Evaluating the Risk Assessment of Adaptation Reports under the Adaptation Reporting Power

Final Summary

Cranfield
UNIVERSITY

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1.   Introduction

Between October 2010 and December 2011 nearly 100 Reporting Authorities from across nine different sectors reported on their climate change risks and adaptation plans during the first round of the Adaptation Reporting Power (Climate Change Act 2008). Each of the Adaptation Report risk assessments was independently reviewed by the Centre for Environmental Risks and Futures (CERF), at Cranfield, using the Evaluation Framework to ensure that it met the Direction to report. This report provides a brief analysis of the Adaptation Reporting Power from our perspective and includes some thoughts regarding possible changes that may wish to be considered should a second round of the Adaptation Reporting Power be undertaken.

2.   Reporting Power –Benefits Identified During the First Round

The Centre for Environmental Risks and Futures (CERF – previously the Collaborative Centre for Excellence for Understanding and Managing Natural and Environmental Risks) has been involved in the Adaptation Reporting Power process since September 2009. Our contribution has included providing input on the formulation of the Statutory Guidance, the development of an Evaluation Framework and reviewing the ~6,700 pages of reports submitted by Reporting Authorities. We have also engaged with nearly 100 organisations though meetings, workshops, field visits and webinars. Based on our experiences, we feel that the Adaptation Reporting Power has significant future potential. The following examples provide a flavour of the benefits, based on our experience and the reviews of the reports, from the first round and of the work that many organisations are undertaking to assess and manage their climate change risks.

Greater Consideration of Climate Change and Adaptation by Organisations

Possibly the greatest legacy of the first round of the Adaptation Reporting Power is that it has been the catalyst behind many organisations formally considering their climate change risks and possible adaptation responses for the first time. For example, SP Energy Networks' Adaptation Report notes that whilst it has been working with the Energy Networks Association (ENA) to develop an understanding of the likely climate impacts on the business, it had not explicitly considered climate change risk before receiving the Direction to report. The company notes that *'the development of this Adaptation Report is the start of a process of a more formal consideration of climate change risk within SP Energy Networks'*. Indeed, one of the common outcomes noted both in the Adaptation Reports and in the sector workshops is that for many organisations the reporting process has led to greater visibility of climate change risks at the organisational and board level, with climate change risks being embedded within corporate risk management processes for the first time. Examples include Northern Gas Networks, who's climate change risk assessment has resulted in climate change being added to the company's Health, Safety and Environment risk register and integrated into its business risk process, and Birmingham Airport, where climate change has been added to its Environmental Management System (EMS). Similarly, Stansted Airport plans to monitor its adaptation responses through its existing Sustainability and Risk Governance Forums, whilst Harwich Haven Authority's climate change adaptation reporting and progress will be formally included in the Authority's Annual Report. There is also evidence that some organisations are building upon their Adaptation Reporting Power work, with Manchester Airports Group planning to extend its climate change risk assessment work to include Bournemouth and Humberside Airports.

The Reporting Power has also led to increased visibility and consideration of climate change at the sector level. In particular, at the beginning of our involvement with the Reporting Power process it was apparent that a number of sectors were new to climate change. The same groups have used the reporting process to develop collaborative working groups to enhance their understanding of climate change and in a number of cases plan to continue their work on climate change risks and adaptation through these working groups.

Engagement

A further benefit from the Reporting Power process is that it has promoted widespread engagement on climate change risks and adaptation issues at a variety of levels, and the examples below provide a flavour of this:

Internal engagement – many Reporting Authorities have described how their Adaptation Reporting Power risk assessments have involved internal engagement with relevant experts from across the organisation. Frequently reports have described how workshops have been successfully used in the risk assessment process. Amongst the numerous examples of this include Dover Harbour Board, who used a series of workshops with key departments, including Operations, Development and Planning, and Commercial and Support Services. As a result, a wide variety of attendees, including Harbour Masters, pilots, operational managers and directors, health, safety and environmental experts, mechanical, electrical and development engineers, commercial managers, estates managers, financial and insurance experts, and human resources managers, were all able to provide input into the Board's risk assessment.

