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Flesh and bones: Working with the grain to improve community management of water

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ABSTRACT

Despite cogent critiques and limited successes, community-based management (CBM) remains central to policies for natural resource management and service delivery. Various approaches have been suggested to strengthen CBM by 'working with the grain' of existing social arrangements and relationships. For advocates, such approaches ensure that management arrangements are rooted in local realities and are therefore more likely to be effective. Implementing this approach is, however, methodologically, empirically, and operationally challenging. In this paper, we centre these challenges through a study of community-managed water in rural Ethiopia, Malawi, and Uganda. We examine water management arrangements by undertaking an in-depth social survey of 150 communities in the three countries. We also undertake yearlong studies in 12 communities in Malawi and Uganda involving 30 diary keepers. This focus on the local is complemented by country-level political economy analyses and district-level sustainability assessments. Our multi-country extensive-intensive research design uncovers the flesh and bones of CBM, and provides explanations for our findings. In Ethiopia, water management arrangements are more likely to be fleshed out – fully formed committees often working in conjunction with other institutions. In Malawi and Uganda, water management arrangements tend to be skeleton crews of key individuals. The position we adopt is located between advocacy and critique. We recognise the potential of working with the grain. We also recognise the considerable challenges of operationalising this approach without reducing it to another standardised checklist or toolbox. In an attempt to reconcile this tension, we identify practical entry points and sketch out requirements for a more socially informed, reflexive, and effective approach to working with the grain. Whether this can be operationalised within the logics of mainstream development, and whether it can 'save' the CBM model, remain open questions.
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1. Introduction

Many countries have long pursued the policy of community-based management (CBM) for natural resources. CBM is typically operationalised through the creation of local associations, committees, groups, and organisations charged with managing the resource in question. Nearly two decades ago, Pretty (2003, p. 1912) claimed "some 0.4 to 0.5 million groups have been established since the early 1990s for watershed, forest, irrigation, pest, wildlife, fishery, and microfinance management. These offer a route to sustainable management and governance of common resources." Sustainability, alongside ideas of empowerment, ownership, effectiveness, and efficiency provide a seductive narrative that continues to justify the committee model of local governance.

There is now widespread recognition that the committee model has largely failed to deliver on its promises (Blaikie, 2006; Chowns, 2015; Etongo, Fagan, Kabonesa, & Asaba, 2018; Dill, 2010; Golooba-Mutebi, 2012; Kellert, Mehta, Ebbin, & Lichtenfield, 2000; Mansuri & Rao, 2004; Saunders, 2014; van den Broek & Brown, 2015; Zulu, 2012). Beyond this, it is argued that the requirement to form committees, associations, and groups actually inhibits more effective ways of working locally (Booth, 2012). Promising alternatives are suggested by the idea of 'working with the grain'. From this perspective, development interventions do not attempt to mechanically apply a particular organisational form. Instead, the focus is on identifying and working with existing institutions, practices, knowledge systems, and power relations

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to co-produce governance arrangements anchored in local realities (Booth, 2009, 2012; Kelsall, 2011; Levy, 2014). Despite the potential of a working with the grain approach, there is not enough knowledge about three key practical challenges. The first is the methodological challenge of how to understand the 'grain' of local governance arrangements. The second is the empirical challenge of complexity, where a commitment to understanding and working with local realities raises the spectre of seemingly endless diversity. The third challenge is concerned with how best to work with the grain, once identified.

In this article, we centre these three challenges through a study of community-managed water in rural Ethiopia, Malawi, and Uganda. For two reasons, focusing on CBM of rural water supply is useful. Firstly, the rural water supply sector is an exemplar of the committee model of CBM. Across the developing world, there is a strong policy mandate for committees and user associations to manage communal water supplies. Secondly, this model has not produced the desired results. For decades, the rural water supply sector has been concerned with alarmingly high rates of non-functional waterpoints, which at any one time stands between 15% and 60% (Banks & Furey, 2016; Foster, Furey, Banks, & Willetts, 2020; Harvey & Reed, 2007; Lockwood & Smits, 2011; RWSN, 2010). This issue has been dubbed a 'hidden crisis' (Bonsor et al., 2015). A crisis because it is so widespread, and hidden because it is difficult to effectively monitor and assess functionality levels. The real scale of the problem tends to fly under the radar of official statistics.

The article proceeds as follows. In Section 2, we review literature that has attempted to move beyond the associational model of CBM, identifying factors that authors propose operationalise a working with the grain approach. In Section 3 we discuss our research design, which are argue addresses the methodological challenge to understand the grain of real-world water management. Section 4 examines the findings of the research and provides a number of key insights generated from our analysis of the data. Section 5 returns to the factors identified from the literature review, discussing these critically in light of our research findings. In the conclusion, we consider what this study tells us about the methodologic, empirical, and operational challenges just outlined. We finish with four provocations for taking forward a working with the grain approach.

2. Literature review

We review literature that has attempted to move beyond the committee model of CBM. The first sub-section considers developments in the practice-based literature[1] that recognise several of the failings of the voluntary committee approach to managing water. However, the alternatives suggested by these authors reflect an ongoing preoccupation with form and formality, including with the organisational structure of the committee itself. The second sub-section considers analytical and practical approaches that move beyond a preoccupation with form in order to develop 'practical hybrids' for managing water that are anchored in local realities. In the final sub-section, we identify common factors that, it is argued, operationalise these approaches.

2.1. Form and formality

Across the developing world, CBM of water is typically operationalised through the formation of local-level committees. These committees are voluntary associations of water users, with a prescribed number of members, roles, and regularised responsibilities. The latter includes conducting meetings, collecting money for repair of the waterpoint, and devising and enforcing access and use rules (Harvey & Reed, 2007, 2004; Golooba-Mutebi, 2012; Lammerink & Bolt, 2002; Schouten & Moriarty, 2003). Since its emergence in the late 1970s, CBM has evolved into a broad policy initiative encompassing a number of key ideas. These include a Demand Responsive Approach (whereby water users make key decisions about the services they want and are able to pay for), intended to combine financial sustainability with choice; the concepts 'empowerment', 'ownership', 'efficiency'; and the village-level management committee itself (Behailu, Suominen, & Katko, 2015; Mansuri & Rao, 2004; Naiga, Penker, & Hogl, 2015; Whaley & Cleaver, 2017).

In more recent times, and with increasing force, both academics and practitioners have recognised the shortcomings of this model of CBM and argued for alternatives. In the practice-based literature, major critiques relate to voluntarism and a lack of professionalization of management committees; a lack of effective external support from either the government or private sector; and a failure to account for the full lifecycle costs of a water supply system (Foster, 2013; Koestler, 2009; Lockwood & Smits, 2011; Mcintyre & Smits, 2015; Moriarty, Smits, Butterworth, & Franceys, 2013).

In response, as early as (Baumann, 2006) proposed 'community management plus' whereby ongoing support is provided to communities in the form of finances, spare parts, and technical and managerial advice. More recently, the most widespread development has been a call for a Service Delivery Approach (SDA) (Lockwood & Smits, 2011; Moriarty et al., 2013). SDA considers the whole system required to achieve sustainable rural water supply. Distinctions are made between a 'service provider' (the organisation or operator that delivers and manages the water supply for a defined population), and the 'service authority' (often a local government body), with legal responsibility for guaranteeing a water service in a defined area. In some circumstances, the same body may act both as service provider and authority. The SDA purportedly allows for a range of 'contextually-appropriate service delivery models' to achieve sustainable water supply, moving beyond the myopic focus on village-level committees to consider the whole system. It seeks to address existing critiques by focusing on lifecycle costing and asset management; the professionalization of water user committees and provision of adequate support; the role of the private sector; and 'accepted and enforceable norms and standards' (Moriarty et al., 2013, p. 338).

These developments in the practice-focused literature move the debate towards a greater recognition of diversity, scale, and the temporal dimension of rural waters supply systems. At the same time, proposals such as the SDA remain wedded to normative ideas about formal roles and responsibilities. Moreover, the literature suggests that the organisation of interest at the local level continues to be the water user committee. For example, an IRC document discussing 'service delivery indicators' in Uganda considers the application of these indicators to the different service levels for both point source[2] and piped water schemes. At the 'service provider level', the only indicators provided specifically assess the "Water Source Committees' composition, governance and performance of duties" (van Liesholt, 2014, p. 2). Despite the critiques, an adherence to the form and formality of the committee is remarkably tenacious in development policy.

