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Theory and praxis: co-design complexities of community energy projects in Kenya.

The growing interest in the rapid transitions of energy systems across the Global South rising up national and international 'development' agendas plus technological developments **could** allow Southern countries to take novel energy transition pathways that escape the inefficiencies, inequalities and costs of dominant centralised grid-based systems.

However, technology-led solutions often fail when the beneficiaries are not part of the intervention decision-making process [1]. Therefore, how can communities engage in the co-design of their own energy futures and how can differences between community and researcher understandings be bridged?

The Solar Nano-Grids (SONG) project [2] seeks to address these questions through extensive consultation with 4 chosen communities on system design, business models and the installation and operation of the nano-grids by themselves.

Figure 1. Map of Kenya and Lemolo B village

Kenya Case Study

- Lemolo B - 250 households of around 1000 internally displaced refugees. (Figure 1).
- In country partner (ICP) identified community.
- Extensive, ongoing consultations with different groups (women, youth, elders) on household and community social valuation tests (Figure 2 and 3).
- Development of Village Energy Committee (VEC) to run hub; cost and business models proposed to VEC
- Continuing interaction with community over co-design of solution
- 3kWp photovoltaic solar hub with consumer battery swap installed with milling machines; and egg incubators. Toilets also built.
- Technician and watchman jobs created as a first phase

Figure 2. Community Consultation

Progress:

PV system is operational & VEC active

Technicians trained and maintaining

Co-design Issues:

Community too big for concept?

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Original battery type failure – should never have been used (Figure 4).

Milling kit not suitable

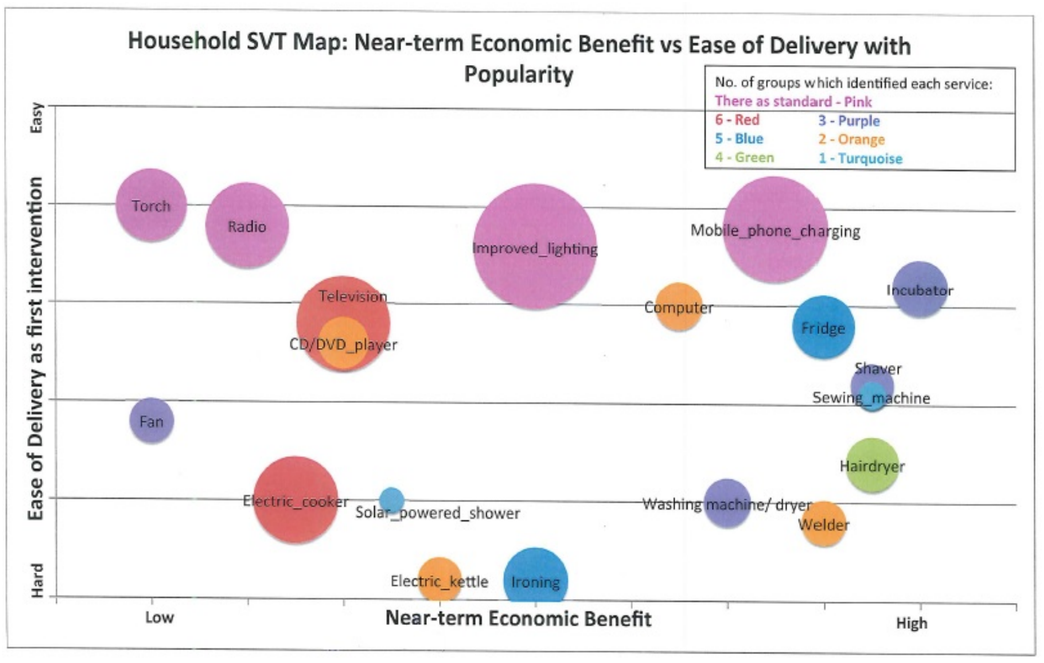

Figure 3. 1st stage consultation results

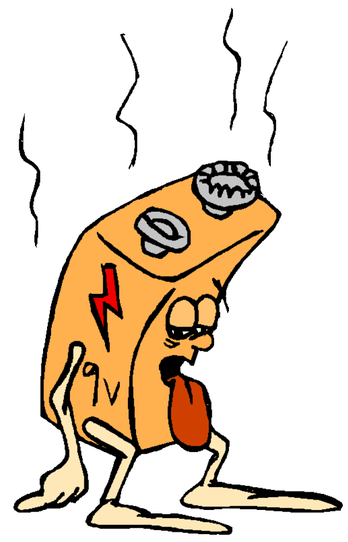

Figure 4. Experimental batteries caused project delay.

Figure 5. The Lemolo B solar hub and Village Energy Committee

Conclusions:

Community co-design is VITAL and greatly appreciated for inclusivity

Despite failings of initial in-country partner and concept battery the hub is providing power for this community (Figure 5).

Challenges were surprisingly getting the technology right

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[2] Brown, E., and Blanchard R., 2014. http://gow.epsrc.ac.uk/NGBOViewGrant.aspx?GrantRef=EP/L002612/1 Accessed 17/3/17

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