Food and Agriculture Organization
of the United Nations

Agroecology Coalition

Agroecology Coalition

Training on FAO's TAPE
Tool for the Agroecology Performance Evaluation

26 and 27 June

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Plant Production and Protection Division (NSP)
Food and Agriculture Organization of the United Nations (FAO)

Food and Agriculture Organization of the United Nations

Agenda

Welcome remarks & presentation of the agenda (5')

1. General presentation on TAPE (25' incl Q&A)

Overview of the tool, its development and uses (10')
From local to national assessment: Introduction on TAPE National program supported by the European Commission to assess agroecology at country level (5')
Q&A session (10')

2. FAO's 10 elements (video) and link with CFS-HLPE's 13 principles (10' incl video)

3. Presentation of TAPE's evaluation grids (20' incl Q&A)

Content of the evaluation grid (elements, indices, criteria) to characterize the level of agroecology (step 1) of a farm and overview of the indicators of performance (step 2) available, examples of results using step 1 and step 2 (10')
Q&A session (10 ')

4. Practical exercise (20')

Practical exercise of evaluation of a farm based on two or three elements: participants will play the role of evaluators and use the TAPE evaluation grid
Interactive session

Evaluation/feedback on the training (3')

Closing remarks and adjournments (2')

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1. GENERAL PRESENTATION ON FAO'S TOOL FOR AGROECOLOGY PERFORMANCE EVALUATION (TAPE)

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1. GENERAL PRESENTATION ON FAO'S TOOL FOR AGROECOLOGY PERFORMANCE EVALUATION (TAPE)

1.1 OVERVIEW OF THE TOOL

TAPE Objectives

Assessing:

1) the level of agroecological transition

2) the multidimensional performance

of households

To generate global evidence on agroecology

and support transition to sustainable agrifood systems

Data collection and agroecology: a mandate reiterated

COAG: 26th Session of the Committee on Agriculture (**October 2018**)

*"(…) **strengthening normative, science and evidence-based work on agroecology, developing metrics, tools and protocols to evaluate the contribution of agroecology and other approaches to the transformation of sustainable agriculture and food systems."***

FAO CONFERENCE: Resolution 7/2019 Further integration of sustainable agricultural approaches, including agroecology, in the future planning activities of FAO

*(…) Strengthening science and evidence-based normative work on all sustainable agricultural approaches, **by developing appropriate indicators and supporting countries' capacities to measure their compliance, tools and protocols to evaluate the contribution of these practices to sustainable agriculture and food systems;***

COAG: 29th Session of the Committee on Agriculture (**September 2024)**

"**Encouraged FAO to support Members**, upon request, **to scale up agroecology** and other innovative approaches, sustainable intensification and **bioeconomy**, **and called on FAO to improve data collection and its utilization taking into account national and regional contexts, priorities and capacities"**

10 Elements of Agroecology: Framework endorsed by FAO Members in 2019

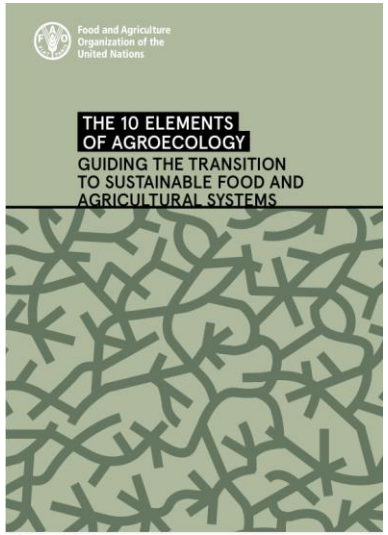
Diversity

Co-creation and Sharing of Knowledge

Synergies

Efficiency

Recycling



Resilience

Human and Social Values

Culture and Food Traditions

Responsible Governance

Circular and solidarity economy

Holistic framework, interconnected elements, transformative approach

Agroecology is more than a set of practices

TAPE: Conception, testing and deployment

2018 → 2019 → 2020 → 2021 → 2022 → 2023 → 2024 → 2025 → 2026

Desira+ funding

Funded by the European Union

2018-2023

PILOT PHASE

2018: Developed and applied in a participatory manner

2019- 2023: Tested by relevant partners for review, validation and further adaptation.

