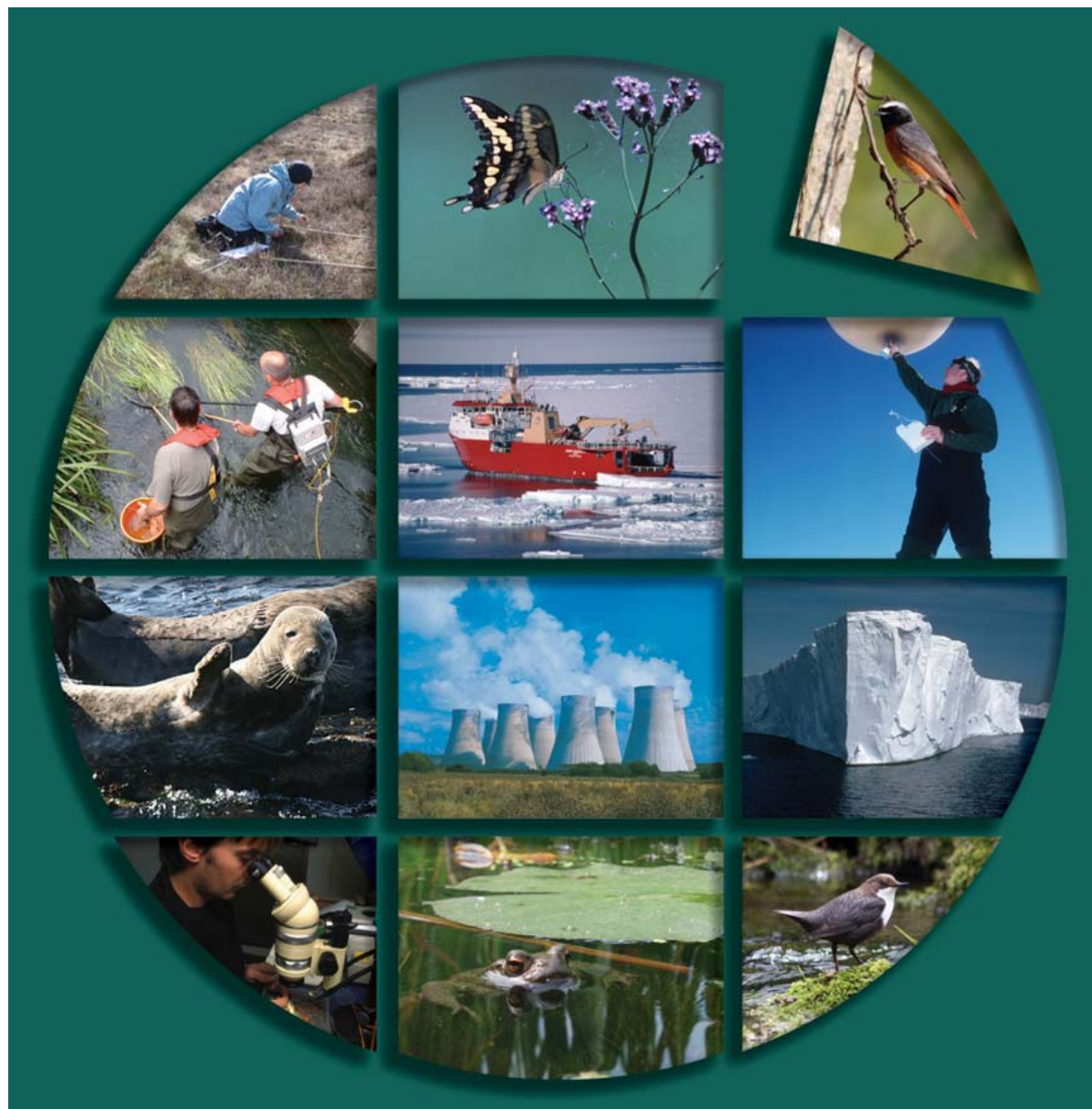


## UK Environmental Observation Framework



### **Assessing the Socio-economic Observation needs within the UK-EOF**

**A Report of the Key Findings & Future Options presented  
at a Socio-economic Workshop (September 2010)**

**The Social Marketing Practice & UK-EOF**

**Version 1.3, November 2010**

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The following report was written by The Social Marketing Practice and edited by the UK-EOF (in the light of post workshop comments received from attending delegates).

## EXECUTIVE SUMMARY

Environmental observation lies at the heart of understanding and managing our changing environment. The UK-EOF programme holds metadata information on environmental observations undertaken by or for the UK. Its funders have identified the need to broaden the scope to include environmental socio-economic data to take into account the impact of and consequences to human behaviour. As a first step, the UK-EOF invited a multi-disciplinary team of natural, social and economic scientists to a workshop on 29 September 2010. In the context of six of the nine Headline Environmental Issues, identified in the UK-EOF's Towards a Statement of Need, the following questions were addressed:

***What are the key socio-economic factors thought to influence environmental pressures and impacts (and vice versa)?*** A series of 8 socio-economic themes were identified: our culture, identity and our values, where we live and our living environment, making a living and increasing prosperity, sustaining ourselves – food, clothing, utilities (energy, water, waste disposal & use of materials), our relationships and social connectivity, longevity and our health and well-being, our recreational norms, and getting around / mobility.

***What environmental socio-economic information is needed and where can authoritative data be found?*** A total of 260 datasets and a further 21 data gaps were identified. These are provided as a list in Annex 3 and are representative of work in progress rather than a definitive set. The key datasets identified for many questions were:

- **Office of National Statistics (ONS) Census providing data on population, migration and housing;**
- **National Travel Survey conducted by Department for Transport (DfT);**
- **Monitor on Engagement with Natural Environment (MENE) survey (Natural England);**
- **Supermarket shopping data (held by supermarket loyalty cards such as Tesco Clubcard and Sainsbury's Nectar card);**
- **Land Use Statistics (Generalised Land Use Database – GLUD)**
- **UK Land Cover Map (held by Centre for Ecology and Hydrology, CEH).**
- **Public Health Statistics (sourced via the Health Protection Agency);**
- **Hospital Episode Data (sourced via HES Online);**
- **ONS Labour Force Survey;**
- **DWP data on employment, redundancy, income and benefits.**
- **Understanding Society: UK Longitudinal Household Survey.**

***What opportunities exist for future collaboration between natural science and socio-economic science communities?*** Several opportunities were suggested towards improving understanding between scientists which fosters inter-disciplinary and collaborative working. These included:

1. Building a Community of Practice through a 'user network' to facilitate communication between users of specific datasets;
2. Encouraging face-to-face activity between scientists; in particular, holding workshops or group sessions in which environmental datasets held within the UK-EOF Observation Activity catalogue can be discussed by social and natural scientists (and *vice-versa*), along with an explanation of their potential use and how the data can be accessed;
3. The specific role of UK-EOF in facilitating collaboration by providing an information infrastructure;
4. Incorporating socio-economic metadata into the UK-EOF Observation Activity Catalogue and making the appropriate links to relevant data repositories or hubs, so that there is one place in which data sources can be discovered; and
5. Writing guidance which may help users to understand the scientific value of joining socioeconomic and environmental data, provide examples of both the analyses and applications, as well as direction to where social, economic and environmental datasets can be found. Potential limitations and considerations should also be included.

Finally, a number of potentially valuable stakeholders were identified, with whom to explore collaboration. These included principal data hubs, UK Public Health Association and Defra's Sustainable Development Research Network.

# 1. INTRODUCTION

## 1.1 Aims of UK-EOF

The UK faces fundamental environmental issues and challenges. Environmental observation<sup>1</sup> will lie at the heart of understanding and managing our changing environment, guiding current and future policy, science and innovation, and understanding the economic benefits and impacts on our quality of life. The UK Environmental Observation Framework (UK-EOF) is at least a five-year programme<sup>2</sup>, launched in 2008, to capture the suite of environment monitoring observations and surveillance needed to tackle the challenges associated with our changing natural environment. The aims of UK-EOF are to:

- Develop a holistic picture of the overall evidence needs of the UK and the role of observations, now and in the future;
- Understand the use of observation data and tools for knowledge transfer;
- Enable funding mechanisms for long-term observations;
- Share knowledge and information; and build a strong community to share data and expertise.

The UK monitoring community is large, diverse and fragmented. Their observation needs arise from local to global environmental problems and require a diverse range of measurements and technologies to address them. Developing ‘a holistic picture of the overall evidence needs and the role of observations in providing them’ is therefore a major goal of the UK-EOF. *‘Towards a Statement of Need’*<sup>3</sup> is the first step to collecting the UK’s requirements for observations. It describes the nine headline issues that require observations across six environmental domains (see Box 1).

Information on the UK’s requirements for natural science observations has been gathered from a range of experts in their field via a series of environmental domain-based workshops. The outputs have been captured in a series of ‘Observation Requirements Tables’ which provide information on a series of sub-issues and the questions that need to be answered under each domain. Almost 300 sub-issues and questions were identified from the workshops - many of these issues would require cross-sectoral information from more than one environmental domain. The Observation Requirements Tables are not final and the UK-EOF acknowledge that some gaps exist in the information.

The UK-EOF has developed a suite of tools including the Environmental Observation Activity Catalogue<sup>4</sup>. The catalogue aims to hold metadata information on all of the environmental observations undertaken by or for the UK by public, private or voluntary organisations. The

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<sup>1</sup> Includes all monitoring / surveillance, all technologies from satellite data to butterfly counts, made on behalf of or by the UK.

<sup>2</sup> The UK-EOF is a self contained 5 year programme of Living With Environmental Change (LWEC).

<sup>3</sup> See <http://www.ukeof.org.uk/documents/Towards-a-Statement-of-Need.pdf>.

<sup>4</sup> [www.ukeof.org.uk](http://www.ukeof.org.uk)

catalogue allows users to search for observations and discover what, where, when and why observation activities are being undertaken, and who collects and holds the data.

**Box 1: Headline Issues & Environmental Domains**

Environmental Domains	Headline Environmental Issues
<p style="text-align: center;"> <b>Atmosphere</b>  <b>Biosphere</b>  <b>Cryosphere</b>  <b>Freshwater &amp; Groundwater</b>  <b>Lithosphere &amp; Pedosphere</b>  <b>Marine</b> </p>	<p>How observations may help to:</p> <ul style="list-style-type: none"> <li>• Understand the pressures on all environments, particularly in the light of <u>Population Growth &amp; Pollution</u>.</li> <li>• Support <u>Economic Growth</u> reconciled with sustainable use of natural resources such as aggregates, minerals &amp; energy – including nuclear, biofuel &amp; renewable energy.</li> <li>• Understand <u>Future States of the Earth</u>, particularly the carbon cycle (but not excluding other element cycles) in domains such as air, water, soil and seas.</li> <li>• Understand the consequences of environmental change for <u>Fisheries, Agriculture, Food Security &amp; Water Supply</u>.</li> <li>• Understand the consequences of environmental change for <u>Human Health, Wealth &amp; Well-being</u>.</li> <li>• Understand, avoid and mitigate the effects of <u>Extreme Events &amp; Disasters</u>.</li> <li>• Understand and reduce the impacts of environmental change on marine &amp; terrestrial <u>Biological Diversity, including Ecosystems &amp; the Services they provide</u>.</li> <li>• Understand <u>Climate Variability and climate change within earth system science</u>.</li> <li>• Stimulate scientific and <u>Technological advancement and innovation</u>.</li> </ul>

**1.2 Inclusion of Social and Economic Information**

Towards a Statement of Need recognised that there are many issues that arise as a result of direct or indirect human activities. The major funders recommended that the UK-EOF broaden its scope to include relevant environmental socio-economic data. Professor Peter Elias, the ESRC Strategic Advisor (Data Resources), comments:

“Human behaviour, in terms of how and where we live, the work we do, what we consume and produce and the ways in which we spend our leisure time, impacts upon the environment in a wide variety of ways. Conversely, changes in environmental conditions may influence human behaviour – relocation in response to flooding risks being such an example.

Our ability to understand and, hopefully, influence these processes requires us to make the link between environmental conditions and human behaviour. While we have made significant advances in measuring and modelling aspects of our environment, such as anthropogenic CO<sub>2</sub> emissions and climate change, changes in water and air quality, we have not made such rapid progress in understanding how these relate to human behaviour.

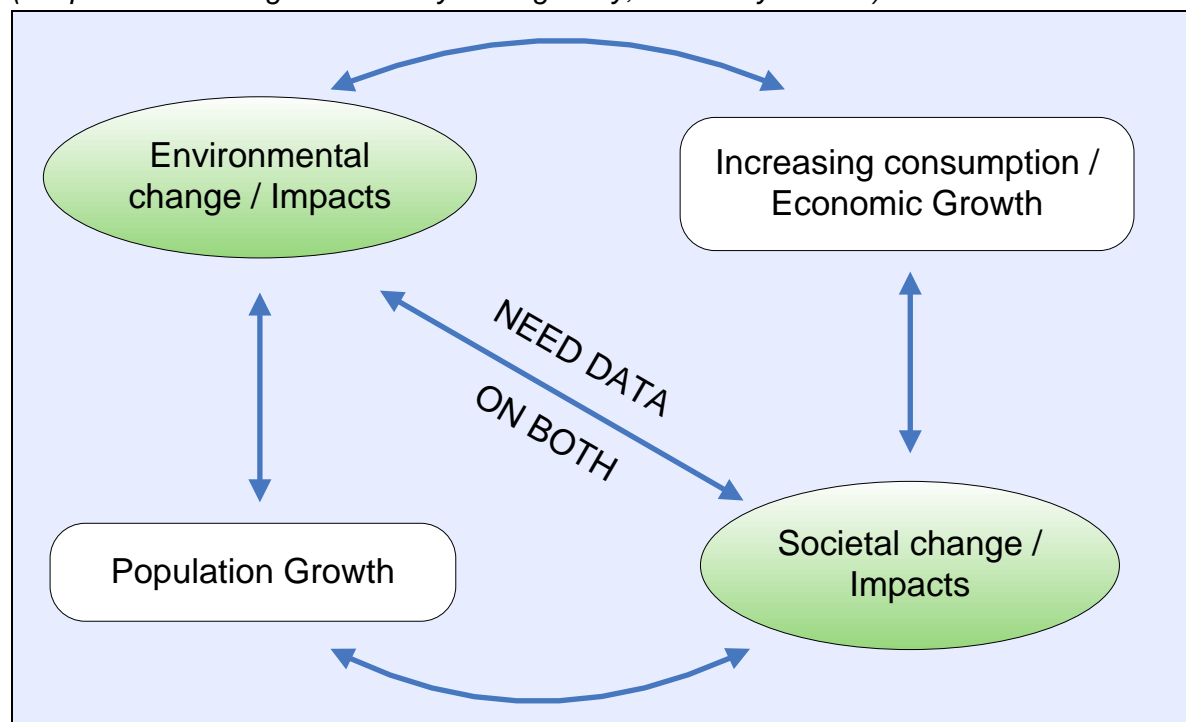
Linking environmental observation to the measurement of social and economic behaviour is central to this vital development work. Much relevant data exist which can inform this work. The aim of this project was to begin to identify and publicise such data, thus stimulating multi disciplinary research on the links between human behaviour and our environment.”

