CQuEL

Character and Quality of England's Landscapes

Preparing a detailed project plan for CQuEL

Work package 5: Links to Natural England's Land Use Strategy and Vision 2060

Final report

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Supported by:

NATURAL ENGLAND

defra
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LAND USE CONSULTANTS

Fabis consulting

countryscape

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Preface

CQuEL, Character and Quality of England's Landscapes, is Natural England's principal integrated monitoring project. CQuEL will provide place-based evidence about the character and function of landscapes and the provision and quality of selected ecosystem services delivered by England's natural environment.

CQuEL will provide an enhanced and up-to-date understanding of Natural England's contribution to enhancing and improving the condition of the natural environment. CQuEL will also provide evidence to key strategic partners, particularly Defra. Defra has been a funding partner of the project planning stage.

The work to prepare the CQuEL project plan has been carried out by a consortium comprising Countryscape, Fabis Consulting and Land Use Consultants. The work has been guided by a Project Board at Natural England. The findings have been informed by Expert Panel workshops and the project team gratefully acknowledge the input of stakeholders at the workshops.

This document is based on our own discussions and the outputs from an Advisory Panel held on 25th November 2009, and workshops held on 4th February, and March 1st and 3rd, 2010.

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Key recommendations are shown in bold with a grey highlight. Each recommendation is referenced with a code to identify the Work Package and recommendation number, for example the second recommendation of Work Package 1 is referenced **[R1.2]**.

Executive Summary

This work package has explored the relationship between CQuEL and Natural England's Land Use Strategy and Vision 2060 initiative. Two key aspects are considered:

- The extent to which CQuEL can be used as a tool to refine and deepen the scenarios developed by Natural England; and,
- The extent to which the Natural England's current vision can be used to identify objectives and targets against which recent changes in landscape and the output of ecosystem services can be judged, and against which future changes can be monitored.

It is clear that the spatial framework proposed for CQuEL and the 'spatial logic' that it uses to link ecosystem services and landscape can make a significant contribution to Natural England's 'futures thinking' in two ways, namely by:

- better describing and understanding the ***geographical contexts*** in which future change might occur; and,
- helping to better understand how future landscapes might be ***valued.***

The following recommendations emerge in relation to these two themes:

- **We recommend that the historic and proposed third assessment of change in landscape character and function be used to assess the extent to which Natural England's land use strategy and institutional vision are being achieved [R5.1]**.
- **We recommend that spatially explicit representations of the Natural England's Vision 2060 scenarios be developed as the basis for interpreting alternative trajectories of change and as part of its wider work on England's 21st Century Landscapes [R5.2]**.
- **We recommend that the outputs from the National Ecosystem Assessment be used to identify how contemporary trends in landscape character and function at NCA level relate to the contrasting geographical futures suggested in Vision 2060 [R5.3]**.
- **We recommend that the results of CQuEL are used to look at the consistency between objectives for landscape character and function at national and local scales, using both public and expert based opinion [R5.4]**.
- **We recommend that the evidence base created by CQuEL and the framework of the National Character Areas are used to help construct a benefits transfer database that could support Natural England's future valuation work [R5.5]**.

We suggest that although CQuEL can make a significant contribution to the development of benefits transfer methods, it is not appropriate that this element be included in the future CQuEL work programme. However, we have suggested that the first four recommendations should be incorporated in this project, and have suggested how these tasks can be sequenced in relation to the main analytical and consultative phases identified in the Work Package 1 Report.

Introduction

This work package has explored the relationship between CQuEL and Natural England's Land Use Strategy and Vision 2060. Two key aspects have been considered:

- The extent to which CQuEL can be used as a tool to refine and deepen the scenarios developed by Natural England; and,
- The extent to which the Natural England's current vision can be used to identify objectives and targets against which recent changes in landscape and the output of ecosystem services can be judged, and against which future changes can be monitored.

