

The UK Environmental Observation Framework

Delivery Plan 2018-2020



A working document of the UKEOF Management Group

Version: December 2018

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This Delivery Plan is a working document of the UKEOF Management Group and will be updated as the programme progresses. It describes how the United Kingdom Environmental Observation Framework (UKEOF) will be delivered. Further details of the programme itself can be found at: <http://www.ukeof.org.uk/>.

UKEOF can be contacted at office@ukeof.org.uk

Last Updated: December 2018

1. Overview of the UK Environmental Observation Framework

1.1. Introduction to the Delivery Plan 2018-2020

UK EOF was founded in 2008, and has been reviewed and refocused twice since then. A major review was undertaken in 2017. The review found that UKEOF partners and users hugely value three key benefits from UKEOF: UK wide exchange of knowledge, production of joint outputs and activities, developing strategic agendas and partnership approaches. This plan reflects the findings and recommendations from the review (see Annex 2 for full details of recommendations).

1.2. Aim

UKEOF is a partnership of public sector organisations with an interest in using and providing evidence from environmental observations. It aims:

- To achieve effective partnership working in environmental observations
- To maximise the benefits of observations to the UK including for science, policy and economic growth.

Working with partners and with direction from the Management Group the aims 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 practice.
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.

1.3. Structure and Management

The funders and initiators of UK environmental observations have agreed to work together towards the main strategic priorities for UKEOF (listed in Section 2). The work is delivered

through the Management Group and three working groups (Citizen Science, Natural Capital and the Data Advisory Group); see Annex 4 for the terms of reference of the groups.

The UKEOF Secretariat is hosted by the Centre for Ecology & Hydrology and provides everyday programme and project management, communication and co-ordination between the interlinked work areas. It reports to the Management Group via papers submitted to each meeting.

Key activities have at least one dedicated Management Group champion who is responsible for guiding the work and will report progress to the rest of the group.

The UKEOF subscriptions have progressively reduced as earlier programmes to build up capacity were scaled back, as shown in Table 1. In addition, partners provide in-kind support.

Table 1: total partner subscriptions

2008-09	£459,000
2009-10	£450,000
2010-11	£271,000
2011-12	£271,000
2012-13	£271,000
2013-14	£271,000
2014-15	£265,000
2015-16	£156,000
2016-17	£154,500
2017-18	£145,500
2018-19	£148,500
2019-20	TBC

The Secretariat Team time allocation and activities have been scaled to match the subscriptions and currently consist of part time roles for a Programme Manager, a Programme Coordinators and Communication Leads (c. 1.5 FTE in total).

2. Work Areas

2.1. Work Programme

Core activities, that are considered to be of relevance to all UKEOF partners, comprise:

- Management Group, with a focus on partners' strategic needs
- Data Advisory Group
- Environmental Observation Catalogue
- Citizen Science Working Group
- Natural Capital Working Group
- Communications and Community engagement

In addition short, focussed activities address issues in specific areas, which are of interest to multiple partners, but may not be to all partners, recent examples include bringing together monitoring & modelling communities, considering strategic needs for organisations with a statutory responsibility for freshwater monitoring, and working with the SHARE partnership in a workshop on drones for statutory monitoring.

2.2. The UKEOF Catalogue

The Catalogue is an online searchable database of metadata (i.e. knowledge of who is doing what, where and why) covering over 2000 records. It is freely available on the UKEOF website and offers the only UK overview of observation activities.

The Catalogue had a major upgrade in 2014, with additional map functionality, and records holding geolocation information allowing users to be able to visualise where observations are being carried out. The Catalogue is INSPIRE compliant. More recently minor upgrades have been made to meet user needs e.g. to make it easier to find Citizen Science activities.

2.3. UKEOF Groups

A summary of the long term UKEOF Groups is given below, the Terms of Reference for each is given in Annex 4.

The **Management Group** includes representatives of all UKEOF partners. It steers UKEOF planning and delivery. The Secretariat will work in partnership with the Management Group members to identify and undertake activities of strategic importance to partners. The Management Group provides a supported neutral space for organisations to discuss efficiencies and collaborative working.

The **Data Advisory Group (DAG)** is a collaborative forum which allows organisations to come together to discuss the various data sharing initiatives at the UK, EU and global levels - and work to achieve a long-term vision for data sharing and a cultural shift in the reuse of information. The DAG has ownership of the UKEOF Catalogue.