2023

TAPE validated

by partners

(Validation workshop on 2 and 3 May)

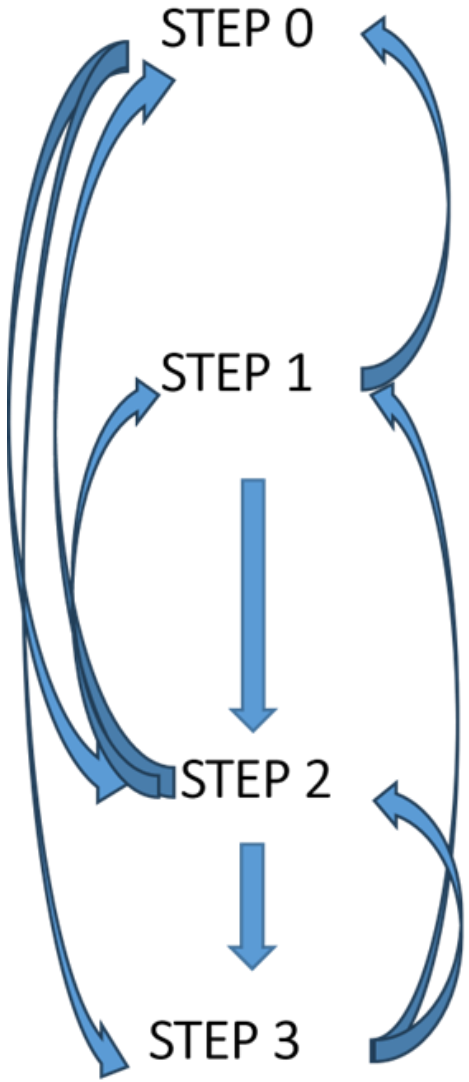
Recommendations for further TAPE improvement

2024-2026

DEPLOYMENT PHASE

- **Implementing the recommendations**
- **TAPE+ launched for consolidated data**
- **TAPE National**

TAPE step-by-step approach



Description of systems and context

Characterization of Agroecological Transition (CAET)

Criteria of performance

Analysis and participatory interpretation

TAPE STEPS:
Importance of contextualization and participation

Step 0 : preparation and contextualization

Phase 1

Identify study objectives

Phase 2

Engage stakeholders and assess context

Phase 3

Study groups, farm pre-typology and sampling

Phase 4

Customize the TAPE questionnaire

Phase 5

Enumerator training and pilot survey

Step 1 and step 2: survey and data management

Phase 6

Conduct the survey & ensure Quality Control

Phase 7

Organize, process, analyze and visualize the data

Phase 8

Report preparation

Step 3: participatory analysis and policy dialogue

Phase 9

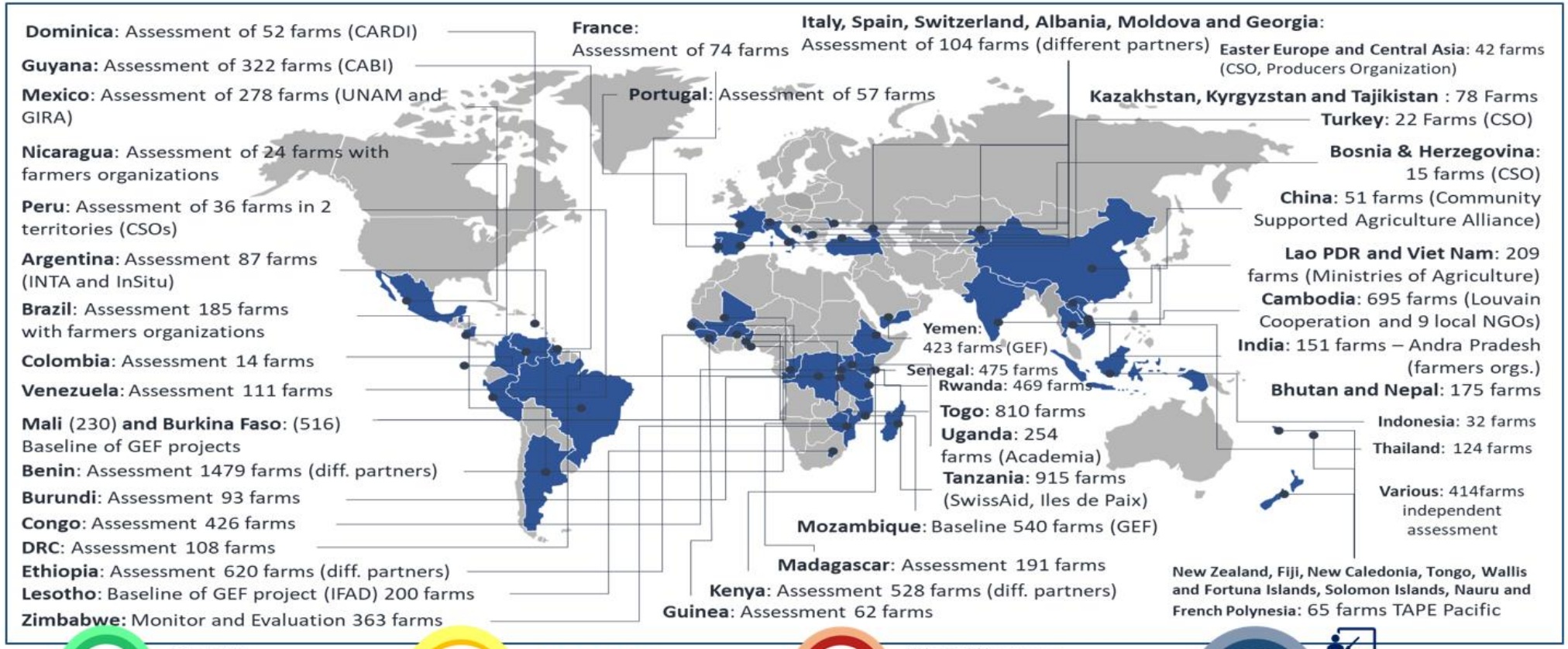
Participatory discussion of the results and report finalization

