



# Agroecology in the Context of Rural Development Interventions in Burkina Faso: a Smallholders' Livelihoods' Catalyst?

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## Background and Objective

In sustainable agriculture and rural development, agroecology has been taken up by various development cooperation actors, who stress the need for empowering resource-poor smallholder farmers. When becoming a key element of rural and agricultural development projects however, the agroecological concept runs the risk of being twisted by implementation actors and stuck in a unilateral focus on agricultural practices and conventional top-down extension.

In this context, we evaluate how rural development programs implemented under the umbrella of agroecology by the local NGO ARFA (Association pour la Recherche et la Formation en Agro-écologie) impact on smallholder farmers' livelihoods in Bilanga, eastern Burkina Faso.

## Questions

- Q1:** How is the concept of agroecology appropriated, diffused and adopted by the different project actors?  
**Q2:** What impact is specifically achieved on the 5 assets that constitute smallholders' livelihood base?  
**Q3:** Does this impact result in agroecology-based livelihood outcomes and why (not)?  
**Q4:** What differences arise between adopters and non-adopters as well as between adopters, and which mechanisms cause these differences?

## Field research

Semi-directed interviews with 90 farmers and 18 key personalities in 7 villages of Bilanga, in 2 phases.

**1st phase:** identification and analysis of farming systems (including cropping and livestock systems); agro-ecological zoning; historical and political contextualization of the region; understanding farmer households' priorities.

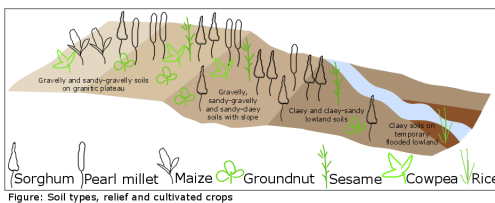
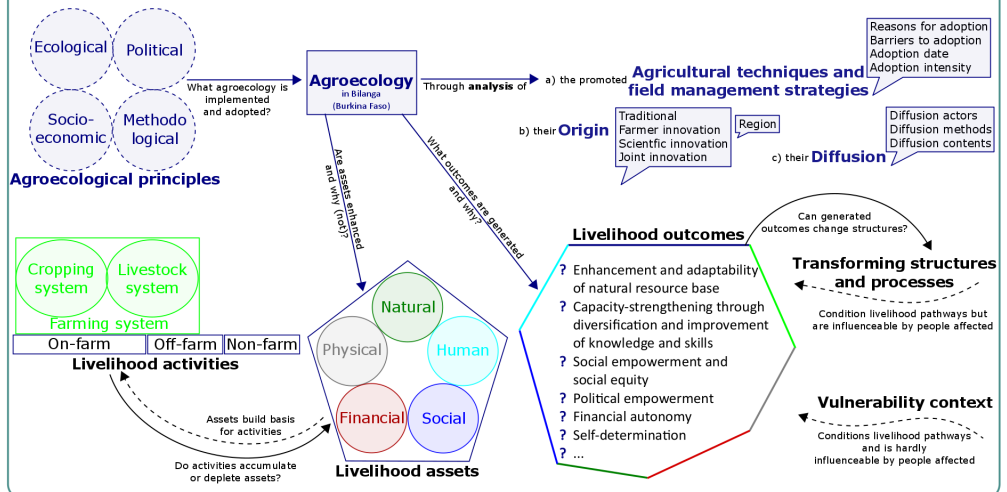


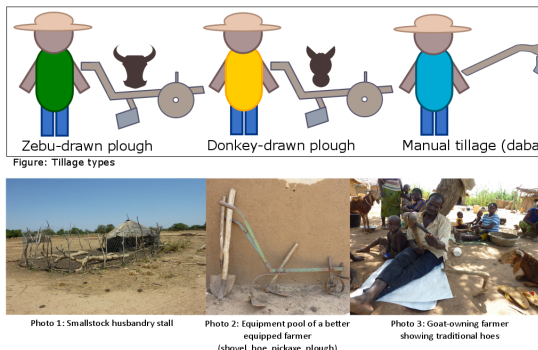
Figure: Soil types, relief and cultivated crops

## Methods

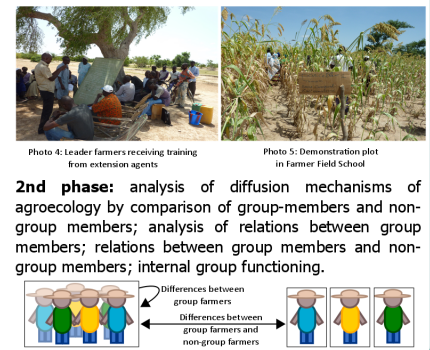
Conceptual framework: Combines the Anglo-Saxon **Sustainable Livelihoods Framework** and the francophone **"Agriculture Comparée"** related concepts for analyzing agroecology



## Differentiation criteria (1): tillage type, equipment pool, livestock husbandry



## Differentiation criteria (2): group membership



**2nd phase:** analysis of diffusion mechanisms of agroecology by comparison of group-members and non-group members; analysis of relations between group members; relations between group members and non-group members; internal group functioning.