The **Citizen Science Working Group (NCWG)** provides a forum where member organisations can share good practice and discuss future needs and plans for working with volunteers to provide high quality, environmental observation data.

The **Natural Capital Working Group (NCWG)** provides a forum for understanding the natural capital monitoring landscape and sharing knowledge and expertise. Specifically the group aims to work towards creating a UK framework for monitoring & assessment of Natural Capital.

3. Current Work Plan

A fully updated workplan including status and progress on each item is reported to the Management Group at each face-to-face meeting (every 6 months).

No.	Activity	Output	Timescale	Resource
1. Management Group				
1.1	Facilitate MG meetings	Forum for understanding the landscape of environmental observations and sharing knowledge, priorities and expertise. Circulation of information generated by the group.	Quarterly meetings	UKEOF secretariat, Members attend and provide updates MG Chair: Doug Wilson, Environment Agency
1.2	Sustainable future for UKEOF	Agreed implementation of the recommendations of the UKEOF review, including future funding and long term plan.	Summer 2018	UKEOF secretariat, Members MG champion: Doug Wilson, Environment Agency
1.3	Horizon scanning exercise	Published list of future priorities for UK observations community.	Autumn 2018	UKEOF secretariat, Members MG champion: TBC
1.4	Monitoring & Modelling webinar	Webinar to follow up workshop in 2017/18. To improve understanding amongst partners and modellers about the scope to improve monitoring and make better use of existing data.	Summer 2018	UKEOF secretariat, Community MG champion: David Roy, CEH
1.5	Build research partnerships [Recommendation from UKEOF Review]	Identified research organisations / activities where a relationship with UKEOF would be of mutual benefit. Provided platform to build relationships. Target: UKEOF is represented in at least two research projects per year.	Winter 2018	UKEOF secretariat, Members, wider research community MG champion: Liz Fox-Tucker, Defra
1.6	Demonstrate efficiencies / cost savings to partners [Recommendation from UKEOF Review]	Report on examples of where sharing knowledge or producing joint outputs has resulted in benefits to partners in terms of efficiencies/ cost savings e.g. new collaborations resulting from UKEOF discussions. Target: two examples per year.	Winter 2018	UKEOF secretariat, Members MG champion: Doug Wilson

No.	Activity	Output	Timescale	Resource
1.7	Prioritised workplan [Recommendation from UKEOF Review]	Workplan for 2018/20 defined and agreed by Management Group, to meet strategic needs of partners, specifying outputs that can be co-produced by partners and how impact will be measured (see Activity 5.3).	Autumn 2018	UKEOF secretariat, Members MG champion: TBC
1.8	<i>Workshop 2019/20</i>	<i>Topic to be defined by Management Group. This could be based on the horizon scanning exercise (Activity 1.3), or could focus on research to inform strategic monitoring decisions, and provide an opportunity to build research partnerships (Activity 1.5).</i>	2019/20	UKEOF secretariat, Members MG champion: TBC
1.9	<i>Activity for 2019/20</i>	<i>To be defined and co-delivered by Management Group. For examples of topics see Activity 1.8.</i>	2019/20	UKEOF secretariat, Members MG champion: TBC
1.10	<i>Activity for 2019/20</i>	<i>To be defined and co-delivered by Management Group. For examples of topics see Activity 1.8.</i>	2019/20	UKEOF secretariat, Members MG champion: TBC
2. Citizen Science Working Group				
2.1	Facilitate Citizen Science Working Group	Forum for sharing good practice, discussing future needs for using volunteers to provide environmental observation data, including areas where UKEOF could potentially best add value	Quarterly meetings	UKEOF secretariat, Community attend and provide updates CSWG Chair: Rob Grew, Environment Agency
2.2	Signpost Citizen Science resources	Web-based signposting of case studies & resources for public sector use of Citizen Science for monitoring	Summer 2018	UKEOF secretariat, Members CSWG champion: Rob Grew, Environment Agency
2.3	Outreach programme for UKEOF members	Webinars and resources for Citizen Science champions within UKEOF partner organisations – to raise awareness of opportunities and benefits	Autumn 2018	UKEOF secretariat, Members CSWG champion: TBC To be agreed between Dylan Lloyd (NRW), Nick Dales (NE) and Jans Schutten (SEPA)
2.4	Horizon Scanning	Published list of statutory challenges that could be addressed with Citizen Science, assessment of latest trends in Citizen Science.	Winter 2018	UKEOF secretariat, Members CSWG champion: TBC To be agreed between Kieran Hyder (Cefas) & Jake Morris (Defra)

