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# Delivering adaptation and water security: Behavioural determinants sustaining community volunteer champions in sub-Saharan Africa

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## Abstract

Attempts to strengthen adaptive capacity and water security across sub-Saharan Africa include widespread use of a local volunteer champion mode of delivery by NGOs and governments. Problems with sustained engagement of volunteer champions exist but have received limited attention. We employ a behavioural lens, rarely applied in this context, to examine factors shaping champion sustained engagement. Qualitative data were gathered from 158 champions across seven active champion-based water security and climate adaptation projects in Tanzania, Burkina Faso, Malawi, South Africa, Mozambique, and Zambia, and analysed using the COM-B behavioural model. The sample showed convergence of behavioural determinants across diverse case studies. Champions' physical and psychological capability to stay engaged was typically evident, and reflective and automatic motivation was high, driven by prosocial commitment, interest, and satisfaction and reinforced by emotional responses including joy from helping and pride. Conversely, physical and social opportunity are frequently constrained, particularly by inadequate tools, materials, transport, or ongoing support from external project implementers. Contrary to assumptions that low sustained engagement stems from insufficient champion motivation, this instead shows that external support and structural factors are critical to leverage otherwise high motivation. The findings offer practical guidance for organisations seeking to enhance adaptation and water security through champion-based programme design, orienting focus towards reducing structural barriers to support sustained engagement. Such strategies avoid relinquishing responsibility and overburdening champions with unfair motivational appeals, with important climate justice implications. The study demonstrates the value of a behavioural lens for investigating the delivery of community-based adaptation and water security.

## Key words

Climate change adaptation; volunteer; behaviour change; motivation; COM-B; champions; Tanzania; Malawi; Burkina Faso; Zambia; Mozambique; South Africa

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# 1. Introduction

Local responses to climate change are shaped by the behaviours of specific influential individuals within communities (Hampton & Whitmarsh, 2023). Global mapping shows that individuals or households at the community level remain by far the most prominent actors implementing (insufficient) adaptation action in sub-Saharan Africa (Carman & Zint, 2020; Gannon et al., 2020; Leal Filho et al., 2022; Petzold et al., 2023). Yet uniform engagement across entire local populations is unrealistic. Communities are not homogenous and transformational individuals can galvanise their local communities for environmental systems change (Amel et al., 2017). Understanding the behaviours of these specific actors is essential for effective community-based adaptation, yet these individuals are rarely taken as a starting point in adaptation research.

Many water security and climate adaptation programmes across sub-Saharan Africa coordinate and rely on local volunteer 'champions' from target communities to create a desired change (Feeney et al., 2024; Reid et al., 2010). Here, we refer to these unpaid volunteers, specifically those who have been formally selected or coordinated by NGOs or government external to the community to take on a designated role (as opposed to ad hoc casual volunteers), as 'champions'. This excludes those formally paid and avoids the less formalised autonomous volunteering or unpaid adaptation labour often present across the complex social and cultural norms in rural African communities (Johnson et al., 2023; Madziva & Chinouya, 2017; Schill et al., 2019). These champions stand on the front line of climate adaptation yet have received limited attention in adaptation literatures.

A common assumption in programme design is that such champions will be inherently driven to maintain their role over time. Securing sustained engagement beyond the initial recruitment phase is critical to long-term success (and is more efficient than having to re-recruit). However, direct and anecdotal experience of our authorship team and respective organisations suggests that keeping champions engaged is a common challenge across our and others' programming and operations (Ingram et al., 2025). We term this sought after behaviour of champions '*sustained engagement*'.

Though underexplored in the context of water security and adaptation in sub-Saharan Africa (Conway, 2024; Grothmann & Patt, 2005), behavioural research offers a lens to understand determinants of sustained engagement of champions (van Valkengoed et al., 2022). This is important to improve the design of programmes and interventions (Petit, 2019) that seek to utilise the actions of champions and meaningfully advance community-based adaptation over time.

While much related literature largely foregrounds individuals' motivation, we also incorporate the physical and social context shaping sustained engagement. To do so, we apply the holistic behavioural model 'COM-B' (Michie et al., 2011) as a general organising framework – supplemented by additional theoretical models from behavioural research – to qualitative interview and focus group data collected from champion-based development projects. Our cases are drawn from water security and climate adaptation project settings across six sub-Saharan African countries: Burkina Faso, Malawi, Mozambique, South Africa, Tanzania, and Zambia. The paper aims to identify behavioural

determinants and examine the extent to which they influence sustained engagement of champions, to inform future adaptation programme design.

# 2. Background

## 2.1 Champions and delivery of community-based adaptation

Individuals and households at the community level are the most prominent implementers of climate adaptation (Petzold et al., 2023). This is often in partnership with local civil society organisations and sometimes through champion-type models of delivery. Adaptation is more likely to be effective and sustainable at the community level when supported by local champions who hold a deep understanding of local realities and conditions. Research has demonstrated the effectiveness of key volunteer community members as 'injection points' into social networks, for example for promoting the uptake of solar PV or agricultural technologies (Gillingham & Bollinger, 2020). Similarly, community volunteers with closer social identities and experiences to other community members showed greater effectiveness of promotion of technology adoption among maize farmers in Malawi compared to government extension workers (Benyishay & Mobarak, 2019). Local agricultural extension delivery agents are seen to reach more farmers in Uganda when they have greater social ties within the community, albeit skewing towards their own social ties (Bandiera et al., 2023). Relatedly, local community members are shown to be effective at identifying local individuals who are most central for diffusion of information; and those proposed by community members in India as good 'gossips' saw a 66% increase in the spread of information (Banerjee et al., 2016), which is a core part of local adaptation.

A cornerstone approach to adaptation at the community level in the Global South has been Community-Based Adaptation (CBA) (McNamara & Buggy, 2017). CBA emphasises local needs, experiential knowledge, priorities, and capabilities to empower local people (Reid et al., 2009; Vincent, 2023). Accordingly, it frames adaptation as a social process reliant on local knowledge systems (McNamara & Buggy, 2017). This conceptualisation strongly aligns with a behavioural approach which seeks similar goals but through different analytical frames. However, CBA has rarely applied a behavioural lens to local community champions.

