monitoring*

A common thread throughout the Committee’s consideration of climate change was a lack of evidence and monitoring, a theme I shall return to. In evidence to the Committee, Lord Krebs stated the areas in which there was a lack of data on the impact of climate change on biodiversity were the carbon content of agricultural soils, the marine environment, peatlands and the impact on iconic species. He further added\(^7\) “the general conclusion that we have reached on the basis of the available literature is that if habitats, whether freshwater, marine or terrestrial, are in good ecological condition, however that is defined, they will be resilient to climate change”. The Scottish Wildlife Trust\(^8\) and Dr Anna Moss\(^9\) of the University of Dundee noted the lack of data on the impact on species and habitats, with the Scottish Wildlife Trust also highlighting their concern at the lack of progress implementing\(^10\) the ecosystem health indicators.

The Committee looks forward to the Scottish Government’s progress report on the SSCAP and its response to the ASC report in May 2017, and seeks assurances this will address the specific areas of Scotland’s biodiversity highlighted by the ASC and stakeholders as being under-researched. The Committee would welcome your view on the status of the ecosystem health indicators, and information on how progress on the implementation of these will be achieved.\(^11\)

*Biodiversity - Scotland’s marine and coastal environment*

In evidence to the Committee, Ece Ozdemiroglu suggested the priorities\(^12\) for ensuring Scotland’s biodiversity can adapt to the impacts of climate change should include the marine environment. She also added research into the impact of climate change on marine ecosystems should be a priority research area, and Lord Krebs observed\(^13\) the international collaborative research

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\(^6\) Environment, Climate Change and Land Reform Committee, *Official Report*, 27 September 2016, Col 3
\(^7\) Environment, Climate Change and Land Reform Committee, *Official Report*, 27 September 2016, Col 6
\(^8\) Environment, Climate Change and Land Reform Committee, *Official Report*, 4 October 2016, Col 3
\(^9\) Environment, Climate Change and Land Reform Committee, *Official Report*, 4 October 2016, Col 4
\(^10\) Environment, Climate Change and Land Reform Committee, *Official Report*, 4 October 2016, Col 4
\(^11\) The First Progress Report on Scotland’s Biodiversity: A Route Map to 2020 notes insufficient progress has been made on this target. Scottish Government, 28 September 2016.
\(^12\) Environment, Climate Change and Land Reform Committee, *Official Report*, 27 September 2016, Col 5
\(^13\) Environment, Climate Change and Land Reform Committee, *Official Report*, 27 September 2016, Col 8
resource required with regard to the impact on the marine food chain. The Scottish Wildlife Trust suggested Marine Protected Areas (MPAs) should be managed and monitored to “enable us to see whether they are helping with the recovery of our seas.” \(^{14}\)

The ASC recommend\(^{15}\) a long term target be set by the end of 2017 for intertidal habitats with accompanying delivery mechanisms as there is currently “no national long-term vision of plan”\(^{16}\) for this. In evidence to the Committee, Ece Ozdemiroglu said\(^{17}\) solutions which addressed more than one pressure should be sought for coastal habitats, while Matthew Bell outlined\(^{18}\) the complexities of managed realignment.

On 25 October, you were asked about the ASC comment on a lack of “national vision”\(^{19}\) with regard to marine adaptation and the recommendation the Scottish Government should set a target for intertidal habitat by the end of 2017. \(^{20}\) You stated “In order to develop the policy that is needed, we need to do the research that we are currently doing, which will give us the information that will allow us to begin to see what is required.” \(^{21}\)

The Committee anticipates the Scottish Government’s response to the ASC report in its progress report of May 2017 and looks forward to seeing how recommendations for Scotland’s marine environment are taken forward.

The Committee supports the ASC recommendation of a target for intertidal habitats by 2017 and seeks details of the national coastal change assessment including timescales for completion, whether this would be in time to contribute to the development of a target and how this assessment will contribute to the Scottish Government’s response to the ASC.

The ASC stated\(^{22}\) in its report:

“Many rivers and lochs are still not in a good ecological condition. 38% of surface waterbodies and 22% of groundwater bodies continue to suffer from persistent adverse pressures such as diffuse pollution, physical modification,

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\(^{14}\) Environment, Climate Change and Land Reform Committee, *Official Report*, 4 October 2016, Col 5

\(^{15}\) Committee on Climate Change, *Scottish Climate Change Adaptation Programme: An Independent Assessment*, 27 September 2016, Chapter 2, Natural Environment, Page 38

\(^{16}\) Committee on Climate Change, *Scottish Climate Change Adaptation Programme: An Independent Assessment*, 27 September 2016, Chapter 2, Natural Environment, Page 37

\(^{17}\) Environment, Climate Change and Land Reform Committee, *Official Report*, 27 September 2016, Col 15

\(^{18}\) Environment, Climate Change and Land Reform Committee, *Official Report*, 27 September 2016, Col 16

\(^{19}\) Environment, Climate Change and Land Reform Committee, *Official Report*, 27 September 2016, Col 16

\(^{20}\) Committee on Climate Change, *Scottish Climate Change Adaptation Programme: An Independent Assessment*, 27 September 2016, Executive Summary, Page 18


\(^{22}\) Committee on Climate Change, *Scottish Climate Change Adaptation Programme: An Independent Assessment*, 27 September 2016, Chapter 2, Natural Environment, Page 37
over-abstraction and invasive species. Climate change is likely to exacerbate many of these pressures, particularly during periods of low (and high) flows.”

