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Non-financial constraints to scaling-up small and medium-sized energy enterprises: Findings from field research in Ghana, Senegal, Tanzania and Zambia

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ABSTRACT

In the context of the 'decade for sustainable energy' (2014–2024) under the UN's Sustainable Energy for All initiative, this article presents findings from primary research conducted into the 'African Rural Energy Enterprise Development' (AREED) programme. AREED was a donor-backed effort to support small and medium-sized energy enterprises, implemented in five countries by United Nations Environmental Programme between 2002 and 2012, as a means to expand access to sustainable energy products and services in sub-Saharan Africa. While access to affordable finance was found to be the primary constraint to establishing and expanding local small and medium-sized energy businesses, a range of significant non-financial constraints were also identified. This article provides a critical evaluation of these non-financial constraints as they were encountered in Ghana, Senegal, Tanzania and Zambia, based on the findings of a wider study into the key outcomes of the AREED project. These barriers include the institutional frameworks, human capacities and social and cultural factors.

1. Introduction

Access to clean and modern energy technologies is widely regarded as a key issue worthy of targeted policy and financial support, especially in sub-Saharan Africa, the focus of this Special Issue, where there is still a strong reliance on traditional biomass (wood, charcoal, and animal dung) and kerosene fuel [2,11,13]. In addition to the central importance of energy to economic growth and development, there are numerous co-benefits associated with the transition from traditional fuels, such as access to higher-quality light and heat and reduced greenhouse gases, in-door air pollution and local environmental damage, including deforestation [1,12,20]. Given the high proportion of rural households, poor infrastructure and the distances between smaller urban areas, energy markets in sub-Saharan Africa would appear to lend themselves to small and medium-sized business (SMEs) that can trade on local knowledge and networks, and are able and willing to pursue potentially lucrative but higher-risk business opportunities [23]. While this is a contentious claim, worthy of rigorous investigation in itself, we do not question this assumption and rather work, *prima facie*, with the idea that energy SMEs have a valid role to play in delivering modern energy solutions to low-income populations in developing countries.

The lack of access to affordable finance is often cited as the most significant barrier to the establishment and expansion of SMEs in sub-Saharan Africa, especially for businesses operating in new or relatively unknown sectors, including energy products and services [5,14,15,24]. One of the main reasons for this is that formal financial institutions in sub-Saharan Africa are generally less willing to lend to SMEs due to the high risk of default, insufficient competition, poor guarantees and a lack of information about SME's ability to repay loans [14,15,19]. Therefore the majority of donor-backed programmes and policies to support the development of SMEs in Africa have a focus on the financial aspects of their viability. In fact, while most of the academic papers and grey literature addressing barriers to SMEs development in Africa focus on these financial barriers, non-financial barriers are considered as important although less discussed in the literature. In general, non-financial barriers are those linked to the wider social, economic and policy environment that affects business operations. Therefore various studies consider the need to address non-financial barriers prior to, or in addition to, exploring financial constraints to SME development

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[16]. Indeed that is the aim and purpose of this article, which draws upon the findings of a larger study, conducted in 2012–2013, entitled "Energy SMEs in sub-Saharan Africa: Outcomes, barriers and prospects in Ghana, Senegal, Tanzania and Zambia" (UNEP Risø, 2013).

In Section 2, we provide an overview of energy SMEs and the AREED project. Section 3 includes our research questions and the methodology used for this study. In Section 4, we provide some general and energy background on the four countries evaluated: Ghana, Senegal, Tanzania, and Zambia. We then look at the business models and institutional frameworks for each country (Section 5), followed by human capacity (Section 6) and social and cultural factors (Section 7). We conclude with recommendations and suggestions for future research.

2. Energy sector SMEs and the AREED project

The term 'energy SME' is widely used within the academic and development community, though it often goes undefined. The literature suggests that an energy SME is a business that 'supplies energy-related products and services' [6,18,26]. However, individual business activities vary and so these definitions are open to interpretation regarding what constitutes an energy product or service, including the extent to which these businesses focus on energy, in addition to other activities.

