

# Affordable Electricity for Remote Rural Communities

**What happens when a village gains access to solar power?  
Prof. Frank-Martin Belz and his team work in rural regions of  
developing countries to examine which entrepreneurial activi-  
ties unfold with the benefit of electricity.**

Link

[www.ie.mgt.tum.de/en/sustainability](http://www.ie.mgt.tum.de/en/sustainability)

[www.seed.tum.de](http://www.seed.tum.de)



Mali  
Kenya  
Uganda

Gesamter Artikel (PDF, DE): [www.tum.de/faszination-forschung-30](http://www.tum.de/faszination-forschung-30)

## Bezahlbarer Strom für entlegene Dorfgemeinschaften

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Prof. Frank-Martin Belz baut in ländlichen Regionen von Entwicklungsländern Reallabore auf und untersucht, welche unternehmerischen Aktivitäten sich entfalten, wenn eine Energieversorgung vorhanden ist. Seine ehemalige Doktorandin Esther Salvi erforscht die Schattenwirtschaft in solchen ländlichen Regionen. Der Sektor wird vom Staat weder reguliert noch besteuert oder beaufsichtigt und ist von mündlichen Absprachen, Traditionen oder Riten geprägt.



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**Prof. Frank-Martin Belz**

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studied business administration at the University of Mannheim, before receiving his doctorate and qualifying as a professor at the University of St. Gallen (Switzerland). He is a Professor of Corporate Sustainability at the TUM School of Management and Director of the TUM SEED (Sustainable Energies, Entrepreneurship and Development) Center, which pursues an international and interdisciplinary approach.

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“**A**round 700 million people around the world have no access of any kind to electricity. The majority live in sub-Saharan Africa – in locations far from national electricity grids. In such cases, mini-grids consisting of photovoltaic systems and batteries can provide a reliable supply of affordable electricity for entire villages,” explains Frank-Martin Belz, Professor of Corporate Sustainability at TUM.

Rural communities can use these mini-grids to turn their mills, operate water pumps to irrigate their fields, and thereby advance the local economy. In most cases, these local economies are made up of small, family-run agricultural businesses. However, with a secure electricity supply at their disposal, local people could run an Internet kiosk, a TV bar or a clothing repair service.

In the past, Belz has examined the sustainability activities undertaken by large corporations in industrial nations. He was struck by the lack of willingness to embrace change. Belz, who is a keen triathlete, was determined to make a difference – so he changed himself. He reoriented his research, focusing on entrepreneurs “who pursue social and ecological goals, developing entrepreneurial solutions for sustainability-related problems”.

“As I move into the last ten years of my career,” the 57-year-old researcher explains, “I am investigating the relationship between sustainable energy systems and entrepreneurship in the Global South. In addition to academic publications, I also want to create living labs by setting up mini-grids in rural areas and giving people access to electricity from renewable sources.”

*“I want to create living labs by setting up mini-grids in rural areas and giving people access to electricity from renewable sources.”*

Frank-Martin Belz

One such living lab has been set up in Kyampisi, Uganda, where researchers and project partners established an electricity grid, including storage, powered by 28 solar panels. The TUM research team is now analyzing the economic activities that develop when a local grid provides a secure electricity supply. In the past, papayas and mangoes had been left in the field to rot. Giving farmers access to power empowers them. It gives them the ability to cool and process their fruits. This allows them to grow commercially and increase their quality of life. ▶





From experience gained in a previous mini-grid project in Kenya, the researchers know that local electricity grid operators cannot rely on private customers alone in their efforts to turn a profit. Instead, they also need a certain number of small-scale entrepreneurs to purchase electricity. At present, the project participants are working with micro-businesses in Kyampisi to create a suitable business model capable of driving sustainable development. A second factor relates to social aspects: once people achieve commercial success, they find themselves with a financial obligation to their extended family. It is therefore important to research the paths that new entrepreneurs

forge, how their family situations change and what opportunities are open to women. Another area of research focuses on the informal economy, which Belz and his team has investigated in Mali.

To Belz, the current situation in rural regions of Africa is reminiscent of Germany in the early 1900s, with the establishment of energy supplies laying the foundations for economic success. By 2030, the Konstanz-born researcher aims to implement the infrastructure required to electrify eight villages in various African countries, thereby aiding and supporting the development of around 8,000 people. ■

*Eve Tsakiridou*

# Informal Economies: The West Needs to Abandon its Misconceptions

**As a PhD student at the Chair of Corporate Sustainability, Dr. Esther Salvi conducted field studies in rural Mali to find out how informal economies work. The sector follows uncoded rules such as oral agreements, traditions and rites. It is the part of the economy that is neither registered, taxed nor monitored by the state.**

## **Dr. Salvi, how did you arrive at your field of research?**

I spent several weeks in five rural villages in Mali, conducting interviews with shop owners, farmers, agriculturists, welders, hairdressers, village chiefs, women leaders and religious leaders. The more I talked to these entrepreneurs, the more I understood the key role they play within their society and for local development. I noticed that they do not fit into any “classical” entrepreneurship box. I realized how important it is to understand their culture, the unwritten rules guiding their behavior and economic activities.

## **So how is your field of research different from others?**

In its interdisciplinarity and the need to abandon our Western misconceptions. To truly understand how rural informal entrepreneurs operate their ventures in some of the most fragile settings in the world – with absent or ineffective state authorities – and how they create value for their society, you also need to take a sociological and anthropological perspective. ▶

### What are the most important findings of your project?

Informal entrepreneurs in rural Mali are facing formal fragility due to the lack of effectiveness of the national government, which is too far from the local villages to truly understand their needs, intervene in local dynamics, and provide functioning services and infrastructure. However, the rural villages are characterized by a high level of stability in terms of informal institutions, which guide entrepreneurial activities. These informal institutions differ across villages and are constituted by large family rules, community practices and ethnic traditions.

For example, in agricultural villages you are not allowed to start an enterprise if you do not harvest your family field beforehand, or if you do not provide for the livelihood of your large family, which generally includes a husband and wife, plus the husband's parents, husband's brothers and unmarried sisters, children, husband's grandparents and so on. You also need to make sure that the chief of the village gives you permission to start your business in the village.

### What impressed you the most?

I was most impressed by how rich the rural villages are. We usually see them as settings that are "lacking": they lack infrastructure, they lack reliable access to electricity, they lack enforcement of formal rules, etc. However, they are extremely rich in terms of cultural practices, traditions and social values. Rural villagers, including informal entrepreneurs, truly care for each other, understand each other and support each other through reciprocity and solidarity practices. They tend to engage in their daily activities prioritizing collective rather than individual needs. Entrepreneurs in rural Mali thus show us examples of alternative business models beyond the capitalist one.

### Besides this, what can we do with the knowledge of informal economies?

Basically, you cannot succeed as an entrepreneur in rural Mali if you do not understand these dynamics, nor can you succeed as an NGO or social enterprise willing to work in this setting if you do not understand the informal rules. ■

*Eve Tsakiridou*





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### Dr. Esther Salvi

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obtained her PhD at TUM School of Management, where she graduated with highest distinction in May 2023. In her dissertation she developed a theoretical basis for informal economies. During that time, she served as research assistant at the Chair of Corporate Sustainability at TUM and as research coordinator of the TUM SEED Center. In her Bachelor's degree, Esther Salvi studied food technology (University of Turin) and she holds a Master's degree in Nutritional Sciences (University of Milan). In May 2023, she started a postdoc position at LMU School of Management in Munich.

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