RE-APPRAISING UGANDA'S ENERGY GEOGRAPHIES FOR SOLAR POWER TRANSITION: INSIGHTS FROM TWO SOLAR POWER PLANTS AND TWO PV MINI GRIDS.

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BACKGROUND

- Since the discovery of fire about 2 million years ago, energy has been an integral part of human lives and a crucial survival tool for the species.
- As a result of scientific discoveries, energy sources, types and uses have since evolved from low energy content sources to higher ones from muscular energy before the industrial revolution, to biomass in mid 18^{th} century, to coal in the 19^{th} century, and oil in the 20^{th} century.
- Most recently however, more efficient energy sources such as natural gas and nuclear energy are slowly replacing incumbent/traditional energy sources. Unfortunately these are not renewable sources.
- Renewable sources of energy, such as hydroelectric, wind and solar started to be tapped but have hitherto remained marginal sources owing to a variety of constraints, including constraints in the geographical space.
- With a climate problem at hand however, clean energy, much of it from renewable sources like solar have been identified as game changers and have been placed at the frontline of global climate action.

PROBLEM STATEMENT

- To avert global warming and the effects of climate change and other global environment change problems, the globe led by the science community has adopted transition to clean, low carbon energies like solar energy.
- Such a transition is expected to curtail carbon emissions and bring back global temperatures to safe pre-industrial levels.
- Even though there is a general global consensus on transition to cleaner energies, there is a dearth of information on how such transition will interact and disrupt incumbent geographical set ups across the globe.
- More questions also exist on the kinds and patterns of geographies that could be borne of transition to cleaner energy sources.
- This data inadequacy problem is compounded in African countries like Uganda with limited resources to conduct empirical studies in energy transitions, setups and their implications.
- With the insights from two solar power plants and two mini grid, this study is aimed at providing insights into the geographies of solar power transition and probing the implications thereof.

MAIN OBJECTIVE

This study aims to re-assess Uganda’s energy geographies and how they could affect and be affected by solar power transition.

SPECIFIC OBJECTIVES

- To examine the incumbent energy geographies for selected solar power infrastructure.
- To assess the geographical nature of solar power rollout for selected solar power infrastructure.
- To examine the relationship between specific energy geographies and the nature of solar power rollout.

RESEARCH QUESTIONS

1. What are the existing/incumbent specific energy geographies in Uganda?
2. What is the geographical nature of solar power roll out in Uganda?
3. How have the specific energy geographies in Uganda interacted with solar power roll out?
4. How has the scaling lens of energy geographies played out in the solar power roll out in Uganda?
5. Which likely energy geographies will be created by solar power transition?

MATERIALS AND METHODS

- This study will engage a case study design in which two solar power stations and two PV min grids will be selected for the surveys.
- Two solar power stations including; Soroti solar power plant in Soroti district and Lolwe island solar power plant in Lolwe island, Namayingo district, and two PV mini grids namely; Kanyegaramire and Kanyamugarura PV mini grids in Kyenjojo district will constitute the study area.
- Although Kabulasoke solar power plant in Gomba district is the biggest solar power plant in Uganda with a capacity of 20MW, Soroti solar power plant (10MW) has been purposively selected for this study due to the fact that it provides a bigger time spectrum of observation having been established in 2016 as opposed to 2019 for Kabulasoke and has therefore had a longer interaction on the geographical setup of the area than its counterpart.

MATERIALS AND METHODS'

- Lolwe solar plant was also purposively selected because being on an island, it presents a near perfect case of the relationship between energy geographies and solar power roll out since there are no significant geographical setups defined by other energy infrastructure.
- The two mini grids have been selected because; 1) They present a more rural setup as compared to the two solar power plants, thus presenting perhaps different geographical forces at play. 2) They are run by cooperatives thus their management and data records can easily be accessed.
- For the case studies, the study will employ a mixed methods approach. A cocktail of methods including but not limited to; household and community surveys, key informant interviews, focus group discussions, ethno-surveys, general mapping of actors, participatory mapping, GIS and remote sensing.

ON MY PONDER TABLE (???)

- What is the optimal time scale to study geographies of energy transition? 5 years, 10, 100? - Solved
- Which key variables define socio-economic setup in Uganda? Energy use dynamics, political inclusion, gender dynamics, landuse setup, egalitarianism, cost of doing business, …..? – Pending
- Which setups should the study focus on? Residential, industrial, all, landscape approach,….? - Solved
- For the areas/energy infrastructure chosen, what is to be taken as the baseline? Can it be done retrospectively if no baseline data exists? –Solved
- How shall we separate socio-economic configurations borne of solar power transition from those borne of other geographical phenomena such as industrial parks and other energy infrastructure other than solar. Are there such rigorous tools to make a clean cut differentiation? – Solved
- What should inform the criteria for choice of solar power infrastructure? – Solved

MANY THANKS FOR YOUR TIME

YOUR FEEDBACK IS HIGHLY APPRECIATED