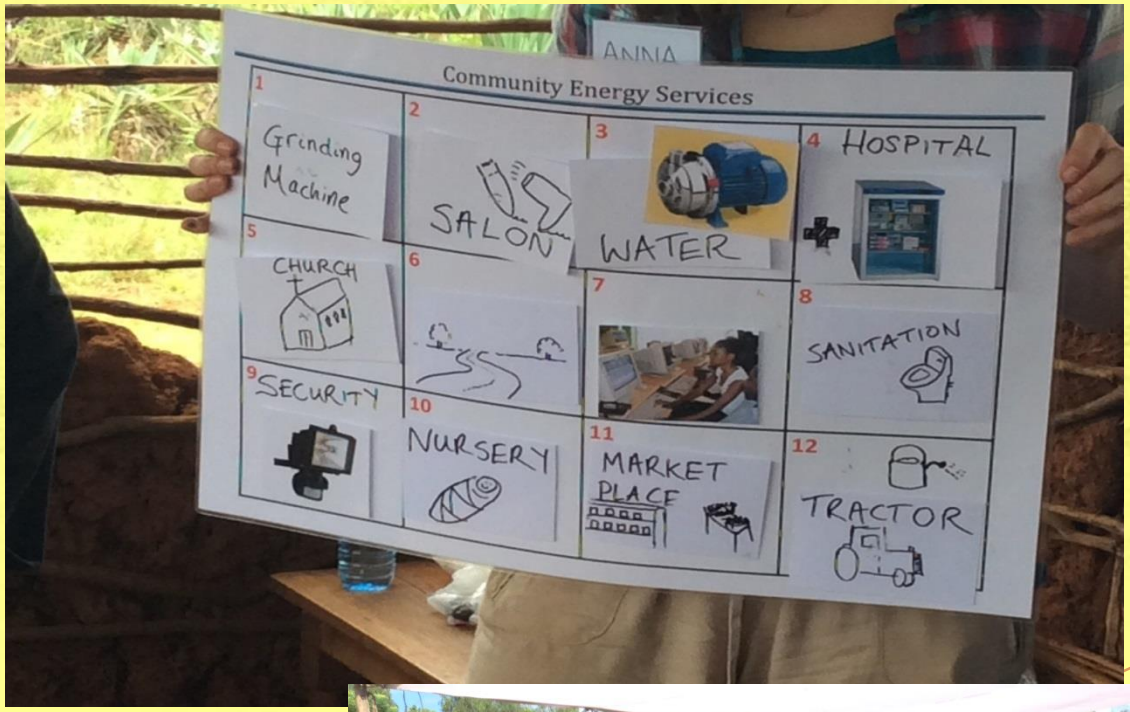
# Solar nanogrids: no technological innovation without social innovation




Dr JON CLOKE

GEOGRAPHY DEPARTMENT, Loughborough university, LCEDN.

RERIS Conference, Maseru, 23-26 January 2018

# SOME PROVOCATIONS…

**1) Overheard at a recent LCEDN event: “We don’t need more social scientists, we need better technology!”**

**2) All engineers are in fact social scientists; they start with a vision of progress, but they see technology as a neutral conduit to achieving that progress**

**3) The success or failure of technology is endlessly and always due to a misreading of the social (Sinclair C5, Betamax, Solar Cookers)**

# What is a Solar Nano Grid?

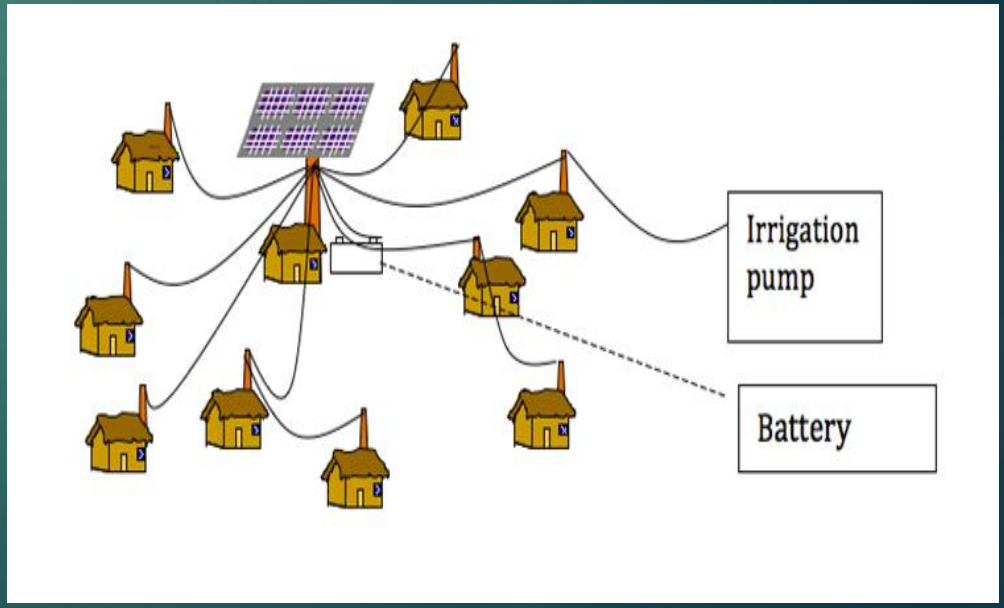


A community-focused, small cluster of solar panels:

- A concept based on service governance, not a product, with community participation/control
- Meeting the demand of clusters (20-50?) households
- Energy for productive uses, community businesses and services.