The Committee is concerned at the proportion of Scotland’s water bodies which are not in good ecological condition and, in particular, the rate of progress of improvement.23

**The Committee would welcome the Scottish Government's views on how this can be accelerated and the role of Scottish Water and Scottish Environment Protection Agency (SEPA) in this work.**

**Agriculture**

Currently, action in this area places a significant focus on voluntary approaches, for example through the Farming for a Better Climate24 initiative. The CCC previously told25 the Committee this required better monitoring and evaluation, noting it could not be made compulsory if there was no evidence it was not working. In questioning on a voluntary approach with regard to adaptation, Lord Krebs and Matthew Bell highlighted financial incentives for action were also available, citing the Common Agricultural Policy as an example. On the voluntary approach, Matthew Bell repeated the assertion “If we had evidence that sufficient progress was not being made, that would allow us to say that it was time to rethink and to move forward with different levels of measures. However, right now the evidence base is patchy so we are trying to draw conclusions from a patchy evidence base”.26

**Soil quality and fertility**

Ece Ozdemiroglu suggested the priorities27 in terms of ensuring Scotland’s biodiversity can adapt to the impacts of climate change should include soil quality. Lord Krebs highlighted the decline in soil quality and Matthew Bell emphasised28 the Scottish Government’s ambitions on soil quality, while also noting the need for robust monitoring and the establishment of a baseline for future data gathering. Ece Ozdemiroglu noted that the current risk to soil was presented geographically, rather than highlighted by sector stating “it seems that the middle of the east coast is at the highest risk of soil erosion”. Lord Krebs29 outlined the impact of farming practices around the UK on the quality of soil, linking this to a need to consider how resources were used to future proof viability. Lord Krebs said “It is a UK-wide problem—and probably a beyond UK-wide problem—that current farming practices are essentially

23 Committee on Climate Change, Scottish Climate Change Adaptation Programme: An Independent Assessment, 27 September 2016, Chapter 2, Natural Environment, Page 51
24 Scottish Government, Farming for a Better Climate
25 Environment, Climate Change and Land Reform Committee, Official Report, 13 September 2016, Col 19
26 Environment, Climate Change and Land Reform Committee, Official Report, 27 September 2016, Col 10
27 Environment, Climate Change and Land Reform Committee, Official Report, 27 September 2016, Col 5
28 Environment, Climate Change and Land Reform Committee, Official Report, 27 September 2016, Col 9
29 Environment, Climate Change and Land Reform Committee, Official Report, 27 September 2016, Col 10
mining natural capital as though it was a depleting resource rather than husbanding it for the long-term future”.

Stakeholders told the Committee the benefits of good soil quality spanned various sectors, bringing economic, environmental, climatic and agricultural advantages. Both the ASC and stakeholders told the Committee public subsidies should not fund activities which reduced the quality of soil. They emphasised the importance of working with landowners to promote the profitability of maintaining good soil. The National Trust for Scotland advocated the structure of the agricultural industry would have to be considered with regard to behaviour change and Dr Anna Moss described the effects of more intensive farming on land as a result of climate change as a “worry”.

The ASC recommended further action be taken to maintain soil quality and that an action plan should be published before the next SSCAP. You informed the Committee that compulsory soil testing will be contained within the draft Climate Change Plan.

The Committee welcomes confirmation that compulsory soil testing will be contained within the draft Climate Change Plan and requests details of the additional work the Scottish Government anticipates undertaking to maintain soil quality, of the timing of the subsequent consultation and how this will interact with the publication of the final Climate Change Plan.

**Peatlands**

In its report, the ASC stated wider action was required to restore peatlands and such action should be monitored. It also recommended a target should be set by the end of 2017 for the area of peatland to be under restoration in 2030, with a corresponding evaluation and monitoring framework. The ASC also noted the lack of targets in the Scottish Government’s Peatland Action Strategy and the consequent lack of analysis of efficacy. The panel from the ASC emphasised the importance of peatlands, with particular regard to the variety of affected areas such as climate change mitigation and adaptation, habitats and soil fertility. The ASC report states “It has been estimated that an average of 1,400 ha of degraded peatland was restored per year between 1990 and 2012. The area under restoration is thought to have increased since 2012, to between 3,000 and 6,000 ha per year”.