While CQuEL has been proposed essentially as a monitoring tool, designed to provide 'place-based' evidence about the character and function of landscapes and output of ecosystem services, it can also help us to think about the future. Although monitoring is, by definition, 'backward looking', if such work is to be effective then it should, through the intelligence it provides, also support the design and review of future strategies. CQuEL is no exception. Indeed the brief for this work includes the requirement that CQuEL should be consistent with, and support the work of, Natural England in relation to developing future scenarios and visions in the medium (2020) and long term (2060). Thus we have reviewed Natural England's recent use of scenarios as a tool in helping formulate their future vision and identified how CQuEL might draw upon and add value to this strategically important body of work.

To the extent that the development of Natural England's vision is partly based on the discussions arising out of its scenario work, the two are linked, although they represent quite different perspectives. The 'organisational vision' is, fundamentally, a statement about some desired future state and is used to set the 'direction of travel'. The scenarios, by contrast, are statements of what might happen under different assumptions – including potential futures that we might want to avoid. Thus discussion of 'futures thinking' within Natural England is therefore complex not least because a definitive organisation vision is yet to be presented, and the scenarios work has only just been completed. For clarity, however, it is important to distinguish these two aspects in order to identify the potential role of CQuEL.

Contexts: Vision 2060

Scenarios are devices for thinking about the future (Rounsevell and Metzger, in press). Such studies start from the premise that while it is impossible to predict the future, by considering a range of plausible or possible futures we might design better and more flexible or robust management strategies or policies (Pillkhan, 2008). Thus Natural England has used scenarios to examine the long-term challenges facing the natural environment, and to inform and test its current thinking to create a 'clear integrated vision for the natural environment to 2060'.

Natural England's futures work has involved an assessment of the likely trajectories of the major global drivers of change (Natural England, 2009a) and a review of the methods and character of past scenario studies (Natural England, 2009b). Most significantly, the work has led to the development of a set of four contrasting scenarios designed to cover the Natural England's remit that examined the focal question: *what could influence the English natural environment by 2060?* (Creedy et al., 2009). The scenarios (Table 1) explored interaction of people and society with the environment using an ethnographic futures

framework, which involved exploring how changes in people's values, culture and behaviours shape the way futures may develop.

Table 1: Overview of the four scenarios developed in *Vision 2060* (after Creedy et al., 2009)

Scenarios			
Connect for Life	*Go for Growth*	*Keep it Local*	*Succeed through Science*
Initial focus on information and communication technologies, improve productivity, little attention to the capabilities of social networking. *Though extensive social networks traditional ways of doing things become outdated*	Current trends continue, economic growth is a priority. *Life styles remain focused on consumption driven by accelerating innovation*	Initial focus on consumption, little attention paid to resource and environmental limits. *Environmental and financial crises drive protectionism reducing globalisation*	Focus on short term global productivity, little attention paid to long-term consequences for society and environment. *New market entrants gain competitive advantage through focus on innovation to safeguard long term social and environmental capital*

Note: Sections in *italics* indicate potential responses under each scenario

Table 2: Summary of the implications of the four VISION 2060 scenarios for people, biodiversity and landscape

	Scenarios			
	Connect for Life	*Go for Growth*	*Keep it Local*	*Succeed through Science*
People's engagement with the natural environment	Large numbers of people engaging frequently with the environment, often enabled through, or enhanced with, high-definition virtual reality and immersive presence	Decreasing active engagement. Few have the leisure time but, more generally, the natural environment is regarded as a resource for economic growth. Increasing view of the natural environment as a source of threat	Local pride in biodiversity and iconic landscapes. Increased awareness of the direct benefits of the natural environment particularly for food, energy and water	The natural environment is valued for the tangible benefits it can bring. Indirect benefits, including cultural and aesthetic considerations, are recognised, especially when a financial benefit can be obtained
Biodiversity	Area of semi-natural habitat increased. High species abundance and functioning land and marine ecosystems	The speed of the long-term decline in terrestrial and marine biodiversity is increasing. Islands of biodiversity in private estates. Increased pressure from invasive species and biotechnology	Reduced area of semi-natural habitat. Iconic species and habitats protected in specific locations	Biodiversity supporting ecosystem services is protected and enhanced. Technology used to avoid and reduce negative impacts. Natural systems increasingly managed but increased risk of unintended ecological consequences

Two broad conclusions have been drawn from Natural England's scenario work, namely: that the natural environment continued to have value across all of the plausible futures identified; and, that the state of the natural environment across all of these futures is highly dependent on people's choices and the values that underpin decision-making.