Programmes for water security and climate adaptation relying on the local champion model are widespread in sub-Saharan Africa. However, their sustainability is often under-examined. Examples of champion-led programmes include 'water action groups' who highlight service delivery gaps (Korzenevica et al., 2024) and grassroot women's-empowerment champions for livestock sector resilience (Bullock & DuttaGupta, 2023). Champion activities also include, for example, monitoring local rainfall to inform crop planting, peer-educating water secure practices such as avoiding cultivating flood-prone riverbanks, or lobbying local officials for water services (Feeney et al., 2024). The National Red Cross Red Cresent Societies alone reports 16.5 million community-based volunteers who reach 55 million people worldwide affected by climate crises (IFRC, 2023).

Water security and climate adaptation champions have also been conceptualised in the Global North in diverse ways (Lindsay et al., 2019; Mould et al., 2020; Straith et al., 2014; Taylor, 2009). Behavioural determinants influencing sustained engagement of these individuals are also generally overlooked.

## 2.2 Motivation of individuals to engage in other types of volunteer programmes

There is extensive literature focusing specifically on the *motivations* of volunteers from the wider global population more generally. This includes research on what keeps volunteers motivated over time. Varying degrees of precision around the concept of 'motivation' have been employed, ranging from loosely describing individuals' desires, to formal uses of behavioural and psychological theoretical frameworks (Forner et al., 2024). One common framework is Self-Determination Theory (SDT), which proposes that individuals are more sustainably motivated when their basic psychological needs of 'autonomy', 'competence', and 'relatedness' are supported (Deci & Ryan, 2008). This in turn supports more 'autonomous' internal forms of motivation (e.g. interest, enjoyment), which tend to be more enduring compared to 'controlled' externally driven motivation (e.g. rewards, compliance).

For example, application of SDT has shown that Swiss members of the public who volunteer in the social sector who hold values and social justice motives experience more autonomous self-determined motivation – typically leading to more sustained volunteerism – as opposed to career, social, protective, or enhancement motives (Güntert et al., 2016). SDT has also been used to study what sustains the engagement of 'corporate volunteers' in France over time beyond one-off corporate organised events. This showed that the quality of motivation experienced is a more important factor for continuation than the pressure of repeated participation (Van Schie et al., 2019). In this case, volunteers who freely chose their cause showed greater internalisation of volunteer identity, aligning with 'autonomous' motivation. Prestige or managerial oversight constitute controlled forms of motivation which is less sustainable. Another broad study of volunteering in China, Germany, Turkey and the United States also suggests that, across cultures, individuals' explicit prosocial motivations correspond positively with 'sustained volunteering' (Aydinli et al., 2016).

However, most research on volunteer motivations is focused on the Global North and there is less evidence available from Africa (Baillie Smith et al., 2022; Laurie & Baillie Smith, 2018; Smith et al., 2017). SDT has been applied to government staff motivation regarding climate adaptation in Malawi, Tanzania and Zambia, but this does not relate to local communities or volunteering (Pardoe et al., 2018). The socio-economic, cultural, and biophysical contexts of Global North volunteerism are very different to those in rural sub-Saharan Africa, shaping motivation in distinct ways (Kenyatta & Zani, 2014), and suggesting that findings may not be directly transferable.

The most relevant evidence for the present study is research on motivation of volunteers in six communities in rural Malawi by Cunningham et al. (2021; 2022). They used SDT to evaluate the different qualities of motivations of volunteer water committee members. As key volunteer actors working to enhance local water security, these

individuals have some equivalence to champions in our study. These volunteers most predominantly exhibited motivations of an 'autonomous' categorisation, including personal benefits such as shorter water collection times, pro-social motives, and the intrinsic enjoyment of collaboration and initiative-taking. 'Controlled' (external) motivation reported included status-seeking and the desire to avoid shame or disappointment from failing in their roles. According to SDT theory, the 'autonomous' motivations seen are higher-quality and more strongly associated with persistence of the behaviour over time. A 'motivational climate' of positive relations with users, social and technical external support, and relevance to community development goals is also argued to support autonomous motivation (Cunningham, 2021; 2022).

## 2.3 Evidence of sustained engagement in other volunteering programmes: citizen science, community health workers, and other sectors

'Citizen science' programmes provide some evidence on factors influencing sustained engagement, including examples of water security and climate adaptation in the Global South (Buytaert et al., 2014; Mishra et al., 2021; Walker et al., 2021). These are instances where volunteers record and report measurements, such as on water quality or flow, as directed or coordinated by external scientists or organisers as part of projects or institutions. Citizen scientists, while not identical, are more analogous to the champions in this study than many other more general volunteers.

For example, one programme in Ethiopia relies on observers from communities to monitor rain gauges, river flow, and groundwater depths for watershed modelling (Walker et al., 2016; 2019). The observers are shown to collect high-quality data, benefitting from the social capital of the engagement. Here, while initial observer selection received more attention than their sustained engagement, the community observers did suggest factors to sustain their engagement. These included nominating a community focal person to connect observers with project coordinators, and organisers maintaining regular contact with the community and acknowledging received data (Walker et al., 2019; 2019).

Maintaining adequate participation of individuals from communities has been identified as a critical challenge for hydrometeorological data collection projects in remote developing contexts (Buytaert et al., 2014; Pandeya et al., 2021). Citizen scientist motivations vary across cultural and institutional settings and are reported to include combinations of intrinsic personal interest, self-promotion, self-efficacy, social responsibility, altruism, and desire to contribute to knowledge generation (Rotman et al., 2012; 2014). Personal or financial gain or gaining political leverage in the community can also eclipse collectivism or altruism in such settings (Buytaert et al., 2014; Moshi et al., 2023; Rotman et al., 2012).

Crucially, motivations can shift over project cycles (Rotman et al., 2012, 2014). General strategies proposed to improve engagement over time include providing feedback on volunteers' contributions, recognition and mutual trust from managers and peers, a sense of community belonging, and effective communication. Feelings of undervaluation or patronisation increase attrition risk (Buytaert et al., 2014; Rotman et al., 2012). Other strategies include identifying pivotal points of motivational shift (Rotman

et al., 2012) or citizens using information they collected to design their own water-management plans (Rufino et al., 2018).

