

Stakeholder Engagement in Hydro-climatic Services in India

Report of Pump Priming Project

April 2019



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भारत-ब्रिटेन जल केंद्र एमओईएस-एनईसीआरसी(यूके) जल सुरक्षा अनुसंधान के पूरक प्राथमिकताओं के बीच सहयोग और सहयोग को बढ़ावा देने के लिए करना है

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Executive Summary

This report presents an overview of a research project funded as a pump priming activity by the India-UK Water Centre (IUKWC), carried out between July–October 2017. Project activities included: a webinar, a desk-based literature review, a series of expert interviews and a participatory workshop held at the Indian Institute of Tropical Meteorology, Pune, in September 2017. The research was led by Dr Zareen Pervez Bharucha (Anglia Ruskin University), who worked with a team of scholars from the UK and India. This report outlines the key activities undertaken during the project, gives an overview of our research methods, and outlines the main findings. It is intended for participants in the research process, members of the India-UK Water Centre, and other stakeholders who have an interest in developing hydro-climatic services in India or comparable contexts. It should be read in conjunction with a State of the Science brief available on the IUKWC website (www.iukwc.org).



Figure 1: Smallholder Rice, India. Photo Credit: Zareen Pervez Bharucha

1. The Research Team

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Dr Milagros Sosa Landeo was Research Assistant (RA) on the project, working at the Global Sustainability Institute from July to October 2017. The project advisory panel consisted of Dr Jules Pretty (University of Essex), Dr Meaghan Daly (University of Leeds) and Dr Lyla Mehta (University of Sussex). We also gratefully acknowledge support from Dr Swapna Kona Nayudu (London School of Economics) who acted as rapporteur during our research workshop, and Dr Dennis Badeen (University of Hertfordshire) who provided input on the design of participatory exercises.

2. Project Aims

The India-UK Water Centre aims to deliver a portfolio of activities across five key cross-sectoral themes. This pump-priming project focused on the theme *Developing Hydro-climate Services to Support Water Security*.

The project aimed to develop an understanding of current practice of stakeholder engagement in the development of hydro-climatic services (HCS) in India. It specifically focussed on tools such as forecasts and agro-meteorological advisories designed to aid decision making in dryland agricultural environments, given the urgency of improving adaptive capacity amongst farming communities in these landscapes.

The project included an assessment of general practice via desk-review and a participatory workshop, as well as specific practice across four tools. Across the project, we explored:

- Tool developers understanding of the concept of stakeholder inclusion;
- Tool developers understanding of the problems to which HCS are meant to be responding, including how end-users are experiencing and dealing with these;
- Current practice of stakeholder inclusion across the sector;
- Tool developers' experiences of problems and challenges with stakeholder inclusion; and
- Differences, if any, in practice, across public, third and private sector tools.

3. Research Participants

Research participants included:

- Webinar speakers and attendees;
- Interviewees representing four HCS tools surveyed in the project;
- Participants at our research workshop.

3.1. Webinar:

A webinar was held on the 12th of June 2017, to kick off the project. We invited four speakers: two experts on water management in India, and two experts on Indian hydro-climatic services. This combination of speakers helped to situate our discussion on HCS and stakeholder engagement within the broader context of water-related challenges in India, challenges for democratic resource governance and the challenges for sustainable rural livelihoods.

Registration to the webinar was free and open to all on a first-come, first-served basis. The event was advertised by word-of-mouth within the research teams' networks, as well as on social media using the accounts of the project lead, Co-Is and the project advisory panel (primarily

Twitter). Hosting and technical support was provided by the IUKWC at the Centre for Ecology & Hydrology.

The event was attended by 89 delegates from the UK and India. These included researchers and practitioners from the public, private and third sector working within the broad spheres of water management in India, climate resilience, rural development, and sustainable agriculture and climate services. Delegates were all encouraged to join the India-UK Water Centre and given a brief introduction to the Centre's aims and work. The webinar was facilitated by Dr Bharucha, and attending delegates were given a chance to ask questions and engage with speakers using a live chat function on the webinar-hosting software.

The following four talks were presented.