Donor-backed programmes to support SMEs in the energy sector have been developed by various international agencies, NGOs and not-for-profit organisations, including the World Bank's Energy Sector Management Assistance Programe (ESMAP) and the Global Village Energy Partnership (GVEP). The United Nations Environmental Programme's (UNEP's) African Rural Energy Enterprise Development (AREED) programme is another such programme. AREED ran for 10 years from 2002, with total donor funding in excess of $10 million from various agencies, such as the United Nations Foundation and Swedish aid (SIDA), and was implemented in partnership with the US-based company E+Co. Under AREED, more than 50 businesses were awarded enterprise development support and start-up capital, mostly in the form of soft loans of up to $150,000, across five countries in sub-Saharan Africa: Ghana, Mali, Senegal, Tanzania and Zambia. Businesses were selected from a long list of applicants, based on various criteria including commercial viability and quality of plans.

The question of defining energy SMEs is relevant to the analysis of programmes such as AREED since the qualifying criteria (not assessment criteria) was often vague or not stated. Indeed, in some cases, the specific businesses supported by AREED did not sell energy products or services as their main activity, but rather were business with high levels of energy demand, and so were included on that basis. The intended outcomes of the AREED project were to (1) enhance the capacity of entrepreneurs to start and develop energy businesses, (2) improve the capacity of local NGO Partners to provide support to entrepreneurs, (3) develop strong partnerships with local financial institutions, and (4) improve the capacity of government officials and agencies to formulate and implement policies to support energy SMEs.

In their analysis of obstacles to the growth of new SMEs in South Africa [25] identify the following categories of barriers: financial, market, management, and infrastructure. Financial and management components are considered as internal, i.e. factors that lie within a firm's environment that are largely controllable by the firm. The other components are external, i.e. systemic factors [4], propose the following categorisation of barriers in addition to access to finance: policy and regulatory environment, infrastructure policy, technology, skills development and marketing. Meanwhile [27], categorises the critical barriers as policy, finance, organisation, culture, and information.

Common to all these studies is a clear identification of non-financial barriers to SMEs in developing countries. While these vary between authors, the main categories are (1) business and institutional frameworks, (2) human capacities and (3) social and cultural factors. These are the categories that we use to discuss our findings. They cover political instability, bureaucracy, insufficient legal frameworks, poor market infrastructure, market control by incumbents and low levels of investment in research and development. They also cover issues of information and technical capacity-related barriers such as the lack of consumer awareness, poor availability of technical data, a dearth of professional institutions and a scarcity of skills and appropriate training [8,9,21,29].

As such, this article relates to the issue of energy market reforms in developing countries promoted by multilateral agencies, which, until recently, have done little to incentivise the provision of energy services to the poor or reduce overall rates of energy poverty, especially in sub-Saharan Africa [3]. Therefore, by discussing the role and importance of energy SMEs, and the non-financial barriers to their development, we contribute to wider debates about energy governance and infrastructure to address energy poverty, which has received relatively little academic attention [3,10].

3. Research questions and methodology

The research summarised in this article draws on a larger study that focused mostly on the AREED project countries, although it was not an evaluation of AREED. A 'terminal evaluation' of the AREED I programme was carried out by N'Guessan (2009) and similar evaluations have been done for other programmes. As such, the aim of this research was to go further than documenting the extent to which various projects and programmes aimed at supporting energy SMEs have achieved their stated objectives. Rather, the research aimed to step back and ask broader questions of what difference have these programmes made, and what barriers did they face? As such, an investigation into the non-financial constraints to the establishment and scaling up of energy SMEs was part of the focus of this wider study.

For this study, we used a qualitative methodology based on a combination of 'outcome harvesting' [30] and semi-structured interviews with targeted individuals involved with these programmes and projects, and/or knowledgeable about energy SMEs in Africa. Desk-based preparations for this wider study began in June 2012. Primary field research was conducted in Ghana, Senegal, Tanzania, and Zambia[1] between 10 September and 5 October 2012 with 5 days' work in each country. The research aimed at answering the following questions:

1. To what extent have specific businesses demonstrated that energy SMEs are a viable means to provide scalable access to modern energy sources?
2. What are the key factors that have determined the success or failure of specific energy SMEs in the identified countries?
3. What are the main, persistent, barriers facing entrepreneurs when setting up, operating and expanding energy SMEs in the identified countries?

Answers to these three questions offer insights for national policy makers and donor agencies charged with designing programmes to promote energy SMEs in sub-Saharan Africa. To

[1] Mali, the 5th country in the AREED project, was omitted due to security concerns regarding political developments, which deteriorated in the second half of 2012.