



# A cultural theory of drinking water risks, values and institutional change

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## ABSTRACT

Global progress towards the goal of universal, safely managed drinking water services will be shaped by the dynamic relationship between water risks, values and institutions. We apply Mary Douglas' cultural theory to rural waterpoint management and discuss its operationalisation in pluralist arrangements through networking different management cultures at scale. The theory is tested in coastal Kenya, an area that typifies the challenges faced across Africa in providing rural communities with safely managed water. Drawing on findings from a longitudinal study of 3500 households, we examine how different management cultures face and manage operational, financial, institutional and environmental risks. This paper makes the case for cooperative solutions across systems where current policy effectively separates communities from the state or markets. The contribution of this research is both a theoretical and empirical case to consider pluralist institutional arrangements that enable risks and responsibilities to be re-conceptualised and re-allocated between the state, market and communities to create value for rural water users.

## 1. Introduction

In the baseline year of the sustainable development agenda, 2015, 2.1 billion people lacked safely managed drinking water services globally and 844 million people did not have basic drinking water services (WHO/UNICEF, 2017). Around a million handpumps in rural Africa provide water to approximately 200 million rural Africans but break frequently, wasting billions of dollars of investment (Baumann, 2009; Baumann and Furey, 2013) and forcing the poor to regularly use more distant and often dirty water sources. This situation is exacerbated by an increasing frequency of extreme events, including prolonged droughts, exerting additional stress on local water resources (MacDonald and Calow, 2009; Taylor et al., 2012; James and Washington, 2013; James et al., 2017). Achieving universal, safely managed and equitable water services (WHO/UNICEF, 2015) for rural water users requires progress in a number of areas. Often one or more of the requirements for them to be sufficient, safe, affordable, equitable and universal are not met depending on different management arrangements of waterpoints and diverging risk perceptions of water users. This research provides a mechanism to specify these differences by drawing on cultural theory (Douglas, 1970, 1987, 1994, 1999; Wildavsky, 1987) and to illustrate how this theory can help understand the critical gap between the performance of the rural water sector and the goals of the sustainable development agenda as well as underpin new pluralist approaches to achieving these goals. In a pluralist

approach, the existing management types of community management, entrepreneurial and public sector models can coexist, while water risks are addressed within their own value frames. At the same time, it offers an overarching response to some of the coordination challenges of information, finance, and maintenance, which all of the waterpoint managers face irrespective of their world views.

Policy-making in relation to sustainable development is usually an issue dealt with at the global and national levels, yet the consumption it seeks to modify takes place at the household level (Dake and Thompson, 1999). More specifically, the global goal of universal water services (UN, 2015) demands equitable services for *all* but sustainability of local services may depend on user payments that result in exclusionary access, and thus compromise the principle of universality. Moreover, local preferences and choices may not conform with set institutional boundaries. Universal values and experiences of uncertainty may be in conflict at the local level. This is where culture comes in. The theory of socio-cultural variability, also known as cultural theory (Douglas, 1994), defines “culture” as attitudes and values that justify and stabilise an organisation, and distinguishes between four basic sets of socio-cultural behaviour. From the perspective of psychology, Bruner (1990) suggests that culture has the functions of encoding experience, attributing value to experience, providing assessment criteria for possible courses of action and sharing experience and expectations. From this perspective, different ways of managing waterpoints constitute distinct organisational cultures. Much of the existing literature on

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cultural theory focuses on conflict between cultures (Douglas, 1999; 6, 2003; Verweij et al., 2006). The contribution of this research is twofold: first, it focuses on cooperation between the cultures rather than conflict within the waterpoint management system under a professional service provider; second, it provides a mechanism for the formal recognition of a pluralist framework and for empirical support of new approaches towards managing rural water risks. The paper first reflects on the relationship between water risks, values, and institutions in the context of the rural water sector and the global goal of universal, safely managed drinking water services. We present an operationalisation of the cultural theory framework in the context of rural waterpoint management and discuss its extension to pluralist arrangements. The theoretical framework is then applied to coastal Kenya drawing on empirical findings from a longitudinal study to examine how the four basic management cultures postulated by cultural theory handle operational, financial, institutional and environmental risks. It closes on the discussion of a pluralist institution in the form of a professional maintenance service provider that allows the coexistence of current values while taking the risks of the different cultures as an opportunity for cooperation. Combining the entrepreneurial domain of annual contracts with collective decision-making and local ownership as well as public sector support, it represents a creative and flexible combination of the various ways of organising, perceiving and justifying social relations (Verweij et al., 2006).