If the key natural environment questions are to be answered, then there remains a need to identify the cross-linkages with socio-economic issues (see Figure 1).

Peter Costigan (Science Co-ordinator for Environment & Rural Group in Defra) commented:

“When UK-EOF was first established it concentrated on natural science datasets, as there was a significant task to be addressed to better co-ordinate the gathering of environmental information. Useful progress has been made, but it is increasingly apparent that there is a need to facilitate interchange between natural science and socio-economic datasets to help to address real world issues, and to promote the required interdisciplinary approaches. It is particularly timely, with the downward pressure on budgets and the new focus on the Big Society to develop closer links between natural science and socio-economic domains.”

**Figure 1: Cross-linkages between environmental and social impacts and change**  
*(adapted from a diagram courtesy of Meg Huby, University of York)*



As a first step in the project to include relevant social and economic information, the UK-EOF held a one-day workshop on 29 September 2010 in London inviting a multi-disciplinary team of natural, social and economic scientists. The aims of the workshop were to identify:

- The key socio-economic factors which are thought to influence environmental pressures and impacts (and vice versa);



- What environmental socio-economic information is needed and where authoritative data can be found; and
- Opportunities for future collaboration between science communities.

### 1.2.1 Workshop Structure

Over 20 delegates participated in the workshop. A copy of the attendee list can be found in Annex 1. The workshop was structured as follows:

- **Morning Session 1** - Appraising the headline / sub-issues from a socio-economic perspective. During this session delegates worked through exercises to (a) identify the critical socio-economic themes (and any salient factors) which were thought to influence environmental pressures and impacts (and vice versa); (b) identify why the critical socio-economic factors were selected; and (c) identify what socio-economic data exist (or are needed) to address the sub-issues?
- **Afternoon Session 2** - Examining the socio-economic data and determining its accessibility. During this session delegates were asked to address a series of specific questions to categorise the data they identified in Session 1: Where are the datasets held? Who collects them? How frequently are they collected? Are there any limitations to access, for example, IP? Who funds the data?

Six of the nine Headline Environmental Issues were addressed at the workshop. These were selected on the basis of their strong relevance to direct or indirect human activities (see Box 2). The remaining headline issues (Future States of the Earth (carbon & other element cycles); Climate Variability; and Technology & Innovation) are related specifically to natural environment monitoring observations and were, therefore, excluded as working titles in the socio-economic workshop. However, important issues were not lost in the process and, where relevant, were brought forward and categorised under one of the headline issues.

#### Box 2: The Six Headline Issues Explored in the Socio-economic Workshop

- Population Growth & Pollution
- Economic Growth & Sustainable Use of Resources
- Fisheries, Agriculture, Food Security & Water Supply
- Human Health, Wealth & Well-being
- Extreme Events & Disasters
- Biological Diversity, Ecosystems & Services

Under each Headline Issue, a set of sub-issues were explored. These were shortlisted from an in-depth analysis of the suite of 'Observation Requirements Tables'.

An example of the headline and sub-issues covered is given in Table 1 and a full set is available in Annex 3. A copy of the workshop agenda can be found in Annex 1. At the workshop groups of delegates were assigned two headline issues (addressing about 10 sub-issues at each table). Further detail on the workshop outputs and key findings is provided in Section 2.



**Table 1: Example Headline Issues & Sub Issues Explored at the Socio-economic Workshop (for a full list see Annex 3)**

Headline Issue	Sub-Issue	What are the critical socio-economic factors that influence the following sub-issues?
Population Growth & Pollution	Impacts on Resources	Increasing use of minerals, energy & raw materials for infrastructure & groundwater
	Urbanisation	Increasing urbanisation, spread of housing requiring associated services and infrastructure
	Water resources	Provision of water and water quality

### 1.2.2 Rationale for the Socio-economic Themes

A series of socio-economic themes were developed prior to the workshop and discussed with both the Defra social science team and ESRC. The themes are outlined in Section 2.1. The themes reflect aspects of everyday living and were devised as a 'checklist' to assist delegates in identifying specific data sources relevant to sub-issues, i.e. to help bridge the gap between each sub-issue and different types of data.

All the themes are thought to be important for natural scientists to consider when solving environmental problems. Not all themes, however, are relevant to each headline issue as some will have more relevance than others. During the workshop delegates were asked to identify which socio-economic themes they thought were most relevant (see Section 2.1).

## 2. WORKSHOP OUTPUTS & KEY FINDINGS

During the workshop, delegates captured their findings in a series of data sheets. These were subsequently transcribed into an Excel spreadsheet (part copied in Annex 3), and provide a complete record of the outputs from the exercises conducted on the day.

The outputs have been analysed to provide the key findings and options for future action. This report provides an interpretation of those outputs and views provided by delegates, i.e. the analysis is based on their views and impressions. Whilst the workshop is designed to assist the UK-EOF with identifying socio-economic data, which are thought to influence environmental pressures and impacts (and vice versa), many of the datasets identified were for England and Wales. Therefore further work will be required to fill any gaps, complete the information and include corresponding datasets for other parts of the UK.

### 2.1 What are the key socio-economic factors which are thought to influence environmental pressures and impacts (and vice versa)?

The socio-economic themes, provided in Table 2, were examined by delegates as a first stage in the workshop process. Some minor additions were made.

An analysis of the socio-economic themes, identified by delegates as most relevant, shows that all themes were represented across the headline issues. One notable exception, however, was the 'Relationships and Social Connectivity' theme which was only identified once in relation to travel and transport. In addition, some themes were identified as more relevant than others when addressing certain headline issues. For example, 'Making a Living' and 'Getting Around' were identified more frequently under 'Economic Growth'; and 'Where we Live' and 'Our Recreational Norms' were identified more frequently under 'Human Health, Wealth & Wellbeing'.

**Table 2: Socio-economic Themes Influencing Environmental Pressure and Impacts (and vice versa) – as modified by delegates** (*modifications shown in italicised bold text*)

Socio-economic themes	Socio-economic factors (examples of socio-economic themes)
<b>Our culture, identity and our values</b>	Self-sufficiency, frugality, consumerism, ethnicity, religion, beliefs, <i>attitudes</i>
<b>Where we live and our living environment</b>	Rurality, urbanisation, housing type / tenure, <i>migration</i>
<b>Making a living and increasing prosperity</b>	Income, employment, deprivation, knowledge & skills, education
<b>Sustaining ourselves – food, clothing, utilities (energy, water, waste disposal &amp; <i>use of materials</i>)</b>	Purchasing patterns, price, quality, identity, use & disposal patterns
<b>Our relationships and social connectivity</b>	Networks, relationships and social norms, <i>life stages</i>
<b>Longevity, our health &amp; well-being</b>	<i>Changing age structure</i> , general health, mobility, work-life balance, <i>immediate risk to health</i>
<b>Our recreational norms</b>	Activities, accessibility, green spaces, travel & holidays
<b>Getting around / <i>mobility</i></b>	Car ownership, modal infrastructure

Feedback from using the socio-economic themes varied from table to table as follows:

- Some found that it didn't help them directly to identify data;
- Others thought that it provided a useful reminder of the range of socio-economic factors that needed to be considered;
- Others thought that it would provide a useful framework for categorising specific data sources (i.e. as search criteria in a catalogue);
- Whilst others felt that it helped them focus specifically on the relevant aspects of human behaviour and then to identify relevant data sources (the intended purpose).

There was a lack of consistency in how the themes were used; this depended on the approach adopted by each table, i.e. as a source for identifying datasets, or to qualify why

they had selected datasets. This variety is acceptable at this early stage of identifying datasets and is complemented with further work following the workshop to allocate each dataset to a specific socio-economic theme (see Annex 4).

## **2.2 What socio-economic datasets exist, where are they and who holds them?**

The most relevant socio economic themes were assigned to each of the subissues (see Annex 3). The key data and information needs, which were thought relevant to addressing the sub-issues, were then identified. After the workshop the worksheets were analysed as follows:

1. Number and type of datasets identified in relation to the headline issues and socio-economic themes (Section 2.2.1);
2. Identifying recurrent datasets or types of data by matching those with the same or similar descriptors;
3. Identifying potential gaps in data needs;
4. Examining accessibility, identifying key sources / providers of data.

### **2.2.1 Number & Type of Existing Datasets**

A total of 260 datasets (both quantitative and qualitative; social, economic and natural science – with bias towards social or economic) that are thought to be in existence were identified at the workshop. The datasets have been grouped under each headline issue and classified by socio-economic theme. Table 3 provides a summary of the number of datasets identified and the assigned classification. Details captured at the workshop are in Annex 3.

Table 3 shows the areas that are most dominant in terms of datasets identified. These were Economic Growth and Making a Living. Further investigations are required to determine how effectively the data could be used to inform each headline issue (or part of the headline issue). It should be noted that there were a number of datasets which could not be classified to a specific socio-economic theme because they were more environmentally focused or their descriptions lacked definition or spanned several themes, for example, Generalised Land Use Data and Understanding Society: The UK Longitudinal Household Survey<sup>5</sup> (see Annex 4). The gaps in data and information needs are discussed in Section 2.2.3.

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<sup>5</sup> A major new Longitudinal Study, forming a significant source of information covering an enormous range of issues. The data will come on line from 2011, stored on the UK Data Archive. This is partly a continuation of the British Household Panel Survey as subjects from this survey form a core sample.

**Table 3: Number of Datasets Identified (by headline issue and socio-economic theme)**

Socio-economic Theme	Population Growth & Pollution	Economic Growth & Sustainable Use of Resources	Fisheries, Agriculture, Food Security & Water Supply	Human Health, Wealth & Well-being	Extreme Events & Disasters	Biological Diversity, Ecosystems & Services	TOTAL
Our culture, identity and our values	8	10	0	1	3	8	30
Where we live and our living environment	5	6	1	11	10	6	39
Making a living and increasing prosperity	3	26	9	6	2	16	62
Sustaining ourselves	18	11	4	0	0	5	38
Our relationships and social connectivity	0	0	0	0	0	0	0
Longevity, our health & well-being	6	3	1	8	1	0	19
Our recreational norms	9	9	3	9	0	7	37
Getting around / mobility	1	14	0	2	0	1	18
Unclassified	6	2	2	4	0	3	17
<b>EXISTING DATASETS</b>	<b>56</b>	<b>81</b>	<b>20</b>	<b>41</b>	<b>16</b>	<b>46</b>	<b>260</b>
<b>Gaps in data / information needs</b>	<b>1</b>	<b>5</b>	<b>2</b>	<b>4</b>	<b>9</b>	<b>0</b>	<b>21</b>
<b>TOTAL</b>	<b>57</b>	<b>86</b>	<b>22</b>	<b>45</b>	<b>25</b>	<b>46</b>	<b>281</b>

### 2.2.2 Common Data Types and Recurring Datasets

Often rather than identifying specific datasets a broad range of descriptors were used to describe the type of data required across the headline issues, for example around population patterns and movements (Census data, local government statistics, migration data, population density, population levels, demography etc). In many cases, these described what appear to be the same or similar datasets or sources. Therefore to identify the key datasets, a search was conducted to identify recurring datasets and group descriptors that appeared similar or the same. Annex 5 provides further detail and Table 4 summarises the recurring types of data and if identified, relevant datasets.

**In summary, the key datasets that emerged for many questions are:**

- **ONS Census providing data on population, migration and housing;**
- **National Travel Survey (DfT);**
- **Monitor on Engagement with the Natural Environment (MENE) survey (Natural England);**
- **Supermarket shopping data (held by supermarket loyalty cards such as Tesco Clubcard and Sainsbury's Nectar card) (*access is extremely restricted*);**
- **Land Use Statistics (Generalised Land Use Database – GLUD);**

- **UK Land Cover Map (held by Centre for Ecology and Hydrology, CEH).**
- **Public Health Statistics (sourced via the Health Protection Agency);**
- **Hospital Episode Data (sourced via HES Online);**
- **ONS Labour Force Survey;**
- **DWP data on employment, redundancy, income and benefits.**
- **Understanding Society: UK Longitudinal Household Survey<sup>6</sup>**

At a secondary level there were additional datasets that were identified less frequently:

- **National Day Visitor Statistics (held by ONS) and tourism data (held by the Joint Tourist Council);**
- **Family, Food and Expenditure survey (now *Living Costs & Food Survey*) (held by UK Data Archive);**
- **GP data (sourced via the NHS online GP practice results database)**

A core dataset, such as the Census (provided by ONS) was said to be used frequently because this provided a basis for understanding the social dynamics of the population (for example, income, gender, age, land use etc). However, it provides little relevance on its own (see linking datasets in Section 2.2.6).

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<sup>6</sup> Although Understanding Society does not appear in Table 4 or Annex 5, the survey was mentioned under several of the headline issues (see Annex 3).