Approaches exist that move beyond this mainstream preoccupation with form. As far back as the 1980s, the blueprint approach

[1] For many decades, the literature on rural drinking water supply has been dominated by studies, often based on specific development projects and programmes, which aim to identify how to deliver better services. We refer to this as the 'practice-based literature'. Only in relatively recent times has rural water supply become of significant interest to 'critical theorists' in politics, sociology, and human geography.

[2] For rural water supplies, point sources are often wells and boreholes fitted with a handpump.

to development – epitomised by the committee model of CBM – was critiqued for being overly simplistic, for failing to account for context, and for overlooking the need for flexible implementation processes (Korten, 1980; Rondinelli, 1983; Therkildsen, 1988). More recent iterations of an alternative approach include Grindle (2004) and Grindle (2007) concept of 'good enough governance'. This questions the "long menu of institutional changes and capacity building initiatives" that are seen as preconditions for achieving 'good governance' (Grindle, 2007, p. 554). As with the earlier approaches, good enough governance instead argues for what is feasible, achievable, and relevant in a given country context. Today, major development players increasingly recognise the need to think about 'good' or even 'best fit', rather than hypothetical best practice (Ramalingam, Laric, & Primrose, 2014). The common logic of these approaches is that an arrangement that works well in one locality will not necessarily work well in another.

2.2. From form to function

Regarding CBM of rural water supply, the question then is how to move from a blueprint approach in the form of the waterpoint committee to one anchored in local realities? To answer this question, we consider both an analytical lens for understanding how CBM works in practice, and three cognate approaches that attempt to operationalise the insights this lens provides. The lens in question is institutional bricolage (IB) and the practical approaches are facilitated institutional bricolage (FIB), working with the grain (WWTG) and thinking and working politically (TWP).

IB is concerned with how all attempts to govern are socially embedded, where people both consciously and non-consciously patch together institutional arrangements from the social and cultural resources available to them (Cleaver, 2002, 2012). In this sense, it differs markedly from the more mainstream view of institutions whereby people consciously and rationally 'build' or 'craft' arrangements from scratch (Ostrom, 1990, 2005). IB is not confined to a given programme or sectoral challenge but instead is understood as a process that is happening everywhere. Research has tended to focus on community dynamics for managing natural resources within a village, town, or city, often situating these arrangements within wider systems of governance (de Koning, 2011; Ingram, Ros-Tonen, & Dietz, 2015; Sandstrom, 2008; Sehring, 2009). Attention is given to the messy and complex reality of everyday life. From this perspective, development initiatives do not occur in a vacuum but instead are embedded in historically contingent relations of power and authority, and culturally specific beliefs, values, and practices. IB helps to explain how *all* institutional arrangements are dynamically pieced together and patchy in varying degrees (including so-called 'formal' arrangements), where these arrangements only work if they have social fit and are regarded as legitimate (Cleaver, 2012). It also highlights the extent to which many governance arrangements are path dependent, shaped as they are by pre-existing practices, authoritative leadership, and social inequalities (Cleaver & de Koning, 2015; Sehring, 2009).

In some literature, an IB perspective is deployed to consider how bricolage processes can be facilitated to produce more desirable development outcomes. FIB considers how development agents as well as local people can innovate and improvise 'arrangements that work' in specific circumstances and in relation to particular goals. Analysts focus on identifying where (in the plural governance landscape) and when (in the planning and implementation of activities), practitioners can intervene to facilitate bricolage in the interests of equity and sustainability (Clement, Suhardiman, & Bharati, 2017; Haapala, Rautanen, White, Keskinen, & Varis, 2016; Haapala & White, 2018; Hassenforder, Ferrand, Pittock, Daniell, & Barreteau, 2015; Merrey & Cook, 2012; Rusca & Schwartz, 2014).

This more practical orientation to IB resonates with authors who advocate for a WWTG approach (Kelsall, 2011; Booth, 2012; Levy, 2014). Like FIB, WWTG is intended to facilitate local problem-solving partnerships and initiatives within a broader institutional and policy environment that encourages such a course of action. Booth (2012, p. 83) describes it as follows:

> "Unlike the usual project-inspired initiatives, the more promising initiatives do not require beneficiaries to sign up to principles of organisation of which they have little experience or understanding. On the contrary, there is an enabling institutional environment for local problem-solving initiatives that involve whole populations, use local resources and build on existing formal structures as well as informal relationships."

WWTG explicitly draws upon IB to recognise the ways in which institutional arrangements are pieced together using the social and cultural resources to hand (Booth, 2012, p. 85). At the same time, WWTG has clear links to TWP, which contends that development assistance is most effective when the people designing it "better understand the local context ('thinking politically') in order to support local actors to bring about sustainable developmental change ('working politically')" (Hudson, Mcloughlin, Marquette, & Roche, 2018, p. 7). Emphasis is on moving beyond the many attempts to 'render technical' development programmes and interventions (Li, 2007) that are inherently political (Booth & Unsworth, 2014; McCulloch & Piron, 2019; Menocal, 2014). The remit for WWTG and TWP is also typically a defined development programme or intervention. Particularly for TWP, whilst the focus is purportedly on 'the local', this generally signifies the national or sectoral level. At wider scales of governance, politics and power take precedence through a better understanding of political economy, by building coalitions and consensus, and by working with politicians and other actors to 'Do Development Differently' (Wild & Andrews, 2016).

WWTG, TWP, and FIB draw attention to sociocultural and political realities across scales that must be accounted for to better enact effective forms of governance. As Booth (2009, p. 3) argues, "institutions work better when they build on what exists, make use of indigenous institutional creativity or are otherwise rooted in their sociocultural context." When it comes to CBM of water, the approaches draw attention to the existence of people and institutions within a 'multiplex' world, where questions of water management, access, and use are woven into broader livelihood concerns, social relations, practices, and values (Schnegg & Linke, 2015). This suggests that community interventions are not easily compartmentalised into preformed development silos. Rather than attempting to induce or impose a single-purpose organisational template onto this existing reality, these approaches promise more relevant and effective community arrangements for managing water. The question then is how best to operationalise them?

2.3. How to work with the grain

In this section, we review the literature on WWTG, TWP, and FIB. We find reasonably strong agreement regarding the factors that are thought to encourage the co-production of what Booth (2012) calls 'practical institutional hybrids'. Factors common to all three approaches are outlined in Table 1. Given the similarity we observe between WWTG, TWP, and FIB, following this section

Table 1
Factors common to WWTG, TWP, and FIB.

Factors	Description
Recognise and work with complexity	Country contexts and local realities are highly variable. Attempts to apply a uniform management model across these contexts often fail to account for the power relations, interests, economic conditions, and moral orders within which governance arrangements emerge. To improve CBM of water, it is important to recognise and work with this complexity rather than assuming it can be ignored or replaced.
Enabling environment	WWTG, TWP, and FIB require an enabling environment made up of relevant policies, processes, and activities. An enabling environment promotes continuity (e.g. of government staffing), flexibility (e.g. of funding or operating procedures), and agency at the local level. Water management policies facilitate governance processes that support local initiative and innovation to co-produce hybrid institutional arrangements anchored in local realities.
Local leadership	FIB, and to some extent TWP and WWTG, champions local leaders or 'change agents' in communities who are recognised as legitimate by others. For TWP and WWTG, local leaders are change agents at the national or programmatic level. These leaders are likely to be authority figures who act as bricoleurs, working with existing institutions and individuals in politically smart ways. Local leaders are able to recognise and promote solutions to the most salient water-related challenges in a given context.
Brokering relationships/ network building	Local leaders broker relationships between groups and individuals to develop a network of actors who can contribute to different water management functions. Networks comprising 'key players' provide greater potential for managing water through change and uncertainty because a range of actors can be relied upon for different purposes and at different times. Such networks also promote knowledge sharing.
Learning by doing	Learning by doing is a key attribute of arrangements that work. Learning by doing includes the capacity to identify the reasons for past failures, retain institutional memory, and solve water-related problems in an iterative manner. 'Stepwise learning' develops the capacity of these arrangements to function effectively in the face of a range of potential challenges.
Realistic - recognise what is possible	The emergence of institutional hybrids are both enabled and constrained by context. The social and cultural resources that serve as the materials for institutions also limit what is possible. Practical hybrids are constrained by power relations, interests, economic conditions, and moral orders in ways that may drastically curtail ambitions for desirable system attributes.

we use the generic term 'working with the grain' to capture all three approaches.

