Flood and Drought Research Infrastructure (FDRI) Scoping Study

Wednesday 14 October 2020

Starting at 10.30

This webinar will be recorded



Welcome	Victoria Barlow UK CEH
Scoping Study Introduction	Nick Reynard Gareth Old UK CEH
Evaluation Poll 1	Victoria Barlow UK CEH
Stakeholder Engagement	Gareth Old UK CEH
Review of Relevant Programmes & Science Drivers	Thorsten Wagener & Gemma Coxon University of Bristol
Defining the Observation Infrastructure	John Bloomfield British Geological Society
Investment & Sustainability Strategies	Wouter Buytaert Imperial College London
Data Management	Matt Fry UK CEH
Q&A	All
Evaluation Poll 2	Victoria Barlow UK CEH
Closing Remarks	Gareth Old UK CEH











Flood and Drought Research Infrastructure Scoping Study

Nick Reynard, UK Centre for Ecology and Hydrology



Flood and Drought Research Infrastructure **Scoping Study Introduction**

Gareth Old, UK Centre for Ecology and Hydrology



Flood and Drought Research Infrastructure Scoping Study

Funded by NERC - May 2020 to July 2021

The scoping study will:

- Establish community requirements for a national Flood & Drought Research Infrastructure
- Provide NERC with the evidence and rationale required for the submission of a business case for a future large-scale research infrastructure investment.

The study is guided by two advisory groups:

- Steering committee
- > UKRI stakeholder group















How will the FDRI be scoped?

Scoping activities will involve:

- Building on previous NERC engagements
- Extensively consulting stakeholders through webinars, questionnaires, polls, group consultations and workshops
- Thoroughly reviewing past & ongoing flood & drought monitoring programmes nationally & internationally
- Ensuring the infrastructures long-term sustainability by considering a range of technical options













Credit: Peter Reason and Hilary Bradbury

Stakeholder Engagement Gareth Old, UK Centre for Ecology & Hydrology



Stakeholder Engagement

Consult Extensively:

- To understand community needs and issues - Build on three previous NERC engagements >500 individuals >150 organisations

Stakeholder Mapping:

- Anticipated involvement
- Involvement confirmed through 'Opt In'

It is essential that you 'opt in' otherwise we cannot continue to involve you.

Please let us know how much you would like to be involved:

- participate updates.
- participate updates.













• Actively Participate - I want to personally participate in small groups, webinars in and questionnaires and receive project

• Occasionally Participate - I want to webinars in and questionnaires and receive project

• Keep Informed – I would like to receive project updates.

- A - A



How to get Involved

- Engage with FDRI Opt in
- Respond to questionnaires
- Participate in small group meetings

Workshop 1: Knowledge integration Workshop 2: Investment options

Level of engagement	Webpage	Twitter	Email/mailshot	Bulletins/reports	Webinar	Baseline and endline surveys	Questionnaires	Pre workshop surveys	Project workshops
Actively participate	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occasionally participate	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Keep Informed	Yes	Yes	Yes	Yes	Yes	Yes			

• Outline business case submission (Jun 2021)











(Sept / Oct 2020)

(Nov 2020)

(Nov 2020)

(Jan 2021)

(Mar 2021)

A
Aest workshop evaluations

A
Post workshop evaluations

A
Post workshop evaluations

A
Aest workshop

A
Aest workshop

A
Aest workshop

A
Aest workshop

B
Aest workshop

A
Aest workshop

B
Aest worksho

Review of Relevant Programmes & Science Drivers

Thorsten Wagener & Gemma Coxon University of Bristol







Evidence for Scientific Basis of Investment

Aims:

- Review of monitoring & experimental programmes to understand what scientific advancements have been achieved through past investments in the UK and internationally. These include permanent and moveable infrastructure as well as crowd monitoring
- Review of science drivers underpinning past infrastructure to understand how these shaped the investment. In how far have the investments solved the scientific questions posed?

