

1. Title: Impact of shocks on the implementation of the energy transition in Ethiopia

2. Name main applicant and co-applicants (with contact info, position and faculty)

Main Applicant: Dr. L. Jacobs, assistant professor, IBED, Faculty of Sciences, l.h.jacobs@uva.nl

Co-applicants:

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Dr. E. Krueger, assistant professor, IBED, Faculty of Sciences, e.h.krueger@uva.nl

Dr. E. Dinssa, assistant professor Mekelle University (research career interrupted since 2020 due to the war in North Ethiopia), etefag@gmail.com

3. Societal case

Recently, global events (e.g. COVID-19) and regional/local shocks (e.g. climatic; war) have imperilled sustainability transitions in the Netherlands, the EU and globally [e.g. 1,2,3]. Low-income countries are disproportionately affected, and progress in SDG 7 is particularly hampered [1,3]. Marginalized communities often bear the brunt of these setbacks due to the intersection of socio-economic and climate inequalities [4].

Ethiopia's electrification plan [5], targeting universal access by 2030, is threatened by recent war, climatic shocks and natural hazards. The conflict diverts funds from energy projects [6] and delays push people to rely on woody biomass for energy, resulting in deforestation and land degradation (SDGs 13-15) as well as impacting human health through household air pollution (SDG3) [7], particularly for women (SDG5) [8].

This project proposes an interdisciplinary approach to understand the impacts of various shocks on national and regional energy access and the ripple effects on SDGs. It prioritizes affordable and clean energy for marginalized communities, aiming to inform future policies through a better mapping of household needs, accounting for setbacks, anticipating shocks, and understanding complex SDG interdependencies so that trade-offs can be mitigated.

4. Scientific case

The central research question is: "How is energy access in Ethiopia impacted by shocks, how does this depend on the socio-economic situation of households, and how does this impact other SDGs?". Studies investigating past and future trajectories often focus on long-term, spatially averaged developments, neglecting shocks, and hiding regional heterogeneities. The aftermath of a war can provide a critical window to rethink energy policies, in order to ensure alignment with the post-war realities, including universal access to affordable and clean energy with positive spillover effects to other SDGs (e.g. SDG5) [9].

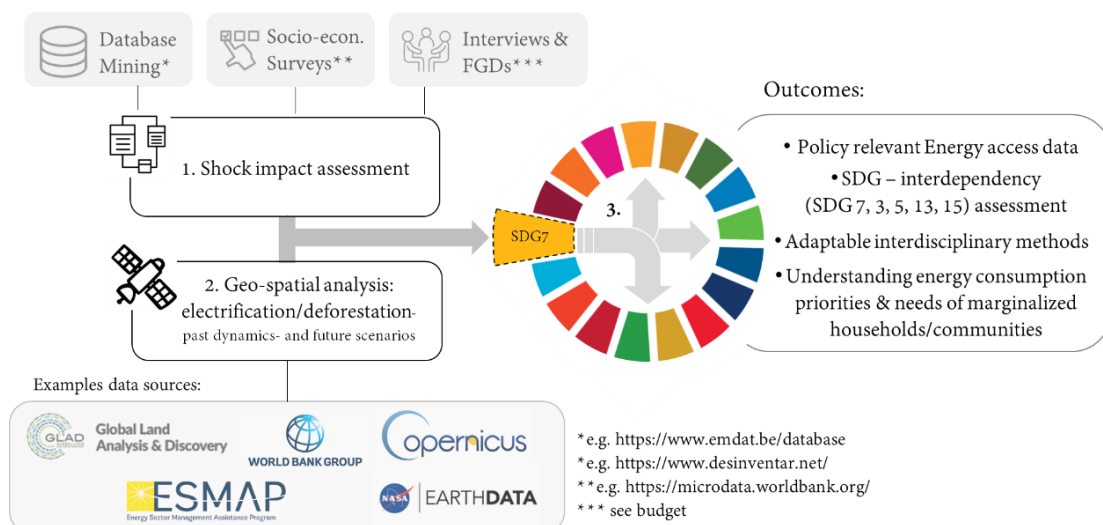


Figure 1: the 3-component methodology (1-3) together with the intended databases and outcomes.

Figure 1 represents the three-component methodology and its intended outcomes. Database mining, surveys and expert interviews will be conducted to map out the impact of shocks affecting Ethiopian households over the past 2 decades (1). Geo-spatial analysis will be used to reconstruct past trends in electrification, scrutinise future projections and understand spatio-temporal dynamics in deforestation (2). Finally, (1) and (2) will be linked to SDG indicator progress and SDG interdependencies (3). The proposed method is innovative in its multi-scale, inter-disciplinary approach and can be adapted to various contexts, contributing to the global understanding of resilience in vulnerable societies where people live close to primary safety level.

5. Contribution to the aims and success indicators of ENLENS (max 300 words in total).

A. How will your project evolve after the proposal research/activity. What is the long-term goal?

The interdisciplinary nature of this project will be further developed into an NWA-ORC. Moreover, the possibility for Horizon Europe funding will be explored, as the *Sustainable, secure and competitive energy supply* call (HORIZON-CL5-2024-D3-01) explicitly encompasses an Africa-EU CO-FUND action.

B. Why and how does your project contribute to the UvA-community of interdisciplinary research and ENLENS more specifically?

Our project proposes a unique combination of remote sensing/data mining led by IBED/FNWI and qualitative research led by GID/FMG that is applicable in data-scarce areas. It is furthermore co-developed by Dr. Dinssa, a researcher with decades in-field experience in Ethiopia. This raises UvA's profile in interdisciplinary research and fortifies the experience within ENLENS in North-South collaboration.

C. ENLENS aims at broadening the community beyond the group of project PI's. Describe how your project will contribute to this goal, with at least one of the following:

C1 (external partners): This project initiates a collaboration with Mekelle University (MU), one of the leading universities in Ethiopia located in Tigray region, laying a foundation to establish long term south-north collaboration between UvA and MU. MU contributes its expertise in field work activities and data collection. In addition, Dr. Dinssa is supported by the IIE-SRF (Institute of International Education), complementing this research proposal with a scholar rescue fund of 25,000 euros.

C2 (teaching): Insights from this project will be embedded in teaching of courses at the master level (course: Human-Environment Interactions, MSC Earth Sciences) and bachelor level (guest lectures in Future Planet Studies). The international focus can also attract additional students from these tracks for their thesis research.

C3 (Outreach and dissemination): We are linked with the sustainability platform of the UvA and are experienced in outreach beyond the university walls, for example through Folia, lectures or media interviews. Specifically, in Africa we are linked to the INCLUDE Knowledge platform for inclusive development in Africa. In coordination with ENLENS, we are keen on undertaking such initiatives wherever these would aid in disseminating ENLENS and UvA's ambitions regarding energy transitions and sustainability in general and how such targeted research funding can boost interdisciplinary north-south collaborations on the topic of energy security, equality and sustainability.

6. Budget

Two faculties (FNWI and FMG) each request an amount of 15,000€, which is intended to finance the research of Dr. Dinssa as an interdisciplinary post-doctoral researcher and is complemented with his own financing through the IIE-SRF (25,000 euros). In addition, we request an additional 5,000 euros for in-field data collection by MU, i.e. in depth expert interviews and focus group discussions in urban and rural focus areas. This seed grant (total: 35,000€) will allow setting up a strong, novel, interdisciplinary collaboration that can be instrumental in obtaining funding through 'normal budgets'.

7. References

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