No.	Activity	Output	Timescale	Resource
2.5	Investigating New Technologies	Wish list and case studies of application of new technology for citizen science (with Data Advisory Group)	Spring 2019	UKEOF secretariat, Members CSWG champion: Patrick Bell, British Geological Survey
2.6	Data Advice for Citizen Science	Advice note on planning data management for effective Citizen Science	Spring 2019	UKEOF secretariat, Members CSWG champion: Colin Chapman, Welsh Government
2.7	<i>Workshop 2019/20</i>	<i>Topic to be defined by Citizen Science Working Group. This could be based on the horizon scanning exercise (Activity 2.4), or on low cost sensors or new technologies, or could take the form of a hackathon.</i>	<i>2019/20</i>	<i>UKEOF secretariat, Members CSWG champion: TBC</i>
2.8	<i>Activity for 2019/20</i>	<i>To be defined and co-delivered by the Citizen Science Working Group. For examples of topics see Activity 2.5.</i>	<i>2019/20</i>	<i>UKEOF secretariat, Members CSWG champion: TBC</i>
2.9	<i>Activity for 2019/20</i>	<i>To be defined and co-delivered by the Citizen Science Working Group. For examples of topics see Activity 2.5.</i>	<i>2019/20</i>	<i>UKEOF secretariat, Members CSWG champion: TBC</i>
3. Data Advisory Group				
3.1	Facilitate DAG meetings	Forum for understanding the data initiatives landscape and sharing knowledge and expertise. Circulation of information generated by the group.	Quarterly meetings	UKEOF secretariat, Community attend and provide updates DAG Chair: Mike Brown, CEH
3.2	Manage UKEOF catalogue	Maintained functioning catalogue. Support for community to update their entries as required. Catalogue allows access to information on the UK's observation activities and is INSPIRE compliant.	Ongoing – prompt updates to entries twice per year	UKEOF secretariat, Community provide updates, support contract to CEH
3.3	Sensors	Published case studies on how organisations are implementing infrastructure for sensor data	Dec 2018	UKEOF secretariat, input from partners DAG champion: Mike Brown, CEH
3.4	Data Skills	Existing training promoted to UKEOF partners and signposted on the UKEOF website. Paper on key training needs	TBC by BL	UKEOF secretariat, input from partners DAG champion: Barnaby Letheren, Natural Resources Wales

No.	Activity	Output	Timescale	Resource
3.5	Digital preservation & curation	Published paper on new standards and processes	Dec 2018	UKEOF secretariat, input from partners DAG champion: Rachel Kotarski, British Library
3.6	Metadata & models	Published collated information on how best to describe and catalogue models	Spring 2019	UKEOF secretariat, input from partners DAG champion: TBC
3.7	Review use and define expectations of the UKEOF catalogue [Recommendation from UKEOF Review]	Proposal for the future of the catalogue produced in consultation with the Management Group. Review use and define expectations of the catalogue, and define resource need. Agree priority outcomes needed from the catalogue, identify gaps needed to inform future policy, and define how the impact of the catalogue will be measured in future (see Activity 5.3).	Autumn 2018	UKEOF secretariat, input from partners DAG champion: Mike Brown, CEH
3.8	<i>Workshop 2019/20</i>	<i>Topic to be defined by the Data Advisory Group.</i>	<i>2019/20</i>	<i>UKEOF secretariat, Members DAG champion: TBC</i>
3.9	<i>Activity for 2019/20</i>	<i>To be defined and co-delivered by the Data Advisory Group. For examples of topics see Activity 3.8.</i>	<i>2019/20</i>	<i>UKEOF secretariat, Members DAG champion: TBC</i>
3.10	<i>Activity for 2019/20</i>	<i>To be defined and co-delivered by the Data Advisory Group. For examples of topics see Activity 3.8.</i>	<i>2019/20</i>	<i>UKEOF secretariat, Members DAG champion: TBC</i>
4. Natural Capital Working Group				
4.1	Facilitate NCWG meetings	Forum for understanding the natural capital monitoring landscape and sharing knowledge and expertise. Circulation of information generated by the group.	Quarterly meetings	UKEOF secretariat, Community attend and provide updates NCWG Chair: Emily Connors, Office of National Statistics
4.2	Description of how monitoring can be used for Natural Capital purposes	Published short summary describing how UKEOF partners are using environmental monitoring for Natural Capital purposes, including the value of this information across the UK	December 2018	UKEOF secretariat, input from partners NCWG champion: Ann Thornton, JNCC