Stakeholder engagement - the Adaptation Reports illustrate that many Reporting Authorities are actively engaging with a variety of stakeholders in relation to climate change risk management and adaptation, and are aware of the need for partnership approaches to address climate change risks. For example, Cardiff Airport's risk assessment process involved consultation with a wide range of stakeholders, including NATS, airline operators and the Welsh Assembly, and the airport is considering holding an awareness raising seminar with airlines in future. Similarly, Severn Trent Water's Adaptation Reporting Power risk assessment process included a workshop with public bodies to raise awareness of its climate change adaptation work and to explore interdependency issues. In a number of cases this has resulted in greater engagement on climate change issues, with Birmingham Airport for example noting that as a result of its meetings to discuss climate change risks with local authorities, plans are being developed to share climate change information in future.

Industry associations – the reporting process has resulted in engagement with a wide range of industry associations on climate change risk including the Airports Operators Association (AOA), the Energy Networks Association (ENA), Association of Energy Producers (AEP), Association of Independent Gas Transporters (AIGT), UK Major Ports Group and WaterUK for example. The development of closer relationships with such organisations has resulted in a greater appreciation of the climate change risks and adaptation issues facing many sectors. For example, during the reporting process members of Defra's Adapting to Climate Change programme and Cranfield University were invited by Severn Trent Water and the WaterUK Climate Change Group to visit the Mythe water treatment works to hear about the company's experiences of the 2007 floods and their subsequent adaptation activities (Figure 1).

Figure 1. Members of Defra's Reporting Power Team and Cranfield University visited Mythe water treatment works to learn more about Severn Trent Water and WaterUK's Climate Change Group's work on climate change adaptation. Such visits provided valuable insights into the adaptation challenges facing Reporting Authorities.

Sector level risk assessments – through the involvement of industry associations, a number of sectors have worked together to undertake common sector-level risk assessments and to identify common adaptation issues. For example, the Energy Networks Association worked with its members to develop common risk assessment framework, assess the common risks facing their sector and identify unified adaptation responses.

Greater Awareness of Barriers and Interdependencies

The reporting process appears to have resulted in a greater awareness of barriers and interdependencies and their potential implications for climate change risks and adaptation. There is evidence both from the adaptation reports and the sector workshops that the Reporting Power has not only led to the identification of potentially significant issues relating to barriers and interdependencies, but that it has provided the impetus for cross-sector engagement in this area. For example, the Joint Regulators Group, which brings together senior representatives from the various sectoral and competition regulators to discuss issues of mutual concern and report on developments within their sector, met in 2011 to learn from each other's experiences from the Reporting Power and to set out a coordination framework for further cross-sector engagement on adaptation and interdependencies. Furthermore, Reporting Authorities are developing an awareness of interdependencies, with Transport for London noting that it works with EDF Energy on an ongoing basis to ensure that resilience of electricity supply services and has used the Adaptation Reporting Power process to cross-check the common issues identified. These include the flood risk of substations and the process for managing electricity demand surges causing summer 'brown-outs'.

Assessing and Monitoring Climate Risks

The analysis of the adaptation reports has provided extensive evidence of the work that Reporting Authorities are undertaking work to assess and monitor their climate change risks. In some cases, such as the energy sector, it is apparent that there is a history of ongoing industry-level research, through projects such as the Met Office EP1 and EP2 studies, and the development of a common approach for assessing flood risk to substations and the respective mitigation options and cost. There is also evidence of research projects, such as the Railway Safety and Standards Board (RSSB) Tomorrow's Railway and Climate Change Adaptation (TRaCCA) study, which Network Rail is participating in, that are exploring specific thresholds, the spatial distribution of risks, and their implications for adaptation strategies. In addition, some Reporting Authorities are also involved in international projects and initiatives relating to climate change risks and adaptation. For example, Forestry Commission England Adaptation Report highlights its involvement in a number of European Union funded research projects. The reports also provide evidence that Reporting Authorities are also actively investigating emerging risks of concern. One such example is the work funded by several electricity Distribution Network Operators which is quantifying the impact of vegetation growth around overhead lines, with initial predictions suggesting that climate change will have a substantial impact on vegetation growth which will require increased expenditure on vegetation management.

