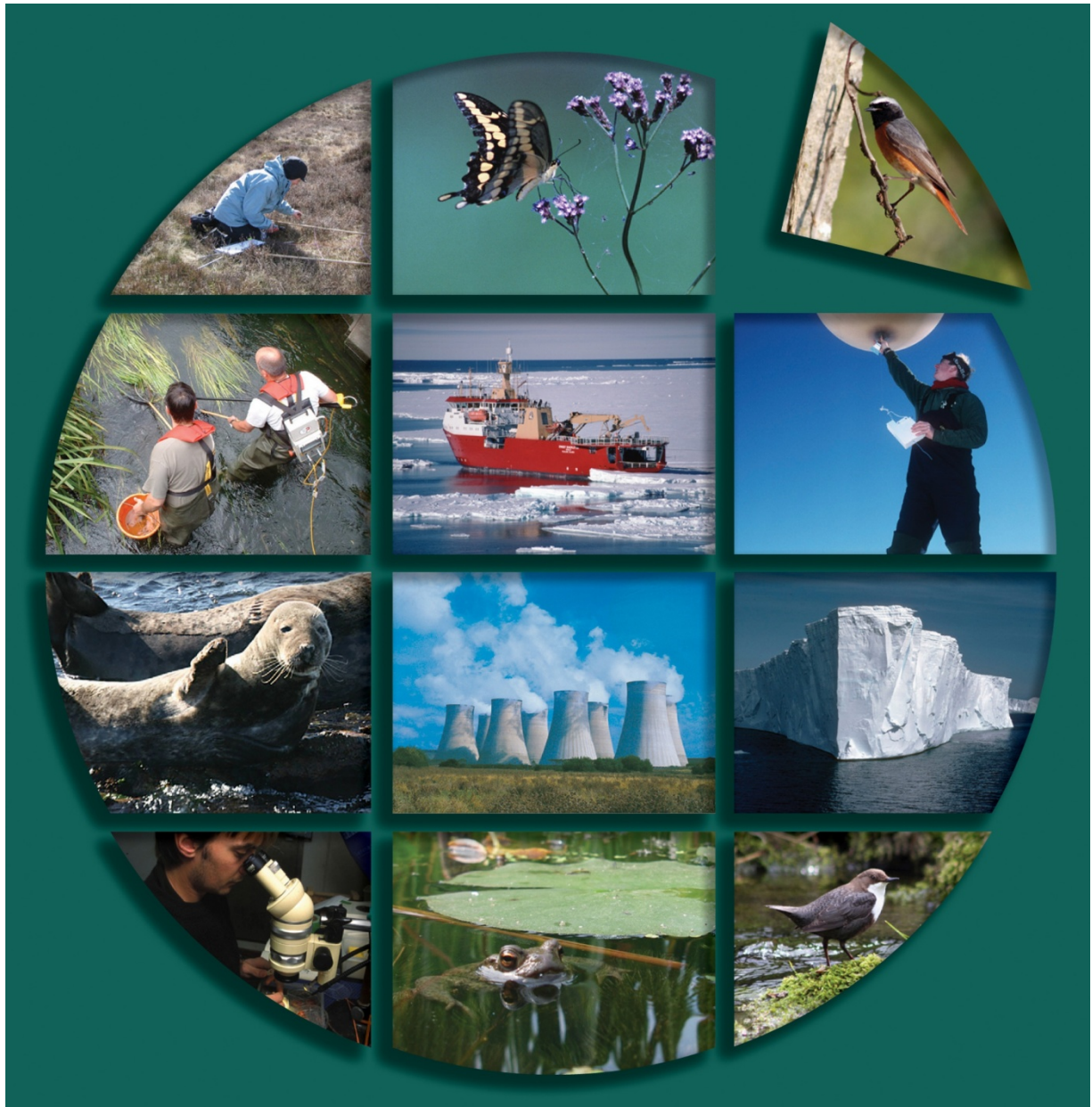


UK Environmental Observation Framework



**Delivery Plan
2008- 2013**

A Working document of the UK-EOF Management Group

Version: January 2012.

The Environment Research Funders Forum (ERFF) and the Global Environmental Change Committee (GECC) merged with Living with Environmental Change (LWEC) in June 2010 to form a new LWEC Directorate. As a former programme of the ERFF the UK-EOF is now a programme of the LWEC Partnership.

Contents

- Contents..... 2**
- Executive Summary 3**
- 1 Overview of the UK Environmental Observation Framework..... 6**
 - 1.1 Background 6
 - 1.2 Aim 6
 - 1.3 Structure and Management..... 7
- 2 The UK- EOF work areas 9**
 - 2.1 Work Areas 9
 - 2.2 The UK-EOF 'Tool Kit' 10
 - 2.3 Other UK-EOF work areas 11
 - 2.4 Additional initiatives and cross-cutting work..... 13
- 3 Work Areas - Details and Progress 14**
 - 3.1 Progress and Deliverables (2008-2010)..... 14
 - 3.2 Current Work Area plans – January 2012 16
- 4 Risk Log..... 20**
- Annex 1: Priorities of the UK-EOF Funders and Management Group Members 24**
- Annex 2: Terms of Reference for UK-EOF groups 26**
- Annex 3: Current (2011) work areas mapped onto original (2008) work streams 28**
- Annex 4: Terminology, Definitions and Acronyms 29**

This Delivery Plan 2008 - 2013 is a working document of the UK-EOF Management Group and will be updated as the programme progresses. It describes how the **United Kingdom Environmental Observation Framework (UK-EOF) will be delivered**. Further details of the programme itself can be found at: <http://www.ukeof.org.uk/> or in the ERFF Report 05, UK-Environmental Observation Framework, <http://www.ukeof.org.uk/documents/20080701-05-uk-eof.pdf> , released at the launch of the UK-EOF in July 2008.

The first point of contact for information on the UK-EOF is office@ukeof.org.uk or www.ukeof.org.uk

Last Updated: January 2012

Executive Summary

The UK-Environmental Observation Framework (UK-EOF) strives to change the way the UK perceives, values, archives and uses information from observation activities by working across public departments and agencies, the voluntary sector, industry and academia. It was launched in 2008 in response to the long term issues that surround environmental monitoring, observations and surveillance and is a self-contained programme of the Living With Environmental Change (LWEC)¹ Partnership. The programme is funded by the major sponsors of environmental observations in the UK and delivered via a series of themed work areas and interlinked projects.

During 2010 the UK-EOF began to shift its focus from tool development to providing strategic and operational leadership to support the dynamic work of the funders and stakeholders of the UK-EOF. Although some technological development will continue, the UK-EOF will increase direct engagement with the funders to facilitate uptake of the tools, add value and provide a neutral space in which organisations can discuss increasing efficiencies and collaborative working practices. In addition the UK-EOF will undertake short, detailed Thematic Scoping Studies to address questions in specific areas. The secretariat will manage the multi-dimensional programme to ensure that between themselves and the funders they can:

- 1) Respond to the needs of organisations, create opportunities and a neutral space in which discussions can be held on the relevance and efficiency of environmental observation programmes.
- 2) Work closely with UK-EOF partners and Stakeholders, to encourage the maintenance and use of the UK-EOF tool kit including **Towards a Statement of Need**, the **Observation Catalogue**, the **Decision Support Framework and Criteria** and an Analysis Tool. In addition work to improve our **knowledge of investments** and use the collective information to assist in the making of transparent, evidence based decisions that allow organisations to optimise their investments and work in partnership to deliver best value.
- 3) Work in partnership with the UK-EOF member organisations to undertake short, detailed **Scoping Studies** to address questions surrounding resource efficiency and best use of environmental observations. Initial topics to be covered include; The role of Citizen Science; Finding monitoring efficiencies through coincident mapping; Assessing water observations; Coordinating Climate Observations; Legislative Observations and Sustainable funding mechanisms.
- 4) Support and provide advice, where necessary to the following groups and initiatives:
 - Defra Network Monitoring Review – provide strategic input and support in the development of efficiency options and take forward any outcomes.
 - NERC – support and advice on the decision support framework so that elements can be built into their own internal processes.
 - CAMERAS Scottish Monitoring Strategy – provide advice on the UK-EOF tools and their use within the Scottish Monitoring Strategy.
 - Defra – assessment of the legislative demand of monitoring within the UK.
 - British Library – EnviA (Environmental information, access and discovery) project.
 - Global Climate Observing System (GCOS) consultation on behalf of DECC.
 - LWEC – In addition to both directly and indirectly meeting some of the LWEC Objectives, the UK-EOF will also provide information on observation

¹ LWEC merged with the Environment Research Funders Forum (ERFF) in June 2010, before this date the UK-EOF was a programme under the ERFF.

requirements and knowledge, which can be built upon for the delivery of the overall LWEC goals and challenges. In particular, the 6 challenge areas and related activities such as the Flooding Strategy.