Community health workers in sub-Saharan Africa are another group of generally unpaid volunteers typically coordinated through external programme implementers who also face sustained engagement challenges. They represent another source of comparative evidence for the volunteer champions under study. One large-scale scoping review highlighted key challenges to their sustained engagement – in non-behavioural terms – as follows: balancing duties with family obligations; resource limitations; exposure to stigma and harassment; gendered benefits and risks; and health-system level challenges of limited support or explanation (Ndu et al., 2022). Another review emphasises motivation arising from altruistic prosocial values and social capital (Mohajer & Singh, 2018). Individual studies also indicate greater likelihood in staying involved when they: receive compensation from stipends or training to enhance their professional or personal development (Abbey et al., 2014; Afari-Asiedu et al., 2018; Jigssa et al., 2018; Loth et al., 2020), or acquire knowledge, build relationships, and see results (Singh et al., 2016); and a negative influence from unclear organisational structures or weak ongoing support (Chatio et al., 2019; Ngugi et al., 2018; Odii et al., 2024).

Finally, predictors of 'turnover' of general volunteers have been investigated in a global systematic meta-analysis, offering a proxy for sustained engagement (Forner et al., 2024). This highlighted the wide array of theoretical lenses applied to this topic. Across more than 50,000 volunteers worldwide, gender, age, education, and other demographic variables exhibit limited influence on sustained engagement. Satisfaction, affective commitment, engagement and organisational commitment are prominent attitudinal variables; communication, support and relationship with organisers are important contextual variables. A huge and complex array of overlapping variables were reported, reinforcing the need for empirical evidence from our specific context.

These comparative examples indicate that both individual motivational determinants and structural and social determinants are likely to apply to champions in our contexts.

To summarise, the champion-led model for climate adaptation and water security programmes, and more widely, is commonly adopted across sub-Saharan Africa. Sustaining the engagement of local champions can catalyse adaptation over time and root it at the community level. Individual human behavioural factors are likely to be important in the longitudinal challenge of sustaining engagement of these champions beyond initial recruitment. Yet such factors are rarely studied using conceptual frameworks from behavioural or psychological science. The evidence base from the Global South is limited, however some useful literature, including on analogous citizen science and community health workers, provides comparative evidence on various discrete determinants. Crucially, much of the relevant research has tended to focus on 'motivation' rather than a broader conceptualisation of 'sustained engagement'. This suggests an implicit assumption that a champion's internal motivation is the critical factor to the behaviour of sustained engagement. Given difficulties observed in many cases around sustained engagement, there is a need to further examine how physical and social context, alongside motivation, also play a role after initial sign-up.

# 3. Methodology

To address this gap, in this study we select the broader and more holistic COM-B behavioural framework to examine the range and influence of internal, physical and contextual determinants underpinning sustained engagement. COM-B posits that a behaviour will only occur if a person has the *capability*, *opportunity* and *motivation* to enact that behaviour (Michie et al., 2011; West & Michie, 2020). Capability and opportunity both influence the relationship between motivation and the behaviour; and influence a person's motivation – thus holding motivation as central but not isolated (see Figure 1). We select COM-B because its breadth readily accommodates a diverse range of factors as seen in Section 2, especially champions' external influences through opportunity and capability. This facilitates capturing complexity of the system beyond the individual and the inclusion of structural considerations of power and justice (Chater & Loewenstein, 2022; Hallsworth, 2023; Heino et al., 2021; Lambe et al., 2020; Schill et al., 2019), and it gives greater scope to accommodate contextual variance across case studies. COM-B benefits from a robust theoretical foundation, unifying multiple theories and models, and it has been successfully applied in many areas relevant to this study (e.g. Galibourg et al., 2024; Hale et al., 2022; Hamidi et al., 2025).

## 3.1 Site selection

Seven case study sites were identified for analysis. The sites were purposefully sampled with the following common criteria in mind: operational feasibility for access; implementation of water security and/or adaptation activities reliant on a local volunteer champion-type model of delivery in line with how champions are presented in Section 1; and presence of active NGO practitioner or coordinator. There is considerable socio-economic, political, and biophysical diversity between the sites which we cannot control for. The strengths in our multi-case sampling approach lie in studying sustained engagement across different situations, all of which are active sites of water security and adaptation implementation to generate insights for both research and practice. Our analysis is exploratory and seeks to incorporate diversity of experience rather than causal explanation. The design addresses two common limitations: that adaptation research generally generates in-depth understanding at more specific individual contexts (e.g. small-n studies) with synthesis across contexts remaining more limited (Singh, 2025), and that behavioural research findings frequently fail to transfer between contexts (Bryan et al., 2021).

Table 1 presents case study locations and coordinating practitioners, the relevant water and climate challenge, the diverse activities undertaken between case studies by champions, the project-specific term for 'champion', and the desired sustained engagement goal of champions, alongside study sampling details. The champions studied in Burkina Faso (WABF) and Malawi (TriM) are responsible for making local hydrometeorological measurements and reporting findings to coordinators and their communities. Champions in Zambia and Mozambique (WISER EWSA) raise awareness of weather information in their communities and give feedback on its correctness or presentation. In Tanzania (WAT) and Malawi (WWM), the champions mostly peer-educate

and raise awareness around water insecure practices and risks in their communities. In South Africa (EC) and Tanzania (SwM), champions highlight shortfalls in water resources governance and service provision, including by monitoring water point functionality, and advocate for equitable water rights from authorities.

## 3.2 Data collection

In-depth key-informant interviews (KIIs) and focus group discussions (FGDs) were conducted between September 2024 and September 2025 with 158 champions totalling 155 interviews across the case studies (see Table 1). The question protocol was co-developed with practitioners informed by previous co-design steps, tested, then delivered in the appropriate local languages by the authorship team and enumerators. Questions focused on internal and external factors relating to champions' capability, opportunity and motivation to remain engaged with their activities, covering their experiences from initially signing up as a champion, remaining engaged, and in some cases informally stopping or formally dropping out. Some supplementary KIIs and FGDs with local officials and community members were also conducted (TriM, WAT, SwM, EC).

