



Engineering change? The idea of ‘the scheme’ in African irrigation

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ABSTRACT

Despite a growing recognition of the significance of farmer-led irrigation, externally engineered and induced schemes remain a popular model for irrigation development in sub-Saharan Africa. These have had a mixed record, and many have been widely critiqued. Nonetheless, schemes that were initiated under colonialism have been rehabilitated and new schemes are still being developed. This paper interrogates the continuing attraction of this model for irrigation, asking how and why it persists. Is the fact that engineering is so central to irrigation schemes another example of ‘high modernism’, as Scott might argue? Analysis of the history and current policy-making context of a new irrigation scheme in Malawi suggests a picture that is more complex, in which practical engineering considerations combine with narratives of modernisation and political imperatives to create momentum and lock-in. Understanding this, and why lessons from the past inadequately shape future-directed planning requires interrogation of the positionality of those involved, including state, donors and private sector actors and the political, economic and discursive fields in which they operate.

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1. Introduction

In sub-Saharan Africa, farmer-led irrigation has been identified as an important and widespread practice (Woodhouse et al., 2016). Farmers have long been diverting rivers, growing crops in low-lying wetlands, abstracting groundwater, and irrigating from mountain streams. Despite this, a strong narrative maintains that because sub-Saharan African irrigation is much less widespread than its potential, especially when compared to Asia, there is a need for irrigation schemes that are initiated and supported by donors and governments (Oates, Jobbins, Mosello, & Arnold, 2015). Both the World Bank and the FAO have stressed the need to tap underutilised potential through irrigation schemes, and the World Bank doubled its lending for irrigation between the periods 2000–2005 and 2006–2010, following a period when schemes had fallen out of favour (You et al., 2011). As Crow-Miller, Webber, and Molle (2017) have noted, there has been a resurgence of support for major infrastructure projects more generally among donors, including for irrigation (see also Blomkvist and Nilsson, 2017). These developments are part of what has been characterised as the ‘New Green Revolution’ for sub-Saharan Africa (Patel, 2013).

Newly formulated national irrigation development strategies include the development of new irrigation schemes and the rehabilitation of old ones. Recent initiatives in Kenya are one illustration of this. Here, the government has recently announced major

investments in the revitalisation of previously defunct schemes. The Hola scheme is about to be rehabilitated with World Bank investment. The Bura irrigation scheme, also in Kenya, which was first launched in 1977, and seen by some as a vast waste of money¹ is also due for rehabilitation, this time with investment from the government of India. In Tanzania, the 2010 National Irrigation Policy suggests that there is considerable underutilised land that can be irrigated through improved schemes supported by donors. The Tanzanian National Irrigation Commission is charged with making this happen through the development of thousands of schemes. In Malawi, old schemes are being rehabilitated as part of the Green Belt Initiative, and the World Bank has recently approved the long awaited 42,000 ha Shire Valley Transformation Project (hereafter SVTP) – formerly the Shire Valley Irrigation Project (SVIP), in line with the government prioritisation of irrigation in its Malawi Growth and Development Strategy (MGDS).

This paper is about this narrative of irrigation development through schemes and the interventions that accompany it. In particular, I ask how and why this model persists, despite extensive critique. I am specifically concerned with those schemes that are externally initiated and supported by both international donors and national governments. These are what have been called ‘irrigation factories’ – ‘state engineered attempts to modernise African agriculture’ (Veldwisch, Bolding, & Wester, 2009: 198; see also

¹ The data on this is contentious, but a recent estimate has put the cost of the scheme since inception at close to half a billion US\$ and described it as a ‘case study of wastage of public resources’ (Kamau 2016).

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Bolding, 2004) and have often involved elements of resettlement of farmers. In their classic overview of *'Irrigation Development in Africa'* Moris and Thom (1990) noted that irrigation schemes are 'designed from outside, externally financed (in many instances), and usually employ salaried staff' (1990: 6). This is in line with Adams and Anderson's (1988) observation that 'induced' irrigation has been an important dimension of most schemes and that whether or not they have been induced by outsiders influenced how they then evolved.²

Such schemes have been widely criticised, both in terms of their approach and their effects, which in turn contribute to failure (Bolding, 2004, Chambers, 1969, Moris and Thom, 1990, Mwendera and Chilonda, 2013, Veldwisch et al., 2009). According to critics, they have romanticised and misunderstood the nature of communities (Harrison and Chiroro, 2016), simplified gender relations and wrongly assumed households to be coherent economic units (Dey, 1981, 1982, Hanger and Moris, 1973, Lecoutere, 2011, Van Koppen and Hussain, 2007, Webb, 1991). They have classified as 'farmers' people with only variable commitments to farming (Chambers and Moris, 1973, Moris and Thom, 1990), relied on imported 'expertise' at the expense of local knowledge, and involved land appropriations and dispossession (Ferguson and Mulwafu, 2007, Mdee et al., 2014). They have been mismanaged and collapsed (Bolding, 2004; Mollinga and Bolding, 2004). Yet, over a period of close to 100 years, with notable peaks and troughs and diverse efforts at reform, schemes have persisted as a model.