It is suggested, however, that the development of the present set of scenarios is merely a first step in a long processes of dialogue for Natural England. It is argued that the futures work should be used to refine Natural England's institutional vision, which aims to understand of the kinds of changes that could affect the natural environment in the future and the responses that are needed to safeguard the natural environment the output of ecosystem services. It is also argued that the scenarios will help Natural England to frame discussions about its strategy with various partner organisations, and provide a platform for linking to other initiatives such as National Ecosystem Assessment (NEA), the Living with Environmental Change Programme and the development of the European Environment Agency's 'Environmental Outlook'.

As the basis of this methodological study we have therefore examined the Natural England's current statements on its general vision and the outputs from the Vision 2060 initiative, and examined how CQuEL can best support them. We have also considered CQuEL in the context of wider initiatives such as the National Ecosystem Assessment. Our work suggests that CQuEL can make a significant contribution to futures thinking both within Natural England and in other organisations in two ways, namely by:

- better describing and understanding the geographical contexts in which future change might occur; and,
- helping to better understand how future landscapes might be valued.

We will consider each of these themes in turn.

CQuEL and Geographies of Change

Although the NCAs are the primary spatial framework proposed for CQuEL, as was noted in the report from Work Package 1 (recommendation **[R1.6]**), the mapping and monitoring of trends in ecosystem service is likely to require other geographical frameworks. It was suggested that the output of ecosystem services should initially be assessed at appropriate spatial scales, and this mapping then used to examine the ***contributions*** that individual NCAs make. The goal should be to identify how changes in the landscape character at local scales might affect the supply of these services in the short to medium term. If this argument for this kind of 'spatial logic' within CQuEL is accepted, then there is clearly an opportunity to broaden and deepen the scenario framework developed through *Vision 2060*, and indeed make more explicit the kinds of geographical futures implied by Natural England's general vision.

Vision 2060 summarised the key differences between scenarios in terms of the way people engaged with the environment, the impacts on biodiversity and landscape (Table 2). There was also an attempt to describe the geographical patterns of change that might be expected for the uplands and lowlands, and for coastal and marine environments. To add detail, the implications for settlements, woodlands and wetlands were also considered. From a review of these materials it is clear that though useful, the geographical representations of the scenario outcomes in Vision 2060 are broad-brush and qualitative in character. Thus as part of this study, we have examined the extent to which more detailed ***spatially explicit quantitative*** scenarios might be developed using the NCA framework.

The development of spatially explicit, quantitative scenarios is a major challenge for the research community (Rounsevell and Metzger, in press). Although a number of recent attempts have been made at European scales (see for example, Verburg et al. 2006; and Kienast et al., 2009) the robustness of the geographical patterns suggested for the UK is uncertain. In general, like the work undertaken by Natural England, recent scenario or future studies in the UK have not chosen to adopt a spatially explicit approach (e.g. Penniger et al., 2006, Environment Agency, 2006; Foresight, 2010). Our review suggests, however, that the NEA framework and the general characterisation of landscapes that CQuEL and other studies have provided, may offer a way forward – at least in the context of the terrestrial environment.

Specifically, the future work programme of CQuEL could contribute by:

- **Assisting Natural England in understanding how its vision could be delivered at local scales:** Although Natural England's vision is currently both general and qualitative in character, in the future it may well include or be built upon more specific quantitative long-term targets. These could include, for example, some stated policy position in relation to woodland cover[1]. Using the NEA framework and existing information about landscape character and function, it will be possible to use the CQuEL framework to suggest ***where*** particular types of change might be appropriate. In the context of woodland, for example, CQuEL could help identify where expansion of woodland might be desirable in terms of restoring or maintaining landscape character. Ideally this could be done at an individual NCA level, although it may be more appropriate to do so using some grouping of NCAs, such as that used to describe the major agricultural landscapes of England. In the context of specific ecosystem services, CQuEL could provide insights into the relative contributions that each NCA make to overall

