

Adoption and diffusion of biogas-based solutions for the rural population as a case of socio-technical change

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Biogas technologies have demonstrated significant potential for tackling energy challenges faced by the rural population in developing countries. The technology is widely known and has been tested in several regions. But looking at the dissemination of rural biogas solutions at a global level, different regions show very different developments. While some Asian countries exhibit large figures of installed biogas systems, the rate of biogas implementations is only marginal in other countries. Large-scale dissemination seems to be linked to long-term and continuous support programs. The high dependency on external financial support presents a serious difficulty for replication.

Understanding adoption and diffusion of biogas innovations as a process of socio-technical change, our paper starts analysing the challenges faced at the user level. The biogas systems are described as a set of functions, which require the allocation of resources by the users, who in return expect to receive 'benefits'. In a second step, the analysis is expanded to cover the functions of the supply structure, i.e. the network of actors providing services and goods along the life cycle of the technology. The proposed approach sheds light on the complexity of socio-technical adaption required to making biogas innovations 'self-evident' options. The findings suggest that the emergence of self-supporting market structures is rather unlikely. However, the proposed analysis can also help to discern how to allocate external resources that support the development of entrepreneurs and market structures in order to bringing the technology to scale.