**Table 4: Recurring Datasets Areas (see Annex 5 for details of the grouped datasets)**

Datasets with same or similar description	Number of Datasets	Comments on what was identified by the delegates	Further Potential Data / Information Needs
<b>Attitudes data</b>	22	These data cover a wide range of environmental contexts relevant to a number of headline issues (for example, pro-environmental, biodiversity, energy, renewable energy and travel attitudes). There is no single source for these data although during the workshop Defra (pro-environmental attitudes) and DfT (travel attitudes) were cited as potential sources. Post workshop Understanding Society: The UK Longitudinal Survey was highlighted as a source for information on attitudes and behaviours related to environmental issues, such as energy, transport, air quality, global warming etc.	There were no 'attitudes' datasets identified under Fisheries, Agriculture, Food Security & Water Supply and Health, Wealth & Wellbeing. Subsequent analysis shows that datasets are required specifically on the socio-economic context for the following (recognising that in some areas the natural environment datasets are already in existence): <ul style="list-style-type: none"> <li>• Air pollution</li> <li>• <b>Extreme events</b></li> <li>• Flooding and flood risk</li> <li>• Food</li> <li>• Nuclear power</li> <li>• Sustainable fish</li> <li>• Water pollution</li> </ul>
<b>Population, migration &amp; housing data</b>	14	All of these data can be derived from one key source, i.e. ONS Census data.	The headline issue where Census data was not identified was Fisheries, Agriculture, Food & Water. One would expect to find a need for Census data to address this issue. For example, changes in population impacting on increases in demand for fish, agriculture, food and water.
<b>Transport &amp; travel data</b>	14	The DfT National Travel Survey is a key dataset. Other datasets, infrequently identified, were passenger statistics for air, rail and sea. The headline issue that was dominated by data was Economic Growth.	It is notable that there were no datasets identified in relation to <b>'Extreme Events'</b> . There is potential significant disruption to economic activity as a result of extreme events, for example volcanic activity and flooding.
<b>Tourism &amp; visitor data</b>	13	The key dataset identified multiple times was the MENE (Monitor on Engagement with Natural Environment) survey by Natural England. In addition, National Day Visitor Statistics (held by ONS) and tourism data (held by the Joint Tourist Council) were also identified as key sources.	No further potential data or additional information needs were identified.
<b>Supermarkets, retail &amp; food data</b>	11	These datasets are relevant to understanding consumption patterns of food. The key sources identified were supermarket shopping data (held by supermarket loyalty	Supermarket data was not identified by delegates under Population Growth. However, it would be useful to understand changes in consumer purchasing patterns as population increases

Datasets with same or similar description	Number of Datasets	Comments on what was identified by the delegates	Further Potential Data / Information Needs
		cards such as Tesco Clubcard and Sainsbury's Nectar card); and the Living Costs and Food Survey (formerly the Family, Food & Expenditure survey, held by UK Data Archive).	and changes over time. No questions or needs that would require supermarket or retail information to provide answers were identified under <b>Extreme Events</b> , Human Health, Wealth & Wellbeing nor biodiversity.
<b>Land use data</b>	10	A number of diverse datasets were identified by delegates on 'land use' across the headline issues. Both the Generalised Land Use Database (GLUD) and National Land Use Database (NLUD) were cited many times as was the EU CORINE land over database (sourced via the European Environment Agency). The GLUD is held by the ONS and gives a snapshot of land use for England in 2001 & 2005. The NLUD has not been developed and only the NLUD for Previously Developed land (NLUD-PDL), managed by the Homes and Communities Agency, exists. The EU CORINE land cover database covers the whole of Europe, however the UK entry within this database is a generalised version of the UK Land Cover Map held by CEH. Comments following the workshop suggest that despite not being explicating cited within the workshop, the UK Land Cover Map may be the most useful map for considering Land use within the UK.	There was a slight bias towards datasets in Population Growth and an absence under <b>Extreme Events</b> .
<b>Health data</b>	8	Health data was identified under the key issues of Population Growth and Health, Wealth & Wellbeing. There were two key datasets identified by delegates. These were: Public Health Statistics (sourced via the Health Protection Agency), and Hospital Episode Data (sourced via HES Online). In addition, delegates identified GP data (sourced via the NHS online GP practice results database).	There were no datasets identified under <b>Extreme Events</b> which is relevant to health, for example, impact of flooding on wellbeing.
<b>Employment, income &amp; benefit data</b>	7	A number of diverse datasets were identified which are evenly spread across the headline issues. The key datasets were the ONS Labour Force Survey and the data held by DWP on employment, redundancy, income and benefits.	No further potential data or additional information needs were identified.

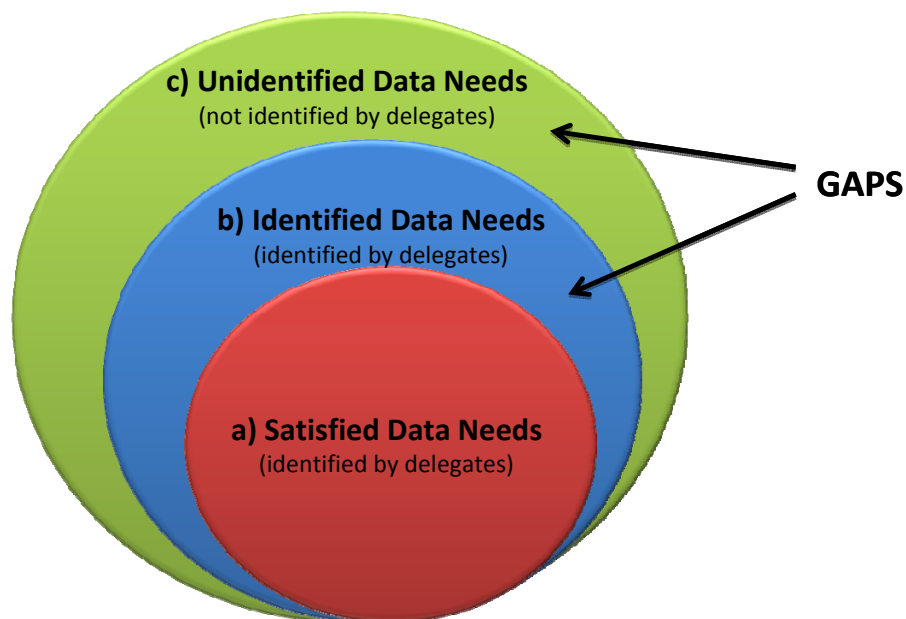


### 2.2.3 Gaps in Information Needs

In addition to identifying and naming datasets, delegates identified 21 gaps where data and information are needed but are not currently being collected (see Table 2, Section 2.2.1). These are listed in Annex 6. Both the needs and datasets do not necessarily constitute a comprehensive suite of datasets required to address all the environmental socio-economic issues, i.e. in total they may only partially represent the data needs. Figure 2 illustrates the full considerations required when identifying information needs and gaps. These are:

- a) **Satisfied Data Needs** (identified by delegates) - The data need has been identified and is currently collected or is in existence (source, owner and location are known). See Annex 3 for the list of existing data sources identified by delegates.
- b) **Identified Data Needs** (identified by delegates) - The data need has been identified but its location (or existence) is unknown. See Annex 6 for list of data gaps;
- c) **Unidentified Data Needs** (not identified by delegates) - The data need has not been identified. However, it may be critical to answer key environmental or socio-economic questions. It is therefore unknown whether it exists or not.

**Figure 2: Defining the Information Needs and Gaps**



In addition to the data gaps identified in Annex 6, several other areas which aim to address or reduce environmental impacts require social, economic and natural science information to firstly develop the scope of what needs to be done and predict the outcome. Secondly, following implementation or innovation, assess both their effectiveness (at reducing impacts on the environment) and their impact or effect on society (people and economics). The areas discussed included:

- Policy changes that address environmental impacts, for example this could be at the level of national legislation or smaller local projects.
- Socio-technical innovations which reduce environmental impact, for example new technologies, or new business models.

No readily accessible data sources for either of these two categories were identified at the workshop, these are therefore potential gaps and there is a need to develop thinking to assess how they could be addressed.

The following section discusses data which has not been identified (in 'c' above). An analysis was conducted to examine (a) the datasets in relation to socio-economic themes; and (b) the dataset groups (in Table 4) in relation to headline issues. The analysis identified areas where the potential for relevant data should be further explored in relation to:

- Socio-economic themes
- Headline issues

**Socio-economic themes** – Most themes were well covered however there is a significant gap in the need for information or data under the 'Relationships and Social Connectivity' theme. This theme was selected as relevant on only one occasion during the entire workshop process for travel behaviour - the need to travel greater distances to maintain relationships with dispersed members of the family. Reasons for this unexpected omission are unclear: it could be because delegates did not think it was related to environmental issues, that the link to this theme was not evident, or there were no relevant experts at the workshop.

Life stage is one important factor of Relationships and Social Connectivity because of its influence on social relationships and impact on environmental factors. Marriage, having a family, moving home, divorce, and retirement all have a bearing on how and where we live. For example:

- Increasing rates of divorce has consequences for increasing housing requirements (with lower occupancy), and an increasing need for travel.
- Retirement, increasing numbers of people taking early retirement, and prosperity among older populations, may lead to settling down abroad, which consequently leads to increased air travel, and so on.

Therefore, life stage analysis may provide a more specific way to identify socio-economic data needs under this theme.

**Headline issues** - The analysis of dataset groups in relation to the headline issues revealed a number of data needs. These are provided in Table 4 (column 4).

Although it is apparent that all of the headline issues require social and economic information to fully answer arising questions, the major data groupings (discussed in Section 2.2.2) were often missing from the 'Extreme Events' headline issue. It may be that the

majority of these groupings are not relevant (e.g. supermarket/retail data) or the links were not obvious to the delegates, for example land use or cover maps, which may be useful when considering risks of flooding to coastal or fluvial areas).

It should be noted that under this headline issue delegates identified the largest number of data needs for which no sources were immediately identifiable (i.e. location unknown, see Annex 6), this included attitudes to risk, mitigation costs and resilience some of which may be obtained from the Association of British Insurers or the HM Treasury Green book. Further investigation is therefore necessary to clarify whether these are true information gaps.

#### **2.2.4 Accessibility (Where are the datasets held? Who holds them?)**

Full details on accessing the datasets, as provided by delegates, were discussed in the workshop. However, the quality of the sources provided is variable and, in many cases, only their general location is signposted. An analysis of the key sources / providers of data identified several *signposts*. The most frequently cited sources were the Environment Agency or Defra (each identified 24 times) as potential key sources or providers of data. Additionally, DfT was cited (8 times) and the Marine Management Organisation (MMO) (6 times). However, it was not made clear who specifically within these organisations holds data. Further work is needed to identify the specific locations. A further search was conducted to identify data repositories or 'hubs' as a potential source for obtaining datasets.

A scientist very often needs access to large collections of high quality data. Collecting data from surveys, questionnaires or interviews for one study is a painstaking process. During the workshop it was revealed that repositories or 'hubs' for social data exist thus providing the equivalent of a 'one stop shop' for accessing and analysing several existing datasets. Initially there were six data 'hubs' identified by delegates (see Box 4) however post workshop investigation has shown that some of these suggested hubs are key research institutes where the primary role is socio-economic research and their data deposited and made available via the UK-Data Archive. From those identified these include the National Centre for Social Research and the Institute for Social & Economic Research. The latter does however have an online catalogue of longitudinal studies in the UK and abroad.

The UK-Data Archive provides access to an extensive range of quantitative and qualitative data and its searchable catalogue is hosted and supported by the Economic and Social Data Service. Although the catalogue/archive does contain census data, the Office of National Statistics (ONS) holds further social and economic data not held within the UK-Data Archive. Unlike the other data hubs the Data for Neighbourhoods and Regeneration does not hold the datasets themselves; it holds metadata on datasets available for targeting, monitoring, priority setting and performance management at a neighbourhood level.

#### **Box 4: Data Hubs suggested at the workshop (Main Sources for Datasets)**

A brief profile on each is provided in Annex 7. \*Research centres which deposit their data in the UK Data Archive/ESDS catalogue.

Office of National Statistics (ONS)	<a href="http://www.ons.gov.uk">www.ons.gov.uk</a>
UK Data Archive	<a href="http://www.data-archive.ac.uk">www.data-archive.ac.uk</a>
Economic and Social Data Service	<a href="http://www.esds.ac.uk">www.esds.ac.uk</a>
Institute for Social & Economic Research*	<a href="http://www.iser.essex.ac.uk">www.iser.essex.ac.uk</a>
National Centre for Social Research*	<a href="http://www.natcen.ac.uk">www.natcen.ac.uk</a>
Data for Neighbourhoods and Regeneration	<a href="http://www.data4nr.net/resources/all">www.data4nr.net/resources/all</a>

Delegates described data hubs as housing or pointing to core data on, for example, population distributions, migration, income, gender etc.

Of the datasets identified (and location known), approximately 20% (48 of the 260) are held within one of the data hubs<sup>7</sup>. ONS was the most frequently cited data hub (36 times), with most datasets identified under Economic Growth and Sustainable Use of Resources. Examples of the resources provided by the data hubs and key research centres are outlined in Table 5 with further details provided in Annex 7.

Data hubs provide access to a range of resources and it is likely that data needs can be accessed through a more concise body of datasets available from one or more of these data hubs. The information held within the data hubs could be used to address and link datasets to environmental questions across the headline issues.

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<sup>7</sup> For the purpose of this report the 'hubs' refer to ONS, UK-Data Archive, ESDS, ISER, & Data4nr.

**Table 5: Examples of Data & Resources Provided by ‘Data Hubs’**

Data Hub	Statistics	Survey	Resources
<b>Office for National Statistics (ONS)</b>	Census of Population in England & Wales	Integrated Household Survey, including education, health and disability	
	Population, demography and migration statistics	General Lifestyle Survey, including housing, education, health, and society (was General Household Survey)	
	Social statistics, including neighbourhoods and families	Living Costs & Food Survey (formerly the Family Expenditure & Food Survey)	
		English Housing Survey	
		Labour Force Survey, including employment, unemployment and earnings	
<b>UK Data Archive</b>	Census portal providing free access to academia including Census metadata for longitudinal study	Data repository for surveys completed by researchers / institutes for example, British Social Attitudes Survey & Health Survey for England (collected by the National Centre for Social Research)	Data repository. Linking datasets, including analysis of data collected from one study and analysed again for an entirely different piece of research
<b>Data for Neighbourhoods &amp; Regeneration (Data4NR)</b>	Index of Multiple Deprivation		
<b>Economic and Social Data Service (ESDS)</b>			Analysis of secondary data
			Identification and use of qualitative datasets
<b>Institute for Social &amp; Economic Research (ISER)*</b>		British Household Panel Survey <sup>8</sup> (Data held by UK-Data Archive/ESDS)	Online catalogue of UK & International longitudinal studies
		Understanding Society Survey (Data deposited with UK-Data Archive/ESDS)	

### 2.2.5 Limitations to access

There are often boundaries to gathering or reusing socio-economic and environmental data. Three key factors to consider are:

**Commercial confidentiality** - This presents a barrier particularly for economic and trading practice data. For example, access to supermarket loyalty card data is extremely restricted. Geo-referenced fisheries data cannot be accessed for about 5 years after the fish are landed

<sup>8</sup> The British Household Panel Survey is a precursor to Understanding Society: The UK Longitudinal Survey and its data was included in Understanding Society in 2010, pre 2010 data is available.

and customs data on intervention incidents for invasive species, which could be a rich source of information, are restricted by commercial sensitivity constraints. Even if it could be made available, the restrictions effect how it can be presented.

**Individual data protection** – Both moral and legislative (Data Protection Act) limitations on transparency makes non-disclosive data (individual data or individual business data) inaccessible. When linking social, economic and environmental information, georeferencing of the data is important so that data relevant to a certain area or boundary can be married up. An issue with many social surveys is that the geographical indicator may be explicitly removed on the dataset available to researchers because of the perception that an individual postcode can identify an individual household. If that problem were addressed - in the few cases where it does identify a household - then researchers could gain a much better geographic identifier on such datasets.

**Access to data** - In some cases, researchers can identify that certain data exist and meet the needs of their enquiry. However, for reasons beyond their control, there are administrative disclosure constraints on their use. For example, GP surgeries data at national level cannot be accessed, even though a researcher can access individual local GP service data on the web.

## 2.2.6 Other Considerations

Other considerations when using socio-economic or natural science data were discussed. These are grouped under the following headings:

- Linking datasets; the key to interoperability
- Use of qualitative data
- Data variability and quality

**Linking datasets** - Linking datasets was discussed at length and suggestions highlighting the importance of joining up across disciplines and sharing information at the time of commissioning the work (observations or research) were made.