## Stakeholders

- Loughborough University, UK
- United International University, Bangladesh
- Grameen Shakti
- SCODE
- Nottingham University
- Oxford Energy and Power Group



# A SOLAR NANOGRID IS NOT AN 'IT' BUT A 'THEY'...

**A SOCIOTECHNICAL METHODOLOGY: energy access provision is insufficient as a driver of development by itself and in some cases actually imposes additional financial burdens.**

**A SOCIO-TOOL: " To provide policy-makers and other stakeholders in Bangladesh and Kenya with new understanding of patterns of energy use on a daily and seasonal basis and new evidence of the wider community impacts of the diffusion of solar home systems.**

**LEADING TO =>**

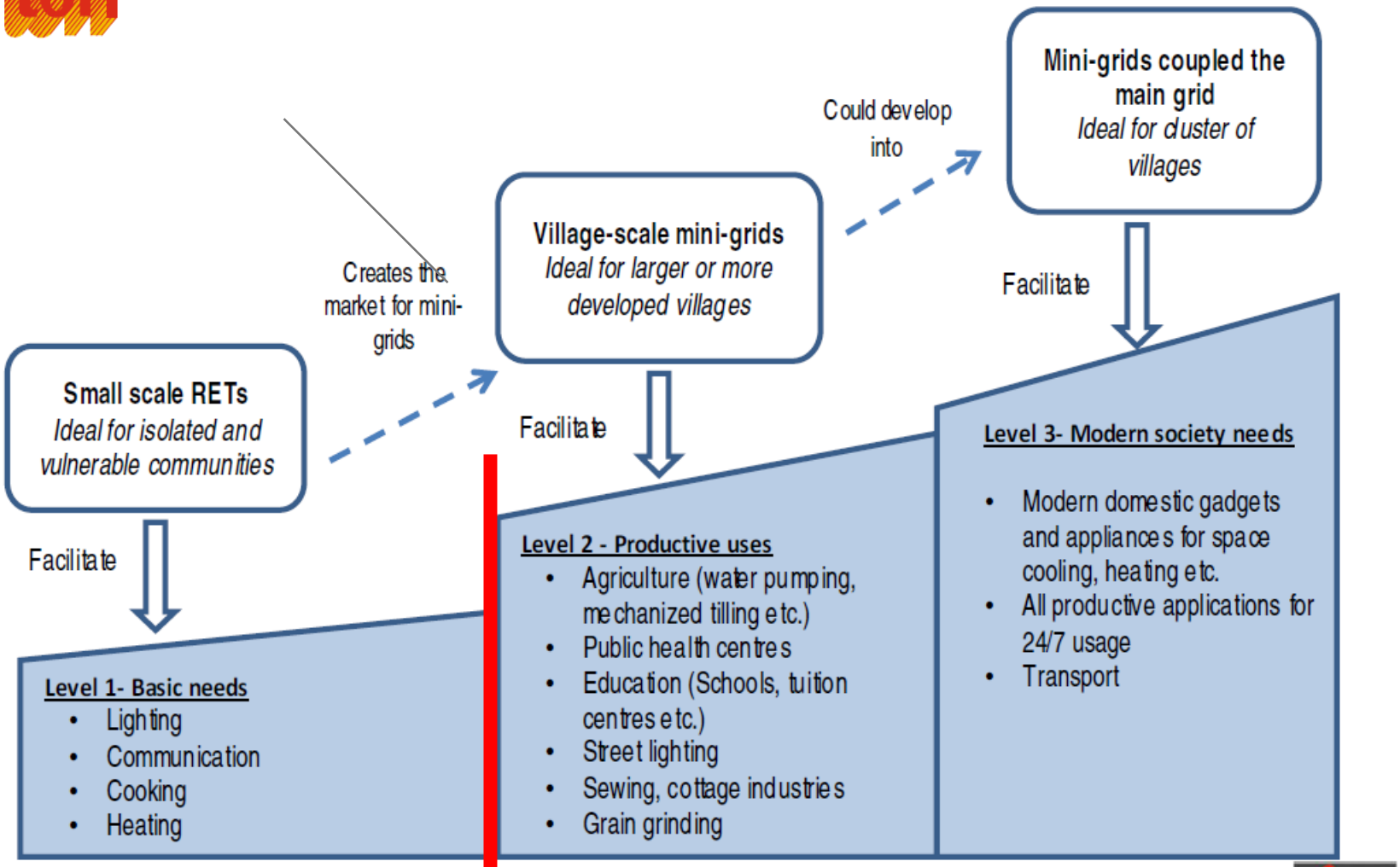
**A SET OF BESPOKE, FLEXIBLE SOLAR POSSIBILITIES: "targeted at enhancing the ability of small-scale solar technologies to provide real economic opportunities for communities to engage in income-generating activities"**

