



Original research article

# Powering institutions for development—Organizational strategies for decentralized electricity provision

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## ABSTRACT

The study addresses the question of how to achieve and sustain well-functioning local service delivery in institutionally difficult contexts, characterised by low levels of generalised trust, widespread corruption and poor institutions. We study a relatively successful case of decentralized electrification in Tanzania, and the process whereby an international NGO establishes a small-scale hydropower system with a local utility to own and operate it. Building on institutional theory, we investigate how to build trust in an organization, through a strategy of credible commitment; and how free-riding problems can be handled in a local development project. The qualitative study includes 119 semistructured interviews with project staff, villagers, and local and district government, observations and document analysis. The results indicate the importance of a positive 'history of play', sustained over time, and keeping distance from corrupt institutions, in order to build trust. Strict enforcement of rules was decisive for handling free riding behaviours, and impartiality in enforcement for perceptions of legitimacy and trustworthiness. Deviations undermined relations of trust. The results add nuance to more generic theoretical propositions and provide insights on un/intended consequences of institutional strategies. These are relevant for creating and sustaining local service organizations for electricity access and other public goods.

## 1. Introduction

Implementation of 'community electrification projects' in poor rural communities become arenas where local politics and institutions encounter the financial and engineering logics of electricity provision as well as the donor-driven development logic of 'participatory development'. The Sustainable Development Goal 7: to 'ensure access to affordable, reliable, sustainable and modern energy for all' highlights the importance of modern energy services for development, but does not signal how much contestation and negotiation external and local actors providing and using such services are engaged in. In this paper, we approach the overarching question of how to achieve and sustain well-functioning local service delivery, in contexts characterised by poverty, low trust and corruption. We do so by drawing on institutional theory and a case study of a mini hydropower plant in the Southern Highlands in Tanzania.

In sub-Saharan Africa, decentralized ('off-grid') and small-scale service solutions are increasingly contributing to electricity access for the rural population and there are many potential system configurations of various sizes that can cater to different needs and contexts.

Unfortunately, previous work on energy and development clearly demonstrates that in the sub-Saharan region rural electrification projects in general, and not least decentralized energy systems, tend to result in less positive impact than anticipated and face significant obstacles [1–8].

Whereas in many locations, local power stations and grids provide affordable, reliable and sustainable electricity services and support economic and industrial development, the experience in sub-Saharan Africa, as well as in other poor regions of the world, has been disappointing with a large number of poorly functioning systems, or failed service delivery [9–12]. Still, new investments in local generation and micro and mini grids are currently being made [13,14] and the International Energy Agency ([15]: 496) expects in their New Policies Scenario that around 140 million people in sub-Saharan Africa will be connected to between 100,000 and 200,000 mini-grids by 2040.

The current energy literature – in rich as well as poorer countries – is dominated by technical and economic studies [16]. A small, but growing, body of work explores social, cultural, political and institutional (as well as technical and economic) aspects of decentralized electricity supply in the context of rural and/or poor communities

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[17–31]. These have provided crucial insights on the reasons why projects achieve their goals or not, and why electricity access does not necessarily translate into poverty alleviation.

A number of studies address political and institutional barriers and frameworks at inter/national level related specifically to the diffusion of (small-scale) renewable energy systems for expanding electricity access [1,32–37]. However, there is a significant gap in the current energy and development literature regarding political and institutional challenges at the *local* level; and the role of the functioning and design of institutions in explaining why many micro and mini-grids fail to sustain well-functioning service delivery (for an exception see [38]). Given the lack of institutional theoretical grounding in the current literature on decentralized electricity provision, we will build on theories from the wider set of literatures that apply institutional perspectives on development, aid and public service delivery. Institutions, or the “rules of the game” [39] can be informal (norms, codes of conduct) or formal (constitutions, laws). They shape and constrain individual and collective actors’ beliefs, expectations and behavior, and are therefore central in understanding the outcomes of collective processes [40,41]. In the present study, much focus is on institutions in terms of the rules governing the electricity utility, and the organization around as well as the enforcement of these rules.

