

Blog “Sustainable Land Management in Sub-Saharan Africa: Improving livelihoods through local research”



INTRODUCTION



Our blog is intended for project staff as well as interested stakeholders from science, policy and practice, to share experiences and mutually learn. It is an opportunity to showcase the multi-faceted nature in which we improve livelihoods and support sustainable land management through local research.

This current blog, collaboratively written by the DeLaRe colleagues from PIK and WASCAL, discusses a recent research effort in Northern Benin, where a unique mental model methodology to collect data has been employed to explore how different local communities' groups perceive the benefits, limitations and border of holding an ADC.

UNDERSTANDING LOCAL PERCEPTIONS OF LAND TENURE SECURITY IN NORTHERN BENIN USING MENTAL MODELS

In Northern Benin, like many parts of West Africa, land tenure security is crucial to sustainable land management and community well-being. Land tenure security refers to the assurance that individuals or groups have over land ownership and use rights. Secure land tenure is generally associated with increased investments and engagement in land improvements, as landowners feel confident that they will benefit from their efforts in the long term. In Benin, a customary land title known as “*Attestation de Détention Coutumière*” (ADC) serves as a form of legal recognized land tenure. This blog discusses a recent research effort in Northern Benin, where a unique mental model methodology to collect data has been employed to explore how different local communities' groups perceive the benefits, limitations and border of holding an ADC. The preliminary findings of the study offer valuable insights

that inform policies genuinely reflecting the actual needs and concerns of local communities.

WHY USE A MENTAL MODEL-BASED METHODOLOGY?

Mental models are an interactive and participatory research approach that captures how people think about a particular issue by mapping their beliefs, values, and perceptions. A digital mapping and modelling tool called M-Tool is used to collect and analyse mental models' data¹. M-Tool is specifically adapted for rural contexts with low literacy levels and where comparisons between different socio-demographic groups are intended. This implies the simple use of visual icons, arrows, audio prompts and other signs by participants to create visual maps of their thoughts on the benefits, limitations, and implications of land tenure security for sustainable management. By examining these maps, researchers can understand the complex and often subtle ways in which local communities connect land tenure security to their livelihoods and to broader aspects of sustainable land management.

FIELDWORK FOR DATA COLLECTION ON MENTAL MODELS IN NORTHERN BENIN

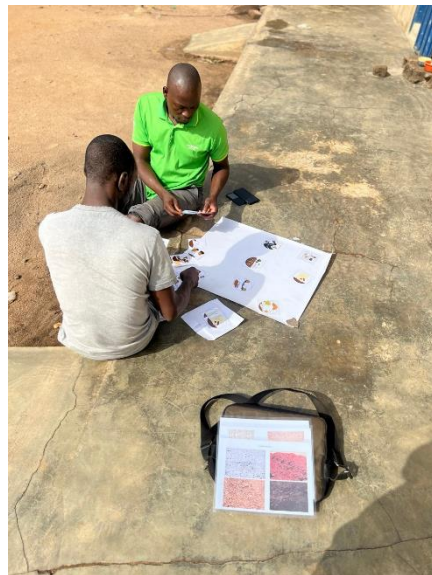
Fieldwork has been conducted with 300 households surveyed across 10 localities in Borgou and Donga departments of Northern Benin to collect mental model data and local insights to inform sustainable land management. To capture diverse perspectives, participants were from different socio-demographic groups of farmers including men, women, migrants, and non-migrants. Using M-Tool setup on different tablets with 13 visual icons as drivers, audios, arrows, and the signs “+” and “-” respectively to indicate positive and negative impacts, participants were asked to link their perceptions on the benefits, limitations, and implications of ADC to sustainable land management.

¹ Broek, K. L. van den, Klein, S. A., Luomba, J., & Fischer, H. (2021). Introducing M-Tool: A standardised and inclusive mental model mapping tool. *System Dynamics Review*, 37(4), 353–362. <https://doi.org/10.1002/SDR.1698>

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The data collection began with a pre-test in the field where the M-Tool was tested on the tablets with a sample of farmers to assess the ease of comprehension of the visual icons and their user-friendliness. During the main data collection and in each locality, the field agents started the community engagement by meeting the communities' chiefs for introduction and presentation of the study's objectives. At farmers' level, consent was first secured from each respondent, followed by explanation, initiation and simulation with M-Tool, and then the data collection. These first steps to engage the local communities are essential to foster trust and legitimacy with them.



Left: A man participating in survey data collection, with other curious farmers observing the process during the testing phase; Right: A participant drawing a mental model map using physical icons and arrows provided.

However, conducting this data collection was not without challenges. Indeed, like any fieldwork in general, the field agents went through logistical hurdles as well as some reluctance. In most of the localities, access to migrant farmers (as we were also interested in migrant farmers' perceptions) was difficult, because they generally live far from the localities centre, although they are part of the communities. Community

entry was challenging when localities and hamlets subdivisions were unknown. This difficulty has been managed by integrating into our planning and strategy, allowing to overcome it, e.g. by readjusting the fieldwork duration. The language barrier was challenging, requiring hiring and training local translators, to ensure accurate translation and good understanding of the visual icons and key terminologies, contribution to an efficient utilisation of M-Tool. Another challenge was the reluctance of some farmers both women and men because of the complete digital features and functioning of M-Tool. Some were also worried that signing consent forms might mean selling their land. In some cases, misconceptions arose with a few of respondents humorously mistaking the field agents for medicines sellers. However, by clearly explaining the objectives of the study and data collection emphasizing the benefits of the outcomes for them, field agents have been able to overcome these challenges and efficiently collect the data. Finally, men were typically away in the mornings for fieldwork, so field agents prioritized interviewing women during this time, and men in the afternoons when they return.



Left: A participant creating his mental model maps using the app on the tablet; Right: A woman participating in survey data collection, with curious children observing the process.

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Despite all these challenges, most of the farmers were wholeheartedly fully engaged; contributing valuable insights that helped deepen and enrich the understanding of local perspectives on the implications of land tenure security, particularly the ADC for sustainable land management.

KEY INSIGHTS FROM THE PRELIMINARY FINDINGS

Although the data analysis is still ongoing, below are two key insights from the preliminary findings.

- **Gendered perspectives:** Men typically highlighted the implications of ADC in fostering investments in agriculture, associating secure land tenure with increased financial stability. On the other hand, women emphasized the importance of ADC security for family stability, seeing it as a safeguard for their children’s future.
- **Migrants’ vs non-migrants’ perspectives:** Migrants perceive the ADC as essential to protect their land from being taken away, addressing a fear they commonly experience. In contrast, non-migrants generally do not share this concern, as they feel more confident and secure in their land tenure rights.

These insights illustrate how land tenure security is perceived differently by various groups of farmers in Northern Benin, influenced by factors like gender roles and migratory status. This diversity of local perspectives is crucial for understanding the full range of implications that land tenure policies might have on different members of local communities.

POLICY RECOMMENDATIONS

The findings underscore the importance of developing land management policies that are sensitive to local realities. Indeed, when policies are informed by the lived experiences and perceptions of the people concerned or local communities, they are more likely to be effective and sustainable. In Northern Benin, policymakers could use these insights to design interventions that address the distinct needs of both men

and women, as well as migrants and non-migrants, ensuring that everyone benefits from secure land tenure.

The mental model approach used provides an adaptable tool for understanding complex social and environmental issues across different communities. By embracing such participatory methodologies, policymakers, researchers, and community leaders can better align their efforts with the needs and values of local populations, ultimately promoting sustainable land management practices that are both equitable and effective.

PHOTO CREDITS

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FOR FURTHER INFORMATION

Funded by the German Federal Ministry of Education and Research (BMBF), within the strategy of its platform [Research for Sustainability](#) (Forschung für Nachhaltigkeit, FONA), the **INTERFACES** project works with four regional projects – **COINS**, **DeLaRe**, **InfoRange** and **Minodu** – to strengthen the integration, coherence and reach in the area of sustainable land management.

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