

# SOLAR NANOGRIDS (THE SONG PROJECT)



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# THE SONG PROJECT

*SONG Project (Solar Nanogrids)* Medium-term project beginning December 2013 - ?

**Project Partners - Loughborough University and CREST, INTASAVE, Nottingham University, Oxford Power and Energy Group, UIU Bangladesh**

**Funders:**

**UK Engineering and Physical Sciences Research Council**

**UK Department for International Development**

**UK Department for Energy and Climate Change**

**Through:**

**USES - Understanding Sustainable Energy Solutions Research Programme (2013-2018) – 13 projects**



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

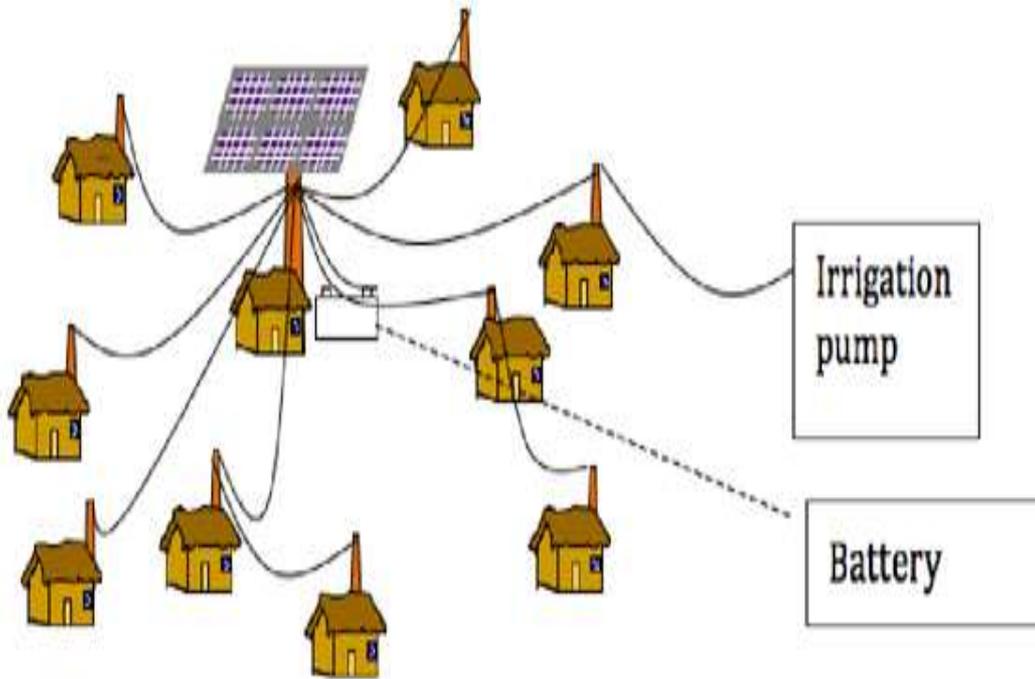
**A METHODOLOGY:** energy access provision is insufficient as a driver of development by itself and in some cases actually imposes additional financial burdens.

**A 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 ARRAY POSSIBILITIES:**  
“targeted at enhancing the ability of small-scale solar technologies to provide real economic opportunities for communities to engage in income-generating activities”

# SAY WHAT?



A concept taking advantage of the fact that in many countries in development, houses are frequently clustered together in rural areas in settlements of 15-20, within a diameter of less than 150m.

The proposed nano-grid system is a basic (1.5 to 3kWp, DC) PV system installed on the rooftop of one or two houses.

System based on a small cluster of households with a short radius to each other (ideally 60-70m); power is distributed to the households from this system.