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30 Environment, Climate Change and Land Reform Committee, *Official Report*, 4 October 2016, Col 9
31 Environment, Climate Change and Land Reform Committee, *Official Report*, 4 October 2016, Col 10
32 Committee on Climate Change, *Scottish Climate Change Adaptation Programme: An Independent Assessment*, 27 September 2016, Chapter 2, Natural Environment, Page 38
34 Committee on Climate Change, *Scottish Climate Change Adaptation Programme: An Independent Assessment*, 27 September 2016, Chapter 2, Natural Environment, Page 36
35 Committee on Climate Change, *Scottish Climate Change Adaptation Programme: An Independent Assessment*, 27 September 2016, Chapter 2, Natural Environment, Page 38
36 Committee on Climate Change, *Scottish Climate Change Adaptation Programme: An Independent Assessment*, 27 September 2016, Chapter 2, Natural Environment, Page 47
Crichton Carbon Centre emphasised the need for improvements to access to funding to meet the restoration levels cited in the Low Carbon Plan (RPP2) of 21,000 hectares per annum. While the ASC highlighted a positive uptake of the existing funding schemes, it questioned whether such funding would be forthcoming in the future. In evidence to the Committee, you suggested you were “looking at the potential for peatland restoration to be moved up to policy status in the climate change action plan”. You also noted research was being undertaken on the carbon benefits of peatland restoration and will be published next year.

Matthew Bell referenced Scotland’s tree planting targets with regard to peatland and noted the two targets should not negatively impact on one another and it is essential trees are not planted on deep peatland. Dr. Emily Taylor concurred there were conflicting uses of land which would “have to be considered if we are seeking to restore 21,000 hectares a year.” The Scottish Wildlife Trust demonstrated the scale of the potential and challenge of restoration.

The Committee set out a series of recommendations on funding for peatland restoration to you in its correspondence of 25 November 2016 following its work on progress towards 2020 goals for biodiversity. These were to: undertake an analysis of future funding requirements; set out a five-year funding projection; provide certainty of funding for that period; and establish a programme of practical advice and education to support land managers and encourage peatland restoration. We look forward to your response.

The Committee considers the ASC recommendations on peatland to be significant to a number of areas within its remit and seeks assurance that an ambitious peatland restoration target for 2030, along with a robust evaluation framework, to be set by the end of 2017 will be included as a policy in the draft Climate Change Plan. The Committee also requests confirmation of when the research on assessment of the carbon benefits of peatlands will be published and, if this is to be after the conclusion of Parliament’s consideration of the draft Plan, how this research will inform the final Plan and by what mechanism will Parliament be able to consider the contribution of this research to the plan.

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37 Environment, Climate Change and Land Reform Committee, Official Report, 4 October 2016, Col 5
39 Committee on Climate Change, Scottish Climate Change Adaptation Programme: An Independent Assessment, 27 September 2016, Chapter 2, Natural Environment, Page 47
40 Environment, Climate Change and Land Reform Committee, Official Report, 25 October, 2016, Col 41
41 Environment, Climate Change and Land Reform Committee, Official Report, 27 September 2016, Col 12
42 Environment, Climate Change and Land Reform Committee, Official Report, 4 October 2016, Col 6
43 Environment, Climate Change and Land Reform Committee, Official Report, 4 October 2016, Col 7
44 Letter to the Cabinet Secretary for Environment, Climate Change and Land Reform on its Inquiry into Biodiversity Progress to 2020, 25 November 2016.
Forestry

The ASC recommended further action in restoring native woodland, and the Forestry Commission Scotland should consider additional action to manage disease and increase species diversity.\(^{45}\) Throughout its evidence sessions, the Committee heard of the “need to strengthen our natural environment’s ability to adapt to what might be the potential impact of climate change”\(^{46}\) with regard to forestry. The issues of importing plant matter, ensuring variety of species within woodlands and forests and considered management were all important considerations in the ambition to plant more trees. Lord Krebs\(^ {47}\) and Matthew Bell told the Committee there was a need to establish a “good research base in tree pathology” when considering tree planting targets and reforestation. Witnesses commented on the importance of variety of species to protect against disease, as well as posing questions on the import of plant materials. Matthew Bell spoke of Scotland’s forestry advantages in terms of carbon sinks but, while noting how to mitigate emissions was a decision for the Scottish Government, suggested renewed attention be paid to missed tree planting targets.\(^ {48}\) In evidence to the Committee, you emphasised the importance of considered management to support the planting of trees and regeneration of forests.\(^ {49}\)

The Committee notes the Scottish Government has committed to a revision of the Scottish Forestry Strategy and looks forward to seeing the actions proposed to ensure tree-planting targets are met, without negatively impacting on other areas such as peatland.

