Leverhulme Doctoral Scholarships Programme for Interdisciplinary Resilience Studies (PIRS)
University of Southampton

RECRUITMENT CYCLE for studentships starting: <u>October 2025</u> (Cohort 2)

SUPERVISORY TEAM

Primary Supervisor	Dr. Jen Dickinson
School & Faculty:	School of Geography & Environmental Sciences, FELS
Email:	J.Dickinson@Southampton.ac.uk
Co-Supervisor	Dr. Nick Dorward
School & Faculty:	School of Geography & Environmental Sciences, FELS
Email:	n.dorward@soton.ac.uk
Additional Co-Supervisor(s):	Prof Felix Eigenbrod
School & Faculty:	School of Geography & Environmental Sciences, FELS
Email:	f.eigenbrod@soton.ac.uk

STUDENTSHIP PROJECT TITLE

Accounting for remittances in modelling sustainable energy transitions in African cities

---

OVERVIEW

African cities are undergoing rapid growth, with development partly funded by overseas remittances. However, the impacts of this on clean energy transitions is poorly understood You will address this gap by combining innovative qualitative and quantitative data sources on remittances and renewable energy deployment in African cities.

SUMMARY

This PhD investigates the potential of migrant remittances to drive renewable energy transitions in rapidly urbanizing African cities. As urban populations densify, energy demand increases, straining existing infrastructure and intensifying fossil fuel reliance. Data gaps and limited exploration of the contribution of remittance flows hinders

comprehensive planning. This project addresses these gaps by examining how remittances—typically studied indirectly in terms of increased fossil fuel use—might also support investments in clean energy technologies, thereby enhancing urban sustainability.

Using a mixed-methods approach, the research combines quantitative analysis of remittance and energy consumption data with qualitative insights from migrant-sending households and stakeholders in selected African cities. Statistical methods will be used to link remittance flows to deployment of renewable energy, identifying both positive and negative pathways. Qualitative methods will uncover how remittance recipient households are incorporating renewable energy solutions into their lives and the cultural and socioeconomic factors influencing these decisions. Policy frameworks around green financing, diaspora engagement and their effectiveness for sustainable energy transitions will be evaluated.

By developing a comprehensive model of how remittances can influence renewable energy uptake, this project offers policymakers a foundation for more inclusive urban energy planning. The findings have implications for leveraging transnational capital to support Africa's sustainability goals, advancing knowledge at the intersection of migration, energy, and urban resilience.

The candidate will benefit from affiliation from the Centre for Transnational Studies. International research networks of the supervisors will assist in refining case studies and data sources.

PROJECT CONCEPT

1. Rationale

The African continent is undergoing a rapid urban transformation the scale of which is historically unprecedented (Fox and Goodfellow, 2022). The number of people living in urban areas will surpass 1.34 billion by 2050 and by 2100 the continent will host most of the world's cities (Hoelscher et al., 2023). The patterns and drivers of African urbanisation are fundamentally distinct from those historically experienced elsewhere (Fox and Goodfellow 2022; Randolph and Storper, 2023). Dramatic increases in life expectancy underpin urban growth on the continent (Fox, 2012), allowing cities to grow from within and new urban centres to emerge in formerly rural areas (Menashe-Oren and Bocquier, 2020; Fox, 2017). Additionally, remittances from internal and international migration contribute to new patterns of land development and real estate speculation (Obeng 2010, McGregor 2014).

This rapid urban growth has not been supported by agglomeration or the development of an industrial base (Randolph and Storper, 2023; Fox, 2017), so infrastructure development often lags population growth (Dorward et al., 2023). This presents numerous challenges including the supply of energy to growing cities in a sustainable manner. In 2020 only 2% of electricity in Africa came from renewable sources (IRENA

2021), and nearly half the population is without access to electricity. As such, a lot of new generation capacity will be required to meet the demand of growing cities. Fortunately, rapid falls in prices for solar panels and battery storage (IRENA 2024) could mean that this demand is met by small-scale, off-grid renewables, bypassing the need for grid access. New open-source datasets that take advantage of crowd sourced data (e.g. Open Street Map) can help identify where solar installations are being installed (Dunnett et al. 2020).