The literature on WWTG, TWP, and FIB offers suggestions for how to co-produce more effective hybrid governance arrangements. It is useful to bracket these into two phases. In the first phase, the aim is to understand the local and wider context in which governance arrangements are embedded. This represents a methodological challenge, requiring a research design capable of understanding both wider systems of governance and local socio-cultural conditions. The second phase then requires working with and within these conditions.

For TWP, the first phase is called 'thinking politically' and necessitates a critical appreciation of the various actors, interests, and institutional processes that characterise a given problem domain. It is about power and politics, often at the national or programmatic level. The tool for understanding this dynamic is political economy analysis. In the introduction to a recent special issue on TWP, McCulloch and Piron (2019, p. 12) note that all four contributing articles "confirm the importance of doing political economy" and "support the idea that careful, explicit, objective (sic) analysis of the political, economic and social context in which interventions or reforms are being undertaken is time well spent." Advocates of WWTG and FIB also recognise the importance of understanding the political economy and more generally the need for a robust analytical framework to investigate systemic properties. In IB terminology, analysis of wider context helps to demarcate the 'institutional corridors' in which local-level actors operate (Hassenforder et al., 2015; Sehring, 2009). For both FIB and WWTG, analyses of the political economy are linked to nuanced research on the social embeddedness of local governance arrangements. This entails a need to understand local norms, values, practices, institutions, and principal role players (Booth, 2009; Merrey & Cook, 2012; Whaley, 2018; Whaley & Cleaver, 2017).

Regarding the second phase, there is strong agreement between WWTG, TWP, and FIB concerning how to develop practical hybrids. Being sensitive to local conditions and wider context draws attention to the inherent complexity of most situations of interest. All three approaches therefore stress a need to be modest and realistic about what is possible. For Merrey and Cook, this realism denotes that practitioners and researchers must be strategic about what kind of change they can expect to see. The authors argue that attempting to impose new institutional arrangements, such as the waterpoint committee, "is ill-advised not because they are not needed, but because they will fail" (Merrey & Cook, 2012, p. 14).

Several local level factors are seen as important for operationalising hybrid governance arrangements. These are a commitment by development interventions to foster local leadership, the brokering of relationships, iterative problem solving, and stepwise learning. Proponents of WWTG and TWP have amalgamated these factors into something of a consensus. The first authors to propose them as an ensemble were Booth and Unsworth (2014) in a comparative study of seven cases. Since then, the factors identified in this article have been affirmed by a number of other studies (Dasandi, Laws, Marquette, & Robinson, 2019). Articles that argue for a FIB approach also consistently identify these factors, although not always *in toto*. In their study of the institutional realities of water project implementation in rural Nepal, Haapala et al. (2016) recognise the importance of local leadership and a learning-by-doing approach. Creating 'locally legitimate and inspiring spaces' fosters the ability of local leaders to act as change agents. Moreover, these spaces "are gradually adjusted by continuous institutional learning towards sustainability" (Haapala et al., 2016, p. 1188). Hassenforder et al. (2015), in their study of a participatory planning process in the Rwenzori region of Uganda, observe how local leaders act as brokers of connection. The authors note that this network building was central to the process of FIB.

At broader scales of governance, the literature on all three concepts recognises the need for an enabling environment to facilitate the co-production of hybrid institutional arrangements anchored in local realities. This enabling environment comprises policies and processes that encourage coordination and harmonization of aid (Hickey & Bukenya, 2019), flexible and strategic funding modalities (Booth & Unsworth, 2014; Dasandi, Marquette, &

Robinson, 2016), innovative monitoring programmes (Ladner, 2015; Venot, 2014), and that creates spaces for local initiative, risk-taking, and collective action (Booth, 2009; Williams, Owen, Duncan, Kingsmill, & Paterson, 2019). As noted previously, whilst for TWP and WWTG 'the local' often implies the national level, for FIB the local is typically a community in a village, town, or city. Thus for TWP and WWTG the enabling environment may often be the international arena, made up largely of donors and supranational institutions. For FIB, the enabling environment will more often be a combination of district and national levels.

The factors in Table 1 suggest how community-based approaches for developing practical hybrids can be operationalised. Questions remain, however, about what the findings of our literature review mean in practice. What research design is able to generate knowledge of complex local realities situated in wider systems of governance? What does this knowledge infer about the possibility of realising the factors in Table 1? In the following sections, we set out to answer these questions.

3. Research design

In this section, we detail how our research design sought to address the methodological concerns our literature review highlighted. The focus, therefore, is on identifying real-world community arrangements for managing water, socially embedded in village life and broader scales of governance. The research is part of a NERC/DFID/ESRC funded project entitled Hidden Crisis: Unravelling Current Failures for Future Success in Rural Groundwater Supply (https://upgro.org/consortium/hidden-crisis2/). Hidden Crisis was a five-year (2015–2020) interdisciplinary research project that aimed to develop new evidence about the causes that underlie the current high failure rates of groundwater supplies in Africa (see Introduction). Research was conducted in Ethiopia, Malawi, and Uganda.

The project employed a multi-element extensive/intensive research design (Danermark, Ekstrom, Jakobsen, & Karlsson, 2002) comprising three main phases. It also commissioned a series of country-level political economy analyses and district-level sustainability assessments. In this article, we draw upon qualitative social science data from Phases 2 and 3 of the project, as well as the various commissioned reports. Our research design enabled us to look beyond the WPC to understand how village-level water management is socially embedded in existing institutions, practices, and power relations. At broader scales of governance, it enabled us to understand the wider context, including the different political economies of the three countries, the history of decentralisation reforms, and the culture of political norms.

We do not examine the Phase 1 quantitative data, which is published elsewhere (Whaley et al., 2019). Lead social scientists from the University of Sheffield provided ethical oversight, with the fieldwork teams conforming to the relevant ethical requirements of the research institutions in each country. The development NGO WaterAid ensured ethical access to study communities in the field, including sensitisation and mobilisation activities.

3.1. Investigating water management arrangements

Working with the grain suggests the need to move away from a preoccupation with the formal waterpoint committee (WPC). We therefore focused on the water management arrangement (WMA), based not on a prescriptive set of roles and responsibilities but on the management functions needed to ensure a sustainable supply of water (Whaley & Cleaver, 2017). A functioning WMA was assessed in relation to eight attributes, which in this article we take as the criteria for understanding improved water management. These attributes are:

1) Authoritative leadership
2) The capacity to make and enforce decisions, including rules
3) Collects or sources, manages, and accounts for funds
4) Undertakes and/or secures maintenance work
5) Represents all users in a way that ensures equitable access to the water supply
6) Recognised as legitimate by both users and the local governance structure
7) Is aware of its roles and responsibilities and the roles and responsibilities of others
8) Is meaningfully linked to other relevant stakeholders

Project phases 2 and 3 were concerned with understanding WMAs, whilst embedding these arrangements within wider village life. Phase 2 was an in-depth qualitative social survey of one hundred and fifty waterpoints and their related WMAs. It was conducted in conjunction with a physical science survey of the community waterpoint (see Kebede, Fallas, MacAllister, Dessie, Tayitu, Kefale, Wolde, Whaley, Banks, & Casey, 2019; Mwathunga, Fallas, MacAllister, Mkandawire, Makuluni, Shaba, Jumbo, Moses, Whaley, Banks, & Casey, 2019; Owor, Fallas, MacAllister, Okullo, Katusiime, Berochan, Whaley, Banks, & Casey, 2019). The survey was undertaken in four districts in each of the three project countries (Fig. 1). The individual community waterpoints and their related WMAs were selected using a purposive sampling approach. The aim was to ensure the Phase 2 dataset investigated each of 10 waterpoint functionality categories identified in Phase 1 of the research (UPGRO, 2022).

In each country, a social science project field researcher spent two days at each project site (three hundred days of fieldwork in total). Each field researcher was trained by the authors in the following research methods: 1) participatory village mapping, 2) group scenario exercises and one-to-one interviews with water managers, local authority figures, and water users, 3) transect walks, 4) collation and analysis of relevant written materials, and 5) informal discussions and participant observation. The second survey day finished with a feedback and response session with community members. Field researchers conducted interviews with district water officers before and after undertaking the survey in each project district. All methods were written up by the field researchers on Microsoft Word (approximately five hundred documents in total). The lead author analysed Phase 2 data to understand the different WMAs across the one hundred and fifty study sites. We not only identified the different actors – groups, organisations, and individuals - that make up a WMA, but the role of these actors in village life more generally.

