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North–South partnerships for sustainable energy: Knowledge–power relations in development assistance for renewable energy

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ABSTRACT

Drawing on a case study of a North–South partnership between non-governmental organisations (NGOs), this paper examines knowledge–power relationships in partnerships for sustainable energy. It presents a framework for visualising and analysing the multiple knowledge challenges faced by development organisations assisting Southern communities in the adoption of off-grid renewable energy technologies (RETs). Partnerships between local and international organisations are seen as a means for meeting these challenges by bringing together complimentary skills and knowledge, but they can be affected by power imbalances between partners inhibiting their performance. Through a micro-analysis of knowledge–power relations between two renewable energy NGOs, this paper shows how the ways in which knowledge is framed and valued in partnerships for sustainable energy determine opportunities for inter-organisational learning and collaboration. Partnership models emphasising an efficient division of labour between partners and 'North–South knowledge transfer' may be less likely to deliver effective outcomes than previously thought. Given that the sustainable adoption of off-grid RETs requires processes of social innovation, partnerships that engage in an open negotiation of knowledge may stand a better chance of achieving 'sustainable energy for all' (UN, 2015). Based on a discussion of this finding, the paper concludes by proposing a participatory tool for the negotiation of knowledge and knowledge–power relations in partnerships for sustainable energy.

Introduction

Energy has long been known to be a catalyst for economic development, and there is a clear relationship between energy use and human development (Bhattacharyya, 2012). Energy poverty is predominantly a problem of rural populations in low and lower-middle-income countries (Groh, 2014; Practical Action, 2014). Whereas OECD and transition economies have achieved an electrification rate of close to 100 percent, across the Global South, the rate amounts to just 76 percent, and less than 65 percent in rural areas (IEA, 2015).[1] Off-grid renewable energy technologies (RETs) have become recognised as potential drivers for rural development (Krithika and Palit, 2013; Ockwell and Mallett, 2012a).[2] According to estimates, more than a billion people affected by energy poverty could benefit from the diffusion of off-grid RETs, which provide access to electricity as well as a range of non-electrical energy services such as cooking, heating, cooling, crop drying, and water pumping (Practical Action, 2014; World Bank, 2010). However, the diffusion of off-grid RETs in marginalised rural areas has proven to be challenging (Desjardins et al., 2014; Foley, 1992; Groh, 2014; Kumar et al., 2009).[3] Case studies of development interventions aiming at the adoption of off-grid RETs reported mixed outcomes, with the impact and sustainability of international programmes being inhibited by persistent resource, capacity and participation gaps (Bhattacharyya, 2012; Kruckenberg, 2015; Kumar et al., 2009; Sovacool and Drupady, 2012). North–South partnerships between organisations with complementary resources and expertise are seen as having the potential to bridge some of these gaps, and they are thought to play an important role in the creation of alternative low-carbon development pathways (Chaurey et al., 2012; Fernández-Baldor et al., 2012; Forsyth, 2012; Kruckenberg, 2015; Mallett, 2013; Morsink et al., 2011). However, it has been shown that the performance of North–South partnerships is contingent upon their ability to deal with inherent power imbalances between partners (Ashman, 2001; Ellersiek, 2011). Questions have

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[1] The terms 'Global South'/'Southern' and 'Global North'/'Northern' refer to the inequalities existing between the Northern and Southern hemispheres. The term 'Global South' is used as an umbrella term for low and lower-middle-income countries with a relatively lower Human Development Index (World Bank, 2015).

[2] Following Palit and Chaurey (2011), in this paper, the umbrella term 'off-grid RETs' is used for renewable energy technologies which are not connected to high-voltage-transmission networks.

[3] Whereas some emerging economies have been successful in creating RET markets, many low and lower-middle-income countries rely on technology imports and development assistance, which they receive from development banks, multilateral organisations, donor agencies, private investors, and NGOs (World Bank, 2010). As has been shown by Glemarec (2012), the development of commercial RET markets requires significant investments of public resources in order to attract private finance for RET diffusion.

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been raised about how partnerships for sustainable energy (P4SEs) can approach this problem, and how they should be managed to enable productive collaboration between international and local organisations (El Fadel et al., 2013; Fernández-Baldor et al., 2012; Morsink et al., 2011).

This paper responds to these questions and aims to make three contributions. Firstly, it contributes to the literature on development assistance for renewable energy by presenting a framework for analysing the knowledge challenges faced by partnerships for sustainable energy, and for visualising their potential in covering, connecting, and transferring the technical and non-technical knowledge needed to meet these challenges. The second contribution of this paper relates to a broader literature on knowledge–power relations in North–South partnerships. Through a micro-analysis of knowledge–power dynamics between two renewable energy NGOs, the paper demonstrates how the ways in which knowledge is framed and valued in P4SEs can have important implications for their ability to address knowledge challenges. This is due to two problems. On the one hand, the 'division of labour' between partners with complementary knowledge allows a large scope of knowledge to be covered, but can also diminish incentives for inter-organisational learning and joint problem solving as partner organisations limit their focus to what they perceive to be their individual tasks. On the other hand, capacity building measures based on an assumed superiority of 'global expertise' vis-à-vis 'local know-how' can exacerbate power differentials that obstruct successful collaboration. Therefore, partnership frameworks emphasising efficient 'knowledge management' and 'knowledge transfer' may not prescribe the most effective ways for addressing knowledge challenges in P4SEs. Partnerships that *negotiate* knowledge challenges, and where partners value equity and articulate explicit learning strategies, are likely to stand a better chance of making a sustainable impact. Based on this finding, and as its third contribution, the paper proposes an interactive tool for the negotiation of knowledge and knowledge–power relations in partnerships for sustainable energy.