Outputs:

- Review Report/Paper of Monitoring Programs International)
- Review Report/Paper of Science Drivers









and



Questions to be Addressed:

- What scientific questions have we answered through past investments in research infrastructure? Are these answers local or transferrable?
- What can we learn from previous investments outside the UK?
- What main knowledge or methodological gaps do you see in the UK? Will these change over the next decades?
- How will addressing your knowledge & methodological gaps be of benefit to increase UK resilience to floods & droughts?
- What value can you see in temporary monitoring using moveable infrastructure?
- What value can you see in crowd monitoring?













12

Defining the Observation Infrastructure

John Bloomfield, British Geological Survey



Defining the Observation Infrastructure

Aims:

- Develop a set of options for a UK-wide Floods and Droughts Research Infrastructure
- What parameters and variables should be measured?
- Where and how should those measurements be made: fixed structures, mobile infrastructure, citizen science?
- Taking into account the need for network efficiency and working towards the goal of net zero carbon, what technologies should we be using to make the measurements?

Outputs:

Infrastructure options to enable an Investment plan to be developed













Questions to be Addressed:

- What are the key drivers for FDRI from your perspective? -
- What types of observation infrastructures are needed and why: fixed, mobile, other?
- If fixed, how important is location, where should it be and why? -
- What types of observation might be best provided by mobile facilities? -
- What parameters and variables need to be measured and why? -
- There is the opportunity to deploy innovative technologies. -Which should be considered and why?
- What are the opportunities to link with existing or other planned observation networks?
- How can we ensure network efficiency and work towards net zero carbon?





Investment and Sustainability Strategies

Wouter Buytaert, Imperial College London



Investment Case

Aims:

- Develop a range of fully-costed investment strategies (e.g., "bronze", — "silver", "gold", "do-nothing")
- Build the basis for the investment plan, demonstrating value for money, avoided costs, & long-term financial sustainability and value-for-money
- Build the basis for a benefits realisation plan, which will help UKRI -NERC to implement the investment

Outputs:

- Investment plan (strategic, economic, financial, commercial, & management cases)
- Benefits realisation plan -











Synthesis of Requirements:

The overarching goal is to make an evidence-based case for a capital investment including:

- Scientific and societal value
- Avoided costs, cost-effectiveness, value for money
- Benefits of scale
- Benefits of integration, i.e. ensure that the "whole is greater than the sum of the parts"
- Long-term sustainability











Data Management

Matt Fry, UK Centre for Ecology & Hydrology



Data Management

Aims:

- Develop data management options for a future FDRI
- Understand user needs and past approaches in relation to:
 - Receiving data from the field via telemetry and loggers
 - Managing baseline survey data
 - Capture of metadata locations, instruments, uncertainty...
 - Quality Control and Quality Assurance
 - Dissemination of data during RI lifetime (Inc. real-time access)
 - Long-term archiving of data

Also considering:

- High resolution sensor data streams inc new types of sensors
- High resolution survey / catchment data
- Integration of EO / LIDAR / other data sources
- Improving access to existing data
- Integration of monitoring data with wider networks













Questions to be Addressed:

- How important are aspects of data management, data discovery, delivery, data quality?
- What have past infrastructures & projects done well?
- How important is real-time data delivery?
- How should underlying data (e.g. survey / spatial / catchment data) be delivered?
- What existing datasets should be made more accessible or integrated with data from this RI?
- What wider digital / data infrastructure would benefit in use of this data?













Questions ?



Gareth Old FDRI Scoping Study & Stakeholder Engagement



John Bloomfield Defining the Observation Infrastructure



Thorsten Wagener & Gemma Coxon Review of Relevant Progress & Science Drivers



Wouter Buytaert Investment & Sustainability Strategies



Matt Fry Data Management

How to Get Involved:



FDR_NERC FDRI@ceh.ac.uk

www.ceh.ac.uk/ourscience/projects/flood s-and-droughtsresearchinfrastructure-projectfdri













Imperial College London

Thank You

FDR_NERC FDRI@ceh.ac.uk



Imperial College London