The Committee sought your view on the actions required to restore native woodland in its correspondence\(^ {50}\) of 25 November 2016 following its work on progress towards 2020 goals for biodiversity and looks forward to your response.

Land Use Strategy

The Land Use Strategy was published in March 2016 and the Committee was presented with consistent evidence of where the strategy could, but does not, confront issues connected with mitigating and adapting to climate change. Matthew Bell said resolution of competing interests in land could come from an effective land use strategy.\(^ {51}\) The Scottish Wildlife Trust suggested an effective land use strategy would prevent conflict between areas such as


\(^{48}\) Environment, Climate Change and Land Reform Committee, [Official Report](https://www.parliament.scot/site/pdf/est/2016/2017-2243.pdf), 27 September 2016, Col 14


\(^{50}\) Letter to the Cabinet Secretary for Environment, Climate Change and Land Reform on its Inquiry into Biodiversity Progress to 2020, 25 November 2016.

\(^{51}\) Environment, Climate Change and Land Reform Committee, [Official Report](https://www.parliament.scot/site/pdf/est/2016/2017-2243.pdf), 27 September 2016, Col 15
peatland restoration and tree planting\textsuperscript{52} and the National Trust for Scotland suggested strategies connected with land use, including the Land Use Strategy, the biodiversity strategy and the national planning framework, were not integrated.\textsuperscript{53}

The status of the strategy with regard to planning was also raised and the need for actions to adapt to climate change to be joined up was also emphasised, indicating the role for the land use strategy, particularly around natural preventative measures for flooding. I took the opportunity on 16 November 2016 to ask the First Minister for her views on the issue at a meeting of the Conveners' Group\textsuperscript{54} and she noted detail of how the Scottish Government will report on progress on the Land Use Strategy will be published by the end of the year.

Your evidence to the Committee suggested there was potential for the Land Use Strategy to support the coordinated working the Committee believes is required, based on the evidence heard, but the consideration of the application of the strategy has not been developed\textsuperscript{55}.

Matthew Bell stressed\textsuperscript{56} the importance of approaching place based issues from a number of perspectives in response to questions about health and stated "we are making the point about the risk of viewing many of the issues in silos, with the air pollution problem and the risk of premature death from that pollution in one silo, adaptation in another silo and flood risk in another. However, if you bring together some of the issues, whether that be urban green spaces or some of the coastal defences that we were talking about, you bring together the health, adaptation, resilience and mitigation impacts. In that context, you can make sure that local bodies, which are very short of financial resources, make the most efficient use of the resources that they have by looking across the piece and seeing where they can get multiple gains from a single action. That is even more important with the constraints that exist today."

The Committee considers the Land Use Strategy should provide an overarching framework and believes there are many applications and benefits to be obtained from a cohesive approach. It seeks the Scottish Government’s view on the evidence heard regarding the operation of the land use strategy, and its integration with other Government plans. The Committee looks forward to seeing how the Scottish Government will report on progress of this strategy and to considering future reports.

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\textsuperscript{52} Environment, Climate Change and Land Reform Committee, \textit{Official Report}, 4 October 2016, Col 7
\textsuperscript{53} Environment, Climate Change and Land Reform Committee, \textit{Official Report}, 27 September 2016, Col 4
\textsuperscript{54} Conveners Group, \textit{Parliament TV}, 16 November 2016
\textsuperscript{55} Environment, Climate Change and Land Reform Committee, \textit{Official Report}, 25 October 2016, Col
\textsuperscript{56} Environment, Climate Change and Land Reform Committee, \textit{Official Report}, 27 September 2016, Col 27
Built Environment

Flooding – Assessment of Risk and Funding

In evidence to the Committee, the ASC expressed the difficulties in assessing risk as climate change made this a “moving target”\(^{57}\). In the Flood Risk Management Plan for Scotland\(^ {58} \) published in January 2016, the Scottish Government estimated climate change would bring an “additional 60,000 properties into flood risk by 2080, although the actions described in the Flood Risk Management Strategies will work in the opposite direction, avoiding some future flood risk and reducing our current exposure”.

In its report, the ASC noted the lack of long term forecasting of flood risk management investment needs\(^ {59} \) and suggested this be done in order to ensure the next flood risk management strategies contain plans which will be beneficial in the long term. In June, you informed the Committee areas at risk of flooding were “under review all the time” and that:

“There is and will always be a continuing need to target resources at those areas that are most at risk. We do not have the get-out-of-jail-free card of an unlimited amount of money to spend everywhere as and when, so we are constantly looking at and revising the areas that are most at risk to ensure that the bulk of the resources are targeted directly to those. Nevertheless, I understand that, although the recent funding round is skewed towards those areas that are most at risk, that is not to say that money is not available to all the other local authorities—even those that do not currently have areas that are considered to be at risk.”\(^ {60}\)

The Committee looks forward to the Scottish Government’s response to the ASC report and the recommendation on long term flood risk investment planning. The Committee believes this to be particularly important as the Scottish Government’s assessment of the number of properties to be considered at risk by 2080 is subject to change depending on global efforts to mitigate climate change. In particular, the Committee would welcome an assessment from the Scottish Government of the net impact of the Flood Risk Management Strategies on total properties likely to be at risk by 2080.