Phase 3 was a yearlong study of twelve communities in four districts of Malawi and Uganda. Using participant diary keeping and a range of qualitative social science methods - participatory mapping, transect walks, seasonal calendars, focus groups and interviews, photography - conducted by the field researchers during quarterly visits, we tracked community members' day-to-day experiences of managing, accessing, and using water. This phase provided an in-depth understanding of how a community's relationship to water changes through the seasons and in relation to wider livelihood concerns.

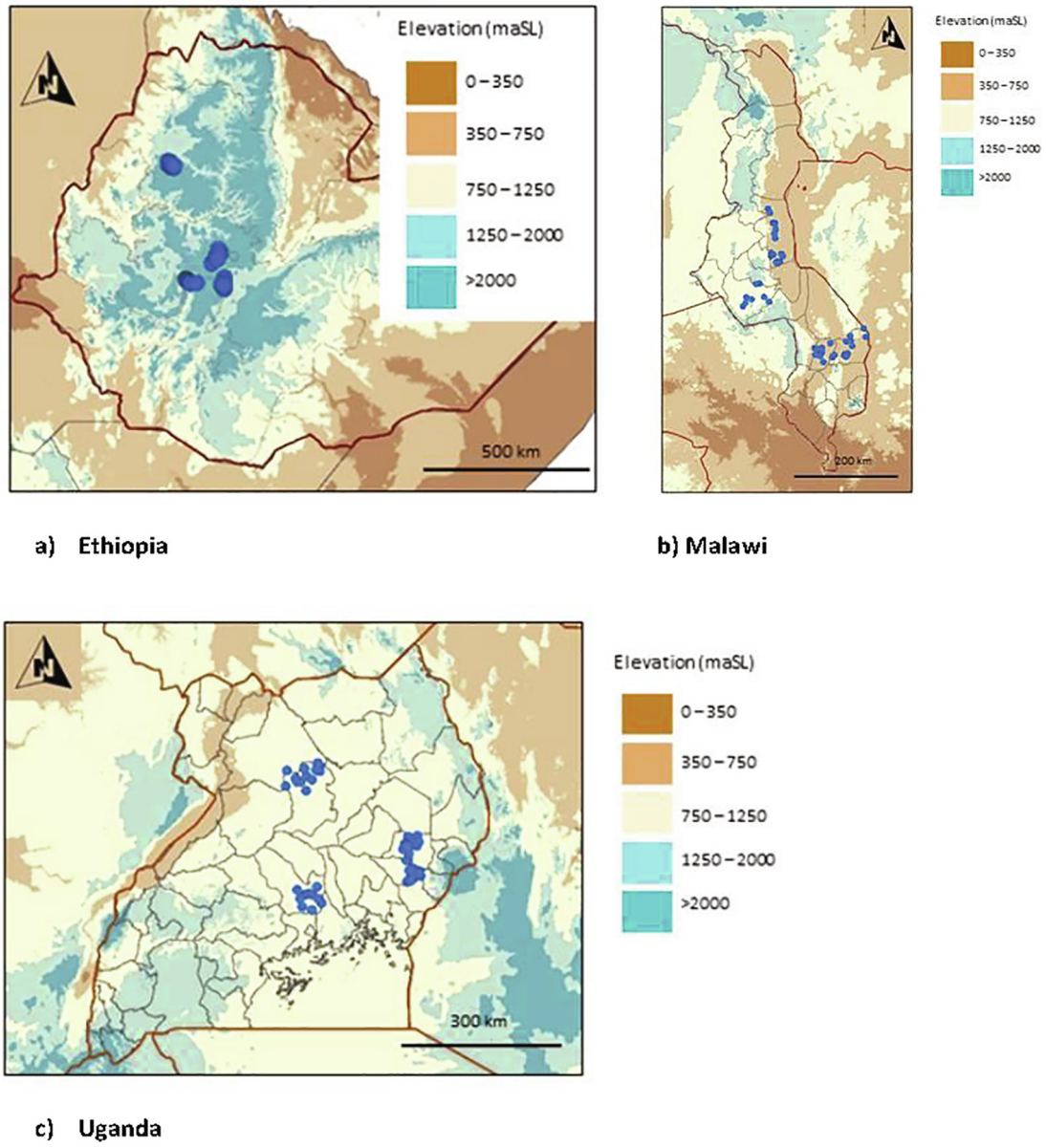

Fig. 1. a–c: The locations of Phase 2 research sites in the three project countries.

The project employed three community diary keepers in each site in Uganda, and two in each site in Malawi. For logistical reasons it was not feasible to undertake the longitudinal research in Ethiopia. Following training by the lead author, field researchers provided diary keepers with initial guidance, a plastic folder with pens and blank exercise books, and a list of factors of interest to the study. At the same time, it was made clear that there is no right or wrong way of keeping a diary and diary keepers were encouraged to write freely in their own language, capturing whatever events and processes they wished to include. All diaries were translated by the field researchers and written up in English on Microsoft word. The write-ups were rigorously coded by the lead author for themes relating to water management, access, and use; climate and weather; health and wellbeing; livelihoods; politics, power, and governance; and social and cultural dynamics.

Finally, the authors conducted a breakout workshop and semi-structured interviews with the three project field researchers during a 2018 project meeting in Kampala, with subsequent follow up questions and discussion via Skype. The aim was to ground the emerging research findings in the experience of the field researchers, who were nationals of each of the three project countries and who had accrued considerable experience of community water management dynamics during their time in the field. This allowed us to investigate some issues in more detail, whilst capturing additional insights and contextual information that may not have been formally accounted for during the fieldwork phases.

3.2. Understanding wider context

The Overseas Development Institute (ODI), a project partner, undertook a political economy analysis (PEA) of the rural water supply sector for each of the three project countries (Denis le Seve, 2018; Oates & Mwathunga, 2018; Pichon, 2019). The PEAs focused on the national and district levels, by undertaking litera-

Table 2
Other actors involved in water management.

Country	Other actors managing water
Ethiopia	Iddir, Kebele, guard, church, NGO, Woreda water office, other community members with no formal roles
Malawi	Village chief, councillors, MP, NGO, mosque/sheikh, health surveillance assistant, area mechanic, school/teachers, youth club, other community members with no formal roles
Uganda	LC1, LC3, and LC4 chairpersons, MP, mayor, NGO, school/teachers, sub-county chief, area mechanic, village health technician, health extension worker, other community members with no formal roles

Terms used: Iddir is a customary form of mutual aid association; Kebele and Woreda are community and district levels of local government respectively; LC1–4 are levels of local government with LC1 being village level and LC4 county level.

Table 3
A typology of water managers.

	State-led	Non-state
Individual/s	e.g. chairperson of local council; village chief	e.g. village elders; religious leader
Association	e.g. waterpoint committee; school committee	e.g. burial association; church group

ture reviews, stakeholder mapping, and 16–21 semi-structured interviews with key sector actors. The aim of the PEAs was to understand the workings of plural institutions operating at multiple scales and the distribution of power and resources among different actors in the rural water supply sector, which has a strong bearing on service outcomes (Cleaver, Franks, Boesten, & Kiire, 2005; Harris, Jones, & Kooy, 2011; Mollinga, 2008; Pahl-wostl, Jeffrey, & Sendzimir, 2011). In this article, we augment these reports with an additional review of relevant literature and our own understanding of the political economies of the three project countries.

WaterAid, also a project partner, commissioned a district sustainability assessment (DSAs) in each of the three project countries (WaterAid, 2020). The DSAs provide meso-level insights about district capacity, and link the broader PEAs to the fine-grained community-level research undertaken in Phases 2 and 3. For each DSA, workshops were convened with district government water supply and health staff, service users, handpump mechanics, NGOs, and providers of support. Workshop facilitators were trained by WaterAid to undertake a series of participatory exercises using WaterAid's District Sustainability Analysis Tool (WaterAid, 2018).

