

Master Thesis

“Comparing socio-economic outcomes of Productive Use of Energy interventions: Case Studies from India and Zambia”

Background

Mini-grids are not only a tool for providing sustainable energy access but also a driver of rural entrepreneurship and economic development. Beyond household electrification, mini-grids enable the productive use of energy (PUE) by supporting small businesses, agricultural processing, and other income-generating activities. However, the success of mini-grid projects in fostering rural entrepreneurship depends on several factors, including access to financing, capacity building, and supportive regulatory frameworks. This master thesis will explore and compare the social impact of different PUE interventions (i.e. deployment to individual's vs communities; government vs private...). The research is conducted in partnership with Customized Energy Solutions' CARES Initiative, which focuses on the productive use of energy in rural communities.

Introductory Readings

- Pueyo, A., & Maestre, M. (2019). Linking energy access, gender and poverty: A review of the literature on productive uses of energy. *Energy Research & Social Science*, 53, 170-181.
- Terrapon-Pfaff, J., Gröne, M. C., Dienst, C., & Ortiz, W. (2018). Productive use of energy– Pathway to development? Reviewing the outcomes and impacts of small-scale energy projects in the global south. *Renewable and Sustainable Energy Reviews*, 96, 198-209.
- Cabraal, R. A., Barnes, D. F., & Agarwal, S. G. (2005). Productive uses of energy for rural development. *Annu. Rev. Environ. Resour.*, 30(1), 117-144.

Tasks and Goals

- Conduct a systematic literature review on the relationship between mini-grids, PUE, and rural entrepreneurship development.
- Analyze different models through which mini-grid projects integrate productive use of energy (PUE) to support local businesses and their socio-economic outcomes.
- Conduct empirical research from PUE initiatives by CAREs across India and Zambia.

Requirements

- Strong analytical and critical thinking skills.
- Interest in sustainable entrepreneurship, and social impact.
- Excellent English skills.
- Independent and structured working style.
- Successful completion of the Advanced seminar Sustainable Entrepreneurship – Theoretical Foundations for Master Thesis, OR Sustainable Energy Entrepreneurship with a minimum grade of 2.0 is required

Details

- Supervisors: Dr. Alessia Argiolos
- Start: Flexible / As of now.
- Working time: 6 months, with the option of 4 weeks of fully-funded research stay in India or Zambia

Contact

If you are interested in writing your thesis at our Chair or have questions about this topic, please contact Alessia Argiolas (alessia.argiolas@tum.de). To apply, send an email including your CV, and the current transcript of records (as one PDF file). We are looking forward to working together with you!