- *Democratic Governance of India's water sector is necessary, possible and urgent.* Dr Himanshu Thakkar: Coordinator of the South Asia Network on Dams, Rivers and People (SANDRP) and a leading figure in Indian social movements towards equitable and sustainable resource governance.
- *Developing robust hydroclimatic services: Challenges and the way ahead in India.* Mr Rudresh Sugam: Senior Programme Lead at the Council on Energy, Environment and Water (New Delhi) working on the food-water-energy nexus, land use planning, impact of climate change on water resources, integrated watershed management, wastewater management and sustainable cities.
- *Consolidating Learning About User Engagement from Research and Practice: Toward the Development of Hydro-climatic Services.* Dr Meaghan Daly: Research Fellow at the School of Earth and Environment at the University of Leeds, conducting research on the added value provided through co-production of climate services with scientists, policy-makers, and other stakeholders.
- *mKRISHI® CCA - A Collaborative approach and platform for Climate Change Adaptation (CCA).* Dr Dinesh Kumar Singh: Group Leader at the Tata Consultancy Services Innovation Lab, Mumbai, working on the development of ICT for agriculture and fisheries.

Webinar slides and recordings are available to IUKWC members on the Centre website.

3.2. Research Interviews:

Fourteen semi-structured interviews were conducted with representatives involved in each of the four tools we surveyed for the project (see Table 1).

Interviewees were selected by making direct contact with gatekeepers at each of the four organisations involved, and via snowballing from the initial list of contacts thus drawn up. The project aimed to represent a mix of different roles and types of expertise in HCS development, including those responsible for tool design, those responsible for dissemination and implementation at field level and mid- to senior level managers responsible for wider strategic decisions.

Table 1: List of HCS tools and interviewees included in the study

Tool signifier		Description and number of interviews
1	Pub 1	A public sector tool run at national level designed to provide agro-meteorological advisories to farmers, policy makers, and public sector decision makers at national, state and local levels. Interviews: n = 1
2	Pr 1	A newly developed private sector tool designed to provided agro-meteorological advisories to farmers as part of a wider initiative to facilitate rural livelihoods and encourage rural enterprise. Interviews: n = 7
3	Pr 2	A newly-developed private sector tool designed to provide weather information to broad range of audiences, including but not restricted to farmers. Interviews: n = 2
4	Ts 1	A newly-developed third sector tool designed to provide agro-meteorological advisories to farmers and rural communities as part of a wider set of initiatives designed to improve rural livelihoods and build resilience, particularly amongst rainfed farmers. Interviews: n = 4

This mix of tools allowed us to explore practice across sectors but also across tools of different scopes (e.g., Pub 1 and Pr 2 have wide scope, whereas Pr 1 and Ts are much more targeted to individual farmers and communities already participating in tool-developers' wider livelihood initiatives).

3.3. Research Workshop

Participants at our two day research workshop consisted of experts in HCS tool design, agro-meteorologists, rural development practitioners and three local farmers. Participants were selected via snowballing from the research teams contacts in India. A total of 32 delegates attended (including organizers). Given the design of the workshop as a research event, delegates remain anonymous. However, participants' affiliations are listed below in order to present the range of disciplinary expertise represented.

- College of Agriculture (Pune, India);
- Mahatma Phule Krishi Vidyapeeth (Rahuri, India);
- Indian Institute of Tropical Meteorology (Pune, India);
- Indian Meteorological Department (Pune, India);
- India Meteorological Society (Pune, India);
- Representatives from the each of the four tools surveyed in the project (Pub, Pr 1, Pr 2 and Ts);
- Farmers from Pune and Solapur districts in Maharashtra.

4. Research methods

Methods used:

- Desk-based review;
- Semi-structured expert interview;
- Participatory research workshop.

These methods are briefly elaborated on below and supplemented by material in the Annexes to this report.

4.1. Desk-based Review

The desk-based review aimed to survey the literature on HCS in order to:

- Explore broad themes around climate services, stakeholder inclusion, co-production and the science-technology interface;
- Investigate whether existing studies had evaluated the effectiveness of existing models of stakeholder engagement either in Indian contexts or elsewhere.

Given the breadth of these topics, our search strategy was limited to producing a narrative, conceptual review, broadly surveying the available literature and uncovering themes. It is expected that this review will form the basis of the first of two research articles being produced from the project.