In addition to the evidence of ongoing research, the Adaptation Reporting Power process also appears to have provided an incentive for a number of Reporting Authorities to further develop their work assessing climate change risks. Amongst the examples identified during the review process was Anglian Water who have used the process to reassess its existing climate change risk assessment methodology and to develop a more quantitative risk assessment tool. Another example is Forestry Commission England, who have used the Adaptation Reporting Power process to conduct a detailed assessment of the risk that climate change poses to trees and woodland in the forestry estate. Similarly, there is evidence that within some organisations the Reporting Power has led to the improved monitoring of climate change risks. For example, as a consequence of its work on climate change adaptation reporting and the outcome of its internal risk assessment workshop, the Milford Haven Port Authority has identified the need for the collation of meteorological data and the monitoring of trends, particularly those emerging as a consequence of climate change, with adaptation actions planned in the next year.

Adaptation

It is evident that many of the Reporting Authorities are beginning to adapt to climate change with the Adaptation Reporting Power providing the stimulus for such activities in some organisations. The analysis of the reports has also identified that Reporting Authorities are also developing an awareness of the need for flexible adaptive management approaches to adaptation to prevent the risk of maladaptation. There is also considerable evidence of organisations taking steps to climate proof new infrastructure and to modify design standards to accommodate future climate change. Examples include:

Climate Proofing

- The Port of London Authority's towpath tree management plan includes an element of replanting to ameliorate the effects of tree removal, primarily undertaken from the revetment wall to prevent bank failure. The Authority's arboricultural consultants are advising on those species that can adapt to the likely impacts of climate change as identified in its climate change risk assessment, and the first tranche of replanting, in accordance with this new approach, is underway.

- To mitigate potential high temperatures on buses, Transport for London has set a specification for all new buses to have white roofs, opening, tinted windows, upper deck ventilation systems and air conditioning in drivers' cabs. This specification was introduced four years ago so the majority of buses in service now have these features.

Design Standards

- In the case of pavement design for example, the Highways Agency has already adopted French temperature standards for road surfaces (EME-2). This is an example of the Agency putting in place adaptation to ensure that design standards and operating practices can adapt to the changing climate expected over the lifetime and replacement cycle of the Agency's highways infrastructure.

- The Energy Networks Association (ENA) is planning to set up a workstream to consider revising design standards for wooden poles supporting overhead lines. The ENA also intends to carry out a focussed review of engineering documents that are likely to be affected by climate change and will propose changes to standards accordingly.

Awareness Raising and Training

The review process has identified considerable evidence that the Adaptation Reporting Power has led to increased awareness of climate change in many organisations, and that many Reporting Authorities are proactively working to raise awareness of climate change amongst their staff. Such activities are extremely wide ranging in nature, from Southern Gas Networks and Scotland Gas Networks (Scotia Gas Networks) producing a questionnaire and Adapting to Climate Change Briefing Pack, which was circulated amongst company directors, to Birmingham Airport which is going to include climate change within its staff induction process and employee pocket handbooks, and Anglian Water who have held awareness raising sessions based around the film 'The Inconvenient Truth' and with key communicators within the organisation. Reporting Authorities have also outlined formalised training in climate change, with staff from Ofgem attending Defra training sessions on the UK Climate Projections (UKCP09), whilst Natural England has developed a bespoke web-based training course that introduces climate change science and includes modules on adaptation, mitigation and communicating climate change.

Regulator Awareness of Climate Change

The Adaptation Reporting Power process has illustrated that a number of the regulatory bodies are developing an awareness of their potential role in enabling adaptation by the organisations that they regulate. This is reflected in some regulators identifying the possible requirement for more flexible regulatory frameworks and incentives in future to facilitate adaptation, with the Civil Aviation Authority's Adaptation Report discussing how future changes in its regulatory regime may enable incentives for adaptation. There is also evidence that regulators are already enabling adaptation. For example, in relation to flood risk, electricity Distribution Network Operators have been set allowances of approximately £110 million for flood risk measures by Ofgem as part of the Distribution Price Control Review 5 (DPCR5), which runs between 2010 and 2015. Similarly, it is apparent that Reporting Authorities in the energy sector are using Ofgem's Innovation Funding Incentive (IFI), with Scottish and Southern Energy Power Distribution using such funding to trial real time monitoring of conductor temperatures to facilitate dynamic line rating and mitigate against temperature related conductor clearance issues.