Using qualitative research methodology, we study the process whereby an international non-governmental organization (NGO) implements a rural electrification project and establishes a small-scale hydropower station and mini-grid, and a local utility to own and operate these. The case represents a relatively successful institution building process in a difficult context, and we move from generic theoretical propositions in the wider literature on institution building in challenging contexts to the richness of the empirical case and back again, helping inform theory and shed new light on the mechanisms through which a ‘difficult’ institutional context (Tanzania is typical in this respect) challenges decentralized electricity provision. Far from seeing electrification projects as neutral welfare schemes, our analysis engages with local politics, conflicts, and struggles over resources and influence [42]. Importantly, we contribute new knowledge regarding viable *strategies* for institution building in these contexts. This is, perhaps surprisingly, a gap in current knowledge. Despite the vast amount of studies in the ‘good governance’ field, this literature does little in explaining instances of good governance within contexts of poor governance. While ‘poor governance’ clearly is a very sticky problem, there are nevertheless examples of organizations that – against what would be expected from the surrounding institutional environment – manage to bring corruption under control (see [43]). More research on these unusual successful cases is needed, and some of the insights from our case of electricity provision are, hence, relevant for other kinds of service delivery. Finally, existing studies of institution building in difficult contexts have mainly focused on government at various levels. Very little, if any, prior work has sought to understand how some non-governmental development projects succeed despite unfavourable preconditions.

This article examines how the institutional context, in terms of trust levels, levels of corruption and clientelistic relations, impact on the processes of institution building in local utilities, and which strategies are adopted to meet those challenges. There are two research questions. We investigate first how trust in an organization can be built, to the extent that people are prepared to invest in the organization for long-term gain. Second, we study how free-riding problems can be handled and the degree to which it is considered effective and legitimate. We are aware of the uniqueness of our case and its context, however, the grounding in theory and case selection [44,45] allow us to inform theory and identify more generic empirical lessons that can be helpful for other scholars and of strategic interest to practitioners.

The next section describes the context in which the development project is set and introduces the case. This is followed by a theoretical section, where we review literature on the role of institutions and

institution building, mainly from the fields of comparative politics and development, relevant to understand the challenges facing the implementing organization. After a section on methodology, we report the results. The first part of the empirical section engages with the research question on trust building, and the second part with enforcement. The final section concludes.

## 2. The case and the context

The project we have chosen to study is a hydropower project in the village Mawengi, located in Ludewa District in the Southern highlands in Tanzania. Governmental stakeholders as well as donors consider the Mawengi project a very successful example of rural electrification. Since 2010, Mawengi and neighbouring villages in the area are supplied with electricity from a 300 kW hydropower station in the Kisongo river. The power station is owned and operated by the local utility organization LUMAMA. The process of initiating, constructing and operating the electricity system has been described in detail elsewhere [18]. In short, the local Catholic church took initiative and contacted the international development cooperation organization ACRA (Cooperazione Rurale in Africa e America Latina). ACRA carried out a feasibility study in 2005, successfully applied for project funding, and started the construction process in 2006. Towards the end of the construction phase, informal collaboration was formalised through the establishment of a local utility organization named LUMAMA as a legal entity to own and operate the system once service delivery started. ACRA exited the project in 2014, by which time LUMAMA was able to handle daily operation and customer service delivery as well as maintenance and repair of infrastructure. In 2015 the utility delivered high-quality electricity services to around 1500 customers, with very few blackouts and at a reasonable cost. The electricity services were widely appreciated by the users and included public goods, such as outdoor lights and improvement of public services through electrification of schools and medical centres. Electricity facilitated economic development, for example by making milling significantly cheaper (compared to diesel generators) or less time-consuming than milling by hand. Local enterprises, such as tailoring, barbers, furniture and mechanical workshops, were able to improve their services and offer new ones, like phone charging.

The Mawengi project was implemented in Tanzania, which provides a challenging institutional context in terms of poor institutions, corruption and low trust. In Tanzania, there is an uncertain legal environment for organizations to operate in. According to the World Bank’s Worldwide Governance Indicators, Tanzania scores low on both Rule of law, Regulatory quality, and Control of corruption [46]. The lack of control of corruption is reflected in perceptions about corruption. According to the East African Bribery Index 2014, 68% of the respondents in Tanzania described the level of corruption in their respective country as high and felt it had increased in the past 12 months [47]. Moreover, levels of generalised trust are relatively low in Tanzania. According to the 2005 Global Barometer Survey, 87% of the respondents agreed with the statement that ‘You must be very careful in dealing with people’ [48]. Similar characteristics regarding the quality of institutions and trust levels apply to many countries, in sub-Saharan Africa as well as in other parts of the world, making Tanzania a relevant and representative case to learn from.

## 3. Theoretical framework

The existing literature on institution-building is broad and concerns many different sectors, organizational levels and phenomena. In order to relate more general theoretical propositions to the type of projects and processes we study, we will exemplify and specify challenges often faced by actors within development cooperation, and how we approach these theoretically.

Donor-funded and NGO-driven projects working with service

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