The ASC report states 90% of at-risk properties are not covered by flood defences\(^ {61} \). In evidence, Lord Krebs and Matthew Bell commented on the small number of local authorities which promoted property-level protection.

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\(^{57}\) Environment, Climate Change and Land Reform Committee, *Official Report*, 27 September 2016, Col 17


\(^{59}\) Committee on Climate Change, *Scottish Climate Change Adaptation Programme: An Independent Assessment*, 27 September 2016, Chapter 3, Buildings and Infrastructure Networks, Page 79

\(^{60}\) Environment, Climate Change and Land Reform Committee, *Official Report*, 28 June 2016, Col 17

\(^{61}\) Committee on Climate Change, *Scottish Climate Change Adaptation Programme: An Independent Assessment*, 27 September 2016, Chapter 3, Buildings and Infrastructure Networks, Page 79
measures and the uptake of such schemes\textsuperscript{62}. Summarising the conclusions of several points made by the ASC, Lord Krebs noted responsibility for flood prevention was shared by a range of actors, from the UK and Scottish Governments through to individual householders\textsuperscript{63}. Dumfries and Galloway Council informed the Committee of the success it had in property protection and working directly with individuals. You also noted the range of stakeholders with a responsibility for prevention from flooding and said “There is an enormous conversation to be had about that, and I do not think that we are at the point at which everybody has understood and bought into that responsibility”\textsuperscript{64}.

The Committee requests detail of action taken by the Scottish Government to promote the collaborative approach the Committee heard was required.

The Committee was unclear as to whether the Scottish Government view on the position of those who do not have means to privately protect their property and who live in an area where there is no local authority support for this. The Committee considers it difficult for individual businesses and householders to instigate preventative measures, which could achieve savings in the long run for local authorities, where they do not have the funds do so and it appears there is an inconsistency of opportunity around the country.

The Committee would welcome your views on the level of subsidies provided for individual property defence and whether you believe it to be conceivable and acceptable, in light of evidence on the cost effectiveness of preventative measures, some individuals may not have the means nor access to local authority support to implement measures which could represent longer term savings to the public purse in the case of a flooding incident. The Committee requests comment on this particularly as the Committee heard there are properties which have not been identified as vulnerable which have experienced flooding and there is an emphasis in the evidence you gave on the need for individual responsibility.

Lord Krebs told\textsuperscript{65} the Committee there was a variance of approach in local authorities to the issue of resilience to climate change and different levels of service across the country, for example for flooding, could be attributed to differing priorities, rather than lack of overall resource.

The Committee requests your views on this comment from the ASC.

Lord Krebs highlighted the importance of ensuring remedial works to properties in the wake of flooding disasters should not just be restorative, but improve the defence of such buildings to future flooding risk. Dr Anna Moss of

\textsuperscript{62} Environment, Climate Change and Land Reform Committee, \textit{Official Report}, 27 September 2016, Col 20

\textsuperscript{63} Environment, Climate Change and Land Reform Committee, \textit{Official Report}, 27 September 2016, Col 21

\textsuperscript{64} Environment, Climate Change and Land Reform Committee, \textit{Official Report}, 25 October 2016, Col 29

\textsuperscript{65} Environment, Climate Change and Land Reform Committee, \textit{Official Report}, 27 September 2016, Col 23
the University of Dundee highlighted the work undertaken by ClimateXChange to provide evidence on the costs for local authorities of reacting to flooding incidents as opposed to costs of preventative work. Responsive funding allocated to communities affected by flooding in January 2016 included a local business and household grant which could be used to flood-proof buildings.

The Committee acknowledges the use of this grant was a decision for the proprietor but is interested to know whether there has been any assessment or evaluation of how this fund was used across Scotland with a view to sharing best practice and informing future strategies for adaptation to climate change related flooding. The Committee would also like to know what assessment has been undertaken of the use Local Authorities have made of any surplus finds, specifically if and how these have been used to support flood related preventative, repair or adaptation work.

*Flooding – prediction*

Throughout the Committee’s deliberations, the issue of prediction of flooding events and the coverage of MET Office High-Density Radar across the UK was considered. *In June, you undertook to raise the issue with the MET Office and the Committee looks forward to receiving a response on the outcome of this discussion.*

*Flooding – Planning*

Throughout its consideration of the issue of climate change adaptation, the Committee has been concerned with the issue of planning and building in flood plains or areas at risk from flooding.