No.	Activity	Output	Timescale	Resource
4.3	Coordinating existing information on data gaps	Review of existing datasets and their relevance to Natural Capital reporting (based on work by NE) to identify strengths and gaps.	Autumn 2018	UKEOF secretariat, input from partners NCWG champion: TBC
4.4	Investigating the potential to link country level data to from UK datasets	List of which monitoring activities have the potential to provide a UK picture on natural capital (building on 4.3 above), and a proposal for this.	Winter 2018	UKEOF secretariat, input from partners NCWG champion: Emily Connors, Office of National Statistics
4.5	<i>Workshop for 2019/20</i>	<i>Topic be defined and co-delivered by Natural Capital Working Group. e.g. defining priority metrics for Natural Capital reporting / building links to social & economic sciences / research to understand the relationship between natural assets and benefits</i>	<i>2019/20</i>	<i>UKEOF secretariat, input from partners NCWG champion: TBC</i>
4.6	<i>Activity for 2019/20</i>	<i>Output to be defined and co-delivered by Natural Capital Working Group. For examples of topics see Activity 4.5.</i>	<i>2019/20</i>	<i>UKEOF secretariat, input from partners NCWG champion: TBC</i>
4.7	<i>Activity for 2019/20</i>	<i>Output to be defined and co-delivered by Natural Capital Working Group. For examples of topics see Activity 4.5.</i>	<i>2019/20</i>	<i>UKEOF secretariat, input from partners NCWG champion: TBC</i>
5. Communications and impact				
5.1	Raise awareness of UKEOF and of the value of observation activities	Delivered Communications Plan, covering activities above and key activities from UKEOF partners, including website, newsletters and social media	Ongoing, quarterly newsletters	UKEOF secretariat, input from partners
5.2	<i>Strengthen communication links with partner organisations [Recommendation from UKEOF Review]</i>	<i>Identified communications lead (or team) within each partner organisation (i) feeding information to UKEOF communications and (ii) advising on targeting communications within the partner organisation.</i>	<i>Autumn 2018</i>	<i>UKEOF secretariat, input from partners</i>
5.3	<i>Report impact [Recommendation from UKEOF Review]</i>	<i>Report on the impact of UKEOF activities</i>	<i>Ongoing, report twice per year</i>	<i>UKEOF secretariat, input from partners</i>

4. Recent Activities and Outputs

Highlights of recent UKEOF activities and outputs are listed below.

Citizen Science Workshop 2018: Maximising the benefits from citizen science for monitoring the environment. This workshop brought together 40 practitioners and researchers to consider the role of Citizen Science in delivering public sector monitoring. A [full report](#) is available on the UKEOF website. The workshop included demonstration of the [UKEOF Cost Benefit Tool](#) for evaluating the suitability of citizen science to meet a monitoring need.

Extracts from the commissioned report on [Motivations for Citizen Science](#) were made more accessible in 2018 by creating a [leaflet](#) and [video](#), along with [web pages](#) to help users considering taking a citizen science approach to understand what encourages or discourages volunteer participation.

Natural Capital Workshop 2017: Environmental Observation to Support Natural Capital Assessment. This workshop was held in recognition of the increasing importance of Natural Capital concepts to policy and reporting agendas. The full workshop [report](#) is available on the UKEOF website. This workshop brought together the monitoring community to agree on priority needs for natural capital:

1. The overall goal of creating a UK framework for monitoring & assessment of Natural Capital
2. The need for coordination activities to
 - a. Share knowledge on best practice and approaches
 - b. Investigate techniques & data
 - c. Help make the case for a Natural Capital approach

The enthusiasm and momentum generated from this workshop resulted in the establishment of the **new UKEOF Working Group on Natural Capital.**

The Data Advisory Group added to the series of UKEOF [Advice Notes](#) in 2017 with a new publication on [Big Data and Data from Sensors](#), and oversaw upgrades to the [UKEOF Catalogue](#) to enable users to filter on Essential Climate Variables and to more easily find records linked to Citizen Science.