4. The flesh and bones of community management

The previous section sought to address the methodological challenge of understanding the 'grain' of local management arrangements. In this section, we discuss the main findings of the research, integrating data generated by the various elements of our methodology to arrive at a number of insights. We show how our methodology proves useful for addressing the empirical challenge of complexity. Instead of discovering endlessly diverse management arrangements across different cases, our findings reveal patterns in this complexity.

Our analysis of WMAs across the Phase 2 sites reveals that beyond the WPC there are a spectrum of actors involved in water

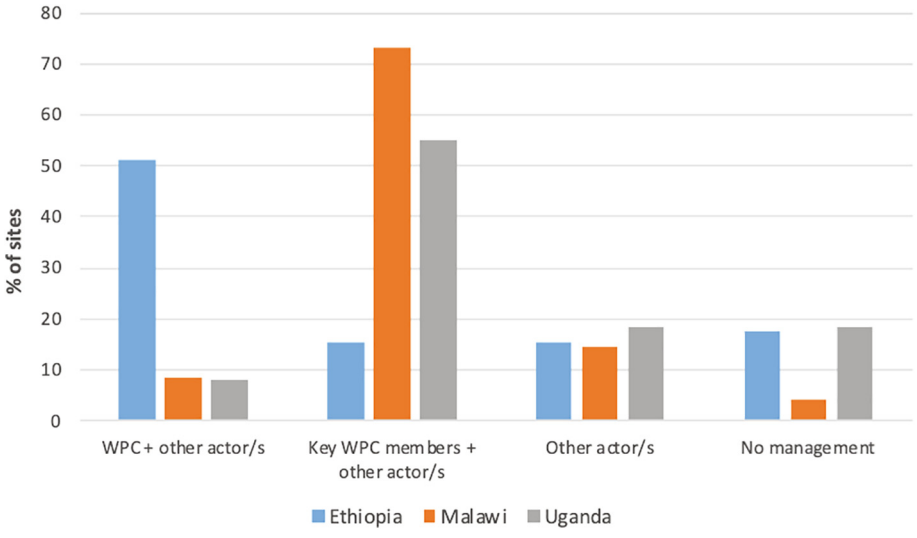

Fig. 2. Water management arrangements in Ethiopia, Malawi, and Uganda.

management (Table 2). A greater number of actors were identified in Malawi and Uganda as compared to Ethiopia.

From this list of actors, we developed the typology of water managers shown in Table 3. The typology is a quadrant comprising two pairs of variables: 1) whether the water manager is an individual/s or an association, and 2) whether they are state-led or non-state actors. By state-led, we mean individuals or institutions that either make up part of the architecture of the state or that are mandated for by the state. By non-state actors, we mean individuals or institutions that, in theory at least, exist outside the purview of the state. Whilst this typology is imperfect, it provides some order to thinking about the different actors involved in water management.

Fig. 2 shows the results of our analysis of WMAs across the Phase 2 sites. Our findings suggest that CBM in Ethiopia more closely reflects the policy mandate to form a waterpoint committee (WPC). In over 50% of sites, a fully formed WPC exists, although often working in conjunction with other local actors. The greater tendency in Ethiopia for communities to form WPCs is coupled with a tendency for WMAs to develop into more elaborate arrangements – e.g. umbrella management organisations - sometimes performing a range of functions unrelated to water (examples in the data include purchasing a mill, road repair, school construction). These fleshed out arrangements differ from the bare-boned WMAs typical of Malawi and Uganda, where less than 10% of sites have a fully formed WPC. Instead, more often than not we observe a skeleton crew of key individuals managing water. In 73% of cases in Malawi and 55% of cases in Uganda, WMAs are comprised of one or a small number of key WPC members, again often working alongside other actors. Our longitudinal data lends support to this finding, where in all twelve cases there is no fully formed WPC. Fig. 2 also shows that approximately one sixth of WMAs in all three countries are made up only of other actors. In both Ethiopia and Uganda, nearly a fifth of sites have no WMA whatsoever as opposed to only 4% of sites in Malawi. The reason for non-existent WMAs can be explained by a number of factors, including that the waterpoint has been abandoned, or that alternative water sources exist that are favoured by the community.

Our analysis employed an institutional bricolage lens (see Section 2.2) to produce a number of key insights. These insights help to explain the difference in Fig. 2 between Ethiopia, where WPCs exist in over 50% of sites, and Malawi and Uganda, where skeleton crews predominate. More generally, the insights illuminate the social embeddedness of WMAs and provide a practical grounding for the idea of working with the grain.

4.1. Authoritarian participation

At first glance, policy and institutional reforms in Ethiopia's water sector appear to provide a sound explanation for the greater prevalence of WPCs we observe. Whilst all three countries have promoted CBM of water since the 1990s, in recent years Ethiopia has attempted to significantly strengthen this approach, first through its two Universal Access Plans and now the One-WASH programme. This has entailed a large degree of integration and collaboration across government ministries and with relevant non-governmental actors. Encapsulated by the motto 'One Plan, One Budget, One Report', the approach in Ethiopia since 2013 has been to develop a unified funding channel and to harmonise and align activities for WASH improvement. These successive policy developments, coupled with significant donor funding, have redoubled efforts to form and train WPCs to manage community waterpoints.

However, looking beyond the rural water supply sector to the broader political culture of Ethiopia suggests that additional factors explain our findings. Since the 1990s, Ethiopia has evolved a system of federal and decentralised governance that has allowed central government to maintain considerable power and exert increasing control over its citizens. In part, this has been through a massive programme of participation that has enrolled local populations in the apparatus of the state. The very idea of participation, so central to CBM, has been distorted in this system of governance. Instead of being a voluntary action, in Ethiopia participation is a term often associated with little choice on the part of the participating agents: "at the grassroots and household levels, people are 'participated' into community groups for local development work, where a failure to participate is seen as a sign of resistance" (Aalen & Muriaas, 2018, p. 1). From this perspective, those participating in WPCs are more recognisably state subjects than citizens (Chabal, 2009).

4.2. Leakage and borrowing

At the community level in Ethiopia, our findings reveal how oftentimes the form and functioning of WPCs depend, at least in part, on other individuals and institutions. On the one hand, we observe significant interpenetration whereby members of the WPC are local authority figures active in other spheres of village administration. Authority and meaning 'leaks' from one domain to another (Douglas, 1986). A clear example are WPC members who are also Kebele[3] officials, or who are the wives to kebele officials. This imbues the WPC with authority and links it directly to the lowest level of formal government. It simultaneously extends the reach of local government. For example, when the WPC locks the waterpoint to force community members to attend meetings called by the Kebele.

Another notable water management actor is the iddir. This 'traditional' mutual aid institution is extremely common across Ethiopia and varies in form and functioning (see Box 1). What we see clearly is the extent to which the iddir is often the cornerstone of local efforts to manage water. Core functions performed by the iddir appear to meld with the formal responsibilities of the WPC. This includes recognised and respected procedures for holding meetings, resolving disputes, and generating finances. Those cases where we see the WPC becoming integrated into more complex management arrangements, or performing functions beyond water management altogether, typically occur in conjunction with, or even at the behest of, the iddir. From an institutional bricolage perspective, the iddir has considerable socio-cultural legitimacy, which can be 'borrowed' by the WPC and other actors to undertake water management.

In all three countries, we also see the borrowing of legitimacy with respect to the very idea of the WPC. In both the writings of the diary keepers and the project's field researchers there is constant reference to how 'the committee' is undertaking a particular action or activity, when in reality this refers to only one or a small number of individuals. This is a point that was confirmed during interviews with the three project field researchers. Whilst a fully formed WPC may not exist in practice, the notion of a committee still carries ideational power that can be drawn upon to legitimise the actions of particular institutions or individuals. In Malawi and Uganda in particular, being a member of the WPC or saying that you *are* the WPC provides certain individuals with a mandate to act. This insight parallels literature on the ideational power of the state and the exercise of public authority (Lund, 2006).

[3] The Kebele in Ethiopia is the lowest level of formal government, similar to a ward or neighbourhood.

Box 1 Three prominent actors commonly involved in water management in Ethiopia, Malawi, and Uganda.