3.   Reports

The reports reviewed during the evaluation process reflected the broad range of organisations invited to report. The decision not to specify a prescribed format for the reports has clear benefits for the Reporting Authorities because it enables them to produce a report that suits their particular circumstances. For example, a number of Reporting Authorities, such as the Environment Agency, split their reports into sections, with a short summary report accompanied by a more detailed technical report, enabling the summary document to be used as a communications document outside the Reporting Power process. The use of a non-prescribed format should be retained in any future round of the Reporting Power for those reporting for the first time. However, based on our experiences from the first round, it may be worth considering the following issues that we encountered:

- **Report length –** whilst Reporting Authorities were encouraged to provide short reports, some of the reports were of considerable length (>200 pages in some instances). In many cases the shorter succinct reports were often of a higher quality than the longer reports. Whilst we are aware that some organisations cover a broad range of functions, which will require large reports, any future round may wish to encourage shorter reports. One way in which this might be aided could be through the identification and highlighting of good practice reports from the first round.

- **Report structure –** being the first time that organisations had been asked to report, the adoption of an open reporting format and the lack of example reports meant that some of the reports were poorly structured, which sometimes complicated their evaluation. Hopefully this will be less of an issue in any subsequent round due to the availability of the first round of reports.

- **Cover sheets –** the Statutory Guidance document includes a cover sheet template to help Reporting Authorities produce an executive summary to accompany their reports. The cover sheet and its use has been commented on by Reporting Authorities in many of the meetings that we have attended during the first round. It would appear that many felt that in many instances the cover sheet would lead to duplication of the information provided by the report, and only a relatively small number of organisations submitted a cover sheet to accompany their reports. From the perspective of the evaluation of the reports, in some cases the inclusion of a cover sheet clarified elements of the report that were unclear (e.g. monitoring timescales and assumptions), but conversely sometimes complicated the evaluation process, with the summary of risks sometimes contradicting the risk matrices provided in the main report. As such, the value of the cover sheets appears to be open to question and it may be worth reviewing their use in any future round.

- **Transparency issues –** prior to the receipt of reports there was some concern amongst Reporting Authorities regarding confidentiality issues, and opportunities for the submission of redacted reports was put in place. Whilst only a small number of organisations provided redacted reports, some of the documents provided only limited details of some risks and issues and it is possible that this was due to their commercial sensitivities. However, such issues were sometimes more openly discussed at the sector workshops and the use of workshops or interviews use to explore such topics may prove valuable in any future round.

4.   Statutory Guidance

In relation to the Statutory Guidance, it does not prescribe a particular methodology for assessing risks or developing a programme of adaptation measures. From our experiences from the first round, this approach appears to have both benefits and drawbacks. In particular, it enables Reporting Authorities to adopt a risk assessment methodology that best suits their needs, and as has been very much in evidence in the reports submitted during this first round, for example, many organisations have used their existing corporate risk assessment processes to assess and manage their climate change risks. This subsequently enables organisations to manage and embed their climate change risks alongside their existing corporate risks, and has been one of the successes associated with the first round. However, adopting such an open approach makes it difficult to compare risks across organisations and sectors and to draw conclusions from the reports. In particular, as noted in the sector summaries, it has been difficult to identify key risks because different organisations have used different risk assessment criteria and timescales for example. As such, Defra may wish to consult with potential end users of the reports to determine whether any changes to this element of the Statutory Guidance might prove beneficial.