- 5) Work towards the UK's long term vision for data sharing and encourage a cultural shift in the reuse of environmental observation evidence by implementing the **Data Initiative**. The focus will be to:
 - Facilitate the Data Advisory Group as a core discussion and collaborative forum.
 - Provide a Focal Point / information conduit, between the users and the various initiatives at the UK, EU, and global levels concentrating on issues of data sharing including GEO, INSPIRE, SEIS, the Location Strategy, etc.
 - Be the UK liaison/contact point for input into the GEO Data Sharing Task Force.
 - Improve the functionality of the UK-EOF Catalogue to meet user needs, facilitate compliance with INSPIRE and data.gov.uk.
 - Provide LWEC Environmental Information Framework (EIF) with information and resources where necessary.
- 6) **Incorporate relevant environmental socio-economic observations.** In conjunction with the observation community, capture the relevant socio-economic requirements that will help to rationalise the use of environmental observations and contribute to the answering of environmental science questions and/or issues. Take forward recommendations from a community workshop including making appropriate links into the Environmental Observation Activity Catalogue.
- 7) As part of the LWEC partnership, deliver, both directly and indirectly, several LWEC objectives surrounding observations and environmental information.
- 8) Raise **awareness of the UK-EOF** and increase the recognition and value of longer term observation activities amongst funders, users and potential users. This has been and will continue to be achieved via newsletters, the website, workshops and regular Management Group meetings.

This builds upon the work delivered by the UK-EOF in the first 2 years of the programme, which included the:

- Development, consultation and publication of **Towards a Statement of Need** (version February 2010).
- Development and application of guidelines for **assessing our investments**.
- Development of an **Environmental Observation Activity Catalogue**, which was populated and released in August 2009 (and updated in 2010/11).
- Identification and discussion of the **data sharing and reuse** issues with senior government officials at a Think Tank
- Review of current practice/standards and provision of recommendations for data suitability and availability fields within the observation catalogue.
- **Data Solutions workshop** (June 2009), which showcased both the Catalogue and initiatives that are developing tools for good data practice and allowed discussion and feedback from a wide community on the proposals for work.
- Drafted and released the elements of a decision support framework in the document '**Decision Support Framework – Concepts and Tools**'.
- Conducted initial testing of the **decision support criteria**, which when fully developed will help public sector organisations make transparent, informed decisions surrounding observation programmes.

- Raising of **awareness of the UK-EOF** and its associated activities within the community and via newsletters, the website, workshops and regular Management Group meetings.
- Bringing together the achievements in the first 18 months in a **Progress and Challenges Report** (presented to the ERFF Main Board in November 2009).
- Provision of advice and information to the MSCC Long-Term Monitoring Working Group for the development of recommendations for a long term monitoring strategy.

1 Overview of the UK Environmental Observation Framework

1.1 Background

1.1.1 This framework was set up in 2008, following acknowledgment of the long standing issues surrounding monitoring, observations and surveillance at the September 2006, ERFF workshop on environmental monitoring².

1.2 Aim

1.2.1 The UK-EOF is a partnership of the major public funders of environmental science. Together with the partners the UK-EOF aims to: *identify and address the issues surrounding environmental observations made for and by the UK; provide a cost effective mechanism to work in partnership across government, the devolved administrations, agencies and the voluntary sector to make the best use of expertise and resources in support of national and international goals.*

1.2.2 The UK-EOF will provide a strategic framework to change the way the UK perceives, values, archives and uses information from long-term environmental observations.

1.2.3 Working alongside the parties and with direction from the Management Group the overall aim will be met by achieving the following outcomes/objectives:

1. Develop a **holistic picture** of what the overall evidence needs are and the role of observations in providing this information. This will enable and empower the UK, and each agency, department or observation initiative to make a clearer contribution to existing and anticipated national and international programmes, optimise its investments, recognise dependencies and work in partnership.
2. **Share knowledge** and information on observation plans and programmes so that we will know what environmental parameters are being monitored by or for the UK, by whom, how, why and at what cost. We will have a greater understanding of what we can do with the information and how to access the data.
3. Enable effective and transparent **decision-making processes** by embedding the tools developed under the other objectives and encouraging good practice³. Understanding the use of data is a key component of the decision criteria.
4. Enable **funding** for observation programmes to be effective, transparent and capable of supporting the long-term information needs of the UK and the role of the UK in a global perspective.
5. Build a strong **community** providing evidence in the **most efficient and effective** manner and sharing both data and expertise with decision makers who understand the value of, own and use the information. Technological innovations will be encouraged where appropriate.

² Strategic Analysis of UK Environmental Monitoring Activity. ERFF Report 02. August 2002, 24pp

³ N.B. this objective has been revised since the inception of the UK-EOF, the original objective (as outlined in the Framework document) included understanding the range of assessments that use observation data however this is being taken forward by the National Ecosystem Assessment & via LWEC objectives. In the current economic climate partners focus has also shifted to being able to make effective decisions regarding the observation programmes that they are funding.

1.2.4 The objectives, activities and outcomes are illustrated in the Logic Chart of Figure 1.

1.3 Structure and Management

1.3.1 The work programme for the UK-EOF has been split into interlinked areas of work (formerly known as workstreams). These are discussed further in Chapter 2. Progress on each is not carried out in isolation, there are many cross linkages and much of the work done on behalf of the community involves multiple outputs.

1.3.2 The UK-EOF is a programme of the LWEC Partnership and is championed by Bob Watson, the Chief Scientific Adviser of Defra. A Management Group guides the delivery of the Framework and transfers the outcomes to each partner organisation.

1.3.3 The UK-EOF secretariat provides everyday programme and project management, communication and co-ordination between the interlinked work areas.

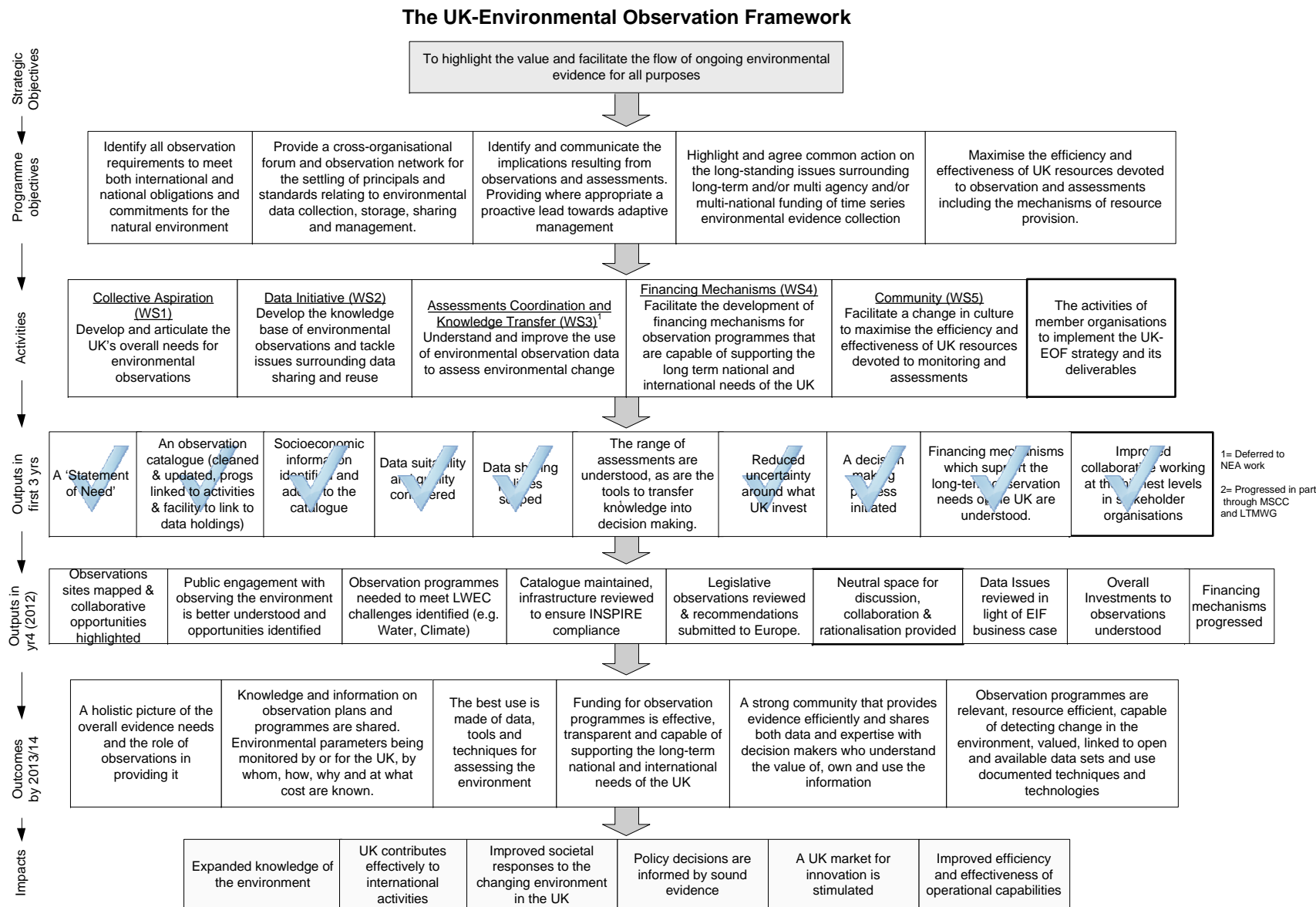
1.3.4 Each work area has at least one dedicated Management Group champion who is responsible for guiding the work and will report progress to the rest of the group.