A **Freshwater Monitoring Review and Strategies working group, workshop and webinar** were held in 2017/18. This activity focused on the interests of the four UK water regulatory authorities to explore opportunities as they each develop new strategic approaches to freshwater monitoring. The webinar enabled the main messages to be taken to a broader audience. A [report](#) and the [webinar slides](#) are available on the UKEOF website.

The **Monitoring and Modelling workshop** in 2018 helped build links between monitoring and modelling communities within UKEOF partner organisations. [Presentations](#) described case studies and challenges in this area. The findings of the workshop were shared more widely through a webinar – [slides and a recording](#) of the webinar are available on the website.

Refreshed communications platforms include the [newsletter](#), [Twitter](#) account, [Scoop.it! page](#) covering partner new stories on monitoring and observation, along with monthly Scoop.it! newsletter and the [website](#) for sharing UKEOF news and publications

5. Risk Log

Note: PM = Programme Manager, MG = Management Group

Score = Impact (Extreme= 5, Major =4, Moderate=3, Minor=2, Low=1) x Probability (Remote=1, Unlikely=2, Possible=3, Probable =4, Highly probable=5). See Annex 1 for matrix linking scores to RAG status

Owner	Risk	Impact	Probability	Current Status	Mitigating Actions	Status after mitigation	Contingency
PM	Funding: Committed funds not realised/ met	4	3	A	Co-funding agreement in place. Gain early confirmation before start of financial year, and handle paperwork promptly. Plan ahead and realign work	A	Scale down tasks and re-prioritise as far in advance as possible with revised funding schemes
PM & MG	Funding: Multiple partners impacted by funding constraints	4	3	A	Maintain good communication with MG members throughout the year to ensure any issues are identified early	A	Re-prioritise and investigate different funding models to support project activities
PM & MG	Funding: major funders (DEFRA & CEH (NERC)) unable to maintain current level of contributions	5	4	R	Maintain good communications with core partners and identify risks early	R	Re-prioritise and scale down; viability of programme would depend on the scale of reduction
PM	Personnel: Team sickness delays progress (small team)	3	2	G	Ensure team are aware of progress in all areas, so that urgent matters can be taken up & resolved by another member of the team	G	Reprioritise the workloads of the team to ensure that critical tasks are delivered

Owner	Risk	Impact	Probability	Current Status	Mitigating Actions	Status after mitigation	Contingency
PM	Personnel: Team members leaving	3	4	A	Ensure team are aware of progress in all areas, and work backed up on central systems. Refill vacant posts quickly	A	Reprioritise workloads to critical tasks
PM	Programme: UKEOF duplicates work of other groups	3	2	G	Strong communication with MG and their organisations. Outreach to wider community	G	Adjust work programme to avoid duplication and ensure it adds value
PM & MG	Programme: UKEOF core focus does not align with current monitoring community priorities	4	2	A	Ensure that there is buy in from the community. Engage with key external partners throughout the process	G	Step-by-step approach to allow on-going review; project to be closed if necessary.
PM & MG	Programme: Slippage	3	2	G	Strong project/ programme management. Review progress regularly	G	Realign work plan.
PM & MG	Programme: Creep	3	2	G	Allow a degree of flexibility in the programme, and review regularly with the MG	G	Realign the work plan to accommodate new priorities and reset goals
PM & MG	Programme: Outputs/ recommendations incorrectly interpreted	4	1	G	Progress transparent and directed by partners. Outputs/ recommendations signed off by the MG. Caveats should be clearly stated	G	Withdrawal of outputs/recommendations or rewording to clarify the issues

