BASIN

Behavioural Adaptation for Water Security and Inclusion

BASIN Insight Brief 2
May 2025

Co-designing transdisciplinary research for water security and adaptation: lessons from the BASIN project

Summary

- The transdisciplinary BASIN project employs a novel co-design process to integrate the needs of academic and practitioner partners, shaping a targeted research agenda that addresses the real-world challenges faced by non-governmental organisations (NGOs) in the water sector in Africa.
- BASIN has followed a five-step approach to integrate the needs of NGO programming with research planning. This has promoted buy-in from partners, while sharing capacity-building and learning, and accommodating the diversity of experience and approaches that would otherwise remain siloed. Forms of expertise from non-academic actors are better represented as a result, and the co-design of research is better suited for building real adaptation in water security.
- The co-design process has shown that a deeper understanding of the real-world contexts that underpin behaviour is essential for actionable behavioural interventions or programming. This finding reinforces the need for systems thinking identified in the BASIN project. Case studies being researched in the project are complex and multi-scale. The process has selected some case studies suited to further and faster progress towards programmatic interventions, and other case studies for slower, more exploratory and rigorous understanding of behaviours and their determinants.
- The co-design process has been long, and the need to balance researcher and NGO expectations, objectives and timelines has been challenging at times. However, the process minimises the risk of inappropriate interventions being designed and has promoted cross-fertilisation of approaches and ways of thinking, along with inclusive project activities.
- Insights from this process can inform future project implementation efforts and provide actionable guidance for adaptation in different contexts.

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The Behavioural Adaptation for Water Security and Inclusion (BASIN) project is drawing insights from behavioural approaches to water security to improve decision-making for more effective and equitable adaptation in policy and practice. It is funded by UK aid from the UK government and by the International Development Research Centre (IDRC), Ottawa, Canada as part of Climate Adaptation and Resilience (CLARE) research programme.

www.lse.ac.uk/granthaminstitute/basin

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Introduction: the need for co-design in BASIN

The BASIN project – Behavioural Adaptation for Water Security and Inclusion – is breaking new ground by bringing behavioural research into the challenging area of climate change adaptation and water insecurity in sub-Saharan Africa. BASIN is a large transdisciplinary research project made up of four universities, three NGOs across seven country offices, and an intermediary knowledge broker organisation, with up to 50 team members at any one time. The process of designing the project is therefore new and exploratory, both in terms of the subject matter and the priorities of the partners. From its conception, BASIN has followed an integrated, synthesised approach to co-designing research to reconcile the different priorities and cultures of research and practice. We outline this co-design process within this brief.

The transdisciplinary nature of BASIN means that it involves active collaboration between researchers and practitioners. The importance of careful project design for transdisciplinary collaboration has been highlighted in other adaptation research projects (Arrighi et al., 2016; Cundill et al., 2019; McClure et al., 2024). These have emphasised the interrelated principles and framing of 'co-exploration' and 'co-production'. These principles support a shift away from knowledge 'products' towards co-production processes, are more inclusive of other forms of expertise from non-academic actors such as NGOs, and create value for all participants (Arrighi et al., 2016).

BASIN draws on these concepts to:

1. Create a more inclusive, flexible, reflective and resourceful applied research process – one that is better positioned to deliver outcomes suited for building real-world resilience in water security and climate adaptation systems.
2. Contribute to efforts and understanding of how to decolonise knowledge creation and amplify diverse and marginalised perspectives while reducing Global North biases.
3. Foster interdisciplinary collaboration and diverse ways of thinking to produce the most robust and impactful strategies for tackling the complex challenge of adaptation for water security.

Following this approach through from the proposal design phase has allowed us to identify, synthesise and integrate the programmatic needs of individual partners with cross-cutting research objectives at the early stages of the project rather than retrospectively at the end.

The importance of applying a 'systems-thinking' approach for the application of behavioural research in this context has been outlined in BASIN Insight Brief 1 (Mikołajczak et al., 2025). In summary, this involves accounting for how behavioural problems fit within the broader context of the network of actors and their interdependencies, which are in turn shaped by complex system structures including resources, constraints, feedback and boundaries.

For BASIN, care has therefore gone into accounting for the complexity of the climate–water security systems being studied during the process of identifying behaviours and their determinants to target. BASIN integrates design thinking into its methodology by emphasising an iterative co-design process that focuses on a deep understanding of the problem context and stakeholders' needs. This starts with the 'Discover' and 'Define' stages of qualitative exploration to gain a deeper understanding of the problem space, key behaviours, stakeholders and context, to clearly articulate the problem and narrow the focus to actionable and researchable questions.