## 2. Background

### 2.1. Rural institutions

The role of institutions is to provide information and assurance about the behaviour of others, offer incentives to behave to the benefit of the collective good and monitor and sanction opportunistic behaviour (North, 1990; Ostrom, 1990). Ways must be explored to deal effectively with complexity, uncertainty, and institutional dynamics in the field of common-pool resource management (Ostrom, 2005). They imply interactions between ecological and social systems (Ostrom, 2009), the diversity of livelihoods, resources and uses, the variability of actors and their practices within heterogeneous communities, multiple and overlapping scales, and the often non-transparent ways in which institutions work and power operates (Cleaver and de Koning, 2015). Understanding rural institutions requires unravelling their historical roots as well as the frameworks through which certain kinds of institutions have been advanced in the international development sector. Blaikie (2006) highlights that state formation following independence set the political environment for the interface between international funding institutions that have promoted community-based natural-resource management and national governments. Disregard of historical legacies, such as Africa's decolonisation (Mamdani, 1996), or the historically grown complexity of governance structures place decentralisation and institutions formed in its wake at risk of failing (Ogbaharya, 2008). The dominance of the "community-based" approach is, not least, a result of the poor performance of many state systems or forced state retrenchment related to structural adjustment (Agrawal and Gibson, 1999; Mosse, 2006; Hall et al., 2014).

Since the advocacy of community management of rural water supply in the International Drinking Water Supply and Sanitation Decade, 1981–90 (Arlosoroff et al., 1987; Churchill et al., 1987; Briscoe and de Ferranti, 1988; ICWE, 1992), it has been used as a mechanism to achieve a policy goal at least cost (Hope, 2015), as these waterpoints can be independently financed and managed by communities alone or supported by government or donors, depending on perceived need or political demand. Although the assumed empowerment of communities through participation, decision-making, control, ownership, and cost-sharing seemed promising, operations, maintenance and service

delivery have barely improved (Lockwood, 2004; Blaikie, 2006; Whaley and Cleaver, 2017). This state of affairs is attributed to poor planning (Carter et al., 2010), limited community financing (Harvey, 2007; Foster, 2013; Foster and Hope, 2016) and shortcomings in the institutional design of management models (Whittington et al., 2008; Sara and Katz, 2010). Revisiting the same households in unpiped sites in East Africa in 1997, 30 years after the initial study (White et al., 1972), and using the same sampling method originally applied, Thompson et al. (2001) highlight that improved access to water services will depend on strong public and private organisations that develop, operate and maintain water systems and services sustainably. They advocate new partnerships between the state, the private sector and civil society which promote market-based, cooperative arrangements with a flexible funding approach that work for the rural poor. The principle of popular participation is emphasised but tends to be reflected more in government and donor discourses than in the experience of rural communities (Ribot et al., 2010), and there is a notable lack of fit between domestic norms that constrain popular participation and "the imported institutional superstructure that is intended to facilitate it" (Dill, 2010, p. 33). This ambivalence is an issue underlying all externally developed institutional solutions to rural waterpoint management.

Cleaver (2012), building on the work of Douglas (1970, 1994), argues that if institutions can be placed in a wider governance framework, thereby focusing on the constituent processes and practices of "institutional bricolage," then this can help us "to understand the ways in which actors both reproduce and reconfigure such governance arrangements" (Cleaver, 2012, p. 213). According to her, it is highly unlikely that a single institutional solution will represent all users and livelihood interests. However, practical and policy approaches often require simplification and standardisation of institutional form. Drawing on the socio-cultural variability perspective of cultural theory, this research hopes to contribute to the field of rural water services in theory and practice by advancing an approach recognising institutional pluralism. This concept acknowledges that the governance of resources falls upon a variety of scales with blurred boundaries between the domains of the local and the global, between which "meaning" – symbolic authority, arrangements, values – "leaks", as it is potentially borrowed both ways (Douglas, 1987; Cleaver and de Koning, 2015). Cleaver (2012) illustrates what this may imply in practice. The user group at a waterpoint may debate exempting the poorest member from paying maintenance charges drawing on the common experience of hardship – for reasons of equity – or on notions of human rights borrowed from international development discourses.

### 2.2. Water risks and values

Delivering safely managed drinking water services requires joint progress on ensuring sufficient, safe, reliable, affordable and accessible water for everyone, every day. It reflects a bold global vision and will require an unprecedented change in institutional performance in sub-Saharan Africa, where almost half of the global population using drinking water from unprotected sources live, over ninety per cent of them in rural areas (WHO/UNICEF, 2017). Whilst within mainstream institutionalism the outcomes are clearly defined, they may diverge on the ground due to different perceptions of risk and value. Tansey (2004) argues that risk perceptions which are underpinned by social power are neither irrational nor simply psychological in their origins. Cultural theory provides an opportunity to identify what is being rejected or defended by whom and who is being held accountable. The risks experienced in rural water services may be of operational, institutional, financial and environmental nature. Institutional risks are determined by the separation of powers between policy, delivery and regulation, the degree of autonomy in managing service delivery, accountability as well as public engagement and support. Monitoring the attainment of

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