Owner	Risk	Impact	Probability	Current Status	Mitigating Actions	Status after mitigation	Contingency
MG	Management: Too many bosses – management by committee	3	2	G	Empower the secretariat for day to day decisions. Have clear work programmes and MG Champions to support work and report to MG mtgs	G	Create a smaller executive to make timely decision where necessary
MG	Partners: Lack of engagement / time input from staff	4	3	A	Maintain good engagement with the MG representatives. Have clear tangible milestones	A	Arrange meetings to discuss the relevance to organisations and the need for their support
PM	Partners: Organisational changes	3	4	A	Swift engagement with new personnel to maintain network	A	Ensure that contact is maintained and new personnel identified
MG	Partners: Organisations do not take ownership of the work / outputs/ engage	4	2	A	Ensure that any work is fully supported by the MG and resources are available to provide the required information	A	Understand why there is a lack of engagement & if necessary alter the focus of the work to ensure it meets the MG needs
MG	Partners: Engagement lost from Devolved Administrations with a perceived London-centric or one size fits all approach	3	4	A	Be aware of and open to the issues. Ensure that activities are based UK wide, including MG meetings. Demonstrate value of UK approach where appropriate	A	Encourage policy makers to consider the benefits of coordinated observation programmes and include this in their policies
PM	Community: Events not well attended	3	2	G	Canvass for dates & advance advertising. Good organisation, set clear objectives and target the audience needed to achieve the outcome. Seek feedback	G	Alter the focus or format of the events. Provide incentives for attendance and input

Annex 1: Risk Model (Ref Forestry Commission Corporate risk register 26/07/2012)

Category 1-7: Manageable Risks

Category 8-14: Material Risk

Category 15-25: Significant Risk

Likelihood \ Impact	Remote (1)	Unlikely (2)	Possible (3)	Probable (4)	Highly Probable (5)
Extreme (5)	5	10	15	20	25
Major (4)	4	8	12	16	20
Moderate (3)	3	6	9	12	15
Minor (2)	2	4	6	8	10
Low (1)	1	2	3	4	5

Annex 2: 2018 Review - summary of recommendations

A review of UKEOF was published in March 2018. This review was carried out for the UKEOF Management Group to inform decisions about the future of UKEOF, and in recognition of changes to the landscape for monitoring and observation since the last review in 2013. The review consisted of three parts (i) an online survey for partners and users of UKEOF, (ii) revisiting the 2013 review to identify changes since then (iii) analysis of options for the future UKEOF delivery model. The resulting recommendations agreed by the UKEOF Management Group are listed below. These have been implemented through the UKEOF Work Plan and the activities of the Management Group.

Recommendations

- 1. UKEOF Objectives.** The overall objectives of UKEOF are strongly supported and the benefits are highly valued in terms of UK wide exchange of knowledge, production of joint outputs and activities, and developing strategic agendas and partnership approaches. **Recommendation: Overall UKEOF objectives should continue as they are, but (i) with greater recognition of the efficiencies / cost savings of sharing knowledge and producing joint outputs, and (ii) strengthening the relationships with research organisations.**
- 2. UKEOF Activities.** UKEOF activities are highly valued, and delivery of activities through working groups made up of UKEOF partners is very effective. **Recommendation: The overall type and approach of UKEOF activities should be continued, with partners continuing to define and prioritise activities and actively contributing to their delivery via working groups.**
- 3. UKEOF Secretariat.** The role of the secretariat is highly valued, with partner recognition that the benefits from UKEOF would not be realised without a dedicated team driving activities. **Recommendation: The model of a Secretariat hosted by a UKEOF partner should continue, with the Management Group defining priorities, and providing a champion for each activity.**
- 4. Partner Engagement.** The success of UKEOF activities depends entirely on partner engagement. **Recommendation: Recommendation: To ensure partner engagement, each partner should make a financial contribution and/or specify their in-kind contribution (e.g. minimum 5 days per year, covering agreed activities such as targeting communications within their own organisation).**
- 5. UKEOF Workplan.** There is a need for a clear definition of future activities for UKEOF to enable partners to commit resources and demonstrate that their key strategic needs are being met. **Recommendation: The Secretariat should lead planning activities with the Management Group and working groups to identify key strategic needs and define a prioritised workplan for the next two years that clearly reflects partner priorities. It should include sufficient flexibility to react to changing drivers, while maintaining a clear focus. It should recognise links to other relevant initiatives rather than duplicating activities. The workplan should identify specific outputs which can be co-produced by partners, and specify how the impact of activities will be recorded.**
- 6. Communications.** Not all respondents were aware of all UKEOF activities. **Recommendation: UKEOF communications should be promoted more widely. The Secretariat and Management Group members should direct effort to targeted communications within partner organisations. Each organisation should identify a UKEOF communications lead (or team). Efforts should be made to broaden opportunities for participation in activities, and to strengthen links between the working groups and the Management Group.**
- 7. Catalogue.** The UKEOF catalogue is valued as the only UK-wide database of observation and monitoring activities, and for the INSPIRE Directive. **Recommendation: The Management Group should review use and define expectations for the catalogue and allocate resource accordingly. This should include agreeing the priority outcomes needed from the catalogue,**

identifying any gaps that are needed to inform future policy, and defining how the impact of the catalogue will be measured in future. Secretariat time may need to be allocated to supporting data providers with keeping their records up to date (e.g. 6 monthly reminders with export of records for their organisation and an offer of help).