## Results

**R1:** ARFA's main focus lies on the introduction of **agroecology-based farming techniques**: stone bunds; compost pits; trees planted in the fields; planting pits (Zai in the local language); improved early-maturing varieties; livestock manure use; conservation tillage with zebu- or donkey-drawn ploughs; seeding in rows; crop rotation; intercropping; permanent soil cover with crop residues; biological fertilizer based on *Trichoderma* spp.; biological insecticides with natural components like Neem seed powder; irrigated vegetable cultivation; organic sesame production. Farmers see these techniques as modern and innovative and have been adopting them in different intensities since their respective introduction.

**R2:** The **adoption** of the **promoted techniques** changes **farming systems** towards better resilience and productivity and thus strengthens the **natural capital** base on the field and farm level. It improves **financial capital** in the form of yields and related food sufficiency and potential source of revenue. These impacts are very positive and desperately needed in the context of severely and ever degrading soils, loss of vegetation, changing rain patterns and decline in yields over the last decade. The **diffusion** of the innovative techniques through **farmer groups** and **farmer field schools** has a strong positive accumulation impact on **human capital** in the form of knowledge and skills and on **social capital** in the form of social organization, and cohesion to a lesser extent. The provision of tools parallel to the introduction of the techniques accumulates **physical capital**.

**R3:** The **generated livelihood outcomes** are **partially agroecology-based**: farmers' natural resource base is enhanced and adapted to changing environmental conditions, farmers' capacities are strengthened through diversification and improvement of knowledge and skills. To a lesser extent, farmers' social networks are improved and their socio-political empowerment rises. Access to the organic sesame market created new opportunities but also contributed to farmers' dependency on external markets.

**R4:** The **full potential** of the described impacts is **limited** to a core group of farmers and it is the closer look on **nuances between farmers** that reveals important **discrimination**, mainly related to equipment pools, physical health (including age), knowledge access and social networks.

The techniques require **new knowledge** that is transmitted through farmer groups and farmer field schools, organized by ARFA in the region's villages. **Membership in farmer groups** is a **precondition** for accessing knowledge directly. **Access** to the groups and schools is **unequal**, depending on network and information access. **Leadership** is strongly tied to **literacy** and **social position**. Also, **knowledge diffusion processes** are split: leader group farmers get trained by extension workers and leader farmers then train other group members. Poor quality of training has been reported in several cases by ordinary group members.

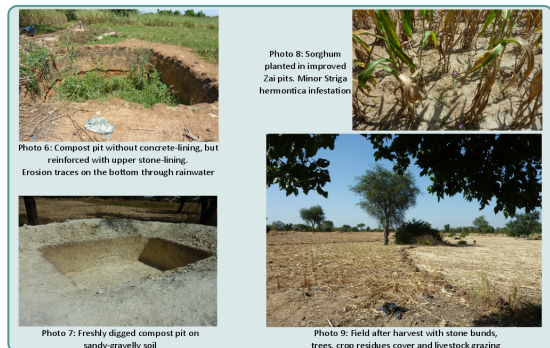
**Equipment grabbing** and misappropriation of funds by the groups' leaders is common and goes at the expense of the most deprived farmers. As a result, the most deprived cannot adopt the techniques as efficiently due to a lack of tools, which concerns farmers without ploughs even more because they are impeded by time and labor constraints.

**Farmer-to-farmer** transfer of knowledge from **group members towards non-group members** is weak and happens only in the case where non-group members explicitly ask for help. Non-group farmers acquire know-how mainly through **observation** and show **less efficient and less intensive adoption**.

## Conclusions

Agroecology in Bilanga is an NGO-introduced compendium of farming techniques that are based on the **ecological principles**. Their diffusion through Farmer Groups addresses some of the **socio-economic and methodological principles** of agroecology. The adoption of these techniques has a **positive impact on adopters' livelihood assets and creates partially agroecology-based livelihoods**. In this sense, agroecology can make a difference even if it is externally introduced, implemented through a mainly top-down knowledge diffusion process and focused on ecological principles foremost. However, impacts are **unequally distributed** between farmers and only partially lead to agroecology-based livelihoods.

By diffusing techniques that are innovative for farmers of the region and require both new knowledge and a certain stock of tools, ARFA creates **dependency from external aid**. Switching the strong focus on ecological principles of agroecology towards greater consideration of the other principles would allow for a **fairer access to resources** in the short term and the creation of **more truly agroecology-based livelihoods**, including social empowerment and social equity, political empowerment, financial autonomy and self-determination in the long term.



## References

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