



Tropentag, September 14-16, 2022, hybrid conference

“Can agroecological farming feed the world?
Farmers’ and academia’s views”

Socio-technical challenges of the implementation of small-scale biogas technology in rural areas of Cameroon

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Abstract

The implementation of biogas technology in Cameroon is still low, with less than 1% realisation of the available potential of household biogas plants. Consequently, rural households are still dependent on highly polluting energy sources such as firewood and charcoal. This study identifies the socio-technical challenges of implementing biogas technology and draws on the effects of these challenges to identify future perspectives for wider adoption and diffusion in rural households. Firstly, socio-technical problem analysis is performed in three stages; i) identifying the challenges in performing actions that lead to the implementation of technology, ii) exploring social and technical practices of various stakeholders, and iii) identifying the reasons of stakeholders for not adopting the practices. Secondly, the effects of these challenges on the implementation outcomes of the technology are deduced. Data were collected through content analysis of documents, a survey of thirty users of biogas technology (randomly selected from the West, Littoral, Central, Adamaoua and North regions of Cameroon) and observation of the production and utilisation practices. The results reveal that the rural biogas system is still poorly structured, with several social and technical challenges. The key challenges of the respondents include inadequate institutional support (83%) and knowledge sharing between biogas users (71%). Other challenges are low financial capacity (91%) caused by poverty, low involvement of women (23%) and biogas skills development (52%). Another practical issue is the overdependence on firewood, caused by the culture of ‘gathering’ firewood from tropical forests, which is usually cost-free. These challenges have reduced the trust and motivation of rural dwellers to adopt and diffuse technology. Sustainable action is required to ensure the adoption and diffusion of the technology. This can be made possible by creating technical and social niches to address the challenges that affect the implementation of technology.

Keywords: Adoption, biogas, Cameroon, diffusion, energy, niche, socio-technical