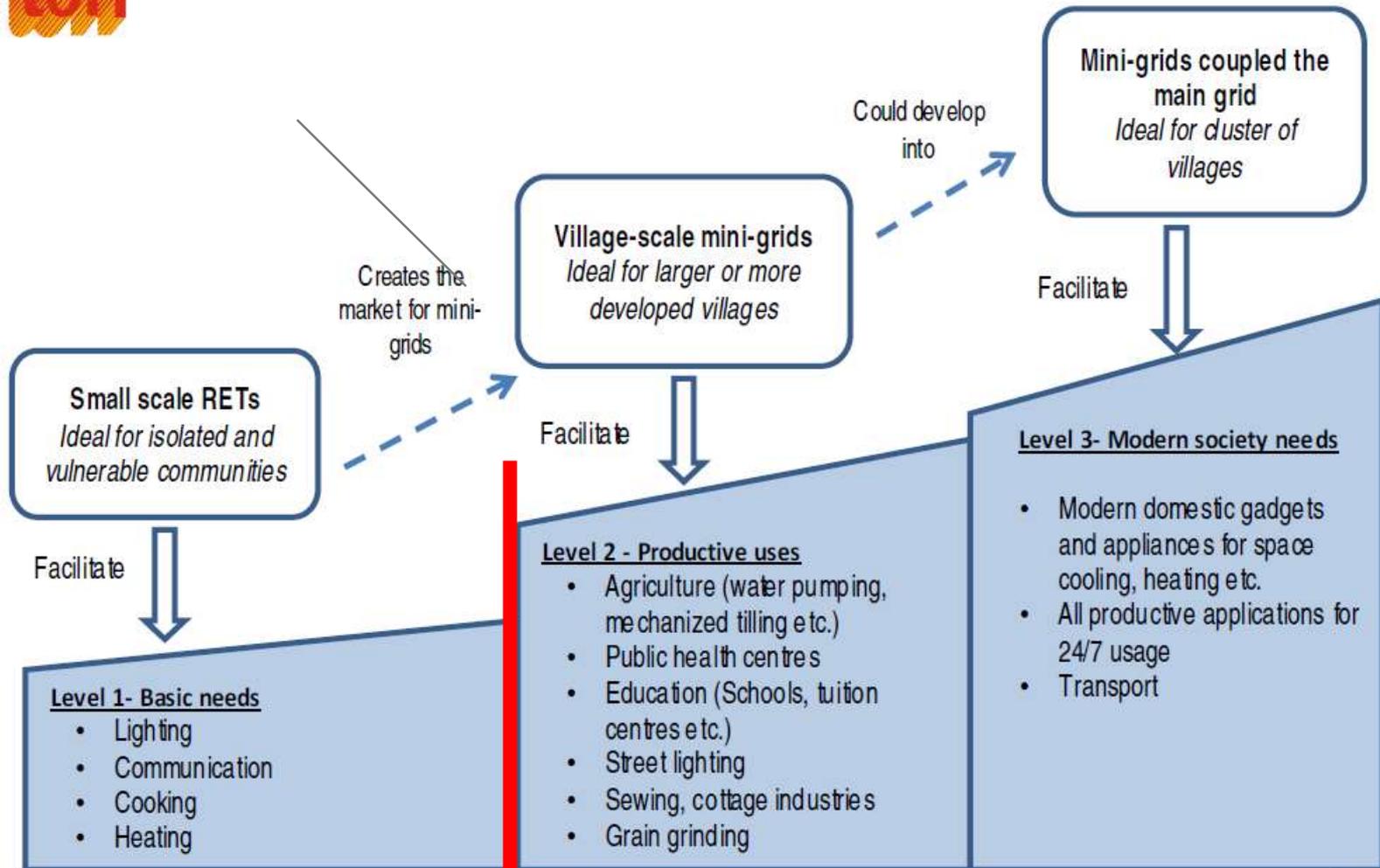
The generation point and load centre are across short distances so Solar-Nano-Grids have the advantages of less line loss and less line voltage drop compared to mini-grid systems.

# WHERE ARE WE? NOT WHERE WE'D LIKE TO BE...





# Framework for Scale up



Source: TERI, 2012

**Solar Nanogrids**



# **THE WIDER CONTEXT: KENYA AND DECENTRALISED ENERGY – THE INTERACTION OF READ AND SONG**

- **Decentralized systems (stand-alone solar PV systems and mini/micro-grids) currently estimated at 1% of total installed capacity.**
- **GoK would like to facilitate 100,000 new SHS by 2020, 200,000 by 2025 and 300,000 by 2030.**
- **Appropriate regulatory framework needed for mini-grids to enable private sector participation.**
- **No formal targets for off-grid electricity developed by GoK**

# SONG, THE G.O.K. AND ENERGY DECENTRALIZATION...

- **Constitutional change in 2010 introduced two levels of government, national and county governments which have distinct roles but, in places overlapping mandates.**
- **Rural Electrification and Renewable Energy Authority REREA is proposed under a new Energy Bill (not passed yet) to support county governments in electricity access**
- **GoK proposes utilizing funds from an Equalization Fund to support electrification in marginalized areas**
- **Each County Government is required to develop county energy plans in respect of its energy requirements**



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