The remainder of this paper proceeds as follows. After a brief overview of three key criteria that have been identified as determining the impact of development assistance for renewable energy, the paper considers the complexity of RET interventions in Section 1. It presents a framework for mapping the multiple knowledge challenges faced by organisations that promote the uptake of off-grid RETs in poor rural areas and shows how partnerships between organisations with complementary expertise have come to be seen as a superior model for such interventions. The second part of the paper presents an in-depth case study of knowledge–power relations in a partnership between a Northern and a Central American renewable energy NGO, starting with a description of case selection and methodology in Section 2. Section 3 demonstrates how the framework for analysing knowledge challenges presented in the first part of the paper can be used for assessing the knowledge base of a partnership for sustainable energy. A micro-analysis of interviews and observational records of partnership meetings reveals that the way in which common knowledge challenges were addressed in the partnership increased rather than reduced power imbalances between the two NGOs (Section 4). Based on these findings, the paper outlines a participatory tool for the negotiation of knowledge and knowledge–power relations in P4SEs in Section 5. Section 6 concludes.

Development assistance for off-grid RETs: Lessons learnt

Off-grid RETs are expected to play an important role in reducing energy poverty (Practical Action, 2014). They bear the promise of fuelling economic growth while reducing the environmental impact of energy generation (Sovacool and Drupady, 2012; UNDP and WHO, 2009). Governments, development banks, bilateral and multilateral agencies, private enterprises and non-governmental organisations (NGOs) all engage in international development assistance for renewable energy, often with a special emphasis on off-grid rural electrification and small-scale applications for populations lacking access to modern energy services (Chaurey et al., 2012; Sovacool and Drupady, 2012). However, as many RET initiatives fail to achieve sustainable outcomes, a growing body of literature has identified barriers and drivers to the adoption of RETs (Bhattacharyya, 2012; El Fadel et al., 2013; Mallett, 2013; Palit and Chaurey, 2011; Sovacool and Drupady, 2012). Academic reviews and practitioner evaluations suggest that the sustainability and impact of RET interventions to a large extent depend on

a. whether they have made RETs an *affordable choice* to potential end-users. Off-grid RETs require technology promotion and innovative finance models that can absorb high transaction costs (e.g. by combining cash saving schemes or credit models with donations and governmental subsidies) without inhibiting the development of commercial RET markets (Chaurey et al., 2012; Sovacool and Drupady, 2012).
b. whether *those using RETs consider them useful*. In poor areas, scarce resources are unlikely to be invested in technologies that do not meet high expectations (Bhattacharyya, 2012; Desjardins et al., 2014; Mulugetta, 2008). Many of the market barriers preventing the diffusion of RETs in rural areas, such as poor local infrastructure, also inhibit their productive use (Bhattacharyya, 2012; Desjardins et al., 2014).
c. whether RETs are *appropriate to local contexts and capacities*. RETs are unlikely to have a lasting impact if they cannot be used, maintained, and repaired locally—which highlights the importance of after-sales service and capacity development (Fernández-Baldor et al., 2012; Kumar et al., 2009; Mulugetta, 2008).

While these criteria are supported by field studies, the scope of knowledge and capabilities required to meet them makes development assistance for renewable energy a particularly challenging endeavour, which also differs from other kinds of technical assistance (Desjardins et al., 2014; Ockwell and Mallett, 2012b). In contrast to technologies such as fossil-fuelled power plants, off-grid RETs have not been an essential part of Northern development pathways. The introduction of RETs to marginalised Southern communities therefore requires the creation of new development pathways rather than the mere expansion or transition of existing ones (Garud and Karnøe, 2001; Ockwell and Mallett, 2012b). This suggests that a linear transfer of RETs from Northern to Southern contexts might not be sufficient for advancing the uptake of off-grid RETs, and that for RETs to be adopted, the ways in which energy is supplied and used may have to be reconfigured in innovative ways (Berkhout et al., 2009; Fernández-Baldor et al., 2012; Mulugetta, 2008). Research into development assistance for renewable energy suggests that many RET interventions focus on the implementation of projects, on distribution channels, and on productive use, while only some aim at enhancing local production and innovation capacities, despite the latter having been found to be essential for the institutionalisation and stabilisation of low-carbon development pathways (Bell, 2012; Doranova et al., 2011; Kruckenberg, 2015; Ockwell et al., 2008).

Knowledge challenges of partnerships for sustainable energy

In recent years, the complexity of knowledge challenges faced by organisations involved in development assistance for off-grid renewable energy has become more widely acknowledged (Mulugetta, 2008). Fig. 1 below presents a framework for mapping knowledge challenges in RET interventions according to two dimensions: the degree to which knowledge is considered to be technical or non-technical, and the assumed scope of application (from local to global). Firstly, global '*scientific and engineering knowledge*' (upper left-hand corner of the figure) is needed to design and produce RETs. Countries lacking the capabilities to manufacture RETs have to rely on equipment imported from international suppliers. Secondly, scientific and engineering knowledge