1.3.5 The UK-EOF budget is approximately £450k a year, however was reduced to £280K in 2010 (0.06% of the estimated £500 million currently spent on collecting environmental observations). The monetary figures do not include in kind time from some partner organisations.

1.3.6 The funders and initiators of UK environmental observations have agreed to work together to implement this framework. Their priorities for the UK-EOF are listed in Annex 1. In order to achieve the outcomes, the UK-EOF will draw upon and bring together the expertise and experience of a wide range of stakeholders across the public, commercial and voluntary sectors.

1.3.7 Terms and References for the UK-EOF groups can be found in Annex 2.

Figure 1: The Logic Chart for the UK-EOF. This summarises the objectives and the planned activities to achieve the outcomes, which in turn will create the stated impacts. Ticked outputs have been achieved. Boxes with bold outlines activities or outputs that must be Member Organisation led.



2 The UK- EOF work areas

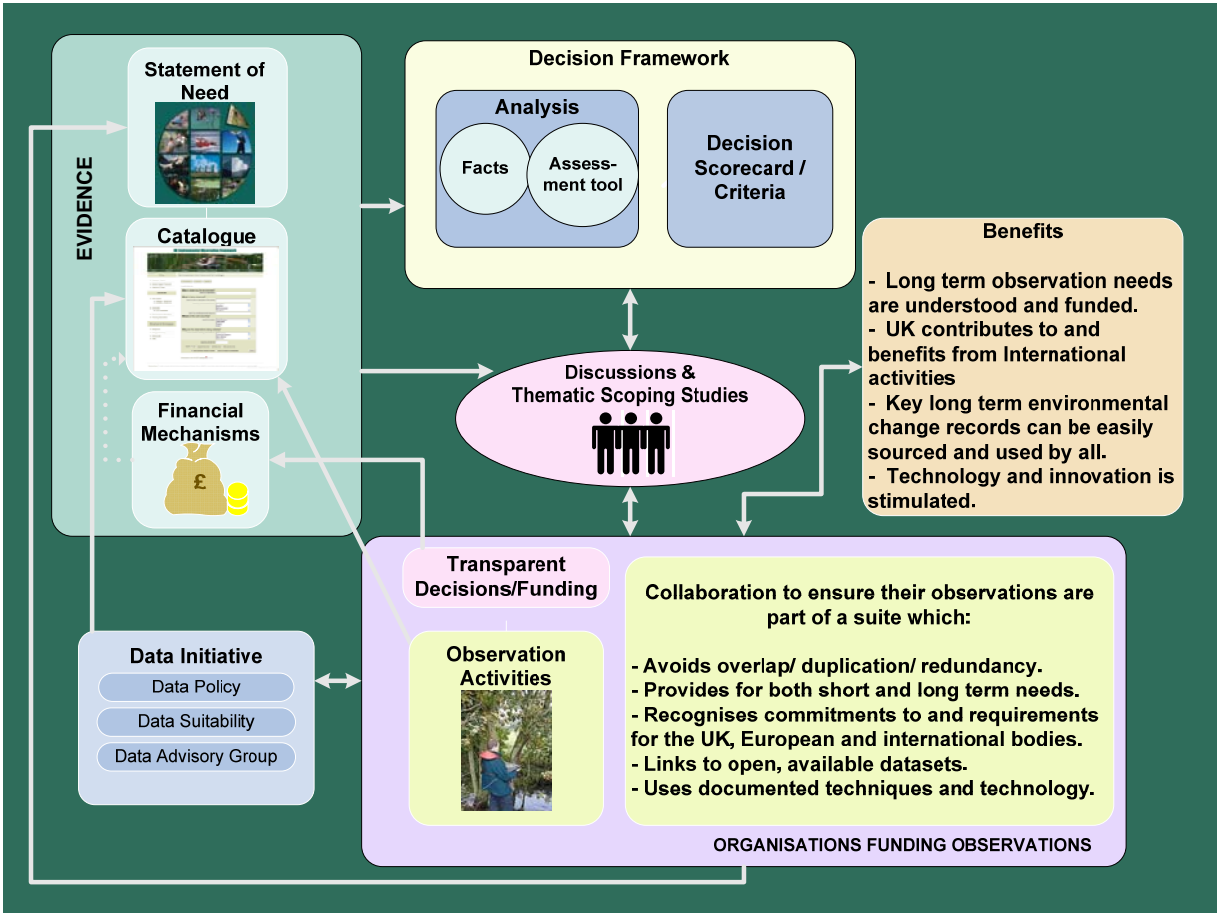
2.1 Work Areas

When set up in 2008, the work programme for the UK-EOF was divided into 5 distinct streams each with its own programme of work and deliverables.

2.1.1 As the programme has progressed, the requirements of the partners and stakeholders have changed, resulting in the need to accelerate the progression of some activities, postpone others or undertake activities which cut across all of the streams. The structure was deemed too rigid for the flexibility required therefore these have now been broken down into core activities, which comprise maintenance of the UK-EOF tool kit and scoping studies, which will build upon the tools and evidence gathered. These projects will be time-bound and will address, in detail, a particular societal area, for example water or climate. Each study will look critically at questions such as, are we collecting observations in the most efficient way? Can we share costs, people and infrastructure? Are the observations actually used? Are they shared to create new knowledge? The new structure of work has been mapped onto the original work streams in Annex 3.

2.1.2 The work being taken forward and the interlinkages are illustrated in Figure 2.

Figure 2: An overview of the UKEOF showing linkages between the work and benefits. Liaison and support for the community is not illustrated *per se* however engagement with the community will be instigated where necessary throughout the programme and will form a major part of the testing and uptake of outputs (or tools) generated by the UK-EOF.



2.1.3 Together the components of the UK-EOF will meet the outcomes/objectives outlined in The Logic Chart of Figure 1. However there is much cross over and information or deliverables from several work areas may be needed to meet one outcome/objective, this is illustrated in Table 1. In addition, the thematic scoping studies will each address some of the objectives in more detail for the chosen areas.

Table 1. The work required to meet the UK-EOF Objectives/Outcomes (n.b. full descriptions of the objectives/outcomes are given in 1.2.3)

UK-EOF Objective/Outcome	UK-EOF work area/deliverable
1. Develop a holistic picture of overall evidence needs.	- Statement of Need - Observation Activity Catalogue
2. Share knowledge and information on observation plans, programmes and data.	- Observation Activity Catalogue - Former Data Initiative, now LWEC/Defra's Environmental Information Framework - Management Group
3. Enable effective and transparent decision making processes.	- Decision Support Framework (including analysis of an assessment against needs) - Observation Activity Catalogue - Statement of Need - Investments to observations (financial mechanisms)
4. Enable funding for observation programmes to be effective, transparent and capable of supporting the long-term needs of the UK.	- Financial mechanisms - Statement of Need - Observation Activity Catalogue
5. Build a strong community that provides evidence in an efficient and effective manner.	- Community - Aspects of the whole UK-EOF programme

2.2 The UK-EOF 'Tool Kit'

2.2.1 A major part of the UK-EOF is the development of components of a 'tool kit' for use by the partners and stakeholders. By using the tools, decisions and investments with regard to environmental observations will be transparent and evidence based; where necessary, organisations will be able to work collaboratively and/or in partnership to deliver best value. The tool kit consists of:

2.2.2 **Towards a Statement of Need** (Management Group Champion: Peter Costigan)
A Statement of Need that reviews all the environmental observation requirements for the UK, including national and international commitments and the evidence required to answer major environmental issues and scientific questions. It will be used to ensure that the most appropriate information is gathered to address the challenges. The document is not static and will be updated as necessary.

Further information: <http://www.ukeof.org.uk/statementofneed.aspx>

2.2.3 **Observation Activity Catalogue** (Management Group Champion: Lawrence Way)
An Observation Activity Catalogue, which holds observation metadata (i.e. knowledge of who is doing what, where and why) and is used as a discovery tool. The metadata, produced by the responsible organisation, is collated and submitted to the UK-EOF who process, quality control and enter the information into the catalogue. The catalogue is freely available to all on the UK-EOF website. It offers the only UK overview of observation activities and has therefore been used as the contribution to EU SEIS BASIS and will help the UK to implement INSPIRE Annex III.

Maintenance of the catalogue is on-going and additional fields are being added. A unique identifier has been added to catalogue entries so that data (held elsewhere) can be linked to the relevant activity or programme.

In 2011, the UK-EOF catalogue was merged with the LWEC Research Database, however both still maintain separate front ends.

Further information: <http://www.ukeof.org.uk/catalogue/default.aspx>.