Some of the socio economic data that could be of value would come from linking administrative datasets, for example Census data. Using Census data requires the user to 'drill down' specifically to what you want to use the data for; and you need to use the data in combination with other datasets to provide richer information, for example, linking household condition datasets and health datasets to Census data (depending upon your objective or research question).

Linking Census data to the following surveys was provided by way of example:

- Defra environmental attitude survey
- DTI attitudes to renewable energy survey
- DfT public attitudes to climate change survey
- RELU socio-economic/environment indicators

- DECC Surveys (details of which surveys were not given).

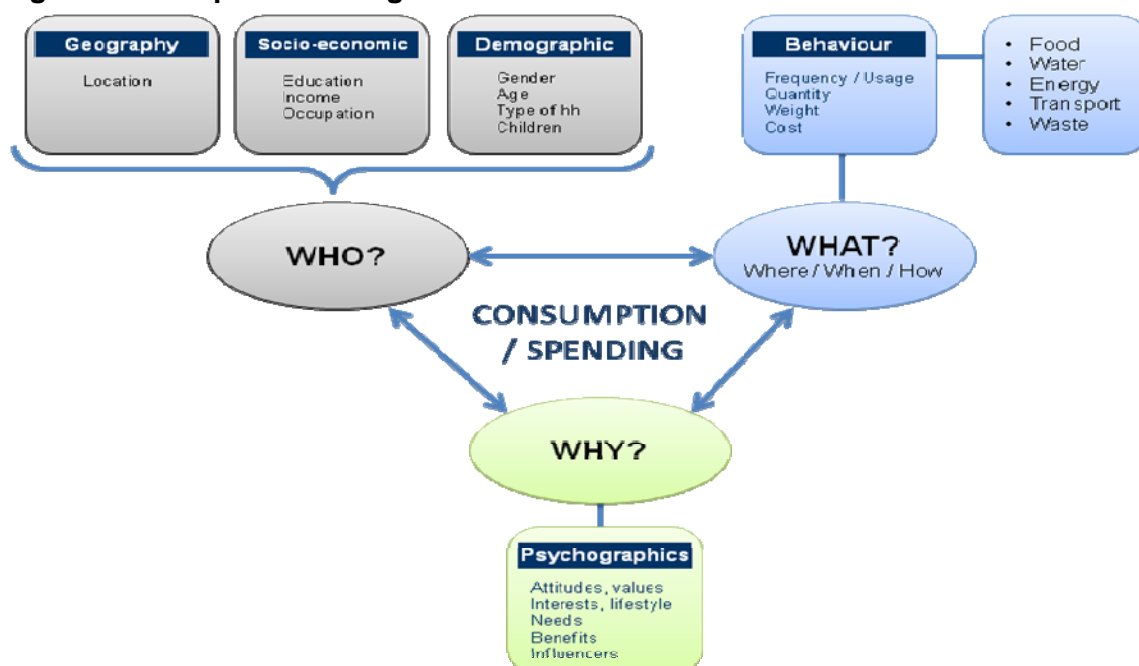
Practical issues with joining up natural science and social or economic datasets would need to be considered. For example, clarity on whether it is possible to make the links; understanding that joining up could mean extending the survey scope (which could lead to delays in getting the survey off the ground). There are also issues with representation, respondent burden and potentially lower response rates (as a result of the survey becoming more comprehensive).

There are also issues of compatibility or standardisation to consider, however the perceived differences may not be as great as imagined, for example, environmental trends may be observed over time, however, when studying species the same individuals are rarely observed continually and major changes in habitat can radically change the species observed. Trends identified from social surveys are derived from longitudinal studies of individuals, however the study group may change over time which can also affect the dynamics of the survey result. A more important factor to consider is the sample size of the datasets, as this will need to be of a sufficient size in order to be able to carry out a comprehensive analysis.

The depth of information provided will also determine how well datasets can be linked and the value that can be gained. Some social, economic and environmental datasets will provide considerable opportunities for linkage, in which for example, meaningful analysis can be carried out over a small geographic area. Whereas others, if they cannot be fully linked (by geographic location for example), will only provide modest gains in being able to infer something from two separate data sources.

An example for linking datasets is provided in Figure 3.

**Figure 3: Example of Linking Datasets**





**Use of qualitative data** – Qualitative data are “data describing the attributes or properties that an object possesses”<sup>9</sup>. The data usually comprise scripts from interviews or discussions and provide an in-depth understanding of human psychology which provides an explanatory layer to aid interpretation of quantitative datasets. The importance of understanding ‘*why*’ people are doing things does not appear in large scale statistical natural science data. In the social science studies, the common approach is to combine qualitative and quantitative data to understand the processes of change. However, whilst qualitative data might help understand, for example, vulnerabilities, perceptions of risk, attitudes of different groups, why people are doing things, and local or specific issues etc, it is most likely to be available as a one off survey. Qualitative data may help at an early stage when trying to conceptualise a natural environment problem.

**Data variability & quality** - Social science datasets tend to suggest the enquiry focuses on studying the same people over time, but very few surveys actually do this. This is the case when studying behaviours, and particularly so when dealing with attitudes and perceptions. With social science longitudinal data, the same issues are tracked over time within the same sectors, however, the same individuals or households may not be observed; variance in recorded behaviour can be enormous because of this. Understanding Society and the British Household Panel Survey are examples of such longitudinal studies.

Whilst there are many examples of robust data, data quality can be variable (for social, economic and natural sciences); it is sometimes difficult to judge the robustness of the data source, and therefore the assumptions upon which the data are based. Trusting data is crucial - the metadata should be good enough to make decisions about its use. Crucially, experience has shown that having expert advice, preferably with knowledge of the data, helps significantly to understand the assumptions upon which the data was built. One of the most important aspects in making datasets accessible would be to identify who has gathered them and their provenance so that a conversation can take place about its limitations and interpretation. Joining up would be enhanced by the availability of good metadata to allow discovery of relevant datasets prior to commencing any studies.

There are leading groups of researchers who are experts on a specific dataset - regular users of these datasets, particularly modellers and analysts, can be very helpful in providing context and limitations to potential users. The suggestion would, therefore, be to identify the people to talk to in the metadata or create a virtual network.

## **2.3 What are the opportunities for collaboration between science communities?**

Inter-disciplinary working is recognised as an important aspect of the LWEC programme. One of UK-EOF’s aims is to help foster such collaborative working. However, there exist cultural and technical differences between social, economic and natural science disciplines. This requires learning on both sides and needs to be more widely acknowledged in the pursuit of effective inter-disciplinary working.

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<sup>9</sup> <http://stats.oecd.org/glossary/detail.asp?ID=3494>

How can collaboration between the socio-economic and natural science communities be fostered? What opportunities exist to explore this? How can UK-EOF play its role? These questions were posed to delegates, and a number of ideas emerged.

Firstly, practical routes towards better understanding between the disciplines, which foster inter-disciplinary working, were suggested:

- Disciplines getting together through face to face engagement right at the beginning of the research process. This is an important juncture when disciplines can work together to explore the project aims and the research questions.
- Multi-disciplinary working needs to be built into policy and governance with networks and rewards to encourage engagement. Examples of inter-disciplinary research / working include: UK Earth Science Consortium (University of Manchester); Rural Economy and Land Use Programme; Economic Social Research Centre (ESRC) & Engineering and Physical Sciences Research Council (EPSRC).
- Bring scientists together at the early stages of their career, building their experience and creating a network of people that are capable of effective inter-disciplinary research.

However, it was recognised that there are fundamental barriers within the academic sphere which counteract such developments. In particular, despite recognition from funders of the value of inter-disciplinary working, university promotion and progression structure is geared towards single-disciplinary publication in long established journals.

The move towards the Research Excellence Framework 2014, for assessing quality of UK research, places more emphasis on the quality of research outputs, the vitality of the research environment, and the wider impact of research (than purely publishing papers). Consequently, this may provide greater incentive for inter-disciplinary working.

Secondly, several opportunities were suggested through which to explore collaboration:

- Technology Strategy Board competitions (which are themed) provide an opportunity for attracting funding that integrates diverse disciplinary research to drive innovation.
- ‘Sandpit’ type events, which bring scientists together in a residential setting to identify and address key issues, e.g. NESTA’s ‘Crucible’ events. Funding to address a key research question would provide an incentive.
- Connect with Defra’s Sustainable Development Research Network seminars on identifying inter-disciplinary research topics across environment and social sciences for sustainable development themes.
- Approach the UK Public Health Association (UKPHA). For many years, their research has interacted with multi-disciplinary areas such as health, wellbeing and the environment. There exists a large community which has experience of combining

datasets in a practical way. Moreover, there is a strong relationship to several of the headline and sub-issues explored at the workshop.

Finally, the specific role of the UK-EOF in facilitating collaboration, through the provision of an information infrastructure, was explored.

One delegate emphasised the *“huge benefit”* of inter-disciplinary research experienced through her own project. She commented that if she could change one thing, she would have wished for *“...a web-based resource where we could go to and find data on, for example, biodiversity, water quality, poverty and deprivation etc... all in the same site, and this seems to be what you are aiming towards which seems quite positive! Had this been up and running during the start of my project it would have been a great asset.”*

The UK-EOF already has an Observation Activity Catalogue which provides information on natural science datasets (for example, a description of the data, who has gathered it who funds/commissioned it, what it is primarily used for etc). However further **web-based guidance** which highlights the value of joining datasets, illustrates potential applications as well as the considerations would be beneficial. Such a resource could be provided by conducting a large-scale exercise to link key sources of quantitative and qualitative socio-economic data.

In particular the guide could aim to show:

- The value in addressing the natural science questions by providing examples of how socio-economic information can be used;
- Examples of the types of analysis possible and potential applications;
- Limitations to the use of data;
- What you might expect to find, for example, in using longitudinal datasets;
- Details on where to go for socio-economic data, where to start, how to use the data, what to use it for, and what works (in the same way in which the UK-EOF Observation Activity Catalogue assists in the discovery of data).

**A Community of Practice.** A ‘user network’ would facilitate communication between users of specific datasets. It would be particularly valuable to include those who use datasets on a regular basis and, therefore, help others understand data limitations and how data can be used. This could perhaps be a simple on-line discussion forum service linked directly to metadata to facilitate interaction between researchers.

## 3 OPTIONS FOR FUTURE ACTIONS

### 3.1 Way Forward & Actions for UK-EOF

The workshop was the first step in understanding the requirements and identifying where socio-economic and natural science information could be found by natural and social/economic scientists respectively. Options for future action have also emerged from the workshop; delegate discussions; and the subsequent analysis. These options fall into three main strands: development of the core metadata; collaboration with stakeholders; and building a service to support inter-disciplinary working.

#### 3.1.1 Development of Metadata

The following are suggested steps in developing core metadata:

- As a first step, where accessible, upload to the UK-EOF Observation Activity Catalogue the metadata for the key datasets that emerged from the workshop<sup>10,11,12</sup>, if possible this should include georeferencing of the datasets:
  - ONS Census providing data on population, migration and housing;
  - National Travel Survey (DfT);
  - Land Use Statistics (Generalised Land use Database held by ONS).
  - Public Health Statistics (sourced via the Health Protection Agency), and Hospital Episode Data (sourced via HES Online);
  - ONS Labour Force Survey;
  - DWP data on employment, redundancy, income and benefits.
  - Understanding Society: UK Longitudinal Household Survey

In addition upload the details of the principal data hubs with information on the metadata they hold and the support services they provide (see Box 4 and Table 5). This will help to improve the discoverability of data until further work is carried out to identify further datasets for inclusion.

Use the socio-economic themes as a framework for categorising specific data sources (i.e. as key words searchable within the catalogue). This should provide clear classification headings. In addition, this could include key texts which refer to natural science terms, for example, air quality, pollution etc.

- Analyse the identified data sets to (a) provide more defined descriptors and (b) identify the specific holders of the datasets (in many cases, the dataset was broadly

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<sup>10</sup> Despite being a key dataset identified in the workshop supermarket shopping data has been removed from the suggested list as it is known that this data is incredibly hard to access.

<sup>11</sup> The UK Land Cover Map was also suggested as a key dataset, however metadata for this is already held within the UK-EOF Observations Activity Catalogue (Countryside Survey – Land Cover Map).

<sup>12</sup> Monitor on Engagement with Natural Environment (MENE) survey (Natural England) has also been removed from this list as it is already in the UK-EOF Observations Activity Catalogue.

signposted to organisations, for example, Defra, and did not specify any further details).

- Examine and filter all the identified datasets to determine whether the data could realistically be used to inform each headline issue (or part of the headline issue), with the purpose of identifying the most relevant datasets.
- Review the data gaps identified by delegates (see Annex 6) to assess if they represent true gaps or whether datasets exist to serve them. This could be undertaken by collaborating with the data hubs.
- Address the data needs identified in Section 2.2.3 (socio-economic themes and headline issues).

### **3.1.2 Collaboration with Stakeholders**

The following are suggested steps in collaboration with the stakeholders who manage data:

1. Engage with the principal data hubs to explore how collaboration with UK-EOF can best serve the research communities needs, through delivery and support of socio-economic metadata (see 3.1.1, action step 1).
2. Approach the UK Public Health Association (UKPHA) to encourage cross-learning and sharing of experience in inter-disciplinary research.
3. UK-EOF to connect with Defra's Sustainable Development Research Network to identify opportunities for collaboration.

### **3.1.3 Building a Service**

The following are suggested steps to build a service that supports inter-disciplinary working:

1. Build a Community of Practice by generating a 'user network' to facilitate communication between users of specific datasets. This could perhaps be a simple on-line discussion forum service.
2. Alongside the UK-EOF Observation Activity Catalogue (in which data sources can be discovered) write guidance which may help users to understand the potential applications of joining social, economic or environmental data, as well as some of the considerations. This should be supported by guidance on data use. See details in Section 2.3 (web-based guidance).
3. Encourage face-to-face activity between scientists.
4. Investigate the potential for holding workshops or group sessions in which environmental datasets held within the UK-EOF catalogue can be discussed by social and natural scientists (and *vice-versa*), along with an explanation of their potential use and how the data can be accessed.