# Critical Social Issues

- **A North-South partnership to transfer new technology to communities so providing energy access with related benefits through buy-in and agency**
- **Livelihood creation and social benefits**
- **Community organization and ownership**

**Debajit Palit**
Associate Director, TERI

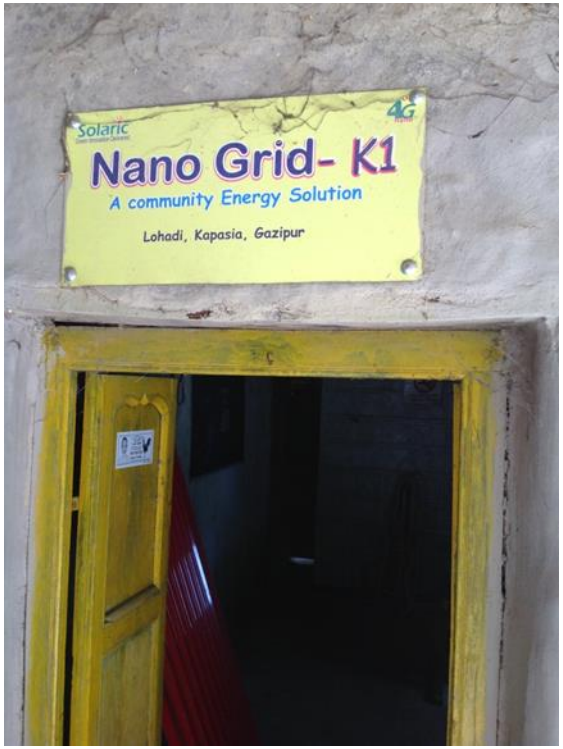
# Framework for Scale up




Source: TERI, 2012

Solar Nanogrids

# ALREADY IN OPERATION AS PAYMENT-FOR-SERVICES IN BANGLADESH …




**Lohadi-K1 Nanogrid, constructed by Solaric, is the oldest extant solar nanogrid in Bangladesh, having been completed in 2011**

**Lohadi provides a solar array (5Kw) for irrigating rice and provides energy for 67 households - up to 5 lights, 1 TV and 1 or 2 Fans.**

**Solaric do not provide the equipment (apart from 1 free light), which is purchased by householders – TVs can be either AC or DC**

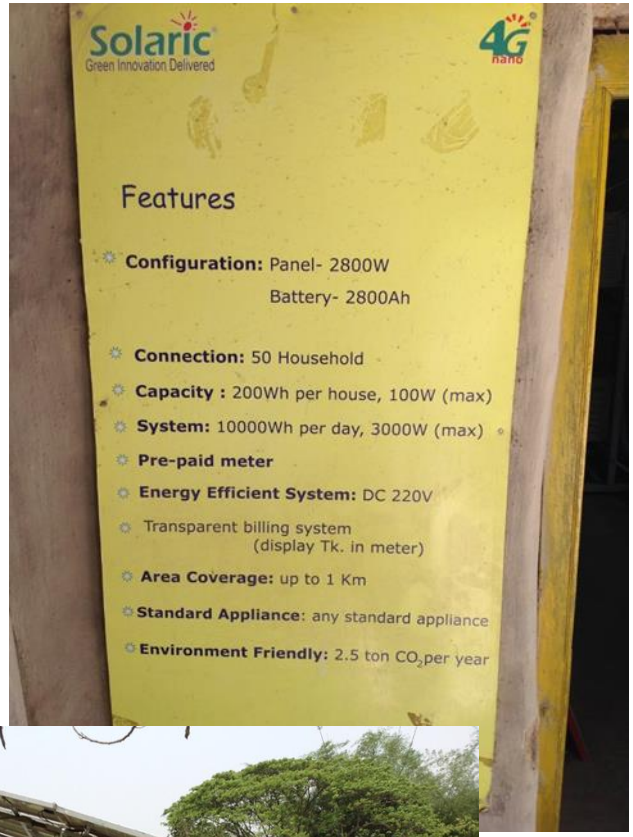
# PAYMENT FOR SERVICES WITH BACK-UP

**Payment for the services flat monthly fee (around BDT 20,000 monthly.**

**Back-up diesel generator but current solar array position means it has not been used.**

**SOLARIC hotline for breakdowns – technician talks the client through the most common problems but comes out if necessary.**

**Each engineer covers 3 Solaric nanogrids.**




# PROVOCATIVE INNOVATION..?

**1) A wide range of 'better' ICS technologies have been applied since the 1950s and many/most have failed.**

**2) Since all engineers are social scientists, should they not incorporate the social into their vision of progress by understanding that technology is never socially neutral?**

**3) Understanding the social environment into which technology is introduced will greatly reduce failure and waste….**