Ethiopia: working with Iddirs

At the heart of many of the local governance arrangements we studied in Ethiopia was an informal mutual aid organisation known as an iddir. Iddirs are widespread in much of Ethiopia, existing in rural and urban areas and across different social classes (Dejene, 2010). Previous research has demonstrated how iddirs have evolved to perform a range of social functions (Dejene, 2010; Pankhurst, 2003; Pankhurst & Mariam, 2000). Whilst these studies tend to focus on the role of the iddir as a form of social insurance, our research suggests that in some cases its remit goes beyond this to constructing houses for poor people, repairing roads and buildings for the community, and enforcing rules and norms (including through the application of fines). The ways in which the iddir offers support to its members, and to the community more generally, extends beyond finance to the provision of labour (e.g. in constructing houses or supporting members during times of sickness). In a number of our research sites, the iddir is a patriarchal institution, probably reflecting gender relations more generally in those localities.

We observed many cases where the iddir is partially or centrally involved in the management of water in the village. Water management functions that the iddir performs includes making and enforcing decisions concerning waterpoint management, access and use; the financing of waterpoint construction, maintenance and repair; liaising with local government (e.g. the Woreda water office) to commission the construction of new water infrastructure or to arrange repair works; and bestowing legitimacy upon the mandate of the WPC, where one exists. With respect to this last point, it should be noted that a clear distinction between the WPC (if present) and the iddir is often hard to distinguish.

Malawi: working with village chiefs

Chiefs have endured a chequered history in Malawian political life, variously incorporated into and sidelined from state-directed functions (Zulu, 2012). Since the decentralisation policies implemented in the 1990s, the chiefs have played a role that straddles contemporary development initiatives and customary cultural roles (Basurto, Dupas, & Robinson, 2019; Cammack, Kanyongolo, & Neil, 2009). This hybrid role, and the significant degree of social legitimacy that they can draw on, is epitomised by their involvement in water management.The central role of the village chief in water management can be found in many if not the majority of our research sites in Malawi. We consistently see chiefs performing functions such as making and enforcing decisions concerning water management, access, and use; resolving water-related disputes; providing instruction on hygiene practices and safe use of the waterpoint; overseeing the election or selection of individuals to manage the waterpoint; collecting or raising funds for waterpoint maintenance and repair; personally funding or loaning the funds to repair the waterpoint; acting as a form of bank where user fees are stored; and coordinating the construction of boreholes, including organising community members to contribute in cash or kind.

As with the iddir, the boundary between the chief and any semblance of a formal WPC, if one exists at all, is often hard to distinguish. In a number of cases, the chief serves as one of the few active members on the WPC. Moreover, the authority of the chief is clearly not always beneficial to equitable forms of water management, access, and use. For example, we observe several occasions where the borehole is sited in the chief's residency. Although even in these cases, one must be careful not to draw overly simplistic conclusions. Literature suggests that chiefs may use their authority and local knowledge to help target development initiatives to the poorest households *and* simultaneously favour their own kin (Basurto et al., 2019).

Uganda: working with the village council chairperson

During the late 1980s, Uganda implemented a radical decentralisation programme that built on a local committee system, known as 'resistance councils', which emerged during the civil war (1981–1986). From 1996 to 2006 increasing decentralisation reforms accompanied decreasing electoral support for the government of president Museveni (Titeca, 2018). This trend "turned the local governments from a radical democracy institution into a tool for patrimonialism, used mainly to mobilise support for the regime" (Wiegratz, Martiniello, & Greco, 2018a, 2018b p. 23). The lowest political administrative unit, known today as the Local Council 1 (LC1), is embedded within administrative units at the parish, sub-county, county, and district levels (LCs 2–5 respectively). Whilst it is not always clear from our data how active the whole LC1 committee is, the LC1 chairperson does often appear to be very present in community affairs. This includes on matters to do with water.In many sites in Uganda we observe the LC1 chairperson performing functions that include raising funds from community members for maintenance and repair of the borehole; making and enforcing decisions regarding water management, access, and use; liaising with local government or NGOs to organise the construction or maintenance of a waterpoint; lobbying external actors, such as local politicians, to raise funds or access spare parts for borehole construction or repair work when this is beyond what the community can afford; resolving water-related conflicts.

As with the iddir in Ethiopia and village chief in Malawi, where any semblance of a WPC exists it is not necessarily clear where the line is drawn between the committee and the LCI chairperson. Instead, it is relatively common to find one or a small number of key WPC members and the LC1 chairperson as the only individuals actively involved in water management.

4.3. Presence and proximity

Our focus on the fleshed out WMAs in Ethiopia should not mask the fact that there are many other instances where the bare bones of water management exist instead. These cases are representative of the more general picture we see in Malawi and Uganda, where water management is typically undertaken by a skeleton crew of key individuals. Moreover, a feature that is consistently common to all three countries is a propensity for key water managers to live in close proximity to the waterpoint, which may be sited on their land. Whether these individuals had the authority to influence the initial siting of the waterpoint, gained authority from being near to where the waterpoint was sited, or both, varies from case to case and is not easy to unpick. It is clear, however, that in many ways it makes good sense to live in close proximity to the waterpoint if you do perform key management functions. Activities such as monitoring use and user dynamics, resolving disputes, locking and unlocking the pump, and collecting fees all become significantly harder if the waterpoint is distant. This explains why in several cases in Ethiopia we discover communities that have been

instructed by the kebele to nominate WPC members who live near to the waterpoint. It also explains other cases where we see the waterpoint guard evolve into the de facto manager in all respects.

4.4. Patronage and clientelism

In Malawi and Uganda, the committee model of CBM is also firmly entrenched in national policy. The water sectors in these two countries have not, however, witnessed the same degree of harmonization and integration as in Ethiopia. Indeed, in Malawi at least, they are characterised by considerable fragmentation and incoherence. Just as significantly, decentralisation reforms and the overarching political culture of both countries differs markedly from Ethiopia. Whilst also distinct in significant ways, Malawi and Uganda both have political systems characterised by forms of patronage and competitive clientelism. This has tended to disrupt the normal functioning of service providers, where practical norms dictate a system based in part on dependency and allegiance to particular individuals. In Malawi, the large institutional and resource gaps between government and citizens have oftentimes been filled by MPs and Traditional Authorities. It is not surprising, therefore, that our findings suggest traditional leaders, and particularly the village chief, is an important authority figure who is often substantively involved in water management (Box 1). For many of the communities we studied in Malawi there appears to be a plurality of service delivery pathways, which includes the Water Monitoring Assistant from the District Water Office, an area pump mechanic, MP, or traditional leaders.

4.5. Personalisation and co-optation

In Uganda, the LC1 chairperson is a regular feature of WMAs (Box 1). More generally, individualism is a relatively pervasive feature of the governance landscape, perhaps reflecting the strong neoliberal forces in the country over the past three decades (Wiegratz et al., 2018b). The transactional, monetized, and individualised character of many WMAs and of service delivery reflect a picture whereby competitive clientelism, patronage, and marketisation have promoted a spectrum of ad-hoc arrangements that often hinge on the actions and behaviour of a small number of key individuals. Whilst the potential for water management to promote private gain is common to all three countries, it appears to be most common in Uganda. In several longitudinal cases, we have clear evidence that the WPC chairperson or caretaker living near the waterpoint benefits financially from this dynamic. In at least two of the six Ugandan cases, waterpoint management is their only source of income.

The ability to profit from managing the waterpoint can produce a tension between equity and functionality. For example, in one longitudinal case study the financial incentive of a powerful individual to maintain the waterpoint in good working order coupled with a stringent user fee system that the poorer members of the community could not afford. In other cases, users who pay a higher fee, for example those who then profit from selling the water they draw, are favoured over regular water users. Whilst in Ethiopia, local populations often appear more as subjects than citizens when it comes to understanding CBM, in Malawi and Uganda they instead more closely resemble clients. WMAs are often characterised by a strong degree of clientelism whereby the notion of citizenship is relegated to a secondary position in a system of personal allegiances and exchange (Chabal, 2009).

Box 2 provides vignettes of two of the longitudinal case studies. These serve to illustrate several of the insights just outlined.

A village in Lilongwe Rural district, Malawi

The chief, his wife, and three members of the WPC manage the waterpoint. The chief, who is also the Group Village Head[1], enforces user payments and decides when the season for paying money begins and ends (a decision made in relation to the agricultural calendar). It is noted that the chief 'has a very big responsibility of looking after every activity that takes place in the village'. The chief's wife also has a good deal of authority when it comes to managing the waterpoint, including enforcing rules and ensuring people pay fees. When asked about borehole upkeep, it emerges that 'it is the same people and one of them is the chief's wife'. The chief and his wife live within earshot of the borehole. The same WPC members who manage this waterpoint also manage another waterpoint in the village. However, it is not clear how many of the members are active. The chief coordinates the reciprocal use of waterpoints between this village and a neighbouring village when either one of them break down.