**Table 1. Seven water security and climate adaptation champion case studies included in study**

| **Location** | **Coordinating practitioner** | **Water and climate challenge** | **Champions** | **Activities of champions** | **Sustained engagement goal** *(No case study mandated official endpoints or terms for champions)* | **Study sample** |
|---|---|---|---|---|---|---|
| Babati District, Tanzania | WaterAid Tanzania (WAT) | Poor water source management, deforestation for fuel, lack of climate information | 8 '*community champions'* in one community | Outreach to community on water practices and risk awareness; building efficient cookstoves; tree planting; patrols against illicit tree cutting | *Champions* proactively and regularly: build efficient cookstoves with households; raise awareness of climate and water insecurity issues through village meetings and loud-speaker campaigns; plant/re-plant trees; patrol against deforestation and charcoal making; collect and disseminate forecasts from district meteorological office | KIIs and FGDs with 8 *community champions* |
| Mpwapwa & Mvomero Districts Tanzania | Shahidi wa Maji (SwM) (WaterWitness International) | Exposure to flood and drought risks, inequitable governance of water resources, and inadequate infrastructure or support from local authorities | ~17 '*mashahidi'* in three communities | Gathering evidence on water insecurity; communicating with local duty-bearers to advocate for reliable and equitable services; mobilising community water source protection and discouraging unsustainable water use | *Mashahidi* proactively contact local district or regional officials to highlight shortfalls in service provision and demand water rights | KIIs and FGDs with 12 *mashahidi* |
| Comoé, Houet, Balé, Sanguié, Ganzourgou, Kouritenga & Boulgou Provinces, Burkina Faso | WaterAid Burkina Faso (WABF) | Insufficient climate and weather information, water source unsustainability, and unfair water resource allocations between households | ~342 '*relays*' in 171 communities | Monitoring rainfall and groundwater gauges; communicating data to community and basin authorities | *Relays* take measurements from allotted rain gauges and boreholes, record the data, report it to the local water agency, and regularly communicate summary water resource trends during community meetings for local decision-making | 56 KIIs and 9 FGDs with 73 *relays* |

| | | | | | | |
|---|---|---|---|---|---|---|
| Amathole District, Eastern Cape, South Africa | Equality Collective (EC) | Inadequate monitoring of piped water network failures, unsustainability of clean drinking water supply | 32 '*water ambassadors*' in 40 communities | Monitoring water supply functionality, reporting to Equality Collective staff | *Water Ambassadors* walk to their community reservoirs (tanks) daily, monitor functionality, report it to Equality Collective, and communicate management updates back to communities when needed | KIIs with 9 *water ambassadors*; FGD 3 *water ambassadors* |
| Nkhotakota District, Malawi | TriM 'Community Based Observation Network' | Insufficient climate and weather information | 26 '*observers'* in 10 communities | Monitoring local rainfall gauges; communicating data to online dashboard for national authorities, and to communities | *Observers* take close-to daily measurements from allotted rain gauges, input data to online dashboard, and communicate weather and climate information to community when relevant | KIIs with 14 *observers* |
| Mulanje and Chikwawa Districts, Malawi | WaterWitness Malawi (WWM) | Inadequate water source management, deforestation increasing flood risk, inadequate disaster risk planning and management | ~35 '*community champions*' in three communities | Communicating to community on water risk awareness and practices; water quality monitoring | *Community champions* proactively and regularly raise awareness of climate and water insecurity issues through village meetings, mobilise resources, and regularly take water quality measurements | KIIs with 13 *community champions* |
| Lusaka District, Zambia; Boane District, Mozambique | WISER 'Early Warnings for Southern Africa' (EWSA) project | Flash flooding risk exacerbated by poor drainage; inadequate accessibility, understandability, or useability of climate and weather information; inadequate disaster risk planning and management | ~22 '*mobilisers'* in one community in Zambia, ~76 '*mobilisers*' and '*observers*' in three communities in Mozambique | Providing feedback on correctness or presentation of weather information; raise awareness of and share information with vulnerable community members | *Mobilisers* proactively and regularly engage with community members through public meetings, door-to-door outreach, and social media to disseminate early warning and weather information, and work alongside disaster risk reduction authorities. | KIIs with 19 *mobilisers* in Zambia; KIIs with 7 *mobilisers* in Mozambique |

### 3.3 Data analysis

Interview transcripts were translated into English and reviewed. These were inductively-then-deductively coded using NVivo and Excel. Inductive coding as per (Braun & Clarke, 2006) generated a set of 90 factors raised by champions that influence sustained engagement. Then, after review and duplication removal, these were deductively categorised into the best-fitting of the six sub-categories of the COM-B model shown in Figure 1. This resulted in 67 codes (reviewed by two researchers) with quantified frequency in the data as the number of respondents for which each code was recorded. Additionally, champions' specific experiences over time were independently coded and assigned to distinct longitudinal stages of champion engagement.

## 4. Results

Champion demographics varied across and within the seven case studies. Champion age ranged from 19 to 67 ($\bar{x}$ = 39; st. dev. = 11.7) and women and men are almost equally represented (m:f:not specified; 67:74:17). The Burkina Faso case study alone covered 11 ethnic groups and three religions.

More importantly, across this highly heterogeneous sample there is a striking convergence of barriers and enablers reported to shape sustained engagement. Most codes draw from most case studies and 38% draw from at least six of the seven case studies. Several factors emerged from the aggregate data more frequently or with greater importance to champions, indicated by repetition, emphasis, or contingency of other factors. Factors independently mentioned by at least ten champions (6%) across the sample are listed in Figure 1 (some counterpart factors mentioned less frequently are also included for comparison). We give these factors prominence in Section 4.

In instances where champions in the case studies showed low sustained engagement, they tend to gradually disengage informally, rather than formally 'dropping out', yet often still identify as champions despite having stopped any activities. This validates our focus on 'sustained engagement' over binary 'retention'. A high number (48%) reported holding or previously holding another form of role or responsibility in the community.