8. **Strengthening the UKEOF Role.** Suggestions were made to strengthen the UKEOF role through developing common approaches, representing partners, providing advice and creating more direct links to government advisors (e.g. Chief Scientific Advisor sponsorship).
Recommendation: The Management Group should discuss opportunities for strengthening the role of UKEOF, and seek to do this where there is full MG support. This could include the development of common approaches where there is support across the Devolved Administrations. Alongside this the MG should articulate the challenges of governance on monitoring and observation issues of UK interest.
9. **Funding Model.** Despite declines in partner contributions the current level of c.£150K provides a critical mass of Secretariat support to deliver UKEOF functions and brings in an equivalent value of in-kind support. **Recommendation: The current subscription model should be retained. The period of the agreement should be extended (e.g. to three years) where possible. Additional commissioned activities should be considered by the Management Group on a case by case basis, but only as add-ons to the core UKEOF Workplan. The Management Group should decide whether to define principles and expectations of partner support (e.g. is in-kind sufficient, at what level?) and the balance of funding across UK partners.**
10. **Membership.** **Recommendation: Membership should be kept within organisations with a public sector focus. The Management Group should consider whether to extend partnership invitations to other sectors which may inform environmental monitoring. The Management Group should consider carefully the costs and benefits of extending outside the core environmental remit of UKEOF.**

Annex 3: Role of UKEOF Programme Manager and Secretariat

Programme Manager	<ul style="list-style-type: none"> • Oversee planning and delivery for the Secretariat at CEH • Report to Management Group • Manage the UKEOF programme: <ul style="list-style-type: none"> ○ Update delivery plan, risk register, impact reports ○ Represent UKEOF and develop partnership relationships ○ Oversee projects & development of new ideas ○ Ensure well run meetings & information management ○ Oversee budget, reporting, communications
Working Group Leads & Coordinators	<ul style="list-style-type: none"> • Provide secretariat to Management Group & Working Groups • Work with partners to deliver, report on and communicate UKEOF activities (e.g. include Natural Capital metrics, monitoring & modelling workshop, facilitating discussion and decisions on monitoring, updating catalogue, citizen science activities) • Plan and manage delivery of UKEOF events such as workshops • Represent UKEOF at external meetings • Provide UKEOF first point-of-contact via email account • Provide links & ensure UKEOF is well represented in Wales & Scotland • Oversee finance including ensure co-funding agreements in place & subscriptions collected, and managing any sub-contracts
Communications Lead	<ul style="list-style-type: none"> • Develop UKEOF communications plan & work with partners to identify future communication priorities & pathways. • Deliver communications activities: website, newsletter, twitter account, update standard materials, promote activities & outputs

Secretariat Roles

Programme Manager: Anita Weatherby

Management Group Lead & Coordinator: Gareth Old & Jo Savage

Natural Capital Working Group Lead & Coordinator: Lisa Norton & Jo Savage

Citizen Science Working Group Lead & Coordinator: Michael Pocock & Victoria Barlow

Data Advisory Group Lead & Coordinator: Gareth Old & Emily Trill

Communications Lead: Andy Sier

Annex 4: Terms of Reference of UKEOF groups

UKEOF Management Group

Chair: Doug Wilson (Environment Agency)

Membership: Scientific and policy representatives (Grade 7/Band 4) drawn from sponsoring Agencies and Institutes. Chair of DAG.

Purpose: As funders and partners in UKEOF, to contribute to and steer delivery of the partnership, to plan future activities to meet partners strategic needs.

Frequency of meetings: 3-4 per year as necessary

Terms of Reference

1. Programme overview

- Define and co-ordinate the UKEOF 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.
- Regularly review the likelihood of the Programme meeting its goals and take appropriate action.

2. Resources Input

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

3. Add expertise

- Define and articulate the international and national obligations and commitments, including operational forecasts, which require environmental observations, looking across all of the UKEOF domains.
- 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 champion to each area of work/ project to guide the activities, liaise with the secretariat and represent the activity at Management Group meetings.