Phase 10

Policy discussion and actionable recommendations

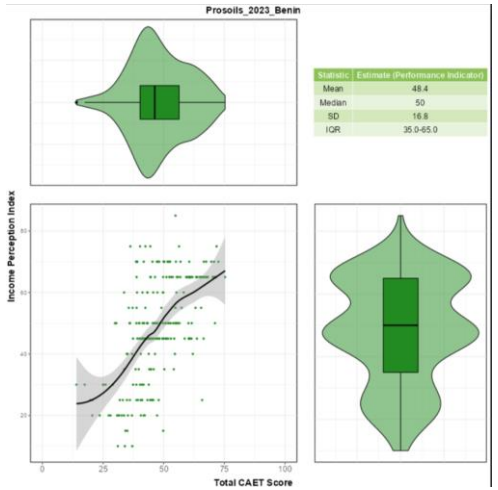
TAPE implementation

TAPE has been implemented in 58 countries with more than 12,000 farm household observations since 2019.



Evidence generation: Global TAPE database

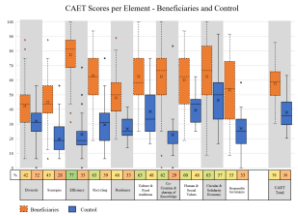
More than **8 M data points**



Around 700 variables by survey (raw variables and calculated indicators * 12 000 surveys)

TAPE uses in project cycle

Final evaluation, impact assessment



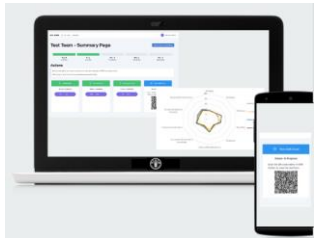
Effects and impacts of the project :

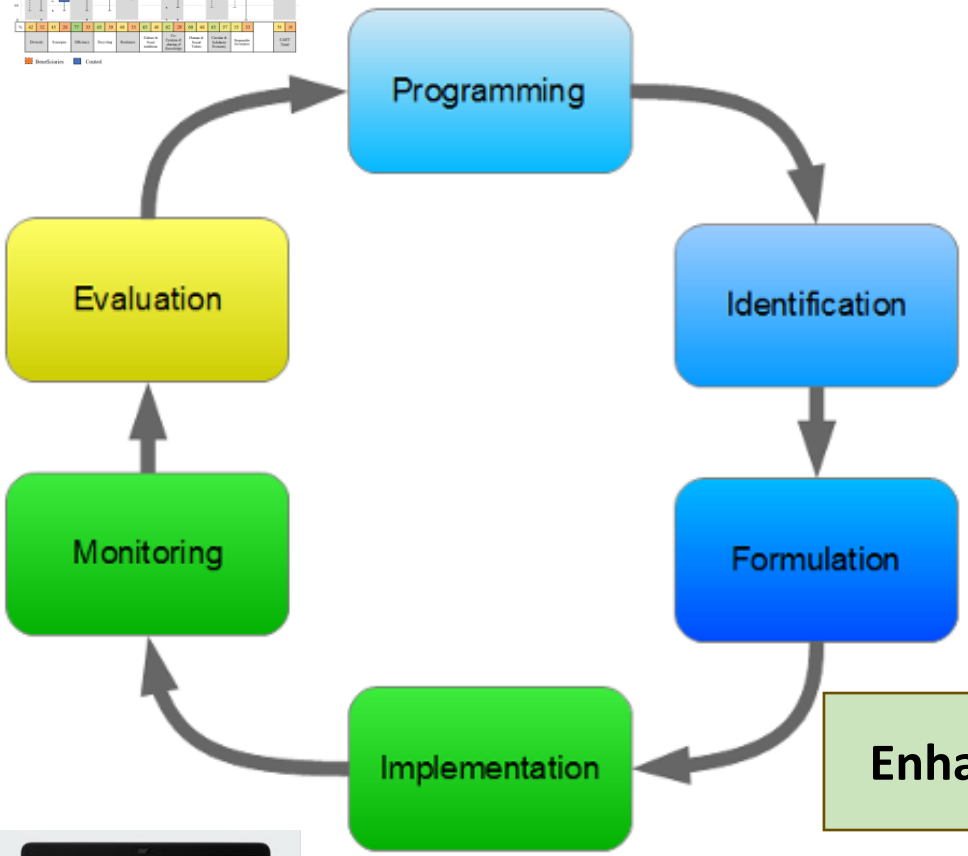
- *Is there a difference between beneficiaries and control group on **agroecological score** (CAET) and **multidimensional performance?***
- *Does AGROECOLOGY have an effect on **economic, social, environment, health and nutrition and governance** scores?*