A village in Luwero district, Uganda

There is a woman who acts as both chairperson and caretaker and the borehole is located in her compound. She has authority and people listen to her. She is also the village health technician. Beyond locking the borehole so that it is only used during the daytime, the chairperson locks it to enforce decisions or to make people attend meetings. Her grandson, a college student, is in charge of security for the borehole (including disciplining children who misbehave). He sometimes takes over the duty from his grandmother of locking the borehole and keeping the key. There is also a treasurer. It is noted that 'he is a good man, he is not greedy for money and we trust him. He has never disappointed us'. The treasurer gives people receipts when they have contributed money towards the costs of the borehole. The LC1 chairperson is also sometimes involved in resolving water-related issues. The LC4 chairperson, who is rich, personally donated a new head for the handpump. He instructs the chairperson not to overcharge people and to let the poorest community members take water for free.

[1]There are four tiers in Malawi's system of traditional chieftaincy. The Group Village head sits above the Village Headman and below the Paramount Chief and Traditional Authority, respectively. The GVH oversees between two and ten villages (Basurto et al., 2019).

In closing this section, we should note that the dichotomy between the flesh and bones of water management that we have offered here – the fleshed out WMAs in Ethiopia and the skeleton crews in Malawi and Uganda - is in one sense overly simplistic. In reality, WMAs are flesh *and* bone. They are not machines, performing in robotically predictable ways. Instead, like bodies, real-world WMAs are typically organic, dynamic, and both resilient and vulnerable to varying degrees. They evolve in relation to changing conditions. Moreover, these arrangements are part of a broader system, the social body, from which they draw their sustenance

and to which they must accord if they are to be seen as legitimate. We now move on to discuss what the insights in this section mean for the possibility of working with the grain to improve CBM of water.

5. Working with the grain

Our analysis of community-managed water in Ethiopia, Malawi, and Uganda offers useful insights into context-specific WMAs. They suggest both opportunities and challenges for working with the grain. In this section, we return to the factors for operationalising a working with the grain approach (Table 1) and consider them in light of these insights. A general point to make at the outset is that our findings strongly suggest that WMAs in all three countries form through processes of institutional bricolage (see Section 2.2). We observe WMAs that have been pieced together from existing sources of authority, social relations, practices, and institutions in ways that provide at least a degree of legitimacy. Oftentimes these arrangements save on social transaction costs and the cognitive energy required to devise wholly new arrangements. The propensity for key water managers to live in close proximity to the waterpoint further underlines the energy-saving tendency of WMAs.

5.1. Working with complexity

Our findings suggest that real-world CBM of water is indeed complex. At the same time, they also suggest that recognising and working with this complexity is possible. Moving beyond the committee model of CBM is a daunting prospect because it raises the spectre of seemingly endless diversity. However, our research reveals a range of institutions, individuals, and arrangements common to many of the WMAs we examined in each country. Our methodology, which concerned itself with management functions and not management form (in the shape of a committee), and which embedded WMAs within wider systems of governance, was central to identifying these different actors. The focus on management functions could be used by others to identify recurring features of WMAs in a given area or administrative unit (e.g. a district or county). A typology of actors, perhaps similar to that in Table 3, could be developed as the starting point for a CBM approach that works with the grain. As we discuss in more detail below, the various interests of these actors represent an additional layer of complexity that must also be accounted for and worked with. It is likely that many local government officials, extension workers, and NGO staff are already aware of who these water managers may be. To this extent, and as Booth (2012) argues, the committee model of CBM likely inhibits them meaningfully engaging with these actors to further a water management agenda.

5.2. Context and the enabling environment

Developing a more context-sensitive approach that is able to recognise and work with complexity suggests a very different enabling environment to the one that characterises governance in the countries we studied. Policies that promote politically smart, locally led development of the sort argued for by proponents of working with the grain are difficult to develop and even more difficult to implement. This is not only because blueprint approaches are significantly more convenient for governments. Once a country's political economy and practical norms for governing are accounted for it becomes clear that any new policy initiative will likely by subsumed by these systems, rather than transform them.

For example, in Ethiopia the idea of promoting greater flexibility, innovation, and enterprise by local actors sits uncomfortably with the state's attempts to constrain just such qualities in order to exert a strong hold over local populations. At the time of writing, Ethiopia is undergoing political change and whether flexible ways of working locally become more viable is an open question. Uganda similarly exhibits strong autocratic tendencies whereby the formal promotion of politically smart, locally led development may struggle to take root if this represents any sort of challenge to vested interests. In all three countries, a lack of resources at local levels, perhaps most clearly represented by the gaps in Malawi's system of decentralised governance, also represent a clear challenge to an enabling environment capable of promoting a WWTG approach.

5.3. Local leaders: brokers and bricoleurs

In the places we studied, we consistently see the presence of community leaders who are also involved in managing water. These are typically well-recognised authority figures – be they individuals or institutions – who use this authority to undertake or support key water management functions. In many ways these leaders are already 'politically smart' inasmuch as they recognise and work with community dynamics on a daily basis. They are often reasonably adept at brokering relationships, including with actors at other scales of governance (e.g. district officials or MPs). Yet this also represents a number of potential challenges to the idea of working with the grain. Firstly, in cases where these leaders are individuals, such as the LC1 chairperson or village chief (see Box 1), much rests on their personal qualities and ambitions. Whilst there are cases where local leaders are clearly instrumental in managing water, there are others where their failure to pay adequate attention to water-related matters results in poor or non-functioning WMAs. This lack of interest may be symptomatic of larger issues in the community, sometimes revolving around entrenched poverty, inequality, and mistrust.

5.4. Embeddedness and inequality

The motives of local leaders are also complex and may vary considerably. A key motivation is typically a desire to maintain power and authority, where networks are mobilised to ensure allegiances, loyalties, and dependencies. The idea that local leaders would broker relationships only to develop more effective WMAs is, in the main, unrealistic. Instead, water management is typically embedded in a system of social relations where the forging of new relationships or deepening of existing ones serves additional purposes, such as extending or solidifying one's standing in the community. For example, a local leader may provide opportunities for dependents to access funds generated through control of the monthly water user fees. Alternatively, they may firm up their power over particular individuals or factions in the community, either by including or marginalising them from the business of water management. Where we see a pre-existing social network, such as the iddir in Ethiopia (see Box 1), this can provide a strong foundation for managing water. However, these institutions are not without their challenges, which often relate to conservative principles of rule that leave little scope for alternative water managers. Among these principles, we observe patriarchal tendencies that relegate the decision-making power of women vis-à-vis men, or the exclusion of people of particular faiths.

These insights speak to the issue of elite capture in participatory development (Kyamusugulwa, 2013; Lund & Saito-Jensen, 2013) and the question of whether to exclude or co-opt powerful actors (Wong, 2010). Our data points to the inevitable involvement of local elites in many instances. It also suggests that what the literature terms 'elite capture' is seldom clear-cut. Among other things, elites are regularly a viable route to securing at least reasonably effective forms of water management. This may even be the case

when a particular individual expropriates user financial contributions for personal gain. At the same time, the influence of local elites does tend to reproduce existing power relations and associated inequalities. It should be noted that this is often the case even when a functioning waterpoint committee is in operation.

5.5. Learning by doing

The literature on working with the grain emphasises iterative problem solving and stepwise learning. In the context of managing rural waterpoints, these problems will typically relate to maintenance and repair, finance, dispute resolution, and access and use dynamics. More generally, it may relate to improving water availability in the community, for example by upgrading existing waterpoints or constructing new ones. The crux of a learning-by-doing approach is that over time the WMA develops the capacity to manage increasingly substantial or ambitious challenges. In Ethiopia, we observe several cases where the WMA has developed the capacity to take on a range of functions. These include non-water-related services such as road repair, school construction, or the purchasing of a community mill. Such cases highlight the social embeddedness of water management in wider village life, and the multifunctional nature of institutions that purportedly exist to address a single issue like water. In one Ethiopian case, the WPC in conjunction with the iddir manages three separate waterpoints and has financed the construction of a new deep well borehole. To do this, 60% of funds came from the iddir and 40% from the WPC. At the time of conducting our field research, the WMA was exploring the potential of connecting this deep well to a piped network of public tap-stands.