4.2. Semi-structured Expert Interviews

Semi-structured interviews generate information on a pre-defined list of topics, but give the interviewee the chance to elaborate or expand as they wish. This allows the researcher to collect data on questions that are known to be relevant to the research aims, but additionally opens up opportunities for new ideas. Interviewers remain open to new directions in the interview conversation, and can probe for additional information as appropriate.

The interviews aimed to generate a broad overview of the diversity of stakeholder engagement processes used by four HCS tools described above (Table 1). Experts were selected for their ability to describe how the tool was developed including:

- What problems it responded to;
- How stakeholders were included in tool design and deployment, and why it is was necessary to include them;
- How stakeholder engagement had contributed, if at all, to the improvement of the tool, or influenced tool-developers practice;
- Future directions in stakeholder engagement and particular challenges faced in the Indian context.

4.3. Participatory Research Workshop

We designed and conducted a participatory research workshop to bring together a multidisciplinary group of HCS researchers and practitioners as well as experts involved in climate science, meteorology, agriculture and rural development. The aim of this event was to complement our interview data with more general elaboration on the themes of ‘stakeholders’, ‘inclusion’, ‘participation’ and the benefits and challenges of stakeholder engagement. In other words, while the interviews were restricted to specific tools, participants at the research workshop engaged in more broad ranging, conceptual and critical discussion on general practice in the sector.

Participatory workshops involve a combination of group discussion and other immersive activities designed to help participants produce new knowledge collectively. They are particularly beneficial for investigating complex issues characterised by multidisciplinary and where a diverse range of stakeholders with varying levels of expertise are involved. This makes them a beneficial research tool for studies on HCS.

Appended to this report is schedule of activities undertaken during the workshop as well as a short brief introducing participatory research which was circulated amongst all participants (Appendix A-C).

Research Ethics

The research team gained ethical approval from the Departmental Research Ethics Panel (DREP) at the Global Sustainability Institute. The DREP panel assessed:

- The appropriateness of the proposed methods;
- Any risks to researchers and participants and proposed means of mitigating these;
- Measures to be taken to gain informed consent from research participants;
- Measures to be taken to preserve confidentiality and anonymity of research participants.

In order to ensure informed consent, we briefed all interviewees and workshop participants on the nature and aims of the project, both while inviting them to participate as well as immediately prior to the research activities.

All participants (interview and workshop) were given:

- A Participant Information Sheet detailing the aims and scope of the project; and
- A Participant Consent Form, to be signed by participants prior to data collection.

Participants were given the chance to leave the interview or workshop at any time, and withdraw their data at any time before the commencement of analysis and write-up. Participants were assured of anonymity, and a coding scheme was developed by the research team in order to report research results without enabling respondents to be identified.

5. Activity Conclusions and Outputs

The key outputs from this pump-priming research activity include:

- A recording and slides from our webinar, hosted on the IUKWC website;
- This Activity Report, detailing the research activities undertaken for the project and methods;
- An IUKWC State of the Science Brief elaborating on the main findings and outlining their implications for future work;
- Two academic papers, currently being drafted: (1) a conceptual literature review on

stakeholder engagement in HCS and (2) a research paper outlining our key empirical findings gathered from research interviews and our participatory workshop. Readers interested in receiving copies of these once published should contact the lead researcher.

5.1. Key Themes Arising

Our research interviews and workshops highlighted the following key points:

- Existing HCS do not yet fully match decision making on agricultural water use by farmers and communities. This gap in provision is being responded to by new innovations, which specifically differentiate themselves from existing HCS by virtue of their levels of engagement with end-users and their targetting of agro-met advisories to individual farmers and rural communities.
- Stakeholders in the HCS sector are a diverse and highly unequal group, with varying levels of expertise, capabilities, priorities and needs. They range from highly qualified subject experts (agrometeorologists, computer scientists, tool developers) to highly experienced end-users (farmers and others involved in land-based livelihoods, public sector decision makers and third sector development practitioners). Different stakeholders also have different ontologies and perspectives on 'the problem'. For example, tool developers may view weather variability as the fundamental problem to which they must respond. For farmers, weather variability may be a given, with other problems of resource allocation, land tenure or market access presenting more fundamental concerns. This diversity presents a challenge to tool developers, requiring a process that incorporates different voices, priorities and capabilities.
- Building relationships with stakeholders, particularly end-users, is a time-intensive process that depends on relations of trust. Where tools seek to match local decision-making scales, developers need these relationships in order to develop credible decision-support models and in order to continually refine them. Tool developers vary with respect to how the amount and types of interaction they have with stakeholders, and particularly end-users. They also vary with respect to reflexivity about and stemming from this process. Some are in the process of continually innovating with respect to stakeholder engagement processes, and maintain the flexibility required to incorporate informal feedback. Others, by virtue of scale, are more reliant on fairly structured processes that do not continually shift and change.
- While practice varies across the sector, it is generally acknowledged that the most vulnerable end-users are not yet fully included in the design and development of HCS. This includes: farmers innovating with new crop types and business models (e.g. horticulture, floriculture), semi-literate and illiterate farmers, women, young farmers, small and marginal farmers, landless and small-scale labourers, traditional farmers, village water groups and self-help group members, and indebted farmers.

5.2. Next Steps

Further research building on this pump-priming activity would address:

1. Further systematic analysis of the differences across public, third and private sector tools by including a greater number of tools across each of these three categories and developing a systematic protocol to assess practice across a highly variable set of tools (which differ by number of users, tool-developers' priorities, concerns, and capabilities and the levels and types of decision-support provided to end-users). This comparison would also need to include comparing current practice with recognised best practice models from India and elsewhere.
2. Evaluations of stakeholder engagement practice and its outcomes: Further studies will need to collect primary data on the experiences of end-users through direct engagement

in the field. It is recommended that these studies use methods which allow end-users to elaborate on their experiences and priorities in an open-ended fashion, and which allow for tool-developers and end-users to engage in critical dialogue.

3. Identifying models for the inclusion of marginalised end-users at scale: There is significant scope for widening access to HCS, but further research is needed on how to do this at scale. Workshop participants in particular expressed serious concerns about existing capability in this regard. Engaging with marginalised stakeholders takes time and effort. Research is needed to find ways in which HCS developers can effectively leverage or partner with existing initiatives to widen access to tools.

6. Annexes

ANNEX A: Workshop Agenda

Day 1 – 14th September 2017

Time	Agenda item
10:00	Arrival and refreshments
10:10	Welcome and IUKWC Director's Address
10:30	Voices of the Land: Farmer's testimony on rainfed farming, climate and HCS
10:55	Introducing participatory methods Participatory Exercise 1: Identifying our shared values
11:20	Participatory Exercise 2: Tool and stakeholder mapping
12:15	F Facilitated, open-ended discussion: Who are the stakeholders, and how do they speak?
14:00	Participatory Exercise 3: The playing field
15:00	Facilitated, open-ended discussion: Stakeholder agency and influence
16:00	Wrap up and debrief
16:15	Refreshments and film screening

Day 2 – 15th September 2017

Time	Agenda item
10:00	Arrival and overview of the day
10:15	Speed talks by researchers at IITM
10:45	Participatory Exercise 4: Root causes
11:45	Group Discussion: outputs from participatory exercise 4
13:00	Group Discussion: The challenges of stakeholder engagement
14:30	Synthesis, including rapporteur's feedback
14:45	Thanks and next steps

ANNEX B: Participatory methods used

Identifying shared values:

Workshop participants are given a short introduction to the value and methods used in participatory research (see Annex C for a supporting brief circulated to all participants). This introduction emphasises the need for the energetic engagement of all participants in the workshop deliberations and activities. In order to facilitate a sense of shared endeavour, participants are invited to agree on a set of basic principles guiding their participation over the course of the workshop. Participants are divided into groups for 10 mins. They introduce themselves to each other, and then spend 10 minutes discussing and recording a list of key values they want to see upheld during the workshop. These can include, for example, civility, inclusiveness, respecting diverse viewpoints. Participants can also discuss and agree broad 'rules of engagement', such as the need to raise a hand before contributing or rotating the task of recording group discussions. Participants may find a surprising amount of disagreement as to how discussions 'should' proceed. These differences of opinion should be welcomed, and participants should be encouraged to find workable compromises that preserve the general aim of collaborative work and inclusivity. A key advantage of the exercise is that it gives participants an early taste of the participatory nature of the research process, and introduces energy and dynamism into what may have started as a relatively passive process (participants listening while a facilitator speaks).