[1] Foresight Land Use Futures Project (2010) notes, for example, that for England it is estimated that an additional 10,000 hectares of new woodland per year for the next 15 years could remove up to 50Mt CO_2 by 2050, and the Government is intending to support private planting for this purpose.

output, and therefore the areas that might be targeted through any strategy designed to sustain, enhance or restore services. As a result, Natural England's vision could be underpinned by a more explicit geographical framework; *we recommend that any future work programme for CQuEL should explicitly provide the material that would enable this to be done.*

- **Assisting Natural England in monitoring landscape and service change against its vision:** To help Natural England to achieve its vision, the information provided by CQuEL could also be used to track change against its organisational goals. Given the design for CQuEL suggested in Work Package 1, it will be possible to use the information on the current stocks and condition of the key landscape assets, to construct measures of 'distance to target' in relation to Natural England's overall vision for landscape character and function. The monitoring could be done at the level of specific quantitative targets, as in the case of woodland cover and climate change mitigation, or in more qualitative terms using the approach established for landscape character. As Work Package 1 (recommendation **[R1.8]** and page 24) has recommended, the assessment matrix currently used to assess changes in landscape character could be adapted to include reference to changes in service output. Thus CQuEL could be used to appraise how individual NCAs or groupings of them stand in relation to the goal of 'safeguarding the natural environment the output of ecosystem services'. In Work Package 1, we have shown how the concept established in CQC of assessing where 'change matters', can be extended to ecosystem services; the revised set NCA descriptions currently being developed by Natural England, and the integrated set of landscape and functional objectives that are included within them, will provide the template for this assessment. As a result outputs from CQuEL can be more closely aligned with the general needs of Natural England in relation to reviewing progress towards its vision, than was the case with CQC. ***We recommend that the task of monitoring landscape and service change against the Natural England vision should be an explicit part of any future work programme for CQuEL.***
- **Assessing change in landscape character and function against alternative plausible futures:** The three areas identified above, in which CQuEL could contribute to the wider needs of Natural England, all involve looking that trends in landscape character and function and making an assessment of their significance against some ***desired*** future state (i.e. Natural England's vision or objectives). Although this must be a primary focus of any future analysis, it is also clear that CQuEL can be used to look at trends in relation to ***other*** possible futures, such as those described in the *Vision 2060* exercise. At present, the scenarios summarised in Table 2 have been used to look at a range of plausible futures and what Natural England might do to ensure that its future strategies could cope with a range of different possibilities. This framework has been adopted to ensure that the organisational vision is as robust as possible. Our review suggests, however, that additionally it is possible to identify some distinctive geographical patterns that might be associated with each of the potential futures, and that an understanding of these can be used to add a further layer to the interpretation of the monitoring data provided by CQuEL. A comparison of change against the patterns suggested by these scenarios may provide some early warnings of the particular types of development implied by these alternative futures. It may also provide a better understanding of the kinds of factors that may knock Natural England's vision 'off course' or prevent it from being realised.

An analysis of the geographical patterns associated each of Natural England's four scenarios is currently being made as part of the National Ecosystem Assessment. ***We recommend that the outputs from the NEA are considered as part of the future CQuEL work programme, and used to understand how***

contemporary trends in landscape character and function at NCA level relate to the contrasting geographical futures suggested in Vision 2060.

CQuEL and the valuation of landscape character and function

The monetary valuation of ecosystem services is currently the focus of intense research interest. Internationally, the costs of biodiversity loss and the decline in ecosystem services are being considered in *TEEB*[2] (The Economics of Ecosystems and Biodiversity). In the UK, Defra have recently published guidelines for the valuation of ecosystem services to help ensure that the value of the environment is fully taken into account by decision makers[3]. The NEA is taking this theme forward, by attempting to make more comprehensive estimates of historic changes in value for a suite of ecosystem services over the post war period, and the way these values might change across a range of plausible futures. The value of landscape has also been a focus of interest for policy makers. The *Scoping Study on Agricultural Landscape Valuation*[4]*,* for example, has recently sought to investigate the extent to which estimates of the value agricultural landscapes can be made in terms of their component features.