## ANNEX 1: Attendee List & Workshop Agenda

### UK Environmental Observation Framework

#### Socio-economic Observation Workshop

29<sup>th</sup> September 2010

#### Attendee List

First Name	Surname	Organisation
Gian Paolo	Ansaloni	NEE, Defra
Mel	Austen	PML
Tim	Chatterton	University of West of England/DECC
Chris	Cheffings	JNCC
Peter	Costigan	Defra
Sam	Cunnington	NEE, Defra
Deanna	Donovan	JNCC
Jenny	Durnan	Environment Agency
Peter	Elias	Warwick University/ESRC
Simon	Gillam	Forestry Commission
Beth	Greenaway	UK-EOF
Muki	Haklay	University College London (UCL)
Davina	Henderson	Defra
Meg	Huby	University of York
Andrea	Leedale	UK-EOF
Karen	Lucas	University of Oxford
Peter	Lynn	ISER Essex
Colin	MacKechinie	CEH
Stephen	Malcolm	Cefas
Simon	Maxwell	ERG, Defra
Anne	Miller	Knowledge Transfer Network: Environmental Sustainability
Amanda	Morgan	Wildlife Trusts
Sabine	Pahl	University of Plymouth
Ali	Price	Met Office
Sally	Reid	NERC
Gray	Sarah	WRAP
Veronica	Sharp	The Social Marketing Practice (Facilitator)
Fred	Stewart	University of Westminster - Policy Studies Institute
Eloise	Stott	ESRC
Amber	Vater	UK-EOF
Paul	White	The Social Marketing Practice (Facilitator)

# UK Environmental Observation Framework

Socio-economic Observation Workshop

Wednesday 29 September 2010,

Hamilton House, Mabledon Place London WC1H 9BD

## Agenda

- 10.00 Welcome
- 10.05 Introduction to the UK Environmental Observation Framework
- 10.50 Structure and objectives for the day
- 11.00 **COFFEE**
- 11.15 **Session 1:** Appraising the UKEOF headline issues from a socio-economic perspective
- Exercise 1: Understanding and agreeing the key socio-economic themes and factors
  - Exercise 2: Identifying and mapping the critical socio-economic themes and factors; and identifying data that informs the natural environment issues
- 13.00 **LUNCH** (including a demonstration of the UKEOF observations catalogue)
- 13.30 Compare and contrast – *a opportunity for delegates to inform activities between working groups*
- 14.00 **Session 2:** Examining the socio-economic data identified in Session 1
- Exercise 3: Determining accessibility of datasets
- 15.15 **TEA**
- 15.25 Reflections and feedback
- 15.45 How can the UKEOF help the social and economic science communities - now and in the future?
- 16.15 Round up and next steps
- 16.30 **CLOSE**



## Annex 2: Additional Outputs from the Exercises

The outputs from the workshop exercises were transcribed and recorded in an Excel Spreadsheet. The 'raw' spreadsheet (held separately and therefore not provided within this document) contains the following worksheets:

- A worksheet on each of the headline issues providing a transcription of the datasets identified on the day (six worksheets):
  - **Population Growth** (Understand the pressures on all environments, particularly in the light of Population Growth & Pollution)
  - **Economic Growth** (Support Economic Growth reconciled with sustainable use of natural resources such as aggregates, minerals & energy – including nuclear, biofuel & renewable energy)
  - **Fisheries etc** (Understand the consequences of environmental change for Fisheries, Agriculture, Food Security & Water Supply)
  - **Human Health** (Understand the consequences of environmental change for Human Health, Wealth & Well-being)
  - **Extreme Events** (Understand, avoid and mitigate the effects of Extreme Events & Disasters)
  - **Biodiversity** (Understand and reduce the impacts of environmental change on marine & terrestrial Biological Diversity, including Ecosystems & the Services they provide)

This worksheet provides details of the individual datasets identified by delegates and their accessibility (i.e. where is the data held, who collects it, how frequently is it collected, are there any limitations to access, and who funds the data).

- **Socioeconomic** worksheet categorises the datasets under each headline issue and by socio-economic theme.
- **Recurring Datasets** worksheet contains the datasets which appear similar or the same as follows:
  - Dataset group – the datasets which appear with the same or similar descriptors;
  - Number of datasets – the number of recurring datasets with the same or similar descriptor and listed with the relevant datasets;
  - Headline issue and socio-economic classification.
- **Dataset Gaps** contains the list of gaps identified by delegates at the workshop (categorised under each headline issue).
- **Analysis Table** contains the background on the numbers and types of data hubs and sources; and relevance of socio-economic themes.

**Annex 3: List of information, identified at the workshop and thought to be in existence, which could inform environmental issues or questions** *(text in italic has been added post workshop, from comments received by delegates)*

**Headline Issue: Population Growth**

**Understanding the pressures on all environments particularly in light of population growth and associated pollution**

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that influence the following sub-issues in the context of population growth?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
<b>Impacts on resources</b>	Increasing use of minerals, energy and raw materials for infrastructure and ground water	1 Patterns of consumption in relation to all 8 socio-economic themes  2  3	Over-consumption and equity issues	LLSOA (Lower Layer Super Output Areas) energy consumption House Condition Survey (England) House Condition energy follow up survey Energy statistics (utility) Income and benefits data- Longitudinal study - general/higher level population change Construction statistics (ONS) Construction, Demolition and Excavation Waste survey UKERC Markal Model - energy
<b>Urbanisation</b>	Increasing urbanisation, spread of housing requiring associated services and infrastructure, e.g. water supply, waste disposal, sewerage, energy demand and transport; and associated impact of urbanisation on biodiversity	1 Getting around  2 Where we live (culture and ideals)  3 Longevity (ageing population)		Construction statistics (ONS) ACORN with household energy usage Green ACORN - attitudes to the environment (Inc Defra pro-environmental segments) Waste data: compositional studies (eg Defra compositional review; LASU Defra studies; WRAP food waste) Waste Data Flow National Travel Survey ORIS (Online Recycling Information System) Local Authority waste service provision mapped data RTPi (Royal Town Planning Institute) reports

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that influence the following sub-issues in the context of population growth?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
<b>Water resources, cycle &amp; supply</b>	Provision of water and water quality as a result of increasing demand by people, industry & agriculture whilst sustaining biodiversity & habitats	1 Where we live 2 Sustaining ourselves 3		Water supply, sewerage and demand on system
				Water surveys
				Metered water use by business in production
				Household metered/unmetered water data
				AURN (Automatic Urban & Rural Network)- air quality monitoring
				NAEI (National Atmospheric Emissions Inventory): air quality
				AQMA (Air Quality Management Areas):air quality
<b>Pollution (including from waste disposal &amp; atmospheric)</b>	Impact of increasing pollution on air quality; to land, freshwater, and sea; including biodiversity and natural habitats	1 Getting around 2 Health and well-being (impacts) 3	Links between health and pollution Land use data - proximity vs exposure	Understanding Society survey
				Small Area Health Statistics
				Hospital data and GP records (HES Hospital Episode Statistics)
				Proximity to waste sites
<b>Land use change (including effects &amp; pressures on soils)</b>	Increasing demand for habitable land, e.g. recreation, industry, agriculture & waste management competing with biodiversity	1 Access/transport 2 Where we live 3	Recreation vs production priorities. Need attitudes and behaviours for where people want to live, desired size of property, no of generations live together	GLUD (Generalised Land Use Database) & NLUD-PDL (National Land Use Database- Previously Developed Land)
				Land Use Change statistics
				Green Spaces database ( <i>Green spaces is covered within the UK Land Cover map</i> )
				CORINE land cover database - EU ( <i>n.b. this is a derivative of the UK Land cover map</i> )
				Countryside surveys (UK) land cover map
<b>Coastal flooding</b>	Increasing migration to coastal areas leading to increased pollution of coastal regions (despite flooding)	1 Making a living, prosperity	Large proportion of deprivation in coastal areas. Understanding climate change risk.	Indices of Multiple Deprivation (IMD)
				CENSUS data (spatially defined)
				Monitor on Engagement with Natural Environment (MENE)
				National Tourism Survey (coastal tourism data)

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that influence the following sub-issues in the context of population growth?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
		2 Getting around 3 Recreational norms	Fewer links to the coast and less commutability Coastal tourism (inc 2nd home ownership & ageing population)	National Day Visits Survey
<b>Litter</b>	Impacts of litter on marine and other environments	1 Sustaining ourselves 2 3	Types of litter statistics	Litter statistics Litter volumes Product packaging Fly tipping data Coastal tourism data Litter management and Local authority policies
<b>Leisure &amp; tourism (access &amp; demand)</b>	Increasing demand for land for recreational use; managing tourism; maintaining & enhancing the benefits to biodiversity	1 Recreational norms 2 Making a living	Levels of disposable time (linked to prosperity) Levels of disposable income	Total environmental impact of leisure behaviour Types of recreational activity Visitor Statistics Access for the disabled; social exclusion in countryside leisure
<b>Energy</b>	Effect of increasing energy requirements, demand and supply; if alternatives are provided will this increase energy requirements?	1 Where we live 2 Getting around 3 Culture and values	Energy use in the home Modal shifts and usage trends in transport behaviour Solution-oriented behaviour trends (eg community initiatives)	Market Transformation Programme (MTP) energy consumption trend data Energy demand statistics Energy company usage data Energy technology trend data National Travel Survey - Transport travel behaviour data Environmental attitude and behaviour surveys Pro-environmental community activities - eg Transition Towns

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that influence the following sub-issues in the context of population growth?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
Public perception and behaviour to conserving the natural environment	What do people think about the natural environment; do people value it? What are people doing to conserve the natural environment, (biodiversity and natural habitats)? What is the scope for changing perceptions and increasing conservation behaviour?	1 Recreational norms 2 Making a living 3 Culture and values		Volunteering data (Wildlife Trusts, RSPB)
				Monitor on Engagement with Natural Environment (MENE) - attitudinal survey component
				Attitudinal surveys to natural environment (Devolved Administrations)
				The Economics of Ecosystems and Biodiversity (TEEB) Study <sup>13</sup>
				Understanding Society: UK Household Longitudinal Survey values trends
				British Social Attitudes Survey

<sup>13</sup> The Economics of Ecosystems and Biodiversity Study (TEEB) has not undertaken observations in its own right but collected and assessed information to produce produce informative reports (see <http://www.teebweb.org>).

## Headline Issue: Economic Growth

Supporting economic growth reconciled with sustainable use of natural resources such as aggregates, minerals and energy - including nuclear, biofuel and renewable energy

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that influence the following sub-issues in the context of economic growth & sustainable use of resources?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
<b>Fisheries</b>	Impact of unsustainable fishing on fish stocks and ecosystems degradation	<ol style="list-style-type: none"> <li>1 Sustaining ourselves</li> <li>2 Our health</li> <li>3 Our culture</li> <li>4 Making a living</li> </ol>	UK identity Individual businesses Poorly defined property rights Natural fisheries vs farming	Supermarket shopping data (e.g. Nectar, Clubcard)
				Localised fishing community data
				Employment and redundancy statistics
				Purchasing Managers Index (PMI)- private sector economic activity data
				British social attitudes survey
				Community data
Family Expenditure & Food Survey ( <i>now Living Costs &amp; Food Survey</i> )				
<b>Tourism</b>	Extent and nature of tourism, tourism behaviour and its impact on the natural environment and the economy	<ol style="list-style-type: none"> <li>1 Recreational norms</li> <li>2 Our culture</li> <li>3 Our health</li> <li>4 Making a living</li> </ol>	Choice of destination issue Jobs in the country? Areas other than Southeast	Employment statistics
				Annual Business Inquiry (ABI)
				Monitor on Engagement with Natural Environment (MENE) (should there be a similar dataset for cultural environment?)
				Tourism surveys
				CPRE Tranquillity Maps; scenic databases
				Scottish Recreation Survey
<b>Impacts of resources</b> (including geological, mineral, land & soils, extraction from freshwater & marine)	Impact of increasing demand and extraction of natural resources and their availability	<ol style="list-style-type: none"> <li>1 Culture/consumerism</li> <li>2 Sustaining ourselves</li> <li>3 Increasing prosperity</li> </ol>	Resources needed to drive consumerism which creates demand; increasing pollution	Lifestyle Research
				Culture of Consumption data
				Family Expenditure & Food Survey ( <i>now Living Costs &amp; Food Survey</i> )
				Supermarket shopping data (e.g. Nectar, Clubcard)
				Consumer Price Index

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that influence the following sub-issues in the context of economic growth & sustainable use of resources?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
				Ebay transaction data
<b>Peats, organo-mineral &amp; mineral soils</b>	Impact of over exploitation of peat beds	1 Our culture 2 Making a living (peat producers and horticultural companies) 3 (Sustaining ourselves)	No awareness of peat value to ecosystem Lack of alternatives Lack of policy (awareness, action) Commercial interest (considered public good)	Supermarket shopping data (e.g. Nectar, Clubcard) (provides routes but not large scale users)
				Economic information
				Research on gardening activity
				Pricing data on materials
<b>Transport (including aviation)</b>	Impact of increasing requirements for travelling, e.g. by air, sea and land	1 Relationships and social connectivity 2 Recreational norms 3 Where we live	Trip generators (jobs, social etc) Consumption(product moving eg food miles)	Census (travel to work etc)
				School transport
				British Household Panel Survey.
				DfT National Travel Survey
				Day Visit Survey
				Sustrans (Cycling Monitoring)
				Shipping and port (Maritime) information
				Air Travel statistics
				Birth Cohort Studies
				Annual average daily travel flow
				Rail statistics (National & Light Rail)
				London passenger statistics (underground, buses, light railway & river services)
				Sea Passenger Statistics
Port Cargo Throughput Survey				
<b>Pollution</b>	Impact of increased pollution on air quality; to land, freshwater, and sea; including biodiversity and natural habitats	1 Where we live and our living environment 2 Making a living and increasing prosperity	Cause pollution and response to pollution Cause pollution; health and env impacts limit economic	Food (production figures, spending figures)
				Food (production figures, spending figures) : Marine (fish landings)
				Consumer purchasing trends
				Aggregates extraction



Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that influence the following sub-issues in the context of economic growth & sustainable use of resources?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
		3 Sustaining ourselves 4 Our health, well-being and longevity 5 Getting around	growth  Cause pollution  Response to pollution	Housing (stamp duty, sales, council tax ) > geo-referenced; BRE data; CRWP Construction Resources and Waste Platform data) Community and local government statistics (locations/population density) - Census Population change (Census, but not sensitive electoral roll) Sectoral employment Licences to pollute (water) Licences to pollute (air) Licences to pollute (marine) Licences to pollute (land) Farming practices: eg Soil Association certification data Transport and travel data Air Quality Management Areas National Ecosystem Assessment (NEA) <sup>14</sup>
<b>Energy &amp; alternative energy solutions, e.g. hydropower, windfarms, biofuels &amp; nuclear energy</b>	Impact of increasing demand and supply of energy including alternative energy solutions; impacts on biodiversity as a result of biofuels. Public attitudes towards alternative energy solutions, e.g. solar, wind, hydropower & nuclear energy	1 Sustaining ourselves 2 Culture (public attitudes) 3 Making a living 4 Recreational norms	Drives increase in energy demand and need for security awareness and perception of issues exploiting opportunities of new markets impact of energy plants, wind farms on recreation amenities (access) "Is economic growth sustainable? Are our	Changing energy requirements - energy use by industry Attitude surveys Attitude surveys (energy) Attitude surveys (NGO social surveys) Attitude survey (DECC-DTI survey on Renewables attitudes) Attitudes (climate change and energy security 2005 2010) Uptake of new technologies Energy start up companies (turn over , business development)

<sup>14</sup> The National Ecosystem Assessment is not a survey or database of information per se, it is an analysis/assessment of the UK's natural environment in terms of the benefits it provides to society and continuing economic prosperity (see <http://uknea.unep-wcmc.org/> for details).