Tool and stakeholder mapping:

Exercise 1: Who is involved?

The aim of the exercise is to broaden thinking on what types of stakeholders are involved in HCS.

Participants are divided into groups. Each group receives a set of photographs representing different types of actors in HCS development and use, including some traditionally side-lined in rural development or agricultural policy (e.g. women farmers, smallholders). The visual aids are designed to generate conversation and act as aid to creative thinking, not to limit the list. Participants are then invited to freely list as many potential stakeholders as possible and encouraged to be as specific as possible (e.g., rather than listing aggregates such as 'farmers', participants would list sub-categories such as 'women farmers', 'rainfed farmers', 'marginal farmers'.)

Exercise 2: When are they involved?

HCS tool developers map the engagement of stakeholders onto the process of tool design and dissemination, discussing and recording important inflexion points, developments and key moments. Participants discuss and record what prompted these, and record what stakeholder dialogue was involved.

The playing field:

The aim here is to visualise differences between stakeholders' levels of inclusion in the process of HCS design. Participants work in groups to map the listed stakeholders against two axes: how much they are affected by the problem (in this case, of climate variability) and how much influence they have over the design of solutions (in this case, HCS). This exercise can produce either a simple 3x3 quadrat chart, or a stakeholder 'rainbow', depending on what participants' find easiest. The aim of the exercise is to generate a clear understanding of who is excluded from the process. Subsequent discussion can elaborate on why this is, and what may be done (if anything) to build more inclusive engagement.

Root causes:

The aim is to encourage participants to think critically about 'the problem' that they are working on (in this case, 'the problem' that HCS are meant to respond to).

Participants work as a team to identify a 'problem statement'. They then identify first, second

and third-order causes driving the problem, asking ‘why this occurred’ and ‘what is the result’ or consequence. The result is a ‘problem tree’ with roots (problem drivers) and branches (consequences). Participants are encouraged to then identify drivers and consequences that fit into both roots and branches of the problem tree – suggesting vicious cycles.

ANNEX C: Brief on participatory methods

The following text was provided to all workshop participants in order to introduce participatory research methods.

Introducing participatory research

What

‘Participation’ has been an important idea in development studies and sustainability since at least the 1980s. Like other ‘big ideas’, it is contested: meaning different things to different people. However, all agree that participatory methods are characterised by a lessening of the distance between the subjects of research and the researcher. Both work together to understand and solve problems.

Why

1. Research for a complex world: Real-world sustainability problems are complex, multi-causal, non-linear, multi-scalar in time and space, and context-specific. They also involve many uncertainties, are intimately concerned with social values, and impact all actors in (an unequal) society. Participatory approaches get to grips with this multiplicity, as well as allowing participants and researchers to step back and unpack taken for granted realities and ways of seeing, being and doing. Doing so, it is hoped, provides a better fit with the nature of complex problems.
1. Better outcomes: The involvement of multiple groups of stakeholders can improve outcomes for all. When certain groups are side-lined, their knowledge cannot inform solutions. Over-simplified solutions that are not suited to local contexts may fail to get wide social support, or may actively advance the interests of some social groups at the expense of others, leading to new problems down the road.

How

Participatory research is an approach, not a closed set of specific techniques. The data generated may be quantitative (numbers and metrics of any sort) or qualitative (words, pictures, or other forms). Depending on the type of group, methods may transcend language altogether, using graphics, games, puzzles, role-play or use of objects to develop and communicate ideas. Most participatory research involves a mixed group of participants and a facilitator who is assisted by one or more colleagues. Participants and facilitators work together to define the problem, explore how it has developed, and identify solutions using the collective knowledge and experience of all members of the group.

Further reading:

1. Chambers R. 2002. Participatory Workshops: a sourcebook of 21 sets of ideas and activities. London: Earthscan
2. Chevalier J.M. and Buckles D. J. 2013. Participatory action research: Theory and methods for engaged inquiry. Abingdon and New York: Routledge
3. Website and further resources: participatorymethods.org



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