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The aim here is to provide better evidence to support the later 'Develop' and 'Deliver' stages for interventions.

The highly collaborative nature of BASIN, and the complexity of the systems in which we work, has resulted in a longer lead time to establish and implement behavioural research design compared with what might be expected in other settings with more focused behaviours. Investing sufficient time to co-develop the research at this stage helps ensure that resulting behavioural interventions are context-specific, effective and sustainable. By identifying the cross-cutting challenges experienced by NGO partners and applying a consistent methodological approach, research is grounded in local contexts and realities of individual case studies. Moreover, where appropriate, this approach allows the identification of underlying lessons or principles that may transcend specific settings and generate knowledge that is more than the sum of its parts.

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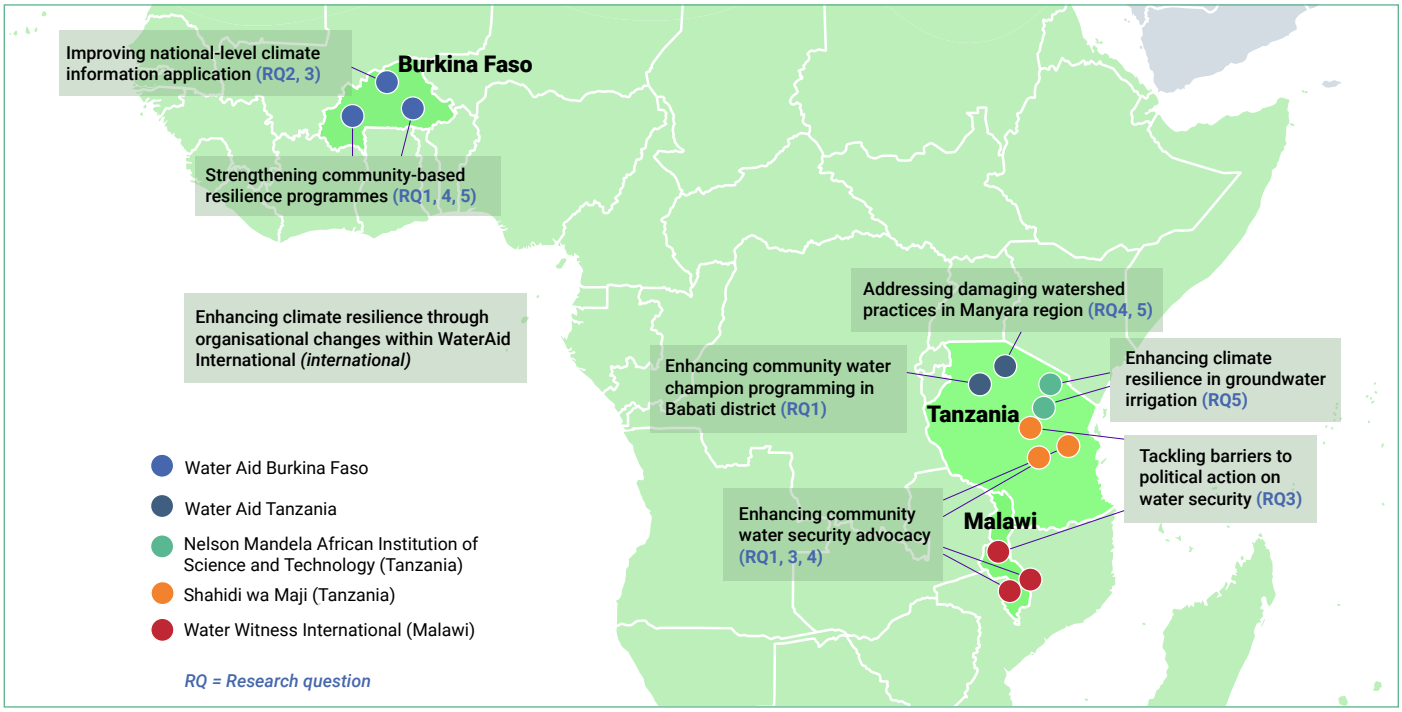
Steps in the BASIN co-design process

The following steps describe the novel BASIN process of co-defining the initial research questions and plans through synthesising NGO partner research needs from the outset of the project.