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that influence the following sub-issues in the context of economic growth & sustainable use of resources?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
			resources secure?"	R&D expenditure Recreational spend surveys Perception/cost impact on recreation Planning Application data (objections); Crown Estate for offshore renewables Population energy use trends (various behaviour change research in Defra SCP)
<b>Land use change &amp; management including soil condition, soil sealing &amp; foundation conditions</b>	Impact of increasing demand and availability of land and its use for e.g. built environment, industrialisation and agriculture; impact of soil sealing on water resources / reduction of soil	1 Sustaining ourselves 2 Making a living 3 Where we live 4 Transport	Agricultural use of land and forestry Growth in industry, commercial centres Housing (demography) As increasing wealth, more transport needs increasing infrastructure (cars, planes, ships) "What are the drivers and trends for present and future land use?"	Changing agricultural practice trend data Land use maps (satellite/on ground) ( <i>UK Land Cover map</i> ) Demand for industry/shops (market surveys/supermarkets) Changing workspace use trend data (business attitudes/working practices) Demography (housing stock; no of persons per household) - Census Changing trends in transport Population trends, growth, migration - Census Urbanisation trends - Census Cultural preferences
<b>Water</b>	Impact of increasing water demand on the water cycle (including supply & discharge of water); and its value as a precious resource	1 Sustaining ourselves 2 Health and well being 3 Making a living	Drives demand (agriculture) Washing, drinking water (availability); green gardens Cost of water "What is demand for water	Licence information - use and abstraction; discharge (see pollution) Water saving potential of different devices in the home Food Standards Agency (clean supply?) - pathogen data Disease and pollution monitoring Industry water saving measures Water usage data; cost of production; cost of treatment

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that influence the following sub-issues in the context of economic growth & sustainable use of resources?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
			(domestic and business)? How much are we prepared to pay for water?"	Attitudes to water consumption Per capita water consumption data Regional water rates data
<b>Non native species</b>	Impact of increasing international trade & leisure activities on the introduction of non-native species in the aquatic and terrestrial environments	1 Making a living	Increasing profits, easier to farm, diversify supply	Farming of non-native species (production data)
		2 Sustaining ourselves	Introduction of new species (intro accidentally via eg ballast; or purposefully via mariculture, horticulture etc)	Import data
				Interventions data (FERA/EUROPHYT)
				Trade data - volumes, types and breakdown by country
				Exotic plants (CITES certificates)
				Animal imports
				Data on plants being grown - trends in attitudes to plant types
		3 Recreational norms	Gardening; impacts on recreation by affecting amenity	Cultural attitudes to water
			"How much do we value the natural environment?" "How much risk are we prepared to take?"	

**Headline Issue: Fisheries, agriculture, food & water**

**Understanding the consequences of environmental change on fisheries, agriculture, food security & water supply**

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
<b>What are the critical socio-economic factors that influence and are influenced by the following sub-issues in the context of fisheries, agriculture, food security &amp; water supply?</b>		<b>What are the three most critical socio-economic themes &amp; specific factors that impact the sub-issues?</b>	<b>Why were these critical socio-economic factors selected?</b>	<b>What socio-economic data exists (or is needed) to address the sub-issues?</b>
<b>Fisheries (including mariculture)</b>	Impact of over fishing on the sustainability of harvested and farmed fish	1 Making a living 2 3	Imports on livelihood and wealth	Labour Force Survey Benefits and income Attitude data? Supermarket shopping data on sustainable fish Fish landings/values; aquaculture product values
<b>Water availability &amp; water quality</b>	Impact on the availability of water and water quality of increasing urbanisation and agricultural practices	1 2 3	Poor water quality leads impact on health	UKCIP modelling Flood risk surveys (Re-)insurance company flood risk Water Framework Directive (monitoring data) Water companies, Ofwat etc - water usage and quality data Demonstration Catchment Projects - outputs inc socio-economic dimensions
<b>Agricultural land management including land use change, crop &amp; forestry management</b>	Impact of changes in the management and use of agricultural and forestry land, e.g. crop selection, harvesting, pollinators & use of pesticides, biomass burning	1 Making a living 2 Access to land for recreation and purchase 3 Health and well being	Impact on rural livelihoods	LA inventories of biomass combustion plant Areas of short rotation coppice and other biofuel crops CAP data on agricultural subsidies Land ownership Woods for People & Space for People Monitor on Engagement with Natural Environment (MENE) - Natural England Surveys Access to National Trust land AFOR data on peat free compost production: PAS 100 and AFOR annual survey

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
<b>What are the critical socio-economic factors that influence and are influenced by the following sub-issues in the context of fisheries, agriculture, food security &amp; water supply?</b>		<b>What are the three most critical socio-economic themes &amp; specific factors that impact the sub-issues?</b>	<b>Why were these critical socio-economic factors selected?</b>	<b>What socio-economic data exists (or is needed) to address the sub-issues?</b>
<b>Food sourcing / production</b>	Impact on biodiversity and ecosystems of increasing and changing food demands, sourcing, and processing; diversification to biofuels production, changing eating patterns, increasing prices	1 2 3		Attitudes to GM crops and intensification MINTEL retail data (supermarkets) Keynote inc food retailing (supermarkets) Information produced by AHDB (Agricultural and Horticultural Development Board) bodies on specifics (meat, cereals etc) and pattern of consumption change

**Headline Issue: Human health, wealth & wellbeing**

**Understanding the consequences of environmental change for human health, wealth & wellbeing**

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that are influenced by the following sub-issues in the context of human health, wealth & wellbeing?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
<b>Invasive / infectious diseases (pathogens)</b>	Impacts on human health as a result of new diseases and spread of diseases	1 Linking movement and disease 2 Cultural issues 3 Recreational norms 4 Where we live 5 Sustaining ourselves	Migration patterns Increased mobility and spread of diseases Ageing and vulnerable populations Tourism - the world is a virtual Pangaea, e.g. relation to wetlands Agriculture, population waste; impacts on waste disposal	Air/long distance travel database (non-domestic) At risk countries diseases register HES (Hospital Episode Statistics) data Public health statistics (Health Protection Agency (HPA) data) Pathogens in food (eg shellfish) DoH Regional Public Health Observatory data School of Tropical Medicine
<b>Pollution including air quality</b>	Impacts on human health of reduced air quality, soil and water-based toxins	1 Social equity 2 Settlement choices 3 Where we Live 4 Sustaining ourselves (agricultural practices) 5 Getting around	These are the drivers, and affects us as receivers	COMEAP (Committee on Medical Effects of Air Pollution) data IPPC (Integrated Pollution Prevention and Control data) Migration data - Census Public health statistics (Health Protection Agency (HPA) data) Countryside survey Longevity data (eg air pollution) Environment Quality Index maps GP level data to capture non-critical data Risk perception of pollution
<b>Extreme Events</b>	Impact on mental health of extreme events, e.g. flooding, drought, extreme weather, earth quakes, volcanoes etc	1 Where we live 2 Health and social impacts	Vulnerable populations	Flood risk Access to GP and Health Services School attendance data House price/types data Risk perception of extreme events (cross cutting)

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that are influenced by the following sub-issues in the context of human health, wealth & wellbeing?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
		3 Sustaining ourselves 4 Cultural	Critical infrastructure Knowledge of risk related to geography	Vulnerability index/deprivation index Insurance company data Emergency services data Infrastructure expenditure Atlantis initiative (water flooding and water quality)
<b>Drinking Water</b>	Impact of contamination of water supplies for drinking and bathing as a consequence of agricultural intensity	1 Sustaining ourselves 2 Recreational norms 3 Making a living 4 Our culture	Water activities Farmers Bottled water	Blue Flag Beach Quality databases Data on waste sites (licensing; location to water sources and pollution potential) Road water run-off databases EU bathing waters directive compliance statistics Public health statistics (Health Protection Agency (HPA) data) British Waterways (Canals and rivers) Farm business survey Monitor on Engagement with Natural Environment (MENE) Nitro Europe IP (social theme research)
<b>Management of land / change in land use</b>	Extent, importance and influence of green spaces for human health, wealth & wellbeing in urban & rural settings	1 Health and well-being 2 Getting around 3 Prosperity and wealth 4 Where we live	Location of green space to where we live	Access to green spaces CORINE land cover dataset ( EU Coordination of Information on the Environment; <i>The UK component of CORINE is derived from the UK Land Cover Map</i> ) National Index of Accessibility Use of Blue Space (water environments) to enhance health - 2009 pilot European Centre for Environment and Human Health (ECEHH) : interdisciplinary centre dealing with interaction of Environment and Health National Leisure Survey Understanding Society: UK Household Longitudinal Study linked to spatial data

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that are influenced by the following sub-issues in the context of human health, wealth & wellbeing?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
				RTPI (Royal Town Planning Inst) Rural Development Planning CPRE (Campaign to Protect Rural England) data on rural land use/rural economies? Monitor on Engagement with Natural Environment (MENE)/SCRS/WORS recreation surveys Land registry data Citizenship survey Commercial Planning data Local government data (Defra sustainability indicators)



**Headline Issue: Extreme events**

**Understanding, avoiding & mitigating the effects of extreme events & disasters**

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that are influenced by the following sub-issues in the context of extreme events & disasters?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
<b>Sea level rise, coastal erosion &amp; subsidence</b>	Impact of sea level rise, coastal erosion and subsidence on coastal areas	1 2 3	"Is it worth it to protect ourselves from flooding?" "Are some areas worth protecting more?"	Population patterns: density in coastal and river locations; internal migration data - Census Insurance statistics (national) Expenditure on flood and coastal defences Cost of damage to property and land Relative value of land Locations of critical national infrastructure Flood Risk Map Appraisal of flood and coastal erosion risk management (inc social impacts) Vulnerability - risk planning for social groups
<b>Catastrophic events</b>	Impact of catastrophic events, e.g. major volcanic eruptions, tsunamis & earthquakes affecting infrastructure such as the built environment and services such as transport	1 2 3	"Should we be prepared? How much risk can we tolerate?"  Attitudes to risk of what is near and far away	Attitudes to risk of catastrophic events Potential costs of disasters Cost of mitigating actions Risks to supply chain Dependence on others for trade and finance Charitable giving Technology transfer
<b>Extreme Weather</b>	Impact of extreme weather events, e.g. wind storms, heat waves, snow storms, fog & low cloud affecting infrastructure &	1 2 3	"Should we be prepared? How much risk can we tolerate?" "What is the understanding of risk	Road use etc, land use issues in relation to extreme weather events Impacts to health, social and business - degree of resilience Cultural behaviours and attitudes to mitigation and change – pro-environmental behaviours segmentation

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that are influenced by the following sub-issues in the context of extreme events & disasters?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
	the built environment, and services provision such as transport		impact by the general public?"	Cost of events (insurance) and mitigating actions
<b>Groundwater &amp; surface water flooding</b>	Impact of flooding affecting infrastructure and services such as water supply and quality; and food production	1	"Should we be prepared? How much risk can we tolerate?"	Population patterns - Census
		2		Attitudes and take up to implementation of warning systems
		3		House prices in flood risk areas
				Awareness of risk and mitigation measures
<b>Drought</b>	Impact of drought and its affect on food production and biodiversity	1	"Should we be prepared? How much risk can we tolerate?"	Cultural attitudes - number of fines to hosepipe bans
		2		
		3		Labour force survey - employment levels in agriculture

## Headline Issue: Biodiversity & ecosystems

Understanding and reducing the impacts of environmental change on marine & terrestrial biological diversity, including ecosystems & ecosystem services

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that influence the following sub-issues in the context of environmental change on biological diversity and ecosystem services?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
<b>Future of marine biodiversity &amp; value of ecosystem services</b>	Impact of human development on biodiversity and the value of ecosystem services	1 Making a living	Demography and urbanisation; coastal flooding/defence	Coastal demography (population numbers and how this changes) - Census
				Homes/property at risk from flooding - inc agricultural land
				Food - fisheries/agriculture
		2 Sustaining ourselves	Food resources/security; pollution and waste behaviour; consumption and cultural eating patterns	Proportion of marine produce in peoples diets
				Exports and imports
				Angling
				Diving
				Bird watching/wildlife watching
				Tourism statistics
				Carbon values/markets
		4 Where we live	Climate change and CO2 impacts on fish stocks	Aggregates
				Public attitudes to biodiversity
		5 Cultural values	Public values and understanding	MSC data on sustainable fishing practices
				SEAFISH (levy board) surveys
<b>Future of terrestrial biodiversity, land management &amp; value of ecosystem services</b>	Impact of human development on biodiversity and the value of ecosystem services	1 Making a living	<i>(for 1-4, not in order):</i> - Production of food, biofuels (high priority) - Habitat conversion (invasive, pollution, climate change) - Exploitation (not as prolific as marine environment anymore - already fully	Agricultural statistics (food, fibre etc)
				Biofuel statistics
				Land use maps ( <i>UK Land Cover Map</i> )
		2 Sustaining ourselves		Perceptions of terrestrial environment - attitudes and choice modelling
				Value of Ecosystem Services
				Social and economic benefits of forestry
	3 Recreational norms		Environmental accounts for agriculture	
		4 Where we live		
		5 Culture		

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that influence the following sub-issues in the context of environmental change on biological diversity and ecosystem services?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
			exploited terrestrial environment) - Consumption and cultural eating patterns  Perception/identity (people see the terrestrial environment) Public values and understanding	Public attitudes to biodiversity Local Biodiversity Action Plans UK Food and Expenditure Survey ( <i>now Living Costs &amp; Food Survey</i> ) National Diet and Nutrition Survey
<b>Habitat &amp; coastal squeeze</b>	Impact of human development on species & habit loss; also as a result of coastal squeeze	1 Making a living  2 Where we live  3 Recreational norms  4 Culture  5 Sustaining ourselves	<i>(for 1-4 not in order):</i> - urbanisation - shipping/transport-harbour development - coastal defences - visualisation (people see coastal changes)  UK agricultural practice and international impacts of UK consumption	Population levels - Census Shipping/transport statistics Economic cost of maintaining defences Land use (flood control) Land use (flooding/natural land) Coastal demography (population numbers and how this changes) - Census Visualisation - views and attitudes Agricultural land use in UK International impacts of UK consumption - EU consumption pattern data
<b>Changes to species ranges &amp; distribution, populations &amp; ...</b>	Impact of human development on the population, diversity and distribution of species including endangered / iconic species	1 Culture  2 Prosperity (making a living)	Views of iconic species & value of their importance  If we have more money, we care more: but also business	Attitudes on iconic species Number of volunteers and volunteer programmes GDP/per capita income Value of recreation and tourism Population levels - Census