In response to the apparent failures of irrigation schemes, there have been numerous attempts at 'reform', often through changing the institutional arrangements for scheme management, alongside the rehabilitation of failed schemes (Mollinga and Bolding, 2004). This is what Suhardiman and Giordano characterize as the cycle of 'build, neglect, and rebuild' (2014: 91). Changing institutional arrangements have included new approaches to the roles of state irrigation agencies, local level institutions and private sector companies. Such shifts have broadly followed shifts in development thinking more generally. Notable among these have been discourses that in different ways suggest a diminution of the role of the state. Thus, from the 1980s onwards, there has been an appreciation that farmers had been given insufficient say in the schemes of which they were an integral part, and this has resulted in a series of policy changes towards more participatory approaches. The development of policy principles such as Irrigation Management Transfer (IMT) (Garces-Restrepo et al., 2007, Suhardiman and Mollinga, 2012) Integrated Water Resources Management (IWRM) (Allan, 2006), and Participatory Irrigation Development (PID), in which farmers' organisations such as water users' associations (WUAs) have played an increasingly prominent role (Ostrom, 1992, Venot, 2014) are all part of this process. For some commentators, such ideas reflect a genuine desire to ensure greater farmer control, based on principles of autonomy and empowerment (van Koppen, Cossio Rojas, & Skielboe, 2012, Muchara, Ortmann, Wale, & Mudhara, 2014). For others, they are linked to a broader neoliberal questioning of the role of the state, accompanied by a desire to minimize state expenditure. In this, the responsibility for success and failure becomes located with farmers themselves – for example through an insistence that they form WUAs (Venot, 2014).

Alongside concerns with farmer control, narratives have also emphasised an enhanced role for the private sector and a movement away from models of failed 'public sector' led management. The concept of 'public-private partnerships' (PPPs) in development

schemes is increasingly emphasised (Trier, 2014). Recently, Lankford et al. (2016) have called for a 'global irrigation compact', in which '... farmers and community leaders, government agencies, NGOs, private-sector entities and development partners commit to mutually create new leadership, partnership, ownership and learning arrangements' (Lankford et al., 2016: 14).³

In this paper, rather than revisit in detail the reasons for apparent earlier failure, I aim to analyse why the model of the scheme has persisted and continues to do so. As an illustration of this, I focus on the new SVTP in Malawi as a case study of an irrigation scheme in the making. The SVTP raises questions that are relevant to the other schemes currently being developed or rehabilitated across SSA: to what extent does the past shape plans for the future? How do politics and power play a part in momentum? The SVTP is a particularly interesting case as plans have evolved over many decades and have been documented in several studies, both historical and contemporary. Drawing on both primary data collected through ethnographic fieldwork and analysis of the written justification for its development, alongside historical accounts of development in the Shire Valley itself, I ask what this case tells us about continuity and change, stressing that the intersecting perspectives and priorities of a range of institutional actors (donors, national agencies, private sector consultancies) is important.

In the next section, before turning to the SVTP itself, I suggest an approach that focuses on the intersection between narratives and politics as revealing of power relations. The concept of 'high modernism' (Scott, 1998) has been important in analysis of development schemes more generally, yet criticised for providing a somewhat simplified account of how power functions. Building on this critique, I argue that it is important to consider, not only how the justifications for schemes are influenced by engineering imperatives, but also how institutional and professional priorities come together to shape their momentum and 'lock-in' to the notion of the irrigation scheme. I then consider how this plays out in the case of the SVTP.

2. The model of the irrigation scheme: explaining persistence

An extensive literature has interrogated how development orthodoxies persist and are sustained by narratives that reflect power.⁴ Is the externally engineered irrigation scheme one of these orthodoxies and what are the narratives that sustain it? According to Roe, narratives strategically simplify, and yet persist through time, often despite evidence that might undermine them. Among these, 'high modernist' narratives have been a subject of particular criticism (Bähre and Lecocq, 2007; Escobar, 1995; Mitchell, 2002) – a criticism that has, in turn, contributed to a celebration of indigenous knowledge and 'farmer first' approaches (Pacey and Thrupp, 1989, Sillitoe, 2006). Scott's (1998) *'Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed'*, has been particularly influential and is widely cited as one of the most trenchant critiques of high modernism (Bolding, 2004, Li, 2005, Reuss, 2008). In *Seeing Like a State*, one chapter of the book focuses on an early incarnation of the SVIP in colonial Nyasaland as an especially clear example of the failure of high modernism. I will return to this account in my exploration of the evolution of the Shire Valley project below.

Li (2005) has argued that, despite the overall persuasiveness of Scott's arguments, *Seeing Like a State* takes insufficient account of

² The dichotomy between externally induced and 'traditional' irrigation obscures the fact that all irrigation schemes will include elements that are more or less induced. However, the important distinction here is between schemes that are primarily initiated by outsiders as opposed to those that are led by farmers, whether over a long period of time or more recently.

³ Though not necessarily labelled as such, PPPs actually dating back at least to colonial times. For example, a British scheme in Nigeria in the 1950s involved a partnership between the Colonial Development Corporation and 'A company' (unnamed) which would provide the necessary capital of £450,000 (UK Colonial Office 1951).

⁴ There are numerous examples. See Cornwall and Eade (2010), Fairhead and Leach (1997), Roe (1994), Venkatesan and Yarrow (2012) among many others.

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