2.2.4 **Decision Support Framework** (Management Group Champion: Michael Schultz)

A Decision Support Framework and Criteria, which provides evidence, information and guidance to partners and stakeholders. Decision making will remain the responsibility of organisations but using the tools organisations will be able to consider the UK picture, when considering their internal investment priorities.

An initial assessment of the environmental observation activities and programmes (listed within the catalogue) against the needs (as stated in Towards a Statement of Need) has been undertaken by the collective partnership. The UK-EOF and funders of observations have begun to analyse the entries in the catalogue and assess their value in meeting the major environmental issues and challenges that the UK faces now and in the future. The analysis, when combined with factual information on observations and evidence from the decision scorecard (such as uniqueness etc) will inform discussions on the value of the UK's observation programmes. In addition the analysis will enable subsets of programmes, relevant to issues, to be identified and enable organisations to consider a wider UK view when considering their own internal needs.

Further information: <http://www.ukeof.org.uk/decision.aspx>

2.2.5 **Financing Observations**

An annual collation of the monetary and voluntary investment made to environmental observations is a core part of understanding the scale of investments made to observation activities. This understanding is necessary when considering the holistic picture of observations and during decision making. When submitting cost information, organisations will be encouraged to follow guidance developed by the UK-EOF which asks for full economic costs and an idea of what costs have been included.

Organisations will, by understanding where the investments are being made, be able to use current resources more efficiently. This will be of high importance when considering the streamlining of budgets, efficiency savings and investment applications.

Following initial work on raising the long-standing issues surrounding long-term, multi-agency and/or multi-national funding of environmental times series data collection the UK-EOF are now working with the Government Office for Science and others to agree common action on these issues.

Further information: <http://www.ukeof.org.uk/financing.aspx>

2.3 **Other UK-EOF work areas**

2.3.1 **Data Initiative**

An aim of the UK-EOF is to work with partners and organisations, to achieve a long-term vision for data sharing and a cultural shift in the reuse of information.

Initially a Data Initiative, which covered all aspects of data including suitability of reuse (quality, access), data management, principles, standards, sharing and data policy was set up as an area of work, however this was put on hold in 2011, due to

the development of an Environmental Information Framework (EIF) by Defra and LWEC. The UK-EOF has been assisting with this work in progress.

The UK-EOF also set up and facilitates a Data Advisory Group (DAG). This collaborative forum allows organisations to come together to discuss the various data sharing initiatives at the UK, EU and global levels - including GEO, INSPIRE, SEIS, the Location Strategy etc. The UK-EOF facilitates the DAG and liaises with the funders of environmental observations to inform them of the various data initiatives, assess their data and metadata management and also their capability for information provision.

Further information: <http://www.ukeof.org.uk/datainitiative.aspx>

The UK-EOF Programme Manager is also the UK lead liaison/contact for input into the **GEO Data Sharing Task Force**. The level of input required will be determined by the risk of the GEO activities impacting on UK data providers and the potential to miss opportunities to learn lessons from other nations regarding data sharing.

2.3.2 **Socio-economic Observations** (Management Group Champion: Peter Costigan)

The UK-EOF recognises that environmental issues and questions often require social and/or economic information to provide full answers.

A workshop was held in September 2010 to assess the need for socio-economic observations and investigate the potential to improve collaborative working between disciplines. Recommendations made, include the incorporation of metadata for relevant observation activities and programmes into the UK-EOF Observation Activity Catalogue, collaborating with Stakeholders who manage social and/or economic data and building a service that supports and encourages interdisciplinary working.

Further information: <http://www.ukeof.org.uk/soeconomic.aspx>

2.3.3 **Community – Facilitating Collaboration**

For the framework to succeed 'buy-in' and ownership from the diverse community with an interest in observations is essential. The Secretariat will be responsive to the needs of the partners and stakeholders and will work with them to encourage the use of the UK-EOF tools to maximise the efficiency and effectiveness of UK resources devoted to observation and assessments.

The UK-EOF will also work in partnership with the Management Group members, to undertake **scoping studies**, which will build upon the tools developed and evidence already gathered. These time-bound projects, will address a particular area in detail and will look critically at questions such as – are we collecting observations in the most efficient way? Can we share costs, people and infrastructure? Are the observations actually used? Are they shared to create new knowledge? The initial studies will be on:

- The role of Citizen Science in Monitoring
- Finding monitoring efficiencies through coincident mapping
- Assessing water observations
- Coordinating Climate Observations & Global Climate Observing System (GCOS) Consultation
- Legislative Observations
- Sustainable Funding Mechanisms (which will directly feed into the Financing Observations work area).

Where necessary the UK-EOF will arrange workshops to communicate findings or gain information and opinions from the observation community.

The UK-EOF will also provide support and a **neutral space** in which member organisations will be encouraged to use the UK-EOF tools and discuss observation activities/programmes, the UK-EOF will, where appropriate, assist partners in the delivery of cross cutting environmental observation activities for example the coordination of the GCOS Consultation in 2011.

2.3.4 **A National Strategy for Observations**

An outcome of the UK-EOF, by 2013, is to have a holistic picture of the overall evidence needs and the role of observations in providing it. Whether this should be a National Strategy for Observations is under discussion. There has been much support for this from some organisations and some resistance from others.

2.3.5 **LWEC Partnership**

As a separately funded programme of the Living With Environmental Change partnership, the UK-EOF will contribute both directly and indirectly to LWEC objectives. In particular the UK-EOF will contribute to LWEC objective 11, which aims to enhance delivery of research and other activities through: prioritisation and improved co-design, co-production and co-delivery of research and observation.

In addition the work of the UK-EOF, primarily through the thematic scoping studies, will feed into each of the LWEC Challenge areas:

- Climate Change Challenge
- Ecosystem Challenge
- Resources Challenge
- Societal Challenge
- Infrastructure Challenge
- Health Challenge

2.4 Additional initiatives and cross-cutting work

Some UK-EOF time will be spent addressing the linkages with other initiatives and cross-cutting issues. This may result in the inclusion of actions into the relevant workstream.

Other initiatives that the UK-EOF has shared interests with include (but are not limited to):

- Global Monitoring for the Environment and Security (GMES)
- Group on Earth Observations (GEO)
- Infrastructure for Spatial Information for Europe (INSPIRE)
- Shared Environmental Information System (SEIS)
- The Location Strategy
- National Ecosystems Assessment
- Marine Science Coordination Committee (MSCC)
- Coordinated Agenda for Marine, Environment and Rural Affairs Science (CAMERAS)
- National Biodiversity Network
- UK Marine Monitoring and Assessment Strategy (UKMMAS)

In addition there are several strategies or action plans that are relevant to the UK-EOF:

- Defra Ecosystems Approach Action Plan
- NERC Theme Action Plans
- Defra Evidence and Investment Strategy
- Transparency Agenda
- The Natural Choice: securing the value of nature [The Natural Environment White paper], 2011.
- Water for Life [The Water White paper], 2011.

3 Work Areas - Details and Progress

This section provides details of both the progress achieved and planned work.

3.1 Progress and Deliverables (2008-2010)

3.1.1 Statement of Need

- July 2008: Preliminary consultation with the community (see workshop report <http://www.ukeof.org.uk/documents/20080717-uk-eof-workshop-report.pdf> sections 4.8 and 4.9)
- June 2009: Version 6.1 Towards a Statement of Need released for consultation.
- Summer 2009: Observation Requirement information collected in a series of domain based workshops (<http://www.ukeof.org.uk/statementofneed.aspx>).
- February 2010: Towards a Statement of Need revised and released (<http://www.ukeof.org.uk/documents/Towards-a-Statement-of-Need.pdf>)

3.1.2 Observation Activity Catalogue

- 2008: ERFF Monitoring database released on web.
- February 2008: Community consultation re. requirements for a catalogue.
- May 2008 – June 2009: Interim catalogue developed, populated and showcased at the Data Solutions workshop.
- June 2009: Observation Activity Catalogue released on the web (<http://www.ukeof.org.uk/catalogue/default.aspx>).
- Winter 2009: Catalogue: technical and information updates.
- Winter 2009: Blueprint and information model development for upgrading the catalogue⁴.
- 2011: Catalogue content cleaned, back end merged with LWEC's Envirobase and observations 'coded' as per the EPICS Classification.

3.1.3 Decision Support Framework

- October 2009 – January 2010: Initial scoping and development of a Decision Support Framework.
- Spring 2010: Framework Trials: Management Group, MSCC (Long Term Monitoring Working Group), NERC (National Capability Advisory Group).
- March 2010: Release of Draft Tools and Concepts document onto the web (http://www.ukeof.org.uk/documents/UK-EOF_Decision_Support_Framework-concepts-and-tools.pdf).