Sub-Issue		Appraising the headline / sub-issues from a socio-economic perspective		
What are the critical socio-economic factors that influence the following sub-issues in the context of environmental change on biological diversity and ecosystem services?		What are the three most critical socio-economic themes & specific factors that impact the sub-issues?	Why were these critical socio-economic factors selected?	What socio-economic data exists (or is needed) to address the sub-issues?
<b>loss including iconic species</b>		3 Recreational norms  4 Where we live	have more power/influence and can either override or support  Desire/demand for nice wildlife environments to visit  Impact on where species can move to	Emission control/carbon markets
<b>Alien (invasive) species</b>	Impact of human development on the introduction of intentional and unintentional invasive / non-native species	1 Making a living 2 Sustaining ourselves 3 Recreational norms 4 Getting around	Increasing profits, easier to farm, diversify Supply introduction of new species (introduced accidentally via e.g. ballast or purposefully via mariculture, horticulture etc); globalisation of trade gardening; impacts on recreation by affecting amenity; impact of international travel	What non-native species is being farmed (production data) Import data Interventions data (FERA/EUROPHYT) spend statistics Trade data - volumes, types and breakdown by country Exotic plants (CITES certificates) Animal imports Public attitudes to plant types and trend data on plants being grown Public attitudes to non-native species Plant health (horticulture etc)

## Annex 4: Datasets Allocated to Socio-Economic Themes (grouped by Headline Issue)

	Population Growth	Economic Growth	Fisheries, Agriculture, Food and Water	Human Health, Wealth and Wellbeing	Extreme Events	Biodiversity
Culture and values	Green ACORN - attitudes to the environment (Inc Defra pro-environmental segments)	British social attitudes survey		Citizenship survey	Charitable giving	Public attitudes to biodiversity <b>x2</b>
	Water surveys (Consumer Council for Water)	Attitude surveys			Cultural behaviours and attitudes to mitigation and change – pro-environmental behaviours segmentation	Perceptions of terrestrial environment - attitudes and choice modelling
	Environmental attitude and behaviour surveys	Attitude surveys (energy)			Attitudes and take up to implementation of warning systems	Public attitudes to non-native species
	Pro-environmental community activities - eg Transition Towns	Attitude surveys (NGO social surveys)				Local Biodiversity Action Plans
	Volunteering data (Wildlife Trusts, RSPB)	Attitude survey (DECC-DTI survey on Renewables attitudes)				Visualisation - views and attitudes
	Attitudinal surveys to natural environment (Devolved Administrations)	Attitudes (climate change and energy security 2005 2010)				Attitudes on iconic species
	Understanding Society: UK Household Longitudinal Survey (UKHLS) values trends	Planning Application data (objections); Crown Estate for offshore renewables				Number of volunteers and volunteer programmes
	British Social Attitudes Survey	Cultural preferences				Public attitudes to plant types and trend data on plants being grown
		Attitudes to water consumption				
		Cultural attitudes to water				

	Population Growth	Economic Growth	Fisheries, Agriculture, Food and Water	Human Health, Wealth and Wellbeing	Extreme Events	Biodiversity
Where we live	Construction statistics (ONS) <b>x2</b>	Population change (Census, but not sensitive electoral roll)	Flood risk surveys	Migration data - Census	Population patterns: density in coastal and river locations; internal migration data - Census <b>x2</b>	Coastal demography (population numbers and how this changes) - Census <b>x2</b>
	Construction, Demolition and Excavation Waste survey	Housing (stamp duty, sales, council tax ) > geo-referenced; BRE data; CRWP Construction Resources and Waste Platform data)		Environment Quality Index maps	Insurance statistics (national)	Homes/property at risk from flooding - inc agricultural land
	ACORN with household energy usage	Community and local government statistics (locations/population density) - Census		Flood risk	Expenditure on flood and coastal defences	Population levels - Census <b>x2</b>
	RTPI (Royal Town Planning Institute) reports	Urbanisation trends - Census		House price/types data	Cost of events (insurance) and mitigating actions	Economic cost of maintaining defences
	CENSUS data (spatially defined)	Demography (housing stock; no of persons per household) - Census		Insurance company data	Cost of damage to property & land	Land use (flood control)
		Population trends, growth, migration - Census		Emergency services data	Relative value of land	Land use (flooding/natural land)
				Data on waste sites (licensing; location to water sources and pollution potential)	Flood Risk Map	
				Road water run-off databases	Appraisal of flood and coastal erosion risk management (inc social impacts)	

	Population Growth	Economic Growth	Fisheries, Agriculture, Food and Water	Human Health, Wealth and Wellbeing	Extreme Events	Biodiversity
				Understanding Society: UK Household Longitudinal Study linked to spatial data	Vulnerability - risk planning for social groups	
				Land registry data	House prices in flood risk areas	
				Local government data (Defra sustainability indicators)		



	Population Growth	Economic Growth	Fisheries, Agriculture, Food and Water	Human Health, Wealth and Wellbeing	Extreme Events	Biodiversity
Making a living	Income and benefits data- Longitudinal study - general/higher level population change	Import data	Labour Force Survey	IPPC (Integrated Pollution Prevention and Control data	Technology transfer	Food - fisheries/agriculture
	Metered water use by business in production	Employment statistics	Benefits and income	Vulnerability index/deprivation index	Labour force survey - employment levels in agriculture	Exports and imports
	Indices of Multiple Deprivation (IMD)	Employment and redundancy statistics	Fish landings/values; aquaculture product values	Farm business survey		Carbon values/markets
		Purchasing Managers Index (PMI)- private sector economic activity data	Demonstration Catchment Projects - outputs inc socio-economic dimensions	CPRE (Campaign to Protect Rural England) data on rural land use/rural economies?		Emission control/carbon markets
		Port Cargo Throughput Survey	LA inventories of biomass combustion plant	Commercial Planning data		Aggregates
		Annual Business Inquiry (ABI)	Areas of short rotation coppice and other biofuel crops	Infrastructure expenditure		MSC data on sustainable fishing practices
		Consumer Price Index	CAP data on agricultural subsidies			SEAFISH (levy board) surveys
		Economic information (trade associations)	Land ownership			Agricultural statistics (food, fibre etc)
		Trade data - volumes, types and breakdown by country	AFOR data on peat free compost production: PAS 100 and AFOR annual survey			Biofuel statistics
		Food (production figures, spending figures)				Social and economic benefits of forestry

	Population Growth	Economic Growth	Fisheries, Agriculture, Food and Water	Human Health, Wealth and Wellbeing	Extreme Events	Biodiversity
		Food (production figures, spending figures) : Marine (fish landings)				Environmental accounts for agriculture
		Aggregates extraction				Agricultural land use in UK
		Sectoral employment				GDP/per capita income
		Licences to pollute (water)				Trade data - volumes, types and breakdown by country
		Licences to pollute (air)				What non-native species is being farmed (production data)
		Licences to pollute (marine)				Interventions data (FERA/EUROPHYT) spend statistics
		Interventions data (FERA/EUROPHYT)				
		Farming practices: eg Soil Association certification data				
		Changing energy requirements - energy use by industry				
		Energy start up companies (turn over , business development)				
		R&D expenditure				
		Changing agricultural practice trend data				
		Demand for industry/shops (market surveys/supermarkets)				

	Population Growth	Economic Growth	Fisheries, Agriculture, Food and Water	Human Health, Wealth and Wellbeing	Extreme Events	Biodiversity
		Changing workspace use trend data (business attitudes/working practices)				
		Licence information - use and abstraction; discharge (see pollution)				
		Industry water saving measures				
		Farming of non-native species (production data)				

	Population Growth	Economic Growth	Fisheries, Agriculture, Food and Water	Human Health, Wealth and Wellbeing	Extreme Events	Biodiversity
Sustaining ourselves	LLSOA (Lower Layer Super Output Areas) energy consumption data	Supermarket shopping data (e.g. Nectar, Clubcard) <b>x3</b>	Supermarket shopping data on sustainable fish			Proportion of marine produce in peoples diets
	House Condition Survey (England)	Family Expenditure & Food Survey ( <i>now Living Costs &amp; Food Survey</i> ) <b>x2</b>	MINTEL retail data (supermarkets)			UK Food and Expenditure Survey ( <i>now Living Costs &amp; Food Survey</i> )
	House Condition energy follow up survey	Lifestyle Research	Keynote inc food retailing (supermarkets)			National Diet and Nutrition Survey
	Energy statistics (utility)	Culture of Consumption data	Information produced by AHDB (Agricultural and Horticultural Development Board) bodies on specifics (meat, cereals etc) and pattern of consumption change			International impacts of UK consumption - EU consumption pattern data
	Waste data: compositional studies					Import data
	Waste Data Flow	Ebay transaction data				
	ORIS (Online Recycling Information System) Local Authority waste service provision mapped data	Consumer purchasing trends				
	Water supply, sewerage and demand on system	Regional water rates data				
Household metered/unmetered water data	Population energy use trends (various behaviour change research in Defra SCP)					

	Population Growth	Economic Growth	Fisheries, Agriculture, Food and Water	Human Health, Wealth and Wellbeing	Extreme Events	Biodiversity
	Litter statistics	Water saving potential of different devices in the home				
	Litter volumes	Water usage data; cost of production; cost of treatment				
	Product packaging	Per capita water consumption data				
	Fly tipping data					
	Litter management and Local authority policies					
	Market Transformation Programme (MTP) energy consumption trend data					
	Energy demand statistics					
	Energy company usage data					
	Energy technology trend data					
Relationships and social connectivity						

	Population Growth	Economic Growth	Fisheries, Agriculture, Food and Water	Human Health, Wealth and Wellbeing	Extreme Events	Biodiversity
Our health, wellbeing and longevity	AURN (Automatic Urban & Rural Network)- air quality monitoring	Air Quality Management Areas	Water companies, Ofwat etc - water usage and quality data	HES (Hospital Episode Statistics) data	Impacts to health, social and business - degree of resilience	
	NAEI (National Atmospheric Emissions Inventory): air quality	Food Standards Agency (clean supply?) - pathogen data		Public Health Statistics (Health Protection Agency (HPA) data) x 3		
	AQMA (Air Quality Management Areas):air quality	Disease and pollution monitoring		Pathogens in food (eg shellfish)		
	Small Area Health Statistics			DoH Regional Public Health Observatory data		
	Hospital data and GP records (HES Hospital Episode Statistics Data)			COMEAP (Committee on Medical Effects of Air Pollution) data		
	Proximity to waste sites			GP level data to capture non-critical data		
				School attendance data		
				European Centre for Environment and Human Health (ECEHH) : interdisciplinary centre dealing with interaction of Environment and Health		

	Population Growth	Economic Growth	Fisheries, Agriculture, Food and Water	Human Health, Wealth and Wellbeing	Extreme Events	Biodiversity
Recreational norms	Green Spaces database	Monitor on Engagement with Natural Environment (MENE)	Woods for People & Space for People	Countryside survey		Angling
	Countryside surveys (UK) land cover map	Tourism surveys	Monitor on Engagement with Natural Environment (MENE) - Natural England Surveys	Blue Flag Beach Quality databases		Diving
	Monitor on Engagement with Natural Environment (MENE) x2	CPRE Tranquillity Maps; scenic databases	Access to National Trust land	EU bathing waters directive compliance statistics		Bird watching/wildlife watching
	Coastal Tourism	Scottish Recreation Survey		Monitor on Engagement with Natural Environment (MENE) x2		Tourism statistics
	National Tourism Survey (coastal tourism data)	Research on gardening activity		Access to green spaces		Value of recreation and tourism
	National Day Visits Survey	Recreational spend surveys		CORINE Land Cover (Coordination of Information on the Environment <sup>15</sup> )		Exotic plants (CITES certificates)
	Types of recreational activity	Data on plants being grown - trends in attitudes to plant types		National Index of Accessibility		Animal imports
	Visitor Statistics	Exotic plants (CITES certificates)		Use of Blue Space (water environments) to enhance health - 2009 pilot		
	Access for the disabled; social exclusion in countryside leisure	Animal imports		National Leisure Survey		

<sup>15</sup> The UK entry in CORINE is a derivative of the UK Land Cover Map

	Population Growth	Economic Growth	Fisheries, Agriculture, Food and Water	Human Health, Wealth and Wellbeing	Extreme Events	Biodiversity
Getting around/mobility	National Travel Survey x2	School transport		Air/long distance travel database (non-domestic)		Shipping/transport statistics
		British Household Panel Survey (travel data)		Access to GP and Health Services		
		Census (travel to work etc)				
		National Travel Survey				
		Transport & travel data				
		National Day Visit Survey				
		Sustrans (Cycling Monitoring)				
		Shipping and port (Maritime) information				
		Air Travel statistics				
		Birth Cohort Studies				
		Annual average daily travel flow				
		Rail statistics (National & Light Rail)				
		London passenger statistics (underground, buses, light railway & river services)				
		Sea Passenger Statistics				
	Changing trends in transport					



	Population Growth	Economic Growth	Fisheries, Agriculture, Food and Water	Human Health, Wealth and Wellbeing	Extreme Events	Biodiversity
Unclassified	UKERC Markal Model - energy	National Ecosystem Assessment (NEA <sup>16</sup> )	UKCIP modelling	Atlantis initiative (water flooding and water quality)		Land use maps ( <i>UK Land Cover Map</i> )
	Understanding Society survey	Land use maps (satellite/on ground; <i>UK Land Cover map</i> )	Water Framework Directive Observation data	British Waterways (Canals and rivers)		Value of Ecosystem Services
	GLUD (Generalised Land Use Database) & NLUD-PDL (National Land Use Database-Previously Developed Land)			Nitro Europe IP (social theme research)		Plant health (horticulture etc)
	Land Use Change statistics ( <i>GLUD/UK Land Cover map</i> )			RTP1 (Royal Town Planning Inst) Rural Development Planning data		
	The Economics of Ecosystems and Biodiversity (TEEB) Study <sup>17</sup>					
	CORINE land cover database - EU ( <i>a derivative of the UK Land Cover map</i> )					

<sup>16</sup> The National Ecosystem Assessment is an assessment of environmental information and not a dataset per se.

<sup>17</sup> The Economics of Ecosystems and Biodiversity (TEEB) is not a dataset but a study information that has been synthesized into a report.