In particular, the role of the SEPA and the advice it provides as there is evidence this is not consistently heeded. In June, you committed to discuss the issue of building on flood plains with the Cabinet Secretary for Communities, Social Security and Equalities and Minister for Minister for Local Government and Housing. You also indicated “The extent to which decisions that have been made have turned out not to be the best ones will again be part and parcel of how we look at things. Those are conversations that I will want to have.” However, on 25 October 2016, you said “There will always be decisions that we agree with and decisions that we do not agree with”. I took the opportunity on 16 November 2016 to ask the First Minister for her views on the issue at a meeting of the Conveners’ Group and she

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66 Environment, Climate Change and Land Reform Committee, *Official Report*, 4 October 2016, Col 26
undertook to request the Chief Planner look into this and report back to the Environment, Climate Change and Land Reform Committee.

Lord Krebs outlined concerns with implementation of the planning system with regard to building on flood plains, assessment of risk and the role of SEPA. Matthew Bell highlighted the importance of planning officer carrying out assessment ahead of making decisions. The Institution of Civil Engineers stated a balance had to be struck by planners between the attractiveness of flood plain building and the associated risks, but noted there could not be any guarantees areas would not flood in the future due to the unpredictability of the impact of climate change. You and the First Minister both stated there was a precautionary approach to planning when considering developments on flood plains.

You drew the Committee’s attention to the publication of the flood risk management strategies and local authority plans to the Committee, however the ASC told the Committee not all local authorities had carried out a Strategic Flood Risk Assessment to inform local development plans. The ASC further noted that although the “overall objective of the strategies is to either reduce flood risk or to achieve a zero-net increase of flood risk”, there was a lack of corresponding associated activity and evaluation.

The Committee requests details of the outcome of your discussion with colleagues responsible for planning on the issue of building on flood plains. The Committee looks forward to receiving the report from the Chief Planner on the application and monitoring of SEPA advice in planning decisions, particularly with regard to flood plains. The Committee is concerned this is not being routinely collected, and consequently evaluated, and has copied this letter to the First Minister for information.

The Committee considers it essential climate change mitigation and adaptation are more prominent in the planning process and recommends specific guidance on consideration of adaptation should be part of planning regulations and building control standards.

73 Environment, Climate Change and Land Reform Committee, Official Report, 27 September 2016, Col
74 Environment, Climate Change and Land Reform Committee, Official Report, 27 September 2016, Col 5
75 Environment, Climate Change and Land Reform Committee, Official Report, 4 October 2016, Col 12
76 Environment, Climate Change and Land Reform Committee, Official Report, 28 June 2016, Col 18
77 Committee on Climate Change, Scottish Climate Change Adaptation Programme: An Independent Assessment, 27 September 2016, Chapter 3, Buildings and Infrastructure Networks, Page 79
78 Committee on Climate Change, Scottish Climate Change Adaptation Programme: An Independent Assessment, 27 September 2016, Chapter 3, Buildings and Infrastructure Networks, Page 87
79 Environment, Climate Change and Land Reform Committee, Official Report, 27 September 2016, Col 20
The Committee is concerned local plans and strategies on flooding are not coherent or integrated, and seeks the Scottish Government's views on the comments of the ASC on this issue.

Flooding – Natural Mitigation

Stirling Council spoke of the need to look at flood prevention in the round, starting at the source of the river, and ensuring sufficient action upstream (such as tree planting) was taking place to reduce the amount of water flowing. The importance of greenery in urban spaces to soak up water was also highlighted. In previous evidence to the Committee, you noted the important role of land managers and working directly with people to achieve outcomes by highlighting the negative consequences of omitting to act.

The dredging of rivers has been discussed with witnesses, including you, at several opportunities throughout the Committee’s deliberations. The Committee heard a range of information and views on the subject, including the role of SEPA’s guidance for land managers and the potential effects of altering the course of rivers. The Institution of Civil Engineers suggested there were advantages and disadvantages to dredging which were dependent on the case in question and a range of contributory factors.

Although there was a difference of opinion across the length of time required to implement natural flood defence measures, there was consensus these had to be part of a range of actions designed to reduce flooding. The additional benefits, for example for biodiversity, were also advocated.

Resilience

In evidence to the Committee, Dumfries and Galloway Council suggested the duties imposed on local authorities by the Civil Contingencies Act 2004 could be extended to include community resilience. In evidence to the Committee you stated you were not minded to consider a legislative route at this time and “It is better if we can have a co-operative effort rather than constantly reach for a legislative solution at the outset.” The Committee also heard from Stirling Council that when local authorities were prioritising obligations, those with a mandatory or statutory element would be focussed on above those with a discretionary element. The Committee agrees with you that there are many agencies involved in community resilience beyond a local authority. However, it is concerned that we are not at the “outset” of this process and the effects of climate change are already

