

A systematic review of small-scale biogas projects in rural communities of South Africa— A Social Energy Systems Approach.

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Abstract

Finding a balance between “economics, energy security and environmental concerns” better known as the energy trilemma is a global concern. To address this energy trilemma, the South African government has introduced numerous policies in an attempt to increase the share of renewable energy use within the country’s energy mix. There are numerous state-private sector funded small-scale biogas energy projects in rural communities. However, the overall social impact of these projects is seldom appreciated or properly reported. The objectives of this review, therefore, are to understand the impact of small scale government funded biogas projects and to unravel loopholes between policy and practice. A systematic review of scientific literature searched from various large scientific databases spanning from 1994-2020 was done. To select studies for a detailed review, relevance set pre-defined criteria of relevance was used and analysed thematically. The review found several important themes, driven by the tendency of biogas implementers to apply linear top down approaches. To appreciate sociological perspective, we then reflect these themes through the lens of Social Energy System’s Approach (SESA), which is a new emerging multifaceted analytic approach, at least in the South African energy trilemma. We find no sufficient evidence to conclude that the implementation of small-scale biogas digesters follow SESA.

Keywords: renewable energy; Policy and practice; systematic review; South Africa