## Annex 5: Common Data Types and Recurring Datasets

Data	Total Datasets	Headline Issue	Socio-economic Classification	
Supermarkets / Retail / Food Data	11	Family, Food & Expenditure Survey ( <i>now Living Costs &amp; Food Survey</i> ) x3	Economic Growth & Biodiversity	Sustaining ourselves
		Food (production figures, spending figures)	Economic Growth	Making a living
		Information produced by AHDB bodies on specific foods (meat, cereals etc) and pattern of consumption change	Fisheries, Agriculture, Food & Water	Sustaining ourselves
		Keynote inc food retailing (supermarkets)	Fisheries, Agriculture, Food & Water	Sustaining ourselves
		Supermarket shopping data (Nectar, Clubcard) x 3	Economic Growth	Sustaining ourselves
		Supermarket shopping data on sustainable fish	Fisheries, Agriculture, Food & Water	Sustaining ourselves
		MINTEL retail data (supermarkets)	Fisheries, Agriculture, Food & Water	Sustaining ourselves
Population Patterns / Migration / Housing Data	14	Census (travel to work etc)	Economic Growth	Getting around / mobility
		Community and local government statistics (locations/population density)	Economic Growth	Where we live
		Demography (housing stock; no of persons per household)	Economic Growth	Where we live
		CENSUS data (spatially defined)	Population Growth	Where we live
		Population change including trends, growth, migration x 5 (Census, but not sensitive electoral roll)	Economic Growth	Where we live
		Urbanisation trends - Census	Economic Growth	Where we live
		Population demographic patterns: density in population numbers of coastal and river locations & how this changes; internal migration data x 4	Extreme Events	Where we live
Tourism / Visitor Data	13	National Day Visit Survey x 2	Economic Growth & Population Growth	Getting around / mobility
		MENE (Monitor on Engagement with Natural Environment) x 6	Population Growth / Human Health, Wealth & Wellbeing	Recreational norms
		National Tourism Survey (coastal tourism data) x 5 (including visitor / tourism statistics)	Population Growth, Biodiversity, Economic Growth	Recreational norms

Data	Total Datasets	Headline Issue	Socio-economic Classification	
Transport / Travel Data	14	Air Travel statistics x 2 (including non-domestic air/long distance travel database)	Economic Growth	Getting around / mobility
		British Household Panel Survey (travel activity)	Economic Growth	Getting around / mobility
		Changing trends in transport	Economic Growth	Getting around / mobility
		Census (travel to work etc)	Economic Growth	Getting around / mobility
		DfT National Travel Survey x4	Economic Growth & Population Growth	Getting around / mobility
		Annual average daily travel flow	Economic Growth	Getting around / mobility
		London passenger statistics (underground, buses, light railway & river services)	Economic Growth	Getting around / mobility
		Rail statistics (National & Light Rail)	Economic Growth	Getting around / mobility
		Sea passenger statistics	Economic Growth	Getting around / mobility
		School transport	Economic Growth	Getting around / mobility
Land Use Data	10	CPRE (Campaign to Protect Rural England) data on rural land use/rural economies?	Human Health, Wealth & Wellbeing	Unclassified
		GLUD (Generalised Land Use Database) & NLUD-PDL (National Land Use Database – <i>Previously Developed Land</i> ) & Land ownership / use change statistics x 4	Population Growth, Fisheries, Agriculture, Food & Water	Unclassified & Making a Living
		Land Use Maps (satellite / on ground) including agriculture & countryside survey map x 3, EU CORINE land map x2 ( <i>n.b. The most relevant land use map for the UK has been identified, post workshop, as the UK Land Cover map, this is the same as the countryside survey map and a derivative is used as the UK contribution to EU Corine map</i> ).	Population Growth	Unclassified
Health Data	8	Public Health Statistics (Health Protection Agency (HPA) data) x 3	Human Health, Wealth & Wellbeing	Health, Wealth & Wellbeing
		Small Area Health Statistics	Population Growth	Health, Wealth & Wellbeing
		DoH Regional Public Health Observatory data	Human Health, Wealth & Wellbeing	Health, Wealth & Wellbeing
		Hospital data and GP records (HES Hospital Episode Statistics Data) x 3 (including non-critical data)	Population Growth & Human Health, Wealth & Wellbeing	Health, Wealth & Wellbeing
Employment / Income / Benefit Data	7	Employment and redundancy statistics x2	Economic Growth	Making a living
		Labour force survey x 2 (including employment levels in agriculture)	Extreme Events & Fisheries, Agriculture, Food & Water	Making a living
		Income and benefits data x 2 - Longitudinal study - general/higher level population change	Population Growth & Fisheries, Agriculture, Food & Water	Making a living
		GDP/per capita income	Biodiversity	Making a living

Data	Total Datasets	Headline Issue	Socio-economic Classification	
<b>Attitudes Data</b>	<b>22</b>	Green ACORN - attitudes to the environment (Inc Defra pro-environmental segments)	Population Growth	Culture & values
	British Social Attitudes Survey	Population Growth & Economic Growth	Culture & values	
	Attitude survey (DECC-DTI survey on Renewables attitudes)	Economic Growth	Culture & values	
	Attitude surveys (EST)	Economic Growth	Culture & values	
	Attitude surveys (MORI, DirectGov)	Economic Growth	Culture & values	
	Attitude surveys (NGO social surveys)	Economic Growth	Culture & values	
	Attitudes (climate change and energy security 2005 2010)	Economic Growth	Culture & values	
	Attitudes and take up to implementation of warning systems	Extreme Events	Culture & values	
	Attitudes on iconic species	Biodiversity	Culture & values	
	Attitudes to risk	Extreme Events	Culture & values	
	Attitudes to water consumption x2	Economic Growth	Culture & values	
	Consumer Council for Water surveys	Population Growth	Culture & values	
	Cultural behaviours and attitudes to mitigation and change - pro-environmental behaviours segmentation	Extreme Events	Culture & values	
	Data on plants being grown - trends in attitudes to plant types	Biodiversity	Culture & values	
	Data on plants being grown - trends in attitudes to plant types	Economic Growth	Recreational norms	
	Public attitudes to biodiversity x2	Biodiversity	Culture & values	
	Public attitudes to non-native species	Biodiversity	Culture & values	
	Trend data - changing workspace use (business attitudes/working practices)	Economic Growth	Culture & values	
University studies on perceptions of terrestrial env. Attitudes and choice modelling	Biodiversity	Culture & values		
Visualisation - views and attitudes	Biodiversity	Culture & values		

**Annex 6: Information or datasets for which delegates were uncertain of their existence, or if in existence where to find them**

<b>Headline Issue</b>	<b>Dataset / Information</b>
<b>Population Growth</b>	Total environmental impact of leisure behaviour
<b>Economic Growth</b>	Licences to pollute (land)
	Localised fishing community data
	Perception/cost impact on recreation
	Pricing data on materials
	Uptake of new technologies
<b>Fisheries, Agriculture, Food &amp; Water</b>	Attitudes to GM crops and intensification
	Insurance company flood risk
<b>Human Health, Wealth &amp; Wellbeing</b>	At risk countries diseases register
	Longevity data (e.g. Air pollution)
	Risk perception of pollutants
	Risk perception of extreme events
<b>Extreme Events</b>	Awareness of risk and mitigation measures
	Attitudes to risk of catastrophic events
	Cost of mitigating actions
	Cultural attitudes (to drought) - number of fines to hosepipe bans
	Dependence on others for trade and finance
	Locations of critical national infrastructure
	Potential costs of disasters
	Risks to supply chain
Road use etc, land use issues in relation to extreme weather events	

## Annex 7: Data Hubs and Key Research Centre Profiles

Short profiles are provided on the data hubs:

- Office for National Statistics
- UK Data Archive
- Economic and Social Data Service
- Institute for Social & Economic Research
- Data for Neighbourhoods and Regeneration

and key research centres identified by delegates:

- National Centre for Social Research

### Office for National Statistics

([www.ons.gov.uk/about](http://www.ons.gov.uk/about))



The Office for National Statistics (ONS) produces independent information to improve understanding of the UK's economy and society. ONS is the executive office of the UK Statistics Authority, a non-ministerial department which reports directly to Parliament. ONS is the single largest statistical producer of official statistics and is the UK Government's main survey organisation, responsible for the production of a wide range of economic and social statistics. It provides statistics on:

- The UK's National Accounts (for example, Gross Domestic Product, National Income and Expenditure)
- The UK Balance of Payments
- Population, demography and migration
- Government output and activity
- Business output and activity
- Prices (for example, consumer and producer)
- Vital events (for example, births, marriages, morbidity and deaths)
- Social statistics (for example, statistics about neighbourhoods and families)
- Integrated Household Survey, which has a number of themes including education, health & disability, identity and income. It combines the General Household Survey (now General Lifestyle Survey on housing, education, health services, society, culture and welfare); Living Cost & Food Survey, English Housing Survey, Labour Force Survey (on employment, unemployment and earnings), and the Life Opportunities Survey.

### Census

ONS runs the decennial Census of Population in England and Wales. The Census provides a detailed picture of the entire population, and is unique because it covers everyone at the same time and asks the same core questions everywhere. The next Census is due in 2011.

## UK Data Archive

([www.data-archive.ac.uk](http://www.data-archive.ac.uk))



The UK Data Archive is curator of the largest collection of digital data in the social sciences and humanities in the UK. It holds thousands of datasets relating to society (historical and contemporary) and is used as a resource for researchers.

The UK Data Archive acquires, curates and provides access to high quality data from the academic, public, and commercial sectors. Providing that accurate records have been kept, data that have been collected for one study can be analysed again for an entirely different piece of research. The UK Data Archive manage the ESDS where it hosts national and international survey data and qualitative data. UK Data Archive also host a number of data services such as the Census portal. The Census portal ([Census.ac.uk](http://Census.ac.uk)) is a comprehensive access and support service, available free, to the UK academic community. It offers access to aggregate data, look-up tables, interaction data, digital boundary data and microdata, and provides metadata for longitudinal studies.

UK Data Archive is engaged in a number of data management initiatives, including running the Rural Economy and Land Use Programme (RELU) Data Support Service. The organisation and its activities are largely funded by the ESRC, the JISC and the University of Essex.

## Economic and Social Data Service

(<http://www.esds.ac.uk/>)



The Economic and Social Data Service (ESDS) is a national data service providing access and support for both quantitative and qualitative economic and social data. It is a jointly-funded initiative sponsored by the Economic and Social Research Council (ESRC) and the Joint Information Systems Committee (JISC). Whilst ESDS conducts large-scale government surveys, it offers enhanced support for the secondary use of data. It uses its own surveys and ONS statistics. And works in collaboration with UK Data Archive, the Institute for Social & Economic Research, Manchester Information & Associated Services (MIMAS) and the Cathie Marsh Centre for Census & Survey Research (CCSR). It provides services such as:

- Access to and analysis of secondary data;
- Linkage with other datasets not directly supported by ESDS (such as the ONS Longitudinal Study and British Household Panel Survey);
- Identification and use of qualitative datasets.

Examples of the research undertaken by ESDS include:

- The resources, health and living conditions of older people
- Ethnic differences in family and household composition
- Changing patterns of consumption, including drinking and smoking
- Gender and ethnic differences in earnings from employment
- Health patterns in relation to lifestyle and consumption
- Social capital and its relationship to health, employment and earnings
- Comparisons across the countries of the UK and across recent decades

## Institute for Social & Economic Research

([www.iser.essex.ac.uk](http://www.iser.essex.ac.uk))



The Institute for Social and Economic Research (ISER) specialises in the production and analysis of longitudinal data – evidence which tracks changes in the lives of the same individuals over time. ISER is a department of the University of Essex and is core-funded by the University and the UK's Economic and Social Research Council (ESRC). It has two interdependent divisions: the UK Longitudinal Studies Centre (ULSC) and the Research Centre on Micro-social Change (MISOC).

- The ESRC Research Centre on Micro-Social Change (MISOC) specialises in economics, sociology, demography, geography and statistics. The central focus of their research is the life-course of the individual and the changing nature of society. Main areas of research include the family; labour markets; income and poverty; social disadvantage; and public policy.
- The UK Longitudinal Studies Centre (ULSC) is the national resource centre for the design, management, support and promotion of longitudinal research. Among its activities it includes the collection of the British Household Panel Survey (BHPS) and is responsible for the design, management and collection of Understanding Society (Understanding Society is a world leading study of the socio-economic circumstances and attitudes of 100,000 individuals in 40,000 British households).

## National Centre for Social Research

([www.natcen.ac.uk](http://www.natcen.ac.uk))



NatCen is a not for profit organisation and claims to be Britain's leading centre for independent social research. The scope of their research is broad and includes the British Social Attitudes Survey, the Health Survey for England and the Tax Credit & Child Benefit Study. NatCen is best known for large-scale, face-to-face survey research covering all areas of social policy including:

- Health & lifestyle: smoking, drinking and drug use to gambling and leisure, nutrition and weight, relationship, aging
- Children, School & families, including antisocial behaviour
- Social & political attitudes: crime, employment, environment, housing, immigration, race & religion & volunteering
- Transport & the environment: public transport, travel behaviour
- Income & welfare: benefits & tax credits, family support, housing inequality, pensions
- Employment, skills & education: employment policy and practices, skills & training
- Crime & justice: drinking & drug use, victim research
- Social inclusion: communities, disability, equality & diversity, income, lifestyle

Data generated by the NatCen is deposited and accessible through the UK-Data Archive.



## Data for Neighbourhoods and Regeneration

**DATA4NR**

DATA FOR NEIGHBOURHOODS  
AND REGENERATION

([www.data4nr.net/introduction/](http://www.data4nr.net/introduction/))

Data for Neighbourhoods & Regeneration (data4nr) is a website that identifies and signposts to datasets that are available for targeting, monitoring, priority setting and performance management at neighbourhood level. The website does not hold the actual datasets, instead it provides a service linking to other websites from which the data is available. Links are also provided to key resources associated with the National Indicator Set and the Index of Multiple Deprivation. It provides links to:

- 51 national data sources, for example, community health profiles, property market report, places database, neighbourhood statistics (NeSS), national land use database, Land Registry, Health Poverty Index, Defra Rural Evidence Hub, etc.
- 31 regional data sources, for example, local alcohol profile, housing intelligence, mental health, regional culture observatories, etc.
- 99 links to local information systems, for example, statistics, facts & figures, mapping and databanks, etc.

**Index of Multiple Deprivation (IMD).** This is a standard measure of deprivation at small area level across England. The IMD is based on seven domains:

- Income
- Employment
- Health & disability
- Education & skills
- Barriers to housing & services
- Living environment
- Crime

Each domain in turn is based on a number of indicators, with some domains also split into sub-domains. The full datasets include scores and ranks at small area level for the IMD, domains (and sub-domains), individual indicators and population denominators. There are also local authority level summaries. Below we provide links to all of the datasets available for the IMD 2007 and 2004 releases.

The **National Indicator** set (the only means of measuring local progress) is monitored by central Government under Local Area Agreements. The National Indicators are grouped under the following themes:

- Safer Stronger Communities
- Children & Young People
- Adult health & wellbeing
- Tackling exclusion & promoting equality
- Local economy
- Environmental sustainability