5.   Communications and Engagement

In relation to engagement with the Reporting Authorities, Defra and ourselves attended a number of meetings with industry associations and individual organisations during the reporting process, in many cases attending an initial and then later update meeting. Our experience of this process is that such engagement proved invaluable, resulting in a noticeable change in attitudes towards the Reporting Power Process and climate change. This often led to support and buy-in to the reporting process, and in a number of cases it was apparent and that framing climate change as a business and reputational risk is particularly important in such situations. In other cases, such engagement proved valuable where organisations were new to the issue of climate change and it was often pleasing to see organisations and sectors develop their awareness of climate risk during the Reporting Power. Based on such experiences we would like to recommend that any future reporting round may wish incorporate a more formal communications and engagement strategy that should consider the following:

- **Early and sustained engagement –** as experienced during the first round, early and sustained engagement with Reporting Authorities is vitally important. In particular, engagement though industry associations appeared to be particularly effective and enabled the building of productive working relationships during the first round. For example, the Cranfield/Defra presentations to the WaterUK climate change group and senior management at Luton Airport were positively received. Such meetings could be repeated more widely in any future round although it is recognised that such activities can be time-consuming. Furthermore, consideration may wish to be given regarding how such engagement might be sustained once the reports have been submitted, particularly as the development of the National Adaptation Programme hopes to build on the relationships developed during the Reporting Power.

- **Events for Reporting Authorities –** during the first round a small number of workshops were held for Reporting Authorities, including a question and answer event in London. Whilst we were unable to attend the London workshop, feedback suggests that such events were well received by the Reporting Authorities and led to the discussion of common issues and promote cross-sector engagement. As such, any future round may wish to repeat such events, and possibly hold initial and launch events to introduce the reporting process to new Reporting Authorities and to disseminate and discuss the findings.

- **Links between the ARP and other initiatives –** a common question from Reporting Authorities during the first round has been *'how does the ARP link to the Climate Change Risk Assessment and National Adaptation Programme?'* Our role has meant that it has sometimes been difficult to respond to such questions, and as such there may be benefits to be gained from producing a short briefing note that could be provided to Reporting Authorities to explain such links in any future round of reporting.

- **Newsletters and e-mail updates –** whilst occasional newsletters were produced early in the reporting process, it may be worth considering the publication of a regular newsletter to all organisations updating them on the current progress of the Reporting Process. This might prove particularly valuable during the latter stages of the reporting process where their views may be sought on the production of sector summaries or next steps for the reporting process for example.

- **Promotion of cross-sector engagement and engagement on specific issues –** there is evidence that a key benefit from the first round has been cross-sector engagement on common interdependencies and adaptation issues. It may be worth considering how any future round of the Reporting Power could be used to promote and facilitate cross-sector engagement, whether through informal discussions during workshops or more formal events and meetings aimed at specific issues.

6. Support Available to Reporting Authorities

A wide range of information and support has been available to Reporting Authorities during the first round of the Reporting Power. We have not only provided direct support to Reporting Authorities in response to questions received by phone or e-mail, but have met with organisations and industry associations and participated in a UKCIP led webinar. There has also been additional support provided through UKCIP, Defra's FAQs, the Environment Agency's Supplementary Guidance webpages and a workshop for Reporting Authorities. However, only a small number of organisations have directly approached us for support and UKCIP appear to have had similar experiences. Based on this experience, the following may wish to be considered for any future round of reporting:

- **Supporting information –** whilst a wide range of supporting information was provided for Reporting Authorities there may possibly have been too much information available. Certainly some Reporting Authorities questioned the relevance of the Environment Agency's Supplementary Guidance and it is unclear whether the FAQs were consulted by organisations. It would be interesting to see whether any Reporting Authorities have commented on the Environment Agency Guidance and FAQs in their questionnaire responses.

- **Targeted support –** during the first round it has been apparent that different organisations and sectors are at differing stages of considering their climate change risks, with many Reporting Authorities considering climate change for the first time. However, other organisations, such as the water companies, are more advanced. As such, any future round may wish to consider providing support catering for different levels of experience/expertise, ranging from introductory training on climate change risk assessment methodologies to the use of more advanced UKCP09 tools such as the Threshold Detector. Furthermore, thought may wish to be given with regard to how sectors or industry groups who are developing and applying common sector-level risk assessments might be supported as they may have different needs to individual Reporting Authorities.

- **Guidance and case studies –** the Statutory Guidance notes that in the long-term the Adaptation Reporting Power will be supported by a web-based directory of case studies, examples and sources of other information. Whilst this has obviously not been possible during the first round, there is now a considerable body of information, provided by the reports, which could be utilised in any future round.