Step 1 – Definition of individual research case studies

At the start of BASIN, four NGO partners and one university partner developed and proposed nine diverse case studies to research from their existing programmes. The locations are shown in Figure 1. The case studies addressed complex water–climate–society challenges across multiple levels of management and water system scales, ranging from national policymaking to community-level practices. During the first year of BASIN, each case study was individually presented through a series of 'deep dive' sessions to the wider project group. The contexts, needs and focus for the research therefore originated from each NGO partner's direct programmatic activities and on-the-ground challenges, ensuring research was demand-led and actionable.

Figure 1. Map of BASIN case studies



See page 5 for the research questions

It was initially envisaged that partner case study presentations would reveal specific behavioural challenges so the project could develop targeted behavioural interventions within each of the case studies. However, case studies were characterised by multiple dimensions of risk and inequality, along with the social and environmental complexity of the challenges experienced. It was therefore not easy initally for the case studies to be conceptualised in behavioural terms or for single-priority behaviours to be identified. This contrasts with established and clearer targets for behavioural change research such as handwashing. As a result, the project followed a modified approach and broader conceptualisation of the potential for behavioural research and likely entry points (as discussed in Insight Brief 3, Ingram et al., 2025).

Step one identified a wide range of new potential starting points for behavioural research within the case studies. The subsequent steps were developed to prioritise which lines of enquiry to follow and to draw wider insights across multiple case studies.

Step 2 – Synthesis of case studies to inform research themes

Next, a synthesis of the case studies identified synergies between them and alignment with BASIN's goals. This drew together the wide range of possible research routes that run across all case studies. This was based on:

- Integration across partners and countries by identifying shared priorities and concerns (e.g. poor retention of community volunteers)
- Alignment of shared elements across specific levels of analysis, from institutional to community (e.g. targeting national-level decision-making)
- Perceived impact potential to deliver on the core BASIN goal of enhancing inclusion and climate resilience in water security (e.g. community water practices)
- Partner preferences and areas of focus (e.g. local level programming)
- Opportunities for foregrounding the representation of gender, equity and social inclusion (GESI) (e.g. in local decision-making)
- Expected pathways for research methods (e.g. shared data collection protocols)
- Scope to add new value through novel behavioural research (e.g. pioneering focus on the behaviours of individuals in case study systems)

This step, while inexact, was intended to see the project as a whole and maximise the relevance beyond case studies and thus extend the utility of BASIN findings.

Step 3 – Identification and prioritisation of cross-cutting research areas

With a strengthened sense of connection between BASIN partners and drawing on further details of the case studies, cross-cutting thematic research areas were then collaboratively refined and prioritised. Five general research areas were identified based on: partner insights and their programmatic needs and priorities; potential contribution to gender equity and inclusion (GEI); potential for novel behavioural research; and research capacity and practicalities:

1. Sustaining engagement of community-level volunteers with water security roles
2. Communication of climate and water information between actors

"Step one identified a wide range of new potential starting points for behavioural research within the case studies."

3. Behavioural barriers experienced by decision-makers and officials
4. Participation and inclusion in community decision-making and practices around water and climate
5. Influences on community water and climate practices and behaviours

Step 4 – Finalising research questions with behavioural dimensions

From the cross-cutting research areas, the project team collectively refined five BASIN research questions (RQs) during an in-person workshop. These are designed to focus on behaviours relevant for better insight and design of potential interventions:

- **RQ 1** What individual and structural determinants[1] influence the sustained engagement of community volunteers,[2] and how can these be targeted to enhance sustained engagement?
- **RQ 2** How can the uptake of community-produced water–climate information by national authorities from basin-level authorities be enhanced?
- **RQ 3** How can a) the response of local officials to communities' water security and adaptation needs, and b) the accountability of national-level decision-makers to water and climate-related policies be enhanced?
- **RQ 4** How can uptake and use of climate information be enhanced at the community level?
- **RQ 5** What determines the adoption of adaptation behaviours by community members, and what behavioural levers might influence these?

Working groups with members evenly drawn from partners were established for each research question to optimise time requirements and to empower partners and foster leadership and inclusion. These working groups remain coordinated to avoid becoming siloed, with shared project-wide updates, for instance during monthly project management calls. Common threads including conceptual frameworks, protocols for data collection and data analysis are maintained through this coordination process.

