

ABSTRACT

Access to adequate supply of energy is one of the developmental concerns of today that has attracted much international attention. The challenge is even greater with rural communities of developing countries particularly in sub-Saharan Africa. The effect of this is reflected in the low economic development of these rural communities and a persistent poverty cycle. In this study, ten remote rural communities in the Buila, Kassena-Nankana East and Atebubu-Amantin Districts were studied to assess the possibility of engaging decentralised energy system as an alternative to the centralised and conventional energy system which faces hindrances in being extended to these rural communities.

The study employed mixed method in case study approach with household survey, household in-depth interviews, and expert interviews of various levels from international experts to local experts at the District levels. The study found out that the energy needs of cooking, lighting, appliance, and economic activity are unmet or inadequately serviced. Again, the proportion of economic activities identified which depended on energy was insignificant: the agricultural sector was the dominant economic sector and depended more on human power and energy in the non-technicalised state. It was relatively easier for study communities in the Brong Ahafo Region to identify possible enterprise options with improved sources of energy than it was for study communities in the Upper East Region. From the perspective of income earnings of respondents, there was generally extreme inability to pay for decentralised energy alternatives, while the local financial support landscape was unfavourable. At the District Administration level, District Assemblies were found not to have strong mandates over their energy situations.

The study suggests that accessibility, availability and affordability are fundamental to improving energy access, given that there are no socio-cultural hindrances to adopting the decentralised energy option. The hybrid approach to energy provision is recommended. It is also recommended that a regulatory framework that operationalises the Renewable Energy Bill, and dissociates energy production from distribution is instituted to serve as an important leverage for potential investors. An energy committee is proposed to be formed at the District Administration which will ensure the implementation of the District energy development framework, and facilitate the collaboration between the District Administration, the Central Government, private investors, and the beneficiary communities. Productive uses of energy are also recommended to be incorporated into the decentralised energy models to ensure that access to energy promotes economic growth in these communities.

At the conceptual level, the study recommends that preconditions at the household decision making level, the energy environment system, and preconditions from external factors at the national and international levels are acknowledged in planning decentralised energy delivery.