Assessing a diversity of agroecosystems undergoing an agroecological transition

Results of the test of a Prototype method in four use situations in France and in Senegal

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Complexity of agroecology

- Polysemous
- Dynamic
- Multidimensional
- Multiscale
- Context-specific

Methodological challenges to assess agroecosystems undergoing an agroecological transition (AET)

Need to assess agroecosystems undergoing an AET

Assess to better understand and support agroecosystems undergoing an AET

Need to evolve evaluation approaches to cope with the complexity of agroecology

- Integrating several dimensions into the assessment
- Integrating several scales into the assessment
- Designing an assessment method involving end-users

McCown, 2002
Prost et al. 2018
Arulnathan et al., 2020

Designing the Prototype method: bringing together end-users' expectations with the literature

End-users' expectations → Conceptual framework

Assess **a diversity** of agroecosystems undergoing an AET: **adaptability ++**
Include several steps to :

- Characterize the functioning of the agroecosystem
- The AET development conditions
- Assess multidimensional performance

Systematic review of the literature → Methodological framework

Tools from the 14 methods covering the 5 methodological challenges

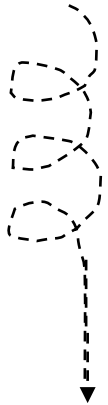
Darmaun M, Chevallier T, Hossard L, Lairez J, Scopel E, Chotte J-L, Lambert-Derkimba A, de Tourdonnet S (2023) Multidimensional and multiscale assessment of agroecological transitions. A review. International Journal of Agricultural Sustainability 21:2193028. https://doi.org/10.1080/14735903.2023.2193028

The prototyping method allows end-users to be involved in the design and continue the design through the use

Design of a first version of the prototype

Implementation/test of the first version of the prototype

First version of the prototype



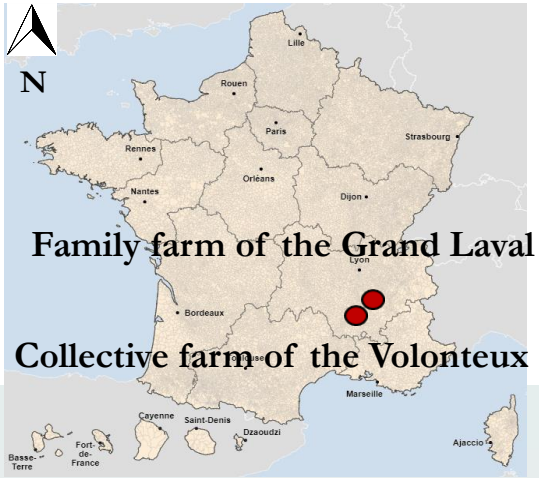
Use and adaptations

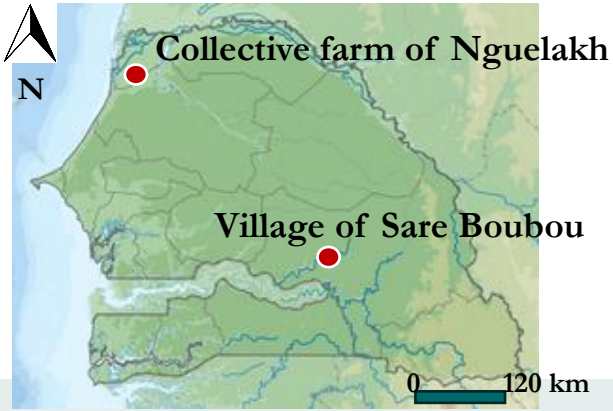
Modified prototype

Four different use situations

Diversity of contexts
Diversity of scales

- a **village** composed of nine family farms : Sare Boubou
- Two **collective farms** : Nguelakh and the Volonteux
- One **family farm**: the Grand Laval





An adaptable prototype method

Modified differently according to usage situations

- four different prototype
- performance evaluation grids with different contents

Adaptations mostly linked to farmer involvement

- half or more of total changes

Adaptations revealed

- **local issues** and the **specific characteristics** of the agroecosystems assessed
- the way in which use has allowed us to overcome realities in the field
- the **specific features of collective farms**

Some similar trends despite very different contexts and types of agroecosystems

A good territorial anchorage

- local supply of agricultural inputs
- majority of their value-added made through direct sale or short local circuits
- creation of jobs in the area, with a high labor intensity

A high level of biodiversity

- polyculture poly-livestock systems
- very diversified crop rotations
- a large and diversified number of animal species
- use of a significant proportion of organic fertilizer

Trade-offs between environmental and economic performance

Two different strategies to deal with these trade-offs

High-price sales (niche markets), **high environmental performance**

Selling at **reasonable prices**: by choice for Volonteux or by constraint for Sare Boubou

➡ **impacting the level of environmental ambition** in the practices implemented: eg. use of productive hybrid varieties, use of pesticides

« An important question in agroecology is how much income can be made from it (...). With current economic constraints, it's difficult to do agroecology the way we'd like to.»
(farmers, Volonteux)

Strong links between the progress in the transition trajectories, the level of advancement in the AET and the performance levels

	Progress in agroecological transition (AET) trajectories	AET levels	Performance levels
Le Grand Laval 17 years of transition		Very advanced (85%)	High Highest for environmental issues
Sare Boubou 28 years of transition		In transition (62-67%)	The lowest
Nguelakh 32 years of transition		Advanced (74%)	High
Les Volonteux 14 years of transition		In transition (70%)	Medium

Start of the AET
Period of change implementation
Period of stabilization

Results deemed useful by farmers in advancing in the AET

Coherence and usefulness of the results for their work

Collective reflection to identify levers for action

- e.g.: Improving animal feed autonomy (Nguelakh) and seeds autonomy(Volonteux)

Reuse of the results of this work

- Presentation to research and technical institutes (Grand Laval)
- Production of a welcome booklet for new arrivals (Volonteux)
- Sharing and discussion with funding partners (Nguelakh)

Towards more holistic assessments

Agroecology TPP

TRANSITIONS Metrics

The TRANSITIONS Metrics Project

1 Systematic review

A systematic review of available metrics and existing assessments.

2 Metaframework

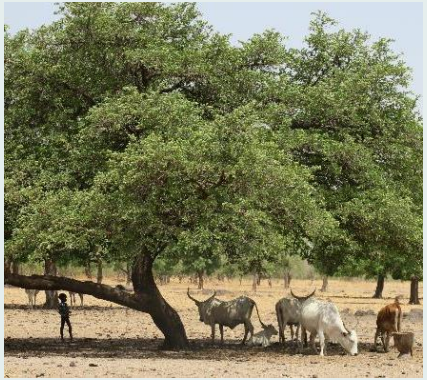
A step-wise guide to developing holistic assessments, including design principles

3 Metrics Library

An online database of metrics, where you can view, explore and select the right metrics for your needs.

CIFOR World Agroforestry IFAD Investing in rural people

Thank you for your attention !



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