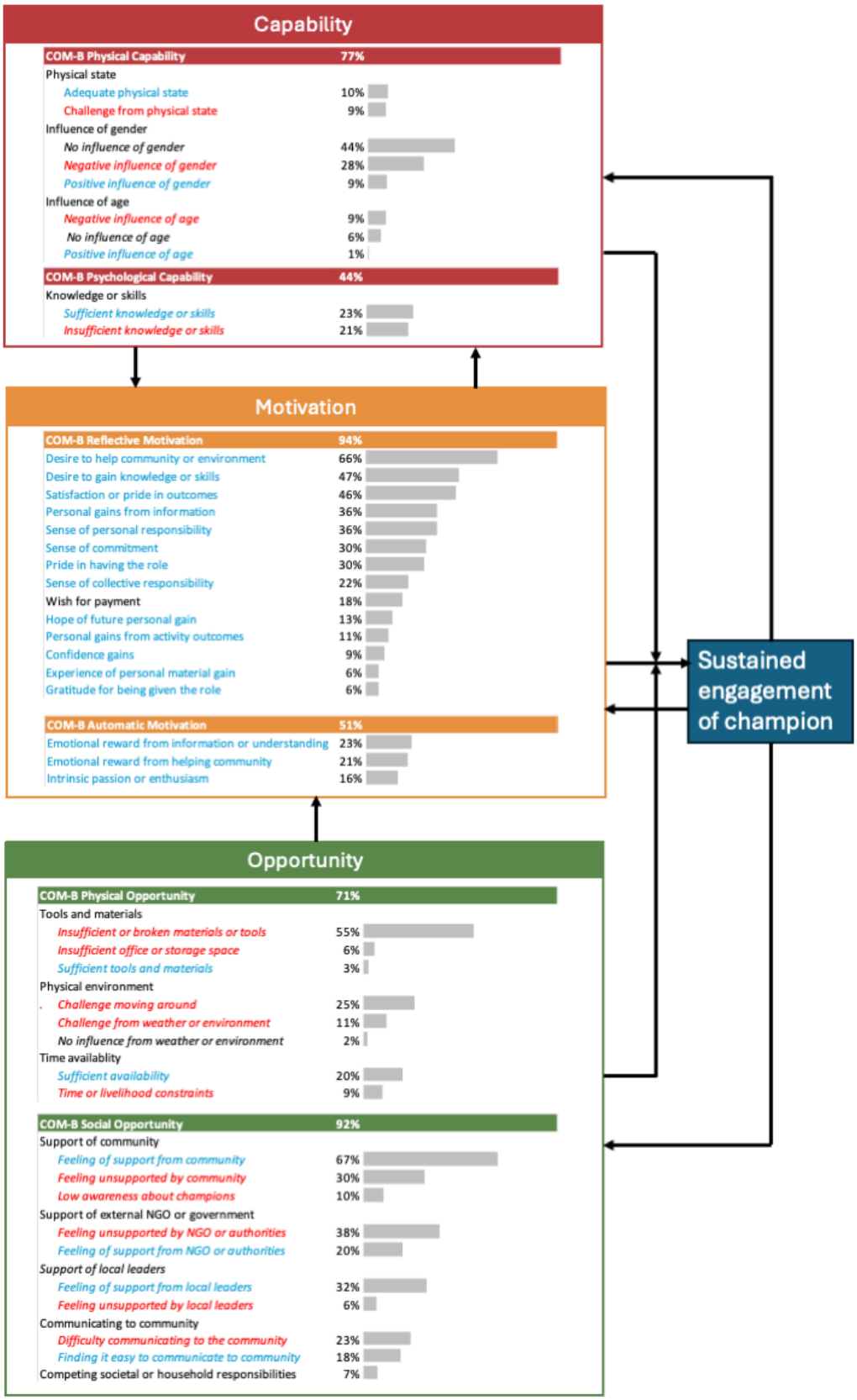


**Figure 1.** Prominent barriers (red) and enablers (blue) to champion sustained engagement as reported by champions, with neutral factors in black, showing percentage of champions in sample reporting each factor. Diagram based on the 'most accurate' option of the COM-B representations provided in West & Michie (2023).

## 4.1 Physical Capability of champions

In COM-B, 'physical capability' encompasses the traits, skills or physiological states that enable an individual to engage in a behaviour.

In general, champions report having adequate physical strength, health or physical capacity needed to stay engaged with their activities. For example, one *water ambassador* in South Africa explained she is "*fit and physically active enough to…[go] to the reservoir every day to check on water, which is about thirty minutes one-way*". This is unsurprising as champions are unlikely to become champions initially if they were physically unable. However, some respondents also report barriers of changes to physical state from illness, car accidents, seasonal asthma, or gradual tiredness over time from age. One *relay* in Burkina Faso had to stop taking measurements from a rain gauge "*because I had eye problems and I couldn't read any more*".

Old age of champions is sometimes reported as influencing bodily ability to move around or having sufficient energy for activities. Older champions occasionally propose that younger people take on the role from them. Being a younger age occasionally means being taken less seriously by community members (see Social Opportunity). However, equal responses highlight that old or young age has no influence on sustained engagement, such as in Tanzania: "*We have a slogan that says: 'respect old age'. For us champions, if someone is older, we don't see that as a limitation to their responsibilities - absolutely not*".

Across all case studies, female and male champions predominantly report that gender has no physical influence on ability to sustain engagement, with other factors being much more important. In fact, being a woman is sometimes reported as a positive characteristic beyond physical capability due to having greater motivation, time management, not leaving the village for work, or having important understanding of local issues. However, several negative gendered influences on physical capability were reported, including pregnancy or childcare – alongside social opportunity barriers of holding more household responsibilities, having less authority than men to organise meetings or direct work, needing permission from husbands to do activities, or having less confidence.

## 4.2 Psychological Capability of champions

'Psychological capability' refers to the knowledge, cognitive skills, and mental processes required to understand and enact a behaviour.

Such factors were infrequently reported by champions, but with the importance of skills and knowledge from initial training referenced the most. As one *community champion* from Malawi put it: "*First…a person must be taught properly…placing them in a role without guidance can lead to failure. They need to know exactly how to perform the tasks*".

Champions more regularly report having adequate skills and knowledge to conduct their activities. In many instances, they describe having felt anxiety or fear upon

starting their roles (see 4.7), but initial training from practitioners along with experience over time were often cited as the reason behind confidence in current psychological capability. An *observer* in Malawi explained that "*In terms of skill and ability…I have been collecting [data] for four or five years. It means I have the knowledge, I have the capability*". A *community champion* in Malawi indicated how psychological capability facilitates their motivation: "*This training has brought more knowledge and confidence for my work and passion…on water quality and safety…In short, my passion has been boosted as a champion*".

However, many champions also expressed a need for additional training to strengthen their competence in current tasks or to broaden their skill sets within their roles. As *Relays* in Burkina Faso explained, "*Knowledge and skills are never enough, so we muddle through a bit*" and "*I think I need more training to do the job better…I want to know more so that I can do my job better in the long term"*.

## 4.3 Physical Opportunity of champions

'Physical opportunity' encompasses the external resources, infrastructure or environmental conditions that permit a behaviour.