3.1.4 Financing Observations

- August 2008: Develop a common method of reporting investments to observations (http://www.ukeof.org.uk/documents/Assessing_our_investments_Assimila_final-report.pdf)
- October 2008: Bob Watson invited the 18 major funders of environmental observations to provide their investment information (<http://www.ukeof.org.uk/documents/20081100-Investment-study-generic-letter-from-bob-watson.pdf>)
- March – November 2009: Using the guidance, investment information collected and the estimate of investments to observations refined: http://www.ukeof.org.uk/documents/Table_of_estimated_cost_2008_9.pdf
- Summer 2009: Short case studies to identify current financing mechanisms and barriers to funding activities conducted (with SAHFOS, the Met Office and EA).
- September 2009: Meeting with Bob Watson to discuss financial issues.

⁴ Following the development of the Blueprint, government restrictions on IT spend meant that the UK-EOF were not able to progress the upgrading of the catalogue in 2010.

- 2011: Discussions held with John Beddington's office, GO Science, regarding sustained funding for multi-funded long term observations.

3.1.5 Data Initiative

- July 2008: Issues surrounding data investigated
- September 2008: Brief Bob Watson and senior Government Officials at a Data Think Tank (http://www.ukeof.org.uk/documents/think_tank_briefing_paper.pdf).
- December 2008: Data Advisory Group established.
- March 2009: Review existing standards and practices; recommendations presented to the DAG and UK-EOF Management Group.
- January – June 2009: Business case, PID and draft vision developed and presented to the Location Council.
- June 2009: Data Solutions workshop held to inform and engage with the community (see http://www.ukeof.org.uk/di_solutions.aspx)
- Summer 2010: An assessment of organisation's ability to provide/manage metadata completed.
- 2011: Data Initiative put on hold due to the development of the Environmental Information Framework.
- Autumn 2011: Provided response to the INSPIRE Annex III, Environmental Monitoring Facilities Theme (EMF) consultation and reviewed the implications of the draft EMF specification on UK organisations and the UK-EOF.

3.1.6 Socio-economic Observations

- September 2009: June 2010 Initial meetings to determine scope held with Defra, ESRC and EA; PID developed.
- September 2010: Workshop to identify the needs for socioeconomic observations held and recommendations for future work made (http://www.ukeof.org.uk/documents/20101117_UKEOF_Socioeconomic_Workshop_Final_Report.pdf)

3.1.7 Community – Facilitating Collaboration

All of the above work areas involve the community at certain stages for example, in workshops or consultations. Below are listed the activities which fall outside of the individual work areas.

- July 2008: Launch of the UK-EOF and inaugural workshop
- 2010/2011: Attending meetings and liaising with CAMERAS Scottish Monitoring Strategy.
- March – August 2010: Assistance, advice and tool provision in the Defra Network Monitoring Review.
- August –September 2010: LWEC Flood Research Strategy (use of the UK-EOF tools).
- August 2010: Website revamped.
- Summer 2011: Input and participation in the LWEC Challenge workshops.
- June 2011: Citizen Science workshop
- November 2011: Support & assist in the development of the British Library's EnviA (Environmental information, access and discovery) project.
- December 2011: Coincidence mapping workshop
- Quarterly: Newsletters circulated to over 900 subscribers.
- Quarterly: Management Group Meetings to report progress, discuss members priorities and future action by the UK-EOF.

3.2 Current Work Area plans – January 2012

The current and planned work for each of the work areas is summarised below.

No.	Work Area	Output/expected output	Timescale	Resource	RAG Status
1. Statement of Need					
1.1	Maintenance of "Towards a Statement of Need".	Revised versions of 'Towards a Statement of Need' (if necessary - No Revision currently planned)	Update post LWEC challenge strategic framework development (if necessary).	UK-EOF Secretariat Observation Community	A (On Hold)
2. Decision Support Framework					
2.1	Build a tool for analysing activities within the catalogue	A tool to enable the analysis of observation activities	March 2011	UK-EOF Secretariat + Contractor	Complete
2.2	Analysis of observation activities (within the catalogue) against Needs	An assessment of current activities against the needs (as stated in Towards a Statement of Need) and provision of evidence for themes.	February – October 2011	UK-EOF Secretariat	A
				MG organisations	A
2.3	Assess the level of demand on UK monitoring to meet EU legislation	Recommendations and options to DG Environment re. reducing excessive monitoring requirements on the UK/Member States.	September 2012	UK-EOF Secretariat	A
				Defra	
3. Financing Observations					
3.1	Collection and storage of financial information 2010.	Collation of investments made to observations (update of 2009 information) are stored within a secure part of the catalogue	November 2011 (to permit automatic upload entry)	UK-EOF Secretariat	Complete
				Contractor	Complete
3.2	Analysis of financial information	Revised estimate of investments made to observations	March 2011	Management Group (to provide information)	R
				UK-EOF Secretariat (analysis)	A
3.3	Financial Mechanisms	Finding solutions and breaking the barriers to long term funding of observations	February 2012 (initial meeting)	UK-EOF Secretariat	G
				CSA (John Beddington)'s office	
4. Observation Activity Catalogue					
4.1	Addition of relevant socio-economic activities to the catalogue	Addition of activity lines into the catalogue	Summer 2012	UK-EOF Secretariat + guidance from Management Group representatives.	A

4.2	Maintain and regularly check/update catalogue contents. (N.B. regular minor updates will be made as/when information is provided).	All activities are checked and the cost information updated annually	Next annual check Sept/Oct 2012	UK-EOF Secretariat MG Organisations	G
4.3	Merge the catalogue with the LWEC Research Database	One backend database, containing both observation and research information. Each will retain a separate front end search facility.	Summer 2011	LWEC Research Database Manager, UK-EOF Secretariat + Contractor.	Complete
4.4	Assess the need to maximise the opportunities and minimise the burdens from INSPIRE Annex III implementation	Improved functionality and INSPIRE compliant catalogue;	October 2011 (Stage 1); Summer 2012 (Stage 2)	Stage 1 - Contractor, DAG + UK-EOF Secretariat	G
4.5	Collaboration with JNCC & NBN to improve accessibility to biodiversity data through the UK-EOF Catalogue.	User can access the actual data or find the project and funding information through enhanced weblinkages between the Catalogue and NBN gateway.	March 2012	JNCC, NBN & UK-EOF Secretariat	G
5. Data Initiative					
5.1	Facilitate DAG (on behalf of LWEC Environmental Information Framework (EIF)).	Provide forum for understanding the data initiatives landscape and sharing knowledge and expertise. Circulation of information generated by the group.	Ongoing – Quarterly as necessary	UK-EOF Secretariat (Chair & notes). Community provide updates and attend	G
5.2	Liaise with and contribute to key data initiatives and discussions.	Contribute to SEIS, the Location Information Interoperability Board (LIIB) and keep stakeholders informed.	Ongoing	UK-EOF Secretariat	A Vacancy in Secretariat not filled.
5.3	GEO Data Sharing Working Group UK lead	Act as the UK representative the GEO Data Sharing Working Group ensuring the implementation of the Action Plan is acceptable and actioned by UK organisations	Until Further Notice	UK-EOF Secretariat, Defra, Contractor	G

5.4	Contribute to the Government Review of Data (via the Defra Return).	One line in the Defra return to Treasury regarding the administrative impact of gathering information for the Observation Activity Catalogue.	1 st March 2011	UK-EOF Secretariat	Complete
5.5	Work with Defra and LWEC to develop a UK Environmental Information Framework (EIF)	Outcome TBD – Likely to be a merger of the Data Initiative and current data initiatives being taken forward by Defra and LWEC Partners. A Business Case and Road Map for proposed programme.	Ongoing [waiting for EIF Steering Group decision].	Defra, UK-EOF Secretariat, LWEC, UK-EOF Management Group, Data Advisory Group	G
5.6	Review EMF Theme Standards	Input to inform the UK View and 4.4	October 2011	DAG, UK-EOF Secretariat	Complete
6. Socio-economic Observations					
6.1	Scope and develop case studies to illustrate joining up interdisciplinary information (methods/approaches etc).	Meeting to scope potential (with Relu as a case study - Complete). Relu are producing a document summarising the interdisciplinary approached used.	on hold	UK-EOF Secretariat, RELU, ESRC	A
6.2	Update website to include a Socio-economic page	A webpage which is a source of information for interdisciplinary working	Jun-11	UK-EOF Secretariat	Complete
6.3	Add metadata for relevant socio-economic activities to the catalogue.	See 4.1			
7. Facilitating Collaboration					
7.1	Act as a neutral space, in which organisations can hold discussions re. observations and use the UK-EOF tools to increase efficiency and collaboration.	7.1.1 Citizen Science workshop (further work being take forward as a Thematic Scoping Study)	October 2011	UK-EOF secretariat, MG & other Stakeholders	Complete
		7.1.2 Mapping Exercise workshop (further work being taken forward as a Thematic Scoping Study)	December 2011	Natural England & UK-EOF secretariat, with data input from MG organisations	Complete
7.2	Provision of tools and advice	7.2.1 Defra Network Monitoring Review (potential continuation)	TBC	UK-EOF Secretariat, Defra Family	TBC
		7.2.2 Input to the MSCC Long term Monitoring Working Group	Group now closed	UK-EOF Secretariat, MSCC LTMWG	Complete
		7.2.3 Input to the CAMERAS Scottish Monitoring Strategy - determine how UK-EOF can provide support and coordination with England/Wales	Ongoing	UK-EOF Secretariat, CAMERAS.	G