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80 Environment, Climate Change and Land Reform Committee, Official Report, 4 October 2016, Col 13
81 Environment, Climate Change and Land Reform Committee, Official Report, 28 June 2016, Col 15
82 Environment, Climate Change and Land Reform Committee, Official Report, 28 June 2016, Col 16
83 Environment, Climate Change and Land Reform Committee, Official Report, 4 October 2016, Col 24
84 Environment, Climate Change and Land Reform Committee, Official Report, 25 October 2016, Col 37
85 Environment, Climate Change and Land Reform Committee, Official Report, 4 October 2016, Col 32
being felt. Given the evidence on local authority prioritisation of that which they are legally obliged to deliver, the Committee would welcome further information from you for the basis of a “cooperative approach” being “better”. The Committee was also told of several initiatives which have taken place in this local authority with regard to improving community resilience, such as a person at risk register, and recommends the Scottish Government consider these.

Dumfries and Galloway Council’s Martin Ogilvie also suggested the creation of a community resilience award, a flag system requiring the input of various services (fire, police, health, local authorities) as well as individuals to demonstrate action had been taken to protect the community from threats.

The Committee would welcome your views on this innovative suggestion.

On 25 October you stated “The constant and standing issue of resilience is woven into everything that we do in different sectors”. The Committee was concerned that strategies on Scotland’s infrastructure did not contain analysis of risk related to climate change. The Committee would welcome an undertaking from you to raise these issues with colleagues and to promote the importance of climate change mitigation and adaptation across all future strategies. The Committee also looks forward to seeing how the Scottish Government will take forward the ASC recommendation that all infrastructure sectors develop consistent incident reporting, together with indicators of network resilience and performance, and the implementation of resilience measures ahead of the next SSCAP and in the progress report due for publication in May 2017.

Society

Education

The Committee explored the role of education throughout its work on climate change. The ASC informed the Committee of the importance of a better understanding among the public but stated it had not undertaken detailed assessment of curricular interventions. The Committee wrote to Education Scotland requesting details of how climate change mitigation and adaptation is imbedded in the curriculum and received a response detailing how this is included. The Committee also received correspondence from the Convener of the Education and Skills Committee containing further briefings

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86 Environment, Climate Change and Land Reform Committee, Official Report, 4 October 2016, Col 24
87 Environment, Climate Change and Land Reform Committee, Official Report, 4 October 2016, Col 28
88 Environment, Climate Change and Land Reform Committee, Official Report, 25 October 2016, Col 35
89 Environment, Climate Change and Land Reform Committee, Official Report, 27 September 2016, Col 22
90 Letter to Education Scotland, 5 October 2016
91 Letter from Education Scotland, 19 October 2016
92 Letter from the Convener of the Education and Skills Committee, 9 November 2016
from Skills Development Scotland, the Scottish Funding Council and the Scottish Qualifications Authority on awareness raising of the issues.

Stakeholders provided a mixed view of whether adaptation was being taught sufficiently. As indicated in previous correspondence\textsuperscript{93}, the Committee was glad to hear of all the activity currently underway to raise awareness and understanding of the issues related to climate change through the formal education system. However, there was a lack of information on how these interventions are evaluated. The Committee seeks information as to how the Scottish Government ensures robust analysis is taking place within Government agencies with regard to interventions on climate change.

\textit{Health and Wellbeing}

The ASC highlighted health and wellbeing in particular as an area for which there was insufficient data to assess whether progress is being made\textsuperscript{94}. Lord Krebs stressed the importance of research and surveillance of vector borne diseases, suggesting\textsuperscript{95} the next SSCAP should place an onus on Health Protection Scotland to ensure that it has a proper research base, risk assessment and monitoring framework. Stakeholders were also unable to quantify the level of threat due to lack of data, although indicated there was better information on threats to livestock and the natural environment as opposed to human health.

\textbf{The Committee is concerned by the lack of research on how climate change will affect human health and concurs with the ASC recommendations that Health Protection Scotland carry out new research into risks of heat, UV radiation, and vector borne-diseases. The Committee looks forward to seeing how this is addressed in the Scottish Government’s progress report on the SSCAP.}

\textit{Business}

When comparing the performance of Scotland and England on climate change adaption, Matthew Bell noted the “English national adaptation programme has a more comprehensive section on business. That difference is worth thinking about when considering how to incorporate business more centrally in some of the Scottish considerations”.\textsuperscript{96} Stakeholders informed the Committee of work underway in the whisky industry and academia to consider the business community’s resilience to threats caused by climate change.