5.6. Brokering trust to overcome reactive problem solving

In Malawi and Uganda, we do not observe the same level of WMA capacity. The skeleton crews that typify water management do problem solve, often by drawing upon specific individuals both inside and outside of the community. These WMAs may also be multifunctional inasmuch as the individuals who comprise them are authority figures involved in other areas of village administration. However, problem solving is seldom iterative and nor is learning stepwise. Unlike a number of cases involving iddirs in Ethiopia, problem solving tends to be more reactive and geared towards a minimal level of performance. In both countries, we observed a broader spectrum of actors involved in water management (Table 2) and our political economy analyses revealed a greater plurality of potential service delivery pathways compared to Ethiopia. However, many of these actors are called upon for a single purpose, such as financing a major repair job. It is the responsibility of the key individual or individuals to perform ongoing management functions, where there may often be a lack of trust between the community and these skeleton crews.

A working with the grain approach would suggest that it is precisely these situations where new relationships could be brokered to generate trust and potentially establish more fleshed out WMAs. Brokering relationships can lead to more established management networks and greater community buy-in. This in turn may provide opportunities for knowledge sharing, problem solving, and collaborative stepwise learning that builds the capacity of the WMA.

5.7. Pragmatism and possibilities

This leads to the final factor in Table 1, which is about being realistic and recognising what is possible. There is a tendency in the working with the grain literature to posit a set of desirable attributes that if in place should lead to more effective and adaptive forms of governance. The progression from local leadership, to brokering relationships, to iterative problem solving and stepwise learning offers a clear logic. However, truly accounting for wider context and the social embeddedness of WMAs troubles this narrative. We have seen how the clearest instances of strongly performing WMAs are in Ethiopia where WPCs have been formed under duress, village life exists in the shadow of a controlling and autocratic state, and the reach of longstanding local institutions like the iddir are crucial. In situations often typical of Malawi and Uganda, where the state is weak or largely absent and there are not existing village-level institutions that provide more communal ways of operating, it is very hard to see how working with the grain can lead to fleshed out, high-capacity arrangements. For example, a notable proportion of skeleton crews in our dataset appear to have developed around personal strategies of accumulation, where particular individuals benefit financially from managing the waterpoint. Attempts to alter this arrangement will likely disincentivise key players.

The point about pragmatism is not to rubbish a working with the grain approach. Rather it is to suggest that it is potentially unhelpful to hope to recreate a set of desirable factors akin to those listed in Table 1. Ironically, this list may, like the committee model of CBM itself, serve to impede ways of working locally. In a paper reviewing the literature on TWP, Dasandi et al. (2019) hit home this point. They note that although a range of studies have looked at TWP 'success factors', they all tend to reproduce the factors proposed in an influential 2014 comparative study by Booth and Unsworth. The authors argue that "this is a significant issue, because if TWP is at its heart about illuminating contextual differences in order to move away from 'cookie cutter' best practice approaches, then we would expect to see variations". They go on to question whether these similarities across studies reflect "an emerging consensus or if, in fact, it represents growing 'group think' about the necessary programme design characteristics among TWP insiders" (Dasandi et al., 2019, p. 158).

6. Conclusion

Working with the grain promises to improve the community-based management (CBM) model by moving beyond the blueprint of a local committee or association. We have argued that three challenges relating to a working with the grain approach have not been adequately addressed in the literature. These are a methodological, an empirical, and an implementation challenge. Centring these challenges through a study of community-managed water in Ethiopia, Malawi, and Uganda has produced a series of insights concerning the possibilities and pitfalls of working with the grain. At the same time, this research provides new evidence of real-world community arrangements for managing water. It strongly suggests that a focus only on formal organisations like the waterpoint committee is misguided. Fully formed waterpoint committees seldom exist. Whether or not they exist, water management arrangements are necessarily more complex and dynamic. Our findings reveal how management arrangements are pieced together from institutions, practices, logics, and sources of authority present in a community. In Ethiopia, this often resulted in more fleshed out management arrangements as compared to Malawi and Uganda, where skeleton crews of key individuals predominate.

Identifying the 'grain' of local governance arrangements requires moving away from a preoccupation with organisational form to a concern with management functions. We therefore replaced the waterpoint committee with the concept of a water management arrangement and the attributes that comprise it. One way to address the methodological challenge we highlight is through a research design that investigates both the social embed-

dedness of local arrangements and the wider context in which they are situated. It is likely not always practical to replicate the type of extensive/intensive approach employed by this study. To this extent, we argue that development actors, and especially officers and extension workers in local government, can build on the framing and insights in this article. Importantly, these people may already have a good idea about what the 'grain' is but are inhibited by the mandate to form and train committees and user associations.

A commitment to understanding local realities raises the challenge of empirical complexity. This concerns both the seemingly endless diversity of possible water management arrangements, as well as the interests of the individuals and institutions that comprise them. We have shown that patterns exist in this complexity and this offers potential entry points for working with the grain. For example, in each of the project countries we identified one actor – an individual or institution - that was often instrumental in efforts to manage water. Beyond this, we identified a spectrum of other actors who were sometimes involved in water management. We are not arguing that efforts to improve water management focus only on the actors identified in this study. More targeted work would be required first to verify if they are relevant entry points. Rather, we have demonstrated that there are existing sources of local authority and ways of working that recur frequently and are clearly relevant to community management. It would appear unwise to ignore this fact.

Having identified possible entry points, actually working with the grain poses a further challenge. The literature suggests a number of operational factors that provide the key to addressing it. Whilst the insights generated by our study lend some support to these factors, they also challenged them in important ways. Working with the grain means explicitly working with local interests and power dynamics and within a county's wider political culture and economy. This includes navigating the slippery issue of elite capture. Given this, the pursuit of a set of factors that appear to characterise success in some situations may not be applicable in others. Indeed, this is precisely the argument put forward by proponents of a working with the grain approach.

We conclude then with four provocations that we feel are pertinent to a working with the grain approach. Firstly, much of the working with the grain literature couches its thinking in the logic of the development project or programme. There is a focus on donors, funding, and project implementation. We instead propose to shift focus onto the ongoing work of local governments and civil society, and more generally onto those institutions and individuals that are internal to the governance of a country. Secondly, we argue for re-rendering water management as not only or even mainly a technical exercise but a process of navigating and negotiating social relations (Mapedza, Manzungu, Rosen, Ncube, & van Koppen, 2016). Interfaces within communities and between communities and local government are characterised by differences in power, prerogatives, and knowledge systems (Long, 2001). To work with the grain is to work with these differences. This will inevitably involve pragmatic compromises that some find uncomfortable, such as the need to work with local elites in many situations.

Thirdly, there is a concomitant need to prioritise applied social science education among government staff at all levels but especially among those staff who actually interface with communities. For too long the education systems of many countries have viewed social sciences as the poor relative of the physical and natural sciences (Asiimwe, 2018). Only the market-friendly, narrow rational-choice framings of mainstream economics and political science make inroads into this bias. This would seem strange given that community management is in no small part by people and for people. We argue that the thinking and knowledge fostered in such disciplines as sociology and anthropology, and their application to relevant social challenges, can invigorate attempts of government staff to identify and work with the grain.

Finally, our research points to issues with the siloed approach to administering development through local government. In many countries very real practical challenges limit how and when communities are visited by government staff from the relevant department. We argue that training and resources should be invested in those staff who do actually have relationships with communities. In the case of water management, this need not be a representative from the district water office. It could instead be, for example, an agriculture or health extension worker. This would require good communication channels and more flexible working between departments as circumstances dictate.

It is therefore not only at the community level that the committee model serves as an impediment to more realistic ways of working. The resources local governments expend to form and train committees that quickly disband could be better used. For example, these funds might provide training and transport for relevant government staff and finance ongoing work with relevant community actors and institutions. What is clear, therefore, is that for a working with the grain approach to gain traction in mainstream development policy, the first step is to move beyond an ongoing preoccupation with the committee model of local governance.

CRediT authorship contribution statement

Luke Whaley: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing - original draft, Writing - review & editing, Visualization, Supervision, Project administration. **Frances Cleaver:** Conceptualization, Methodology, Supervision, Project administration, Writing - review & editing, Funding acquisition. **Evance Mwathunga:** Conceptualization, Methodology, Supervision, Project administration, Funding acquisition.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

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