7.3	Provide information and support for LWEC Challenge Groups	Provision of information (from Statement of Need and Catalogue) to the workshops and input to the workshops	Spring - Autumn 2011	UK-EOF Secretariat	Complete
		Provision of information for the Challenge Steering Groups	2011/12	UK-EOF Secretariat	G
7.4	UK Response to the GCOS Implementation Plan	Collation of a UK view on the 137 GCOS recommendations.	Summer/Autumn 2011	DECC, UK-EOF Secretariat, Other organisations as appropriate	Complete
7.5	6 th National Communication (UNFCCC)	The UK Submission to the 6 th National Communication of the UNFCCC	1 st January 2014	DECC, UK-EOF Secretariat & Other organisations as appropriate.	TBC
7.6	Thematic Scoping Studies	7.6.1 The role of Citizen Science in Monitoring	June 2012	UK-EOF Secretariat, MG & Other Stakeholders	G
		7.6.2 Finding Monitoring Efficiencies through Coincident Mapping	July 2012	UK-EOF Secretariat, Contractor & MG	G
		7.6.3 Assessing Water Observations	TBC	UK-EOF Secretariat, UKWRIF, MG & other stakeholders	G
		7.6.4 Coordinating Climate Observations	July 2012	UK-EOF, MG	A
8. National Strategy for Monitoring					
8.1	Work with partners to determine whether the UK-EOF should develop a National Strategy for Observations or similar	TBC	2013/2014	UK-EOF Secretariat and members	TBC

4 Risk Log

PM = Programme Manager
MG = Management Group
pm = Project Managers

LB = LWEC Partners Board

ID	Owner	Risk	Impact	Prob-ability	Mitigating Actions	Contingency	Status
1	PM	Funding: Committed funds not realised or cannot be met.	H	H	Co-funding agreement in place. Gain early confirmation before start of financial year. Plan ahead and realign work.	Scale down tasks and re-prioritise as far in advance as possible with revised funding schemes.	A
2	PM	Personnel: Team sickness delays progress	H	M	Ensure the team are aware of progress in all areas, so that urgent matters can if necessary be taken up & resolved by another member of the team	Reprioritise the work loads of the team to ensure that critical tasks are delivered	G
3	PM	Personnel: Team members leaving.	H	H	Again ensure other members of the team are aware of progress in all areas so that urgent matters can be resolved. Advertise vacant posts quickly to minimise the impact.	Reprioritise workloads to cover critical tasks. Employ temporary cover until full time replacements can be found.	R
4	PM	Personnel: unable to use secondment mechanism or find suitable staff	H	M	Appropriate, vibrant advertising of positions. Offer as much stability as possible as well as help with transition and flexibility of office location.	Employ Temporary staff to fill gaps or contract work out	R
5	PM	Personnel: recruitment freeze prevents taking on new staff	H	H	Ensure flexibility within the team to pick up urgent matters.	Reprioritise workloads to cover critical tasks and reprogramme the milestones.	R
6	PM	New government rules prevent the letting of external contracts	M	H	Careful planning & drafting of cases where external contractors are required. Take forward as much as possible in house or via 'in kind' support	Adjust work programme to take forward priorities	A
7	PM	Programme: UK-EOF duplicates work of other groups	M	L	Strong communications and interaction of Ws, outreach to wide community via workshops, email etc	Adjust work programme to avoid duplication and ensure it adds value	G
8	PM & pm	Programme slippage	M	M	Strong project/ programme management. Set realistic tasks, with the resources and skills	Realign the work plan to account for the slippage and set realistic delivery. If	A

ID	Owner	Risk	Impact	Probability	Mitigating Actions	Contingency	Status
					available, review progress regularly.	necessary/possible increase resources to meet targets.	
9	PM	Programme becomes too complex.	L	M	Realistic programme planning, strong management & steerage from the MG to prioritise and deliver work.	Adjust the programme plan whilst maintaining the critical tasks.	A
10	PM & MG	Programme Creep – changing members priorities, alter the focus/ desired programme of work.	H	H	Allow a degree of flexibility in the programme, but strong programme management/communication to ensure that all goals are met and team are aware of progress/changes.	Realign the work plan to accommodate new priorities and reset goals.	G
11	PM & MG	Outputs/recommendations incorrectly interpreted and therefore future progress threatened.	H	L	Progress of work should be transparent and directed by partners. Any outputs/recommendations will be agreed and signed off by the MG and the LB. Caveats should be clearly stated.	Withdrawal of outputs/recommendations or rewording to clarify the issues.	G
12	MG/LB	Management: Too many bosses – management by committee	M	L	Empower the secretariat for day to day decisions. Have clear work programmes and MG Champions to support/guide work between meetings. Report progress at each MG meeting and clearly set out the issues or decisions that need resolving/agreeing. Issues between members of the MG should be discussed and resolved quickly and efficiently.	Create a smaller executive to make timely decision where necessary. Appoint a MG Champion for each deliverable	A
13	MG & LB	Lack of engagement / time input from senior staff	H	M	Keep LWEC Board informed of progress via the secretariat and their MG representative thus enabling them to input/provide steerage to the programme.	Arrange meetings to discuss the relevance to organisations and the need for their support.	A

ID	Owner	Risk	Impact	Probability	Mitigating Actions	Contingency	Status
					Maintain constant engagement with the MG representatives. Outline the risk of non compliance & relevance to policy issues. Have clear tangible milestones		
14	PM	Organisational changes within partners	M	H	Outside of the UK-EOF control, however swift engagement with new personnel to maintain network.	Ensure that contact is maintained and new personnel identified.	G
15	MG	Organisations do not engage / take ownership of the work / outputs	H	M	Ensure that any work is fully supported by the MG and resources are available to provide the required information	Understand why there is a lack of engagement & if necessary alter the focus of the work to ensure it meets the MG needs	G
16	PM	Community events not well attended	M	L	Canvass for dates which do not clash with other events. Good organisation & advance advertising. Set clear objectives for each event and target the audience needed to achieve the outcome. Seek feedback. Take forward & communicate actions/outcomes.	Alter the focus of the workshops. Provide incentives for attendance and input	G
17	PM/MG	Data issues cannot be resolved in the framework's timeframe	H	H	Take a realistic, measured approach to understanding the origin & reasons for various policies. Identify & articulate the benefits of change and who will be affected. Ensure engagement with those who can effect change as well as those who will implement it.	Set the structure in place to continue the resolution of data issues after implementation of the UK-EOF	G
18	PM/MG	Financing mechanisms are not realised	H	H	Create a culture for change. Build up a partnership / forum based on trust and mutual respect. Undertake a thorough	Set up the structure to enable this to happen after the implementation of the UK-EOF	A

ID	Owner	Risk	Impact	Probability	Mitigating Actions	Contingency	Status
					scoping of the issues. Use appropriate skills and resources e.g. economists. Engage with Treasury early on in study.		
19	PM/MG	Decision support framework is not adopted.	H	L	<p>Develop the framework in close liaison with the MG, through a transparent process.</p> <p>Trial versions and methods of use until all partners agree to support & use the framework where agreed.</p> <p>Highlight & publish any caveats alongside the framework.</p>	<p>Revise the framework to generate an accepted version.</p> <p>Revise the method/situations of use to gain agreement with all parties.</p>	G
20	LB/MG	Political issues interrupt process e.g. Devolved administration polices may not want a UK one size fits all	H	M	<p>Be aware of and open to the issues.</p> <p>Demonstrate value of UK approach where appropriate.</p> <p>Make provision for data mining and reporting on local and regional scales.</p>	Encourage policy makers to consider the benefits of coordinated observation programmes and include this in their policies	G
21	PM/MG	Scepticism based on previous experience	M	L	<p>Maintain good communication with stakeholders:</p> <ul style="list-style-type: none"> - Newsletters - Website - Workshops etc. <p>Illustrate the benefits of outputs & maintain momentum</p>	Work with non sceptics to influence those who are sceptical.	G

Annex 1: Priorities of the UK-EOF Funders and Management Group Members

(Revised February 2011)