Since policies, programmes and projects are now increasingly subjected to economic assessment and evaluation, it is likely that attempts to include different forms of environmental valuation in decision making will grow. It is therefore appropriate to consider what contribution CQuEL might make to the evidence base required by such work. Our review suggests that values and valuation issues are relevant in two ways:

- **Implicitly, in the context of judging the significance of change:** CQuEL aims to identify where change in landscape character and function is occurring and make some judgement about its significance. The basis of making these judgements are the character area descriptions and the integrated objectives that they set out for each NCA. While they are not presented as such, it is clear that implicitly these objectives represent a set of non-monetary values; they describe what people consider to be important in each area and directions of change that are more or less desirable. In fact, when the objectives are looked at in this way, CQuEL itself may be regarded as essentially a multi-criteria valuation exercise.

  Although consultation was used in CQC to identify and confirm the criteria against which the significance of changes was judged, this was entirely expert-based. It was recognised that there would have been some merit in widening the scope of the consultation to include members of the public, but the resources available at that time did not allow this to be done. In the context of CQuEL, however, the opportunity exists to broaden the basis on which the assessment of change is made.

  Whereas CQC had to construct a set of evaluation criteria in order to proceed, the recent work undertaken by Natural England means that, for CQuEL, this preliminary work will already have been done. The revised set of NCA descriptions that will soon become available will provide the contextual information needed for the assessment of change in landscape character and function made in CQuEL. However, it is important to note that these descriptions and particularly the objectives contained within them will in the future have to be reviewed and possibly revised. The implication of

[2] www.teebweb.org

[3] http://www.defra.gov.uk/environment/policy/natural-environ/documents/eco-valuing.pdf

[4] https://statistics.defra.gov.uk/esg/reports/agrlandval/Mainrep.pdf

accepting that the design of policy and management strategies should be based on an 'ecosystems approach' is that it they must be adaptable; that is we acknowledge that they may have to be revised to take account of new situations and trends as they arise. ***We recommend therefore that the monitoring output provided by CQuEL should be used by Natural England to look at the initial set of landscape objectives critically and to ensure that there is consistency between the national and local scales and that both public and expert opinion are taken into account.***

In making this recommendation we are aware of the planned launch of Natural England's *21st Century Landscapes* in April 2011. As we have suggested in Work Package 1 (recommendation WP1.14), an initial assessment of change in landscape character and function based on historic data could be available by this time, and this, together with the assessment of change in relation to Natural England's vision and the four *Vision 2060* scenarios could be used to elicit the public's views on the general nature of change in the countryside. A discussion of desired future change based on these materials could inform the assessment framework used in the subsequent phases of CQuEL. Consultation based on these materials could also help identify issues of consistency between national and local objectives, and the ways future landscape might be valued by different types of people. The future consultation on landscape and service values might also make use of the regular surveys of public opinion now being commissioned by Natural England. The implications of our recommendations for the design of the consultation phases of CQuEL are considered further the discussion of the future CQuEL communication plan in Work Package 3.

- **Explicitly, in the context of building a valuation database for landscape character and function:** Although values and valuation are implicit in CQuEL, our discussions suggests that it is also clear that future work can contribute to the more explicit monetary valuation of landscape character and landscape function.

  The importance of developing benefits transfer methodologies in the context of valuing ecosystem services has been widely acknowledged. Benefits transfer is a process by which the estimates of economic values that have been produces in one situation (the 'study site') can be applied to another for which values are required (the 'policy site'). In its valuation guidelines, for example, Defra suggests that the more widespread use of benefits transfer techniques may be a key step in the practical use of environmental values for policy-making; its major advantages is that it can eliminate the necessity for primary valuation for each cost-benefit study studies, which can often be time consuming and costly to undertake.