\textbf{The Committee would welcome your views on this comment from the ASC.}

\begin{footnotesize}
\textsuperscript{93} Letter to the Cabinet Secretary for Environment, Climate Change and Land Reform on progress towards Scotland’s greenhouse gas emissions targets 30 November 2016

\textsuperscript{94} Committee on Climate Change, \textit{Scottish Climate Change Adaptation Programme: An Independent Assessment}, 27 September 2016, Executive Summary, Page 13

\textsuperscript{95} Environment, Climate Change and Land Reform Committee, \textit{Official Report}, 27 September 2016, Col 26

\textsuperscript{96} Environment, Climate Change and Land Reform Committee, \textit{Official Report}, 27 September 2016, Col 4
\end{footnotesize}
Other

Scottish Climate Change Adaptation Programme

The ASC makes several comments and recommendations on the structure, content and governance of the SSCAP and future updates of the programme. These included identifying a “senior owner” for the objectives to be delivered, along with creating specific actions and timescales for each objective. In evidence to the Committee, the ASC stated the senior owner could represent a range of personnel from across Scottish Government and its agencies, as well as civic Scotland. The ASC also emphasised the need for an effective monitoring and evaluation regime. The last point is particularly pertinent as the ASC also noted “There was insufficient evidence to judge progress in many of the areas assessed.”

The Committee considers the identification of an owner of action to be imperative to delivering objectives and suggests this approach should be extended across all strategies and delivery plans. The Committee looks forward to the Scottish Government’s response to this in the draft Climate Change Plan and its SSCAP progress report in May 2017.

Throughout the Committee’s consideration of climate change adaptation, the need for robust data gathering, monitoring and evaluation has arisen. Glasgow City Council particularly noted the impact of a lack of data in a written submission to the Committee. The ASC highlighted instances throughout its report where there was insufficient information to measures taken were the correct course of action. It was heartening to hear you state that, while the Scottish Government’s progress report on the SCCAP would not be until May, in developing the draft Climate Change Plan (to be published in January 2017) you “work on the assumption that, in looking at upping the potential for monitoring and enforcing, we need to look at that across the board, including adaptation.”

The Committee looks forward to the publication of the draft Climate Change Plan and to seeing how the Scottish Government intends to address the important and urgently required system of establishing, monitoring and evaluating progress towards meeting Scotland’s greenhouse gas emissions targets and adaption to climate change and has previously highlighted its expectations in this area.

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97 Committee on Climate Change, Scottish Climate Change Adaptation Programme: An Independent Assessment, 27 September 2016, Chapter 1: Scottish Climate Change Adaptation Programme, Page 29
98 Environment, Climate Change and Land Reform Committee, Official Report, 27 September 2016, Col 28
99 Committee on Climate Change, Scottish Climate Change Adaptation Programme: An Independent Assessment, 27 September 2016, Key Messages, Page 7
100 Written Submission, Glasgow City Council, 3 October 2016
101 Letter from the Cabinet Secretary for Environment, Climate Change and Land Reform 13 September 2016
102 Environment, Climate Change and Land Reform Committee, Official Report, 25 October 2016, Col 26
103 Letter to the Cabinet Secretary for Environment, Climate Change and Land Reform on progress towards Scotland’s greenhouse gas emissions targets 30 November 2016
Best Practice

Several witnesses commented on collaborations and information sharing forums (such as the National Centre for Resilience) on adaptation and it is widely recognised climate change is not an issue which recognises state borders. The Institution of Civil Engineers highlighted the various agencies involved in thinking about the environment and climate change throughout the UK and a lack of communication on that. The Committee would welcome information on discussions you have had with UK counterparts on the sharing of best practice with regard to climate change adaptation, as well as steps taken to ensure the excellent work taking place in Scotland is escalated around the country. The Committee also seeks detail of the levels of communication and the sharing of best practice among government agencies around the UK.

The Committee was told of various examples of best practice (such as flood work at Eddleston Water and the Dumfries and Galloway Persons at Risk database should be rolled out throughout the country and would welcome your views on this. The Committee considers that the Scottish Government should take a lead in ensuring best practice is shared and recommends a mechanism for sharing best practice is established.

Conclusion

The Committee consistently heard of the need to act in a joined up fashion throughout its consideration of adaptation and mitigation. The Committee looks forward to seeing how the draft Climate Change Plan can contribute to the coherent policy making required to realise the rightly ambitious targets which have been set for Scotland’s action on climate change.

The Committee also looks forward to seeing how the Scottish Government responds to the recommendations of the ASC in its SSCAP progress report in May 2017, particularly with reference to the suggestion this should include a refresh of the priorities and objectives.

The Committee requests a response from you to this correspondence by 9 January 2016.

Yours sincerely,

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104 Environment, Climate Change and Land Reform Committee, Official Report, 4 October 2016, Col 33
105 Environment, Climate Change and Land Reform Committee, Official Report, 4 October 2016, Col 19
106 Environment, Climate Change and Land Reform Committee, Official Report, 4 October 2016, Col 35
107 Committee on Climate Change, Scottish Climate Change Adaptation Programme: An Independent Assessment, 27 September 2016, Executive Summary, Page 15
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Convener
Environment, Climate Change and Land Reform Committee
CC. Nicola Sturgeon MSP, First Minister