Organisation	Top UK-EOF Priority
CCW	To clarify the UK's requirements for environmental observations, and by facilitating access to relevant information, expertise and collaboration, to assist CCW in making an appropriate contribution to environmental observations that meet the needs of both Wales and the UK.
DECC	A body of evidence and decision-making framework to enable organisations to make fair and sustainable (long-term) decisions about funding of environmental observations.
Defra	Providing a basis for making informed decisions on investments (increasing/decreasing/ redeploying) in environmental observation activities and to promote improved coordination and information exchange.
DOENI (NIEA)	Deliver a mechanism that enables UK environmental bodies to readily share and use data to develop more co-ordinated and effective observation activities.
EA	To enable the EA to achieve more for the environment in England and Wales by sharing information, expertise and data relating to environmental observations.
EEA	To use UK-EOF as a means to maintain an overview of UK input to relevant EU activity, particularly SEIS and GMES.
ESRC	To ensure links between the social science and environmental science communities are facilitated through opportunities to share information, expertise and skills relating to observation data.
Forestry Commission	To facilitate better co-ordination, awareness and collaboration across organisations funding environmental observation activities.
JNCC	To improve the knowledge and sharing of information between domains and funders to help JNCC make appropriate use of monitoring data outside its remit in combination with biodiversity data to provide advice, and to provide a means to aid multi stakeholder decisions on the future of monitoring programmes and achieving efficiency.
Met Office	Providing a framework to facilitate increased collaboration between members to maximise the benefit obtained from our investments in environmental observation activities.
Natural England	Stronger buy-in from environmental agencies and engagement with EOF.
NERC	Providing a basis for making informed decisions on investments (increasing/decreasing/ redeploying) in environmental observation activities
SEPA	To promote development of practical new environmental monitoring technologies and provide an evidence base which will enable SEPA to amend its monitoring programmes to optimise its contribution to Scotland's and the UK's statutory and UK national monitoring requirements, without duplicating the work of other organisations.
Scottish Government	Provide a basis for making informed investment decisions and increase accessibility and use of the data collected.
SNH	Readily accessible catalogue (comprehensive rather than complex) of biodiversity and related environmental data sources to: a) support statutory surveillance and reporting responsibilities; b) underpin policy analysis & evaluation; and c) inform & facilitate joint action throughout Scotland.
UK Space Agency	To help UKSA understand the public sector's needs for earth observation information with a view to improving how the Space

	Sector can help serve that need.
WG	To facilitate better co-ordination, awareness and collaboration across organisations but within a mechanism that allows sharing of results of our research activities in a way that makes them useable on the ground rather than something that is just for funders or observatories.

Annex 2: Terms of Reference for UK-EOF groups

An illustrated structure of the UK-EOF can be found in the Framework document, Figure 2, page 22.

Champion (Senior Responsible Officer)

Champion: Professor Bob Watson

Reports to: Defra Permanent Secretary & Government Chief Scientific Advisor.

Purpose:

- To take personal responsibility of the programme
- To own of the vision
- To provide linkage between the programme and strategic direction
- To secure the investment required
- To provide stakeholder management
- Take overall control of implementation
- To ensure effective transition management

LWEC Partners Board & Delivery Group.

Chair: Lord Selbourne

Reports to: Self and Ministers

Membership: Key funders, senior policy players across government and the Devolved Administrations.

Directorate: LWEC (Swindon Office & UEA)

Purpose:

- Ensure that activities are aligned to those of LWEC.
- Be consulted on the strategic direction for the UK-EOF.
- Devote high level resources to effect change
- Take a leading position on UK environmental data stewardship
- Provide a forum to take key strategic decisions regarding long-term resource investment
- Agree to outputs from the programme and advice from the Management Group

Frequency of meetings: Two per annum normally November and May.

UK- EOF Management Group

Chair: Doug Wilson

Reports to: LWEC Delivery Group

Membership: Scientific and policy representatives (Grade 7/Band 4) drawn from sponsoring Agencies and Institutes. Representatives from other relevant parties may be copied and included in certain activities.

Secretariat: UK-EOF. Meeting papers to be championed by members where appropriate.

Purpose: Programme overview

- Define and co-ordinate the UK-EOF programme and ensure that it is supported by the appropriate structures, processes and strategies.
- Monitor progress, high-level risks and issues, take decisions and provide strategic guidance and direction to meet the outcomes/objectives.
- Ensure that there is a deliverable Programme Plan that will achieve the required benefits and outcomes.
- Regularly review the likelihood of the Programme meeting its goals and take appropriate action.

Resources Input

- Approve major deviations from the Programme Plan and allocate resources accordingly.

Add expertise

- Define and articulate the international and national obligations, commitments and science areas for the environment, including operational forecasts and other socio-economic objectives which require observations.

- Provide overall direction to observation programmes ensuring that the maximum efficiency and effectiveness is made of UK resources devoted to observations and assessments.
- Assign a representative to each area of work or specific project. S/he will guide the project and have close liaison with the UK-EOF project lead between Management Group meetings.

Outreach and Communications

- Identify and highlight to the appropriate board, understanding of the emerging science, issues, or developing technologies which policy and governance should take account of.
- Ensure alignment between the Programme and their organisation's strategies (transfer the outcomes of the UK-EOF and embed them within these strategies).
- Engage with other stakeholders (non member organisations) to encourage the uptake and adoption of UK-EOF outcomes.
- To provide a platform for discussion of UK interests in observations.

Frequency of meetings: 3 per year as necessary potentially April, July, Dec

Programme Manager and Secretariat

PM: Beth Greenaway

Reports to: Mary Barkham, LWEC and UK-EOF Management Group

- Duties:**
- Responsible for the health of the programme
 - Responsible for coherence and coordination between the work areas
 - Identifies key cross-cutting issues
 - Plans the programme and monitors overall progress
 - Resolves issues and initiates corrective action
 - Ensures quality assurance and overall integrity of the Programme
 - Manages third party contributions
 - Stakeholder communications
 - Manages project dependencies and interfaces
 - Coordinates/facilitates risk management activities
 - Progress reporting to the Management Group and others

A Central Coordinating Secretariat⁵ (the UK-EOF team) will support the Programme Manager. Where appropriate team members have project manager duties which include:

- Responsibility for the timely delivery of outputs to the agreed cost & quality
- Monitor progress
- Apply and use appropriate project management techniques

The Secretariat will provide programme and project management, communication and facilitation between the work areas, services and research to enable delivery.

Observation Community (see Annex 4 for a definition of the 'Community').

The observation community will be asked to provide input to consultations/workshops to ensure that progress is in line with their needs. In the long-term this will ensure greater integration of existing evidence collection and co-ordination of initiatives and assessments. Ad hoc groups or workshops to facilitate the work areas will be organised where necessary.

⁵ The Full Secretariat team includes a Data Initiative Manager, an Observation Coordinator, an Observation Requirements Analyst, a Decision Support Coordinator and an Administration Assistant. From 2012 this will be reduced down to a Programme Manager two full time posts (Band 6/HSO) & one part time administration post.

Annex 3: Current (2011) work areas mapped onto original (2008) work streams

Original Workstream	Original Sub-workstream	Current Work Area
Workstream 1 – Collective Aspiration	WS1a Statement of Need	Statement of Need
		Socioeconomic Observations
	WS2b Decision Support Framework	Decision Support Framework
Workstream 2 – Knowledge Base (and subsequently Data Initiative)	WS1a Observation Activity Catalogue	Observation Activity Catalogue
	WS2b Data Suitability	Data Initiative
	WS2c Data Status Table	
	WS2d Focal Point	
	WS2e Data Policies	
	WS2f Infrastructure & Resources	
Workstream 3 – Assessment, Coordination and Knowledge Transfer	-	Part Taken forward in an Analysis of current activities against need. (Re: activities being done to fulfil legislation. Integrated assessments are being taken forward by the National Ecosystem Assessment and also under LWEC objectives, therefore the responsibility has been transferred from the UK-EOF)
WS4 – Financing Mechanisms	WS4a Assessing our Investments	Understanding the Investments made to observations
	WS4b Barriers and Scoping Study	- Provision of Evidence to John Beddington's office, GO Science
	WS4c Implementation	- (Some aspects, such as transparent funding will be taken forwards under the decision support framework)
WS 5 Community	-	Community Aspects of working with the community span across all the work areas for example, working with the MSCC Long Term Monitoring Working Group on decision support & the Defra Network Monitoring Review. Scoping studies will involve the community and provide detailed studies on chosen areas Working with other initiatives also fall under community but are relevant to the other work areas, for example fulfilling LWEC objectives and GEO. Specifically the UK-EOF will provide: A neutral space for discussion