  The problem that benefits transfer poses is how to translate values accurately. One approach is to make use of 'transfer functions' which allow value to be adjusted according to the differences between the study and policy sites in relation to, say, incomes or demographic characteristics. As the Defra guidelines note, however, the procedures are by no means straightforward. The issues that surround the use of benefits transfer in relation to landscape have been explored in the *Scoping Study on Agricultural Landscape Valuation*, which concludes that in these contexts, the methods must be used with considerable care. Landscape, the authors suggest, is a complex social and cultural construction and the estimation of values is more sensitive to the natural, cultural and social conditions of the original surveys than for other environmental goods. They observe that there are 'no universal rules by which people value landscape quality and the way that people think about this matter varies according to the nature of the individuals, their social groups and cultures and the time

at which the study is carried out'[5], and suggest that further work tailored to local circumstances is required in order to meet specific policy needs. To achieve this they recommend that a classification of the agricultural landscapes of England is needed; since these groupings would have similar character they could form the basis of for future valuation studies. Both the Defra *Guidelines* and the *Scoping Study* emphasis the opportunity that geographical information systems offer in taking such benefits transfer work forward.

Clearly the spatial framework and database on landscape character and function that will be generated by CQuEL could contribute a significant part of the data infrastructure required in developing benefits transfer methods further. Combined with the work discussed above, involving the attempt to make the *Vision 2060* scenarios spatially explicit, this work could also support the construction of the 'counter-factuals' needed in primary valuation studies to assess the marginal changes in value under different sets of assumptions. ***We recommend therefore that the potential links between the database on landscape character and function constructed within CQuEL, and the resources needed to support the future valuation work that is likely to be undertaken by Natural England, is considered further. Although it is unlikely that this exercise could be accommodated with the work programme currently envisaged for CQuEL, we suggest that it is important that the opportunities that the work provides for the construction of a benefits transfer database are identified and exploited.***

[5] https://statistics.defra.gov.uk/esg/reports/agrlandval/Execsumm.pdf, para 27, p. vi.

Implications for the CQuEL Work Programme

Our review suggests that although CQuEL is primarily envisaged as a monitoring tool, the work has considerable implications for other initiatives within Natural England; namely, the development of its Land Use Strategy and organisational vision for the natural environment, and the application of the work arising out of its *Vision 2060* scenario work. Thus, we have recommended that:

- the historic and proposed assessment of change in landscape character and function be used to assess the extent to which Natural England's land use strategy and institutional vision for the natural environment are being achieved;
- spatially explicit representations of the Natural England's Vision 2060 scenarios be developed as the basis for interpreting alternative trajectories of change;
- the outputs from the National Ecosystem Assessment be used to identify how contemporary trends in landscape character and function at NCA level relate to the contrasting geographical futures suggested in Vision 2060;
- the results of CQuEL are used to check the consistency between objectives for landscape character and function at national and local scales using both public and expert based opinion; and,
- the evidence base created by CQuEL and the framework of the National Character Areas are used to help construct a benefits transfer database in support Natural England's future valuation work.

As noted above, it is probably not appropriate for the benefits transfer work to be included in the CQuEL work programme. However, the first four recommendations should, we suggest, be incorporated, as shown in Table 3. The work elements shown in the Table are cross-referenced with the structure and timing of the programme suggested in the Work Package 1 (page 27) report.

Table 1: Timing of CQuEL work elements related to refining Natural England's landscape strategy and scenarios thinking

Recommended Tasks	Timing
Assessing the Natural England land use strategy and institutional vision	• preliminary review as part of assessment of implications of historic change using existing NEA and CQC data in 2010, possibly linked to the production of the 'England Synthesis' for the NEA; and, • final review presented as part of end of project report in 2012.
Developing spatially explicit framework for Vision 2060 *scenarios*	• presented in support of the publication of Natural England's 21st Century Landscapes launch, April 2011, with final analysis published in Dec 2011.
Exploring outputs of NEA for Natural England's Vision 2060 *scenarios*	
Assessing consistency between objectives for landscape character and function at national and local scales	• analysis undertaken as part of the work for the construction and consultation on CQC III indicator, 2011-2012; and, • conclusions published as part of final report, 2012.

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