4. Outreach and Communications

- Identify and highlight to the appropriate board any emerging issues.
- Ensure alignment between the Programme and their organisation's strategies (transfer the outcomes of UKEOF and embed them within these strategies).
- Engage with other stakeholders (non-member organisations) to encourage the uptake and adoption of UKEOF outcomes.
- Provide a platform for discussion of UK interests in observations.

Citizen Science Working Group

Chair: Rob Grew (Environment Agency)

Purpose: The aim of the UK Environmental Observation Framework (UKEOF) Citizen Science Working Group is to provide a forum where member organisations ('partners') can share good practice and

discuss future needs and plans for using volunteers to provide environmental observation data. This will enable the sector to take a coherent and mutually beneficial approach, and will include identifying areas where UKEOF could potentially best add value.

Frequency of meetings: 4 per year, two in person, two by teleconference

Terms of Reference

- Provide advice and recommendations on citizen science related matters to the UKEOF Management Group;
- Monitor feedback on outputs from the UKEOF Citizen Science Working Group, identify gaps and potential developments;
- Add value to the citizen science related work of member organisations (and potentially others outside the working group), by drawing on the expertise of the group and identifying areas where UKEOF could potentially best add value;
- Promote greater collaboration between partners on citizen science activities;
- Promote the potential for co-funding of research and other citizen science activities.
- The UKEOF Citizen Science Working Group will meet in person twice a year and twice by teleconference. It will report to each meeting of the UKEOF Management Group and to members' organisations where appropriate.

Data Advisory Group

Chair: Mike Brown (Centre for Ecology & Hydrology)

Purpose: Environmental evidence is based on data and information about the environment, which must be open to all if environmental outcomes are to be delivered efficiently and effectively. The purpose of the UKEOF Data Advisory Group (DAG) is therefore to support delivery of and advice on methods for data integration, sharing, and transparency across the environmental observing sector, facilitated by the exchange of knowledge on local, national and international data and information initiatives.

Frequency of meetings: 3 per year

Terms of Reference

- Serve as a key forum for co-ordination of data and information sharing initiatives that impact the environmental observations community
- Advise and provide information, to the UKEOF Management Group and other bodies as appropriate, on best practice in data integration, transparency, open data, data sharing and management across the environmental sector at UK, European and wider international level
- Support co-ordination of the UK implementation of the INSPIRE Annex III Environmental Monitoring Facilities (EF) theme
- Manage the UKEOF observations catalogue: ensuring the information contained is up to date, through provision of technical expertise for the platform, and provision of advice to data providers in areas of data management.

Natural Capital Working Group

Chair: Adam Dutton (Office for National Statistics)

Purpose: To build a common understanding of Natural Capital and how it relates to both the UKEOF community and decision making

Frequency of meetings: four per year, twice in person and twice by teleconference.

Terms of Reference

- Provide advice and recommendations on Natural Capital related matters to the UKEOF Management Group
- Identify needs, gaps, and potential developments relating to Natural Capital monitoring
- Add value to the Natural Capital monitoring-related work of member organisations (and potentially others outside the working group), by drawing on the expertise of the group and identifying areas where UKEOF could potentially best add value
- Promote greater collaboration between partners on UK Natural Capital monitoring
- Share approaches and best practice, and identify capacity issues which may restrict reporting
- Promote the wider dissemination of information and accessibility of data which highlights how Natural Capital underpins the provision of ecosystem services
- Identify the potential for collaboration and/or co-funding for Natural Capital monitoring and related research
- Monitor feedback on impacts and outputs from the UKEOF Natural Capital Working Group

Annex 5: UKEOF Partners

Current UKEOF partners are listed below.

British Geological Survey (NERC/UKRI)
Centre for Ecology & Hydrology (NERC/UKRI)
Department for Business, Energy & Industrial Strategy
Department for Agriculture, Environment Rural Affairs Northern Ireland
Department of the Environment Northern Ireland
Economic & Social Research Council (UKRI)
Environment Agency
Forestry Commission
Joint Nature Conservation Committee
Met Office
Natural England
Natural Environment Research Council (UKRI)
Natural Resources Wales
Office for National Statistics
Scottish Environment Protection Agency
Scottish Natural Heritage
Scottish Government
UK Space Agency
Welsh Government