- **Training –** the idea of running a short course/workshop introducing climate change risk assessment for Reporting Authorities was raised with Defra early in the project. Whilst the timescales prevented such an event the idea may be worth reconsidering as part of any future reporting round.

- **Webinars –** a webinar involving UKCIP, Defra and Cranfield was held during the first round, with good attendance. Regular update webinars and online question and answer sessions may be worth considering in any future reporting round.

7.   The Evaluation Process and Evaluation Framework

Evaluation Framework

The development of the Evaluation Framework involved consultation with a number of Reporting Authorities together with Defra's Adapting to Climate Change programme and Lead Government Departments. In general the Evaluation Framework was found to perform well, enabling the Adaptation Reports to be assessed using a common, objective methodology.   At the time of publication it was proposed that to ensure that the Evaluation Framework is fit for purpose, it would be re-assessed following the first Adaptation Reports received at the end of September 2010. Any revisions were planned to be made by the end of November 2010, with Reporting Authorities being informed of any changes. Unfortunately, due to delays in submission of a number of the reports, the benchmarker assessments were not completed until late December 2010 . As a result, it was agreed with Defra that the Evaluation Framework would not be revised until after the first round of the Reporting Power,. In addition, the interim nature of the majority of benchmarker reports also proved problematic, meaning that the Evaluation Framework was only really tested when the water sector reports were evaluated. This resulted in some issues, particularly relating to opportunities and thresholds only being identified at a later stage.

From the outset of the evaluation process it was emphasised that the Evaluation Framework may not be entirely suitable for some organisations, particularly the regulatory bodies. Whilst some organisations have criticised the Evaluation Framework and its applicability to their particular circumstances, it appears that the quality of the reports and not the Evaluation Framework may explain the assessments in some cases. However, the Evaluation Framework has for the most part proved to be a valuable tool, providing objective, standardised assessments of the reports.

Evaluation Process

Initially the evaluation process was to have comprised of a 'tick box' quality check of the reports, but during the development of the Evaluation Framework greater emphasis was placed on the qualitative appraisal of the reports and the provision of detailed comments. The provision of detailed objective comments has been particularly challenging and time-consuming, as has been the need to extract detailed information relating to key risks, emerging issues, barriers and interdependencies, for example, that were required for the sector summaries. Furthermore, with only one day on average to evaluate each report, there has been little leeway available for delays, problematic reports or the arrival of additional unplanned for reports. Based on our experience from the first round, the following issues may wish to be considered during the planning of any future round of the Reporting Power:

- **Requests to revise reports or provide further information –** during the first round the evaluation process has identified some issues relating to the risk scoring methodologies used by a small number of organisations and transparency issues in some reports. Should the reports be formally evaluated in any future round then it may be worth considering having formal processes available to enable reviewers to request revisions or further justification of the methodologies used in the risk assessment.

- **Review timescales –** the need for the reports to be reviewed and for feedback to be provided quickly is clearly important for the Reporting Authorities. However, some consideration may wish to be given to changing the 12 week review process in any future round because it appeared to represent a significant challenge for both Cranfield and Defra, particularly in relation to some sectors, such as the water sector, where >2100 pages of report from 22 Reporting Authorities needed reviewing.

- **Review process –** in this first round, the reports and feedback have been published in an ongoing manner. Whilst this has benefits, with the feedback being provided within the 12 week period, in any future round there may be some merit in delaying the report publication and feedback until the end of the process. This would allow for any emerging issues with the evaluation process to be addressed and for comments to be provided on the feedback to Reporting Authorities. This would overcome the problem of issues relating to the evaluation of the reports only appearing later in the process.

- **Interim and problem reports –** whilst only a small number of interim and problem reports were encountered during the first round, formalised procedures for managing the submission and review of interim reports and for addressing problems may prove beneficial in any future round.