Step 5 – Integrating research planning with NGO programming

Detailed collaborative research is underway for each research question, moving to data collection and early analysis. Further details on the contextual factors behind individual or collective behaviour were shared and mapped for each research question in dedicated working group sessions. Data collection involved aligning NGO partners' existing programmatic plans regarding their case studies proposed in Step 1 with the specific cross-cutting needs of the BASIN research questions. For instance, some data collection protocols were based on specific research questions but also included additions that target topics specific to the partner's programming. Partners have applied these protocols in line with their case study plans, logistics and capacity. It also involved coordination to ensure efficiency of data collection, particularly since all research questions require primary data collection from people, which makes demands on their time.

This process of designing the research integrates the broader BASIN design thinking approach (outlined in Insight Brief 1) with practitioner partners' programming. This has also helped practitioner partners to reconsider strategies behind their programming and to use this research process to enhance operations. The results and exact methods used will be presented in future BASIN Insight Briefs and other outputs.

"Common threads including conceptual frameworks, protocols for data collection and data analysis are maintained through the coordination process."

Community volunteers inspect their local water tank in Malawi

1. For example, beliefs and norms, respectively (Albarracín et al., 2024).

2. Community volunteers have specific roles within BASIN case studies and are known variably as 'champions', '*Mashahidi*' (witnesses), or 'relays'.

Lessons from the co-design process

1. Recognise and work with the complexity of the system

BASIN's case studies were originally presented as discrete climate–water security problems, assuming that insights from behavioural research could be readily applied to enhance partner programmes. This follows a broader assumption about the potential for behavioural research to be brought to water security and climate change (Conway, 2024). BASIN's research design process has shown that a deeper understanding of actors, behavioural determinants and contextual factors that underpin behaviour within the case study contexts is an essential prerequisite to any intervention design. This finding reinforces the need for systems thinking, as outlined in BASIN Insight Briefs 1 and 3. BASIN case studies are complex and multi-scale and should account for a multiplicity of factors.

2. Put in the time in preparing for better outcomes later

This co-design process has taken many months longer than originally planned and has been demanding on all partners' time. However, it should enable more accurate behavioural diagnosis and the design of effective interventions and therefore help avoid the dangers and extra costs of applying assumptions from different contexts that do not work, as experience elsewhere has shown (Dekens et al., 2024). Being demand-led and informed by a depth of understanding of context and lived experience will lead to more actionable outcomes than an external imposition of behavioural research would. It should also provide rigorous knowledge that is relevant beyond the BASIN case studies.

3. Find compromises between ways of working

There is a balance between the programming needs of NGO partners and developing research contributions that produce scalable findings and impact beyond the case studies. NGO partners expect quicker results for their programming due to the fast-paced nature of their operations and projectised funding mechanisms, while academic researchers tend to prioritise developing outputs that are more broadly applicable and rigorously structured and are therefore slower. Academic research often presents a range of possible answers, whereas practice usually requires more assertive recommendations informed by expertise in the local context. Moving iteratively and collaboratively through this transdisciplinary process has generated common benefits and shared understanding. BASIN has selected some case studies suited to further and faster progress towards programmatic interventions, and other case studies for a slower, more exploratory and rigorous understanding of behavioural determinants and behaviours.

4. Balance buy-in and direction to enable progress

A horizontal management structure across the project promoted inclusivity and buy-in from partners, as well as shared capacity-building and appreciation of the diversity of experiences and approaches. However, the collective progress this brings can trade off against differences in expectations of leadership or direction between partners. The work and mandate of NGOs means their role and capacity in transdisciplinary research differ significantly from the research experience of academic institutions. For example, the design of the research questions benefitted from collective input, whereas the development of data collection protocols that integrate research and practice and lie across multiple NGO case studies has been challenging to coordinate and required understanding between partners and negotiation of expectations and responsibilities.