Having insufficient or broken tools or material resources to undertake activities with is the most common and important barrier to sustained engagement, reported by most champions. Common examples were lack of safety equipment including boots, raincoats and torches; phones being broken, without data connection or credit, or incompatible for uploading measurements; missing loudspeakers for community outreach; lacking notebooks and office materials; insufficient wheelbarrows, shovels and building materials for improved cookstove construction; unavailable seeds or saplings for tree growing; and lacking uniforms. For example, *observers* in Malawi report that "*The main issue is related to protective gear…if we do not have a raincoat or an umbrella and it is raining by eight o'clock, a person is forced to go out and measure the water while getting wet*" which "*can prevent you from going*". Similarly, "*If they were providing us with airtime then we [could] send data, because we [have to] use our own for this work that we are so passionate about*". *Relays* in Burkina Faso most frequently reported rain gauges breaking over time: "*If, for example, the rain gauge breaks…that's going to handicap the work*." This influences motivation: "*that discouraged me and made me a bit sad*"; "*…otherwise we worked without expecting anything in return*."

When champion activities require travelling for meetings or measurements, physical challenges to traversing difficult terrain or long distances are a barrier to sustained engagement for many. Lacking a motorbike or bicycle is a commonly reported challenge in all case studies (bar South Africa and the Zambia location of WISER EWSA). A *community champion* in Tanzania explained that "*because of the village's geography, it becomes challenging to reach the intended audience…sometimes, I find myself thinking, 'Should I postpone this meeting?' It can take nearly two hours to get there. And then, after the meeting, figuring out how to get back home is another issue. That is the hardest part for me, personally."* This physical opportunity barrier is often compounded by the environment or (seasonal) weather, and rainfall is frequently cited as a challenge. A *mashahidi* in Tanzania reported: "*In some areas, even when we want to provide*

*education, we can't cross during heavy rains because of landslides and swollen rivers…it disrupts our plans and goals*."

While some *relays* in Burkina Faso noted that needing to measure groundwater wells early in the morning before others use them is a challenge, most champions (women and men) express having sufficient time to do activities, despite other demands on their time. That they prioritise champion activities alongside other demands demonstrates motivation and the importance which champions attach to their roles, as expressed by a *relay* in Burkina Faso: "*When I started I realised that it was taking my time, but that didn't discourage me*."

## 4.4 Social Opportunity of champions

'Social opportunity' covers social influences, norms, and cultural expectations that enable or hinder behaviour.

The most important social influence on sustained engagement reported by champions was feeling support or recognition from their general community. Mostly, champions report encouragement and appreciation of their work from community members, particularly when they benefit from the champions' work, for example through receiving useful rainfall information. Multiple responses indicated how community support is a strong factor behind sustained engagement. One *champion* in Tanzania explained: "*When I am heard and understood by the community, I feel a sense of pride. I am happy to continue because, as I educate and am understood, it motivates me to keep holding this position*". A *relay* in Burkina Faso reported: "*Appreciation gives me joy*". This suggests an influence on 'autonomous' motivation, which is more likely to be sustained. Holding champion status was also reported to often drive motivation (see 4.6).

While champions predominantly experience support, some examples of suspicion, accusation, disrespect, insults, or threats indicate that their roles can also provoke envy or resentment among community members. One *mobiliser* in Mozambique recalled that "*community members start thinking that maybe [mobilisers] are employed…and don't believe that they are only doing volunteer work*". Champions in Tanzania who were sensitising farmers to environmental destruction described experiences of hostility from some community members: "*threatening you with a machete and saying, 'This is my land, don't come near'*" … "*It kills your spirit, it discourages you…*". While demotivating, these reports are isolated experiences, as explained in Burkina Faso that "*In every community there are always rebels…they don't carry much weight in the village as a whole*".

Champions describe difficulty in communicating to their communities arising from low understanding, resistance to new practices, misinformation, unmet expectations, language barriers, limited authority, or poor meeting attendance. In the case in Zambia, *mobilisers* noted communicating weather information to those with special needs or learning difficulties is a challenge. However, champions report with almost the same frequency experiences of communities showing good understanding, cooperation, and receptivity of practices. Respondents identified the availability of platforms for communication as the main determinant shaping these differing levels of

community understanding and receptivity. Local community leaders are generally reported as positive social influences for sustained engagement. Low awareness of champions' existence amongst the communities is often cited as a constraint. Although time constraints were not widely reported overall, competing caregiving, household or livelihood responsibilities, mostly of women, were also occasionally cited as further social opportunity barriers.

Beyond the community, champions repeatedly described insufficient follow-ups or communication from the coordinating practitioners or local authorities as the main critical barrier to sustained engagement in every case study. A *mashahidi* in Tanzania explained: "*We felt a bit abandoned by the organization, and that made us feel as if we were on our own, so we sort of pulled back for a while.*" Champions regularly reported that inadequate encouragement led to declining motivation over time. Some felt that their contributions were not to the liking of the project implementer or that responsibility now unfairly fell only upon themselves. Some champions did report sufficient support, mostly with reference to initial training or initial provision of tools and materials. However, these instances were far outweighed by widespread reports of insufficient ongoing external support.

## 4.5 Automatic Motivation of champions

In COM-B, motivation is mediated by opportunity and capability, as shown by the arrows in Figure 1. 'Automatic motivation' encompasses impulsive, emotional or habitual drivers of behaviour.

Factors of this type were not commonly reported by champions overall. But in some instances, champions expressed feelings or emotions related to sustained engagement. Notably, champions often expressed positive emotion and pride from gaining knowledge or understanding in their roles, and some explicitly linked this to their sustained engagement. For example, a *community champion* in Tanzania noted that "*honestly, there's no difficulty because my joy comes from gaining knowledge*". The most cited example was positive emotion from gaining access to rainfall information that then directly improves champions' agricultural practices. Enjoyment, pleasure or personal interest in undertaking the activities was not widely reported (4%).

Positive emotion is also often reported because of pro-socially helping their community or local environment (see 4.6). As one *relay* in Burkina Faso put it: "*What gave me joy was the fact that it was helping the population*". Champions also reference positive emotion coming from the related social factors of appreciation and respect highlighted above, for example one *observer* in Malawi: "*Appreciation gives me joy*". This represents a more externally driven, and therefore possibly less powerful, motive.