An under-explored source of funding for new renewable electricity generation is migrants' monetary remittances. Remittances can fund unsustainable development that leads to increased fossil-fuel use (Mills 2023) but there is emerging evidence that remittances have the potential to enhance access to cleaner energy sources and technologies (Abba Yadou et al 2024). Remittances can finance renewable energy projects and services at different scales, providing necessary capital for investments in clean energy technologies, enabling household and community affordability and consumption (Farzana et al 2024; Subramaniam et al., 2022; Karmaker et al., 2023). Accordingly, new remittance-led clean energy financing mechanisms are emerging globally and nationally, such as green diaspora bonds and sustainable innovation funds (IOM 2023)

Research at the intersection of remittances and energy consumption reveals several gaps that warrant further research, particularly regarding the mechanisms and geographical contexts through which remittances influence renewable energy consumption and investment. Researchers have identified only an indirect causal link between remittances and changing patterns of fossil fuel use (Mills 2023). The pathways, impacts and influencing factors remain unclear (Mills 2023, Farzana et al., 2024). Existing literature primarily addresses macro-scale dynamics in top remittance-receiving countries, neglecting a more nuanced and fine-grained analysis of different urban and rural contexts. There has also been insufficient exploration of the socioeconomic dynamics, norms and policy governance structures affecting changes around energy consumption within transnational and migrant-sending households.

Researching the impact of remittances on changes in the nature and type of energy has primarily involved methodologies that leverage statistical models and empirical analyses of macro trends. Data on energy consumption at a finer scale – particularly in African cities – is sparse. Thus, analysis is hindered by several statistical data (Boer et al 2015) as well as missing qualitative sociological understandings around the beliefs, practices and governance around the use and uptake of green energy technologies in transnational migration contexts. This PhD presents an opportunity to address these limitations by engaging novel sources (such as mobile phone, energy usage and crowdsourced data) combined with in-depth qualitative research into how remittances in migrant-sending households are governed, used and feed into energy consumption patterns.

2. Research aims/objectives

The overall aim of this PhD is to generate comprehensive frameworks to identify the mechanisms that connect remittances to renewable energy transitions in African cities undergoing rapid urbanisation and densification.

1. Identify the mechanisms through which migrant remittances influence renewable energy investments, affordability, and consumption.

2. Generate and develop novel sources to link migrant remittances to urban energy consumption patterns and deployment of renewable energy installations, including private-sector datasets.

3. Qualitatively explore how migrant households utilise remittances for energy needs, technologies and consumption, including the influence of changing norms around sustainable practices.

4. Analyse the role of policy environments and innovative financing models in supporting renewable energy use.

5. Assess the implications of remittances for long-term sustainability in African urban contexts.

3. Design and methods

This research will combine quantitative and qualitative methods as follows:

1. **Statistical data gathering and analysis:** gather remittance and diaspora investment data, linking them to novel sources on urban energy consumption, socio-economic characteristics, and migration patterns. Using regression analysis to identify relationships between remittance flows and energy consumption in selected African cities.
2. **Qualitative methods,** using i) interviews and participatory techniques such as diary methods with migrant-sending households to explore the influence of remittances on household energy practices and sustainability beliefs, ii) focus groups in key urban areas to gather insights from stakeholders, including government officials financial institutions, and iii) interviews with green energy investors to evaluate policies around diaspora engagements and green investment
3. **Policy Review** of existing policies and regulations related to remittances and renewable energy financing including diaspora bonds

4. Implications

The project has significant implications for both theoretical frameworks and policy development. In developing a more comprehensive model of remittances and renewable energy consumption the project will bridge gaps in understanding how remittances can

support urban sustainability goals in urban Africa. This is important in a context where the imperative of ensuring a sustainable urban transition has been placed firmly at the feet of low- and middle-income countries (Fox and Goodfellow, 2022). Furthermore, by addressing data limitations and using interdisciplinary methods, the project offers deeper insights into the role of migration in shaping sustainable urban energy futures, with applications for policymakers and private-sector actors.

Contribution to interdisciplinary resilience studies:

The project contributes to interdisciplinary resilience studies by integrating theories, methods, and perspectives into a comprehensive framework that can address the causal mechanisms by which migrant remittances can both hinder and support sustainable energy transitions in high-growth urban areas, often subject to fluctuations in fossil fuel prices and energy shortages. Urban sustainability studies provide a framework for understanding the densification of urban environments for infrastructure and resource resilience. Anthropological and sociological perspectives within migration studies provides additional concepts to understand how flows of practices, norms/ideas and finance — typically studied in terms of their impacts on poverty alleviation, healthcare, and education — might influence environmental sustainability and energy use. This project's use of mixed methods reflects an interdisciplinary approach that combines data science with qualitative methods, to offer a richer and more comprehensive understanding of how remittances can influence renewable energy transitions in urban African contexts.

Please list and describe any specific/additional technical training or support to undertake and successfully deliver this project. *Note that students recruited into this programme will undertake a bespoke training curriculum. Students and their supervisory teams will also identify generic skills gaps to address through training courses offered by the University's Doctoral College.*

Depending on the background of the student, they may need training in

- Statistical data analysis methods, such as regression analysis
- Qualitative research methods training, such as interviews, focus groups, participatory research methods
- Research ethics and responsible research