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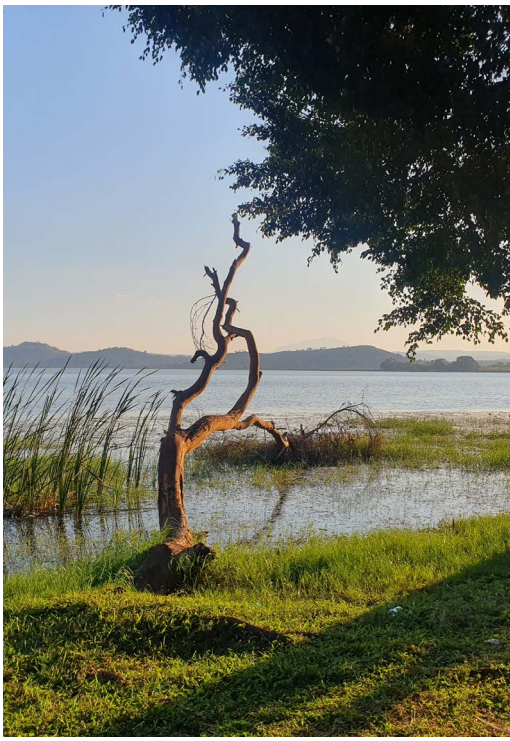

5. Use varied formats to exchange knowledge

The co-design process has distributed learning across project members. However, engagement with knowledge shared, particularly through the BASIN Community of Practice, has been limited by an often-academic format of technical documents and presentations. Work is needed to improve the communication of scientific knowledge and frameworks and make them more relevant to non-academic practitioners. Traditional and indigenous forms of knowledge also need further exploration and understanding as part of this essential knowledge exchange process.

6. Embrace the messiness of co-design

This has been an iterative and sometimes 'messy' process which benefitted from frequent communication, in-person project meetings and reassurance that asking many questions is essential to define the right questions. The time requirements of this process are a challenge, as are language barriers and differing priorities and interests of partners, but it should save time overall by avoiding unnecessary data collection and design of inappropriate or unsustainable interventions. Shared trust, inclusion, good interpersonal relationships and respect for differences that come from frequent communication are essential for the success of this co-design and in leveraging the benefits of inclusivity.

7. Benefit from different ways of thinking

This transdisciplinary and integrative approach has enabled cross-fertilisation between disciplines and ways of thinking that would otherwise be siloed. For example, NGO partners are reconceptualising programme objectives and theories of change, while researchers are benefitting from the dynamism of practitioner programming for more adaptive and solution-oriented research design. Team members' varied backgrounds encompass WASH [water, sanitation and hygiene], water resource management, public health, conservation, behavioural science, climate adaptation, climate information, and humanitarian and development operations.

Despite some challenges, the co-design process has been invaluable to BASIN. The project will continue to follow the principles and approaches of the inclusive, tightly integrated, transdisciplinary co-design process described here as it moves forward through the data analysis phases, and as potential solutions are developed and tested to address the real-world water security and adaptation challenges being tackled by NGOs in Africa.

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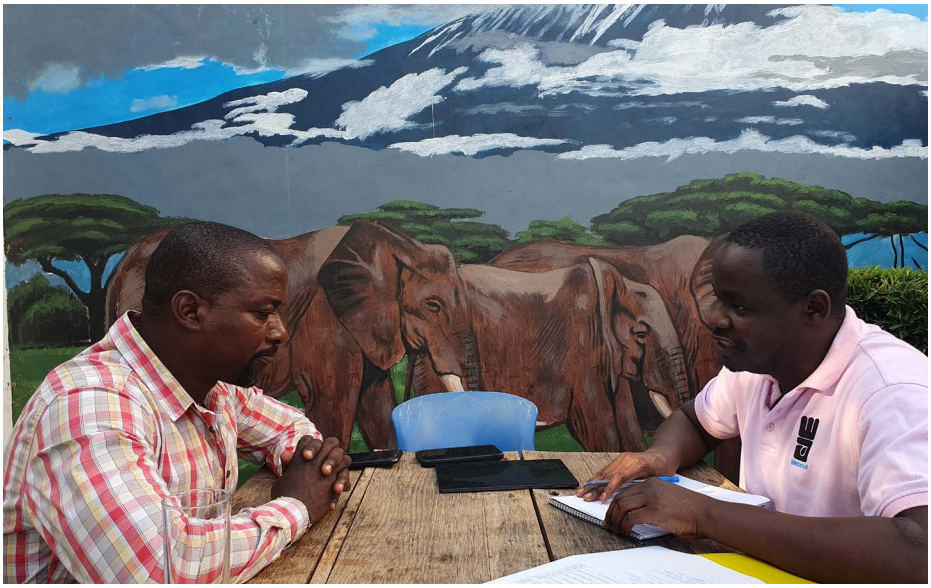

A BASIN team member interviews a District Environmental Officer in Tanzania

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BASIN partners