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Rural population and energy: Costs and benefits of biogas plants development at household level in three selected areas of Tigray, Ethiopia, Africa

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Biogas has micro and macro benefits which require sound investigation. Hence, this study was to assess costs and benefits of biogas at household level in three Weredas of Tigray in which the project is widely adopted. The study used both primary via questionnaire and secondary data from literatures. The sample size included 150 households selected via purposive sampling. The collected data were analyzed using cross tab with phi and Cramer's value and spear man rho's correlation. Most of the Female household heads that live in rural areas with no access to electricity and other modern alternative sources of energy are using Biogas. The size of digester of the biogas ranges from 6 meter cubic to 8 meter cubic. 6 meter cubic is common at household level. The total construction costs of biogas ranges from ETB 12,300 to 14,000 out of which only ETB 2,300 to 3,500 is covered by the users and remaining is covered by Government Organizations and NGOs. Biogas is used for lighting; baking; Boiling; cooking; and coffee making activities at household level. Location, owning cattle, feeding way of cattle, source of income and subsidy are main decision elements for adoption of biogas. Sustainable waste management, saving cooking and cleaning time, fertilizer production, saving kerosene and labor are benefits which differ as per size of digester of biogas. The benefiting capacity increases as size of digester of the biogas increases. The Biogas users are obtaining benefits while facing problems of biogas and its slurry. All concerned bodies need to give attention to female household heads in rural areas with regard to Biogas plants Development as this has a strong linkage with such part of the community and particularly the Government and NGOs need to adjust their incentives and interest rate of their loan including the Microfinance institutions to cover portion of Biogas initial cost as per the capacity and demand of the users. All stakeholders of Biogas need to focus on the decision elements and to recognize the Benefits of Biogas that differ as per the size of digester of the biogas so that to act accordingly.

Biography

Rahwa Gebre Tesfahuney is working as an Assistant Professor at Institute of Environment, Gender and Development Studies at Mekelle University, Ethiopia. She did her MSc in Consumer Studies-Marketing and Consumer Behavior in Wageningen University.

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