While only two champions from the entire sample alluded to habit or routine, champions across the case studies regularly expressed that an innate and impulsive sense of passion or enthusiasm for having their roles, alongside a related sense of identity, drives sustained engagement. A water ambassador in South Africa explained: "*I am engaged and motivated because of the love I have for the Water Ambassador's role*"; and a relay in Burkina Faso: "*I love this job, so I stay committed*".

## 4.6 Reflective Motivation of champions

'Reflective motivation' encompasses conscious, deliberate decision-making processes driving behaviour, such as making plans and evaluating past events.

Across the case studies, champions consistently and most frequently expressed a strong deliberate pro-social desire to serve their communities through their roles. This is by improving communal access to water or weather information, protecting vulnerable groups, conserving the natural environment, educating community members, or supporting local development. Recognising and deliberately considering benefits to their community drives motivation and sustained engagement of most champions. As one *relay* in Burkina Faso reasoned: "*Motivation is personal. It's linked to thinking. When you want your village to move forward, you stay motivated*". *Community champions* in Tanzania explained: "*that's why we find the motivation to continue. If people weren't benefiting, we'd lose the drive to keep going*".

Champions also consistently report being motivated by an intentional desire to acquire new knowledge or deeper understanding of water and climate challenges faced in their communities and of ways to address them. A *community champion* in Malawi explained that "*This motivated me that through this maybe we might…gain some new skills to deal with water and climate change which has been affecting us for the past years*". Some also expressed that learning more about issues has in turn driven motivation and a desire to stay engaged. Across case studies, this was frequently coupled with requests for further training when insufficient, linking to the psychological capability barriers above. The champions see training as an ongoing support requirement, albeit recognising that there is no limit to knowledge.

An equally prominent factor expressed was satisfaction or pride champions gain from their successes, and deriving motivation from that. While often referencing the resulting positive emotion, champions primarily link their achievements to pro-social benefits through reflective reasoning. One *community champion* in Tanzania explained that "*seeing [those] changes motivates me to stay involved and continue volunteering in water-related efforts*".

Champions are also regularly motivated by practically benefitting from access to information, in particular regarding rainfall patterns. An *observer* in Malawi explained this information *"made me not quit this job because I was able to know how the weather would be",* helping them plan their own planting. Another motivation reported relates to personally benefitting from the outcomes of their work alongside the community, for example through improved water supply. Experiences of personal material gain such as acquiring phone data or fuel, or an expectation of future personal gain, are also occasional motivating factors. Champions expressed a sense of personal responsibility or duty, often coupled with a sense of collective responsibility. Many expressed their intentional commitment and reticence to quit. Many also reported pride from holding the position, and sometimes gratitude at being given the role, gaining confidence, or believing they are a better choice of champion than others.

### 4.7 Progression of champion engagement over time

Champions described shifting experiences over time, and collectively expressed several general factors associated with distinct phases of their engagement. Firstly, expectations on initially joining tended to feature excitement, joy, and motivation at the chance to help their community, alongside learning new knowledge and skills for themselves or the community. But fear or anxiety around this new role and uncertainty at its activities and effectiveness were also prominent. Shortly after starting their roles, champions reported experiences of gaining confidence, learning more and gaining new skills, seeing tangible benefits to their communities or themselves, and contentedness and comfort in the role. The shift from initial anxieties to confidence is notable, demonstrating powerful early motivation. However, some encountered resistance from community members, confusion, or practical difficulties around activities, leading to early discouragement and doubt. Lastly, feelings at the time of interview were largely of positive emotion and pride or satisfaction at achievements, and greater confidence in their abilities and attendant motivation, with some disappointment at weak support, in line with the sections above.

## 5. Discussion

### 5.1 Main findings and sampling considerations

The goal of this study was to determine the range and influence of behavioural determinants underpinning sustained engagement of water security and climate adaptation champions in rural sub-Saharan Africa. An inductive study design allowed for an exploratory investigation of determinants reported by champions across cases, as opposed to comparison between cases. This is important because a champion-based model of programme delivery is widespread in sub-Saharan Africa and likely to continue to be used for supporting the roll-out of adaptation initiatives. Understanding how to sustain engagement can therefore increase their effectiveness.

The heterogeneity of age, gender and other demographic factors seen in this sample across diverse case studies indicates that there is no single typical champion profile. No obvious correlation between age, gender, or champion role with sustained engagement factors is apparent, mirroring evidence from volunteers worldwide (Forner et al., 2024). Despite this heterogeneity between cases, we found a convergence of common determinants shaping sustained engagement between the diverse champions sampled. These shared determinants emerge across the seven case studies from widely differing geographical contexts. Our sample exhibited very limited differences in determinants across genders and ages. This coherence of the findings reinforces the credibility of the data, which are otherwise subject to recall, self-selection, social desirability or power-differential biases that might have been heightened in interviews in impoverished settings. This suggests potential transferability of the findings to other similar settings.

COM-B captured individual and contextual determinants, as intended by selecting this model. However, analysis also posed a challenge when some determinants

did not fit neatly into a single category, or where precise distinction between subcategories was difficult based on interview data alone. For example, gender and age span both physical and social categories. While these attributes influence champions' social opportunity through their position in communities, we categorised them as physical capability to reflect individually held bodily attributes influencing sustained engagement. This duality underscores the multi-faceted nature of identity held by champions in these settings. The negative, positive and insignificant influences reported for gender is also an example of contrasting influences experienced between respondents. This reflects specific circumstances and characteristics of each respondent's situation – different champions experience factors differently – an important consideration for tailoring solutions to specific target groups (see below).

Overall, the champions sampled here typically report having sufficient physical and psychological capability to stay engaged. Exceptions like illness tend to be unavoidable, and further training for any champion only bolsters otherwise generally present skills and knowledge capabilities needed for activities, as well as motivation. Support from their communities is reported as a strong enabler to social opportunity. However, the champions sampled commonly report major constraints from physical and social opportunity barriers. These are particularly from inadequate tools, materials, transport for activities (a much larger constraint than time available), and ongoing external support. Despite these barriers the champions generally report having high reflective and automatic motivation for their roles, driven notably by prosocial commitment, interest, and satisfaction, and reinforced by emotional responses including joy and pride.