Annex 4: Terminology, Definitions and Acronyms

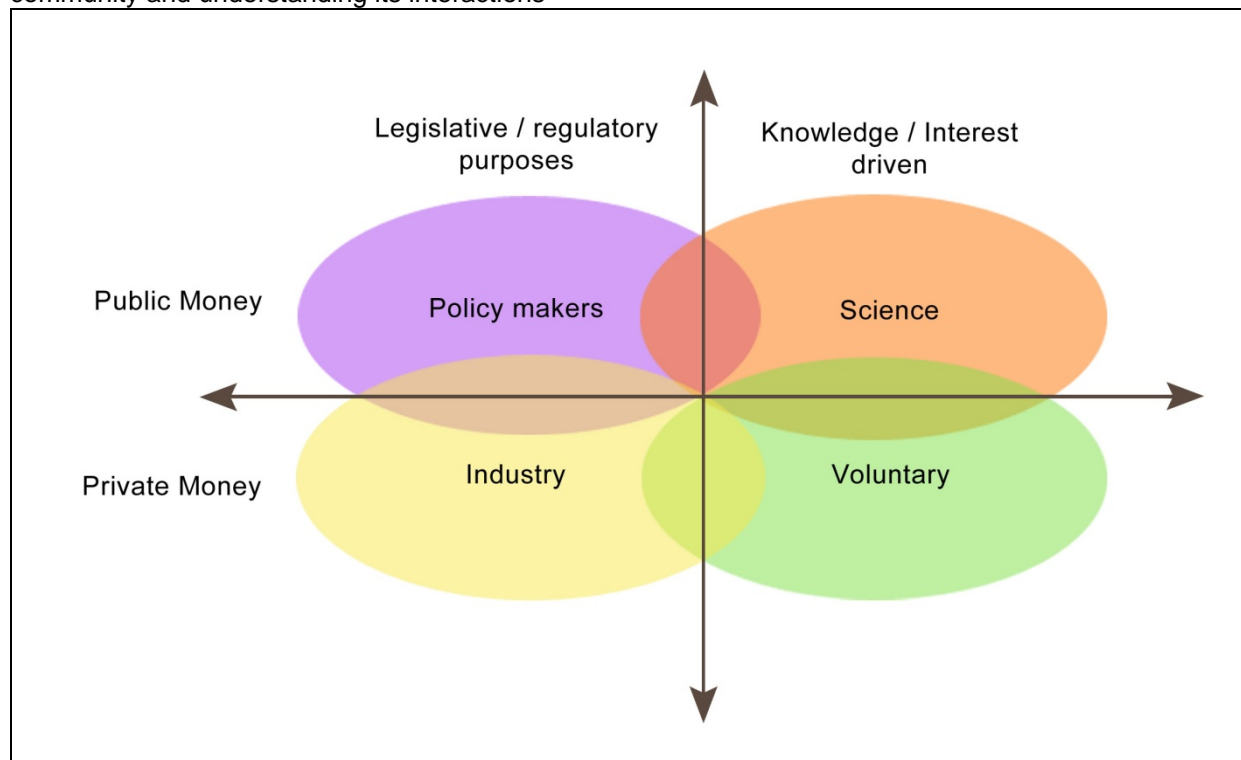
There are many different ways of describing the activities which take measurements of the environment. Depending on the scientific discipline, policy community or private sector, this results in many different understandings of the words monitoring, observation and surveillance. Some definitions in current use are described in Box 4. For the purposes of the UK-EOF we will use the following initial definitions:

Observations: *the taking, on a reasonably regular basis, of any form of observations relative to the status of the environment, regardless of frequency of, or purpose for which the observations are made, or however they are made (from satellites, ships, etc). Such observations are designed to meet a wide range of societal needs by providing a variety of products and services. Surveys are in scope for some work areas.*

Environmental: *the broadest sense of observations from the natural environment concerning physical (including geological), chemical and biological properties of the environment. This includes observations collected on land, in air, in ice, in freshwater and in the coastal and marine environment, compliance or statutory information, earth observations from space and the effects of humans on the environment and vice versa⁶.*

The Observation Community: includes all players with an interest in collecting, funding and using observations. The community ranges from senior government officials to field scientists and modelers and from large organisations to individuals. For the purposes of the UK-EOF the community and their interactions are illustrated in the 'PSVI' model (Policy, Science, Voluntary and Industry) (Figure 3).

Figure 3: The Policy, Science, Voluntary and Industry (PSVI) model: clustering the observation community and understanding its interactions



⁶ The scope of the UK-EOF has been altered since the inception in 2008. Originally social information was excluded, however following on from Towards a Statement of Need, the scope was increased to include environmental socio-economic information that is required to full address environmental issues and questions.

Glossary of Acronyms

ADAS	Environmental Consultancy firm
CAMERAS	Coordinated Agenda for Marine Environment and Rural Affairs Science
EA	Environment Agency
EIF	Environmental Information Framework
EMF	Environmental Monitoring Facility (Annex III of INSPIRE)
EnviA	Environmental Information Access and Discovery
EPICS	Environmental, Pressures, Impacts, Consequences and Solutions [LWEC Classification Scheme used for research & observations within Envirobase].
ERFF	Environment Research Funders Forum
GCOS	Global Climate Observing System
GEO	Group on Earth Observations
GEOSS	Global Environmental Observation System of Systems
GMES	Global Monitoring for Environment and Security (also known as Kopernikus)
IGGI	Intergovernmental Group on Geographic Information
INSPIRE	Infrastructure for Spatial Information in Europe
JNCC	Joint Nature Conservation Committee
LIIB	Location Information Interoperability Board
LWEC	Living with Environmental Change
MEDIN	Marine Environment Data and Information Network
Met Office	Meteorological Office
MSCC	Marine Science Coordination Committee
NBN	National Biodiversity Network
NCEO	National Centre for Earth Observation
NERC	Natural Environment Research Council
NGO	Non Governmental Organisation
OSPAR	Oslo-Paris Convention (for the Protection of the Marine Environment of the North-east Atlantic
RIN	Research Information Network
SEIS	Shared Environmental Information System
SoN	Statement of Need
UKDMOS	United Kingdom Directory of Marine Observing Systems
UK-EOF	UK-Environmental Observation Framework
UKMMAS	United Kingdom Marine Monitoring and Assessment Strategy
UKSDI	UK Spatial Data Infrastructure
UNFCCC	United Nations Framework Convention on Climate Change
WAG	Welsh Assembly Government
WERH	Wales Environment Research Hub
WISE	Water Information System for Europe

BOX 4 from the Framework document⁷ sets out the terminology used by the observation community (the definitions used by the UK-EOF are set out on p. 44 in this document).

BOX 4: TERMINOLOGY CURRENTLY USED BY THE OBSERVATION COMMUNITY

There is as yet no agreed set of definitions in use across the diverse observation community. However, a useful general definition is "the taking, on a reasonably regular basis, of any form of observations relative to the status of the environment, regardless of frequency of, or purpose for which, the observations are made" (Portmann, 2000).

Such monitoring is designed to meet a wide range of societal needs by providing a variety of products and services.

Within this definition there are two main categories of monitoring:

■ Statutory monitoring

That monitoring which is required under the various legislative directives and the UK must demonstrate it is undertaking. **Compliance monitoring** is a subset of statutory monitoring and refers to demonstrating compliance with statutory programmes or against a defined target e.g. reduction of inputs of hazardous substances. Note that this is often confused with statutory monitoring but it is the results of the compliance monitoring which are key rather than the taking of the measurements themselves.

■ Investigative monitoring

The investigative monitoring programme is analogous to a scientific investigation where the hypothesis under test is whether the targets have been achieved or a cause of failure is unknown. A monitoring programme could therefore make a series of measurements to test the hypothesis by a discrete data gathering exercise or one that may require several field visits.

Many members of the observation community have adopted more specific definitions which tend to reflect the nature of their operations: for example, MECN time series data falls within Portmann's definition of monitoring.

Water Framework Directive Monitoring Definitions

Under this Directive, there are 3 types of monitoring required:

- **Surveillance** – to validate the risk assessments, detect long-term trends in natural conditions and long-term changes in widespread anthropogenic activity, assess impacts and design the monitoring strategy;
- **Operational** – to classify those water bodies which are at risk of failing good status; to monitor the elements most sensitive to the pressures on the water body and assess the change resulting from the programme of measures; this monitoring is risk based.
- **Investigative** – to ascertain the cause and effects of a failure when either the reason for exceeding the limit is unknown or the magnitude of accidental pollution is unclear.

The Environment Agency is moving towards using these definitions to brigade all of its observation activities.

Earth Observation:

Earth Observation is defined overall as the measurement and monitoring of the planet from space using satellites.

OECD Definition:

"Environmental Monitoring refers to the continuous or frequent standardized measurement and observation of the environment (air, water, land/soil, biota), often used for warning and control."

JNCC have previously used the following definitions:

"Monitoring is an intermittent (regular or irregular) series of observations in time, carried out to show the extent of compliance with a formulated standard or degree of deviation from an expected norm" (Hellowell (1991), modified by Brown (2000)).

In line with this definition, there is a need to define the state desired in terms of objectives or targets, and then undertake monitoring to assess whether these objectives are being met.

Monitoring, in the sense used here, is distinct from surveillance, which is a repeated survey, using a standard methodology, undertaken to provide a series of observations over time. (This distinction is also made by Natural England and MECN.) Surveillance can yield valuable information on trends in the state of biodiversity and Earth science, but does not by itself establish whether objectives or standards have been met. Information derived from surveillance may be used to inform judgments on the condition of features on sites.

The E-KTN has an industry-facing definition as follows:

To industry, environmental monitoring is a multi-disciplinary activity that will increasingly require the effective integration of three key technology areas:

Measurement and Sampling devices (both in-field and laboratory based) to collect and analyse contaminants or parameters of concern;

Network communication technologies to enable the creation of distributed monitoring systems and enhance the cost-effectiveness of data gathering; and

Environmental modelling and data management software to inform the effective placement of monitoring points and efficiently interrogate monitoring data.

⁷ ERFF Report 04: UK-Environmental Observation Framework. July 2008. 33pp