Monitoring project logframe

Monitoring flexible digital tool (tbd)

- *Establishing baseline and control groups*
- *Monitor the project outputs using the logframe indicators*
- *Monitors the progress of activities*

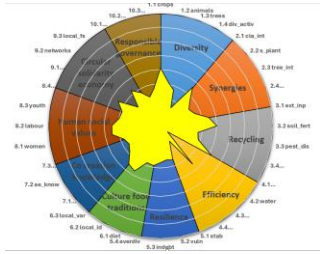




Project design

Situation of the target group and detailing every element of the intervention :

- *What are the strengths and weaknesses of households regarding agroecology and economic, social and environmental dimensions? Why ?*
- *What are the different typologies of farms? How to adapt to their different characteristics/needs?*
- *What activities should be prioritized by the project (practices, mechanisms…)?*



Enhance AE knowledge

Capacity building on AE:

- *TAPE diagnostic with farmers and participatory discussion*

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1. GENERAL PRESENTATION ON FAO'S TOOL FOR AGROECOLOGY PERFORMANCE EVALUATION (TAPE)

1.2 From local to national assessment: TAPE National

Tape+ : Underpinning agroecological practices and policy with cutting-edge metrics

The project aims to advance agroecology by refining and scaling TAPE

Funded by the European Commission from 2024 to 2026 (Desira+)

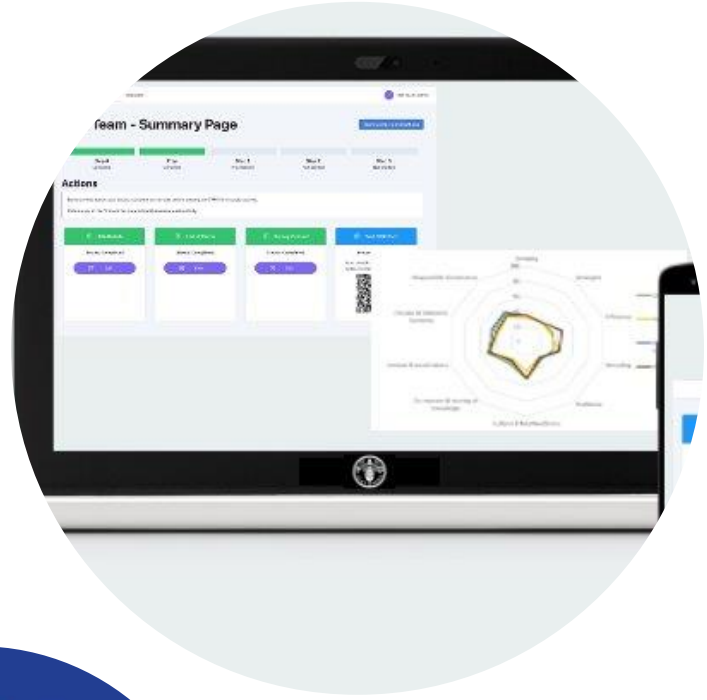
Two components:

1) Improving existing version of TAPE

2) Assessing agroecology at National level (TAPE National)

Tape + : Underpinning agroecological practices and policy with cutting-edge metrics

TAPE+ will be freely accessible easier to implement, empowering partners and reducing dependency on FAO



TAPE will be enhanced with updated methodologies including:

