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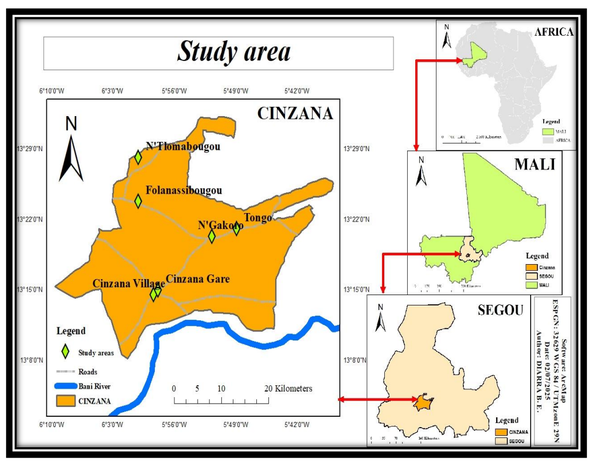
Perceived Impact of Climate-smart Agriculture on Millet Productivity and Farmers' Resilience in Cinzana Rural Commune, Mali

Introduction and problem statement

- ✓ Climate change threatens food security in Mali, particularly in the millet-producing region of Ségou.
- ✓ Farmers face erratic rainfall, declining soil fertility, and increasing pest pressure. **Climate-Smart Agriculture** (CSA) practices are promoted to enhance **productivity** and **resilience**, but their adoption remains uneven. Understanding farmers' perceptions is crucial for designing effective interventions.



Map of study area location: Cinzana commune.
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Objectives

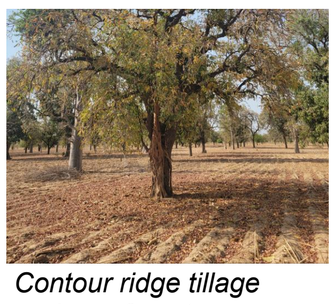
1. Analyse the CSA practices used in millet farming and their impact on **millet productivity** with a focus on yield data and input levels.
2. Examine farmers' perception of CSA and their **ability to cope with climate-related challenges.**
3. Identify the **main socio-economic** and **institutional determinants** of the adoption of CSA practices.

Methods

- ✓ Questionnaire-based survey among 110 millet-producing households
- ✓ Focus group discussions (4)
- ✓ Key informants' interviews (10)

Questionnaire-based survey in the climate-smart village of Tongo.

Application of organic fertilizer in pile.



Contour ridge tillage and agroforestry systems in Cinzana.

Results

Objective 1:

- ✓ The practices used most are organic fertilizer and Farmer-managed Natural Regeneration.
- ✓ Farmers reported 20-30% yield increases in a dry year.

Objective 2: coping mechanisms for climate-related challenges.

Uncertainty & planning
- Access to climate information services

Water stress (drought & flooding)
- Drought-tolerant millet varieties, mulching
- Contour ridge tillage, Zaï, Half-moon

Soil fertility & pests (Striga, nutrient loss)
- Organic fertilizer
- Farmer-managed natural regeneration, tree planting

Extreme events (wind, temperature, heavy rains)
- Tree planting, hedgerows, alley cropping

Objective 3: socio-economic and institutional determinants.

Socio-economic factors (equipment, education, farmers organization membership) strongly influence adoption levels.

- **Training and capacity building**
- **Input & Equipment Support**
- **Institutional Structures**
- **Income Diversification**
- **Gender & Social Inclusion**
- **Info & Exchange Platforms**

Conclusion and recommendations

CSA practices improve productivity and resilience but require better adaptation to local contexts.

Recommendation: Strengthen extension services, facilitating access to equipment, and tailoring CSA to farmers' realities.

Stakeholders: Rural Economy Institute researchers, Regional Agricultural Direction, policymakers, local farmers, NGOs, and international partners promoting CSA.

Partner institutions:

UNIVERSITY OF NAIROBI

zef Zentrum für Entwicklungsforschung Universität Bonn

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