## 5.2 Beyond motivation

Fundamentally, this evidence shows that sustained engagement of champions is not just about motivation. Related literature and programme design often foregrounds the motivation of volunteers, suggesting it is the dominant factor influencing sustained engagement. In contrast, we find that limited capability and opportunity of champions – especially relating to material resources and ongoing organisational support – are the most widely identified constraints across our sample, even outweighing the role of motivation over time.

Considering the convergence of determinants seen between the diverse identities of champions sampled, this suggests these factors are also more consequential than champion identity. This is supported by the generally present capability seen, and the common desire for training and how it can bolster psychological capability. Limited reporting of enjoyment or habit around activities themselves also suggests short-term motivation to enact activities may be a less appropriate focus.

The importance of 'organisational support' for sustained engagement aligns with other volunteering studies (Forner et al., 2024). It also fits with the importance that Cunningham (2021) gives to the 'motivational climate' and its influence on the internal motivation of Malawian water committee members that they study. The analysis of the sample here captures that capability and opportunity factors appear to act as more prominent barriers working against otherwise positive motivational drivers for sustained

engagement. Sustained engagement requires opportunity, capability, *and* motivation to remain sufficient over time.

The differences in responses seen within our sample suggests the overall findings will not hold true for every champion. For example, 20% of champions mentioned feeling sufficiently supported by their respective external project implementer, compared to 38% who mentioned feeling unsupported. Here, expectations and aspirations regarding the role of project implementers may have shaped how support was perceived and sought. In the first place, it is possible that the potential for support for the role provided an extrinsic motivation for champions to volunteer. Once in place, the association of the implementer with the potential provision of material support may have prompted interviewee responses indicating need for additional support.

Beyond external support, some other barriers to motivation were reported, including forgetfulness (1%) and demotivation from working voluntarily (4%). However, these were not prominent. Social desirability bias may have limited champions self-reporting of personal demotivating factors. Furthermore, it is possible that champions who previously dropped out and were not part of the interview sample may have cited such reasons, with insufficient opportunity or capability also potentially contributing to their withdrawal. However, the fact that 48% of champions also mentioned holding other roles of responsibility within their communities – 51% mention being selected or voted in by others – is evidence that champions are often 'special individuals' with enough confidence or social capital to start initially, whether selected by the community or themselves. Therefore, champions generally holding high innate motivation is less surprising.

The importance of opportunity, and capability to a lesser degree, is salient in rural sub-Saharan African contexts. Here, chronic resource scarcity and economic marginalisation shape champions' realities, whether motivated or not. This contrasts with Global North settings where resources may typically be more available to volunteers. Contexts of high unemployment are likely to provide greater physical opportunity or reflective motivation for volunteering, e.g. due to time availability or hope for future gain. Although contrarily they may also heighten risks of envy from community members. Bringing a different lens to this understudied context that focuses on individual human behavioural factors influencing champion sustained engagement generates new insights to the constraints they experience. However, our results also highlight important limits to approaches that focus primarily on individual internal behavioural factors for climate adaptation in these settings. External factors are at least equally important. This underscores the need to consider individual behaviour within the broader systems champions inhabit (Chater & Loewenstein, 2022; Mikołajczak et al., 2025). These results highlight that designing systems that provide long-term external support to local champions - whether through NGO programmes or integrated governmental approaches - is critical for sustained engagement. This further reinforces calls for systems strengthening and 'relational durability' in adaptation programming (Robinson et al., 2026).

# 6. Conclusion and implications

Champion-based models will continue to form a key part of local adaptation programming. Our convergent results from six countries in sub-Saharan Africa suggest that water security and climate adaptation volunteer champions cannot easily stay engaged if they experience capability or opportunity barriers, regardless of their motivational level. These behavioural findings indicate that ongoing external support for champions is essential for durable community-based adaptation. Programmes that reduce structural barriers and provide multi-component support strategies are more likely to harness champions' existing motivation and catalyse adaptation that is rooted in, and sustained by, communities themselves. Such considerations are highly relevant for NGO or government programmes or policy predicated on assumptions that individuals in communities will implement adaptation goals.

The evidence presented here has implications for climate justice in the context of community-based adaptation (Rahman et al., 2023; Taylor et al., 2025). Rather than an issue of individual motivation of local people, sustained engagement requires external support and removing structural barriers. Such an approach can avoid overburdening champions with unfair individual responsibility for adaptation without addressing the structural conditions that enable or constrain action. This is particularly critical for individuals already facing structural inequalities and marginalisation. Instead, it can create conditions where more locally-led adaptation can flourish (Vincent et al., *forthcoming*). External support can in turn leverage (and further boost) the high motivation of champions observed in this study. This aligns with findings from behavioural science that interventions targeting behavioural opportunity, social support, and skills tend to have greater impacts on pro-environmental behaviour by enabling individuals to overcome practical obstacles (Albarracín et al., 2024). Enhancing sustained engagement of key champions can be a mechanism to catalyse local adaptation (Solecki et al., 2025), in contrast to adaptation programmes targeting entire populations. COM-B's corresponding Behaviour Change Wheel would suggest intervention functions of 'enablement' or 'training' (as opposed to e.g. 'persuasion') and 'policy categories' of 'service provision' (Michie et al., 2011), depending on the setting (Lambe et al., 2020). These same implications also apply to champion-based CBA programmes in settings in the Global North, which dominate the related volunteering literature.

Further research should ask: must champions sustain engagement indefinitely; what are maladaptive risks of sustained engagement; what is the limit to relying on volunteer champions to enact local climate adaptation; what is a just balance of responsibility for champions to hold in these settings; and what might service delivery models for supporting champion sustained engagement look like?

## 7. Note on terminology

Here we use the terms ‘Global South’ and ‘Global North’. While recognizing that there are a range of terms that could be used, a Southern Steering Group on Knowledge Translation as part of our funders, the CLARE programme, which includes researchers and practitioners, advises on the preference of this terminology. We recognise the limitations of the use of language and terms.

## 8. Ethics

Data collection was covered by the respective ethics and research permissions protocol of each country and partner organisation, along with London School of Economics and University of Leeds ethical review.

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## 10. AI declaration

AI was not used during data handling or analysis. The authors wrote, reviewed and edited all content and take full responsibility for the content of the published article. During the preparation of this manuscript the authors occasionally used MS Copilot to suggest clearer phrasing for sentences.

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