8. Sector Summaries and Sector Workshops

The production of the sector summaries and the holding of sector workshops have enabled the key issues facing the sectors to be identified and comparisons to be made between sectors. Indeed, this element of the Adaptation Reporting Power has the potential to not only provide Defra and other government departments and agencies with detailed information that can help during the development of adaptation policies, but act as a means for engaging with and developing working relationships with different sectors. Any future round of the Reporting Power should try to further develop the sector summaries and workshops, and the following observations and thoughts based on our experiences from the first round may wish to be considered:

- **Clearly defined sectors –** throughout the first round there was been considerable debate regarding the structure of the different sectors. In practice, the final chosen sectors appear to have worked well. However, one minor exception was the separate electricity distribution and transmission sector summaries in this round, which would have benefitted from being combined due to the significant overlap between the two.

- **Timescales –** in practice the sector summaries have proven to be very time-consuming to compile, due to the often large number of reports and broad range of organisations within some sectors. Based on this experience, any future round of reporting may benefit from additional time being made available for the production of the sector summaries. Furthermore, it may prove beneficial to schedule the production of the sector summary immediately following the analysis of the sector reports whilst the issues are still fresh.

- **Key risks –** in practice the identification of key risks has proven to be a challenge due to the differing types of organisation within particular sectors who may have differing location and circumstance specific risks, and have used differing risk classifications. As such, the sector summaries have often included a broad overview of the risks identified by the sectors rather than key risks. Similarly, classifying such risks has also proved a challenge and the approach adopted has been to classify them by climate variable (e.g. increased rainfall) as opposed to by risk. Any future round may wish to consider whether a broader range of sector risks might be of more value or whether formalised criteria for identifying key risks might be useful.

- **Collaborative production of the sector summaries – i**n future it might be worth adopting a more collaborative approach to producing the initial sector summaries, with greater discussion between Cranfield, Defra, the lead government departments and the sector Reporting Authorities, although it is recognised that this could prove time-consuming and resource intensive in practice.

- **Workshops –** as noted above, the sector workshops offer great potential. Indeed, a number of the workshops have proven to be highly productive with good levels of attendance, constructive debate and discussion regarding the risks and adaptation actions being undertaken by sector Reporting Authorities. However, the following observations may wish to be considered in relation to planning any future round of reporting:

  o **Low levels of attendance –** some of the sector workshops have had relatively low levels of attendance. Similarly, some key organisations have not attended the workshops, which has been disappointing. The reasons for this may wish to be explored.

  o **Facilitated structured workshops –** whilst the water workshop involved breakout groups to discuss key issues for the sector the subsequent sessions did not follow this approach. As such, it may be worth considering whether facilitated workshops, aimed at developing a more collaborative sector summary, may prove more productive and encourage greater engagement in future.

9.   Future Use of the Adaptation Reporting Power

In terms of the future use of the Adaptation Reporting Power, we are aware that the questionnaire circulated to Reporting Authorities contains questions relating to the possible future use of the Adaptation Reporting Power, particularly in relation to the possible adoption of a more flexible approach and the types of organisation who might be included. Whilst a number of possible reporting sectors have been discussed in the sector workshops (e.g. local authorities in relation to their highway authority role, train operating companies and the IT/telecoms sector), it is apparent that a detailed evaluation of the first round may prove worthwhile before any plans for a second round are developed. Based on our experiences from the first round, such an evaluation may wish to consider the following areas:

- **The role of the Adaptation Reporting Power –** thought may wish to be given to the future role of the Reporting Power. In particular, the Power could be used in a variety of ways, from gaining a broad picture of the risks and adaptation plans of individual sectors or wider groups, to encouraging the embedding of climate change risk management within individual organisations. Alternatively, it could be used more forcefully to target specific sectors and organisations where climate change preparedness may be of concern (e.g. IT/telecoms), or to investigate specific issues such as barriers and interdependencies.

- **The effectiveness of the first round –** the short (e.g. embedding of climate change in corporate risk management processes) and long-term (e.g. cross-sector engagement on adaptation) implications/legacy of the first round, including its role in the development of the National Adaptation Programme and the whether the Reporting Power provides any additional information over the Climate Change Risk Assessment require exploration.

- **End user needs –** the analysis of the reports and subsequent engagement with a number of organisations suggests that the Adaptation Reports are being used by a range of organisations, from regulators to academics and that the Adaptation Reporting Power is leading to cross-sector engagement on interdependencies and adaptation issues. As such, consideration may wish to be given to how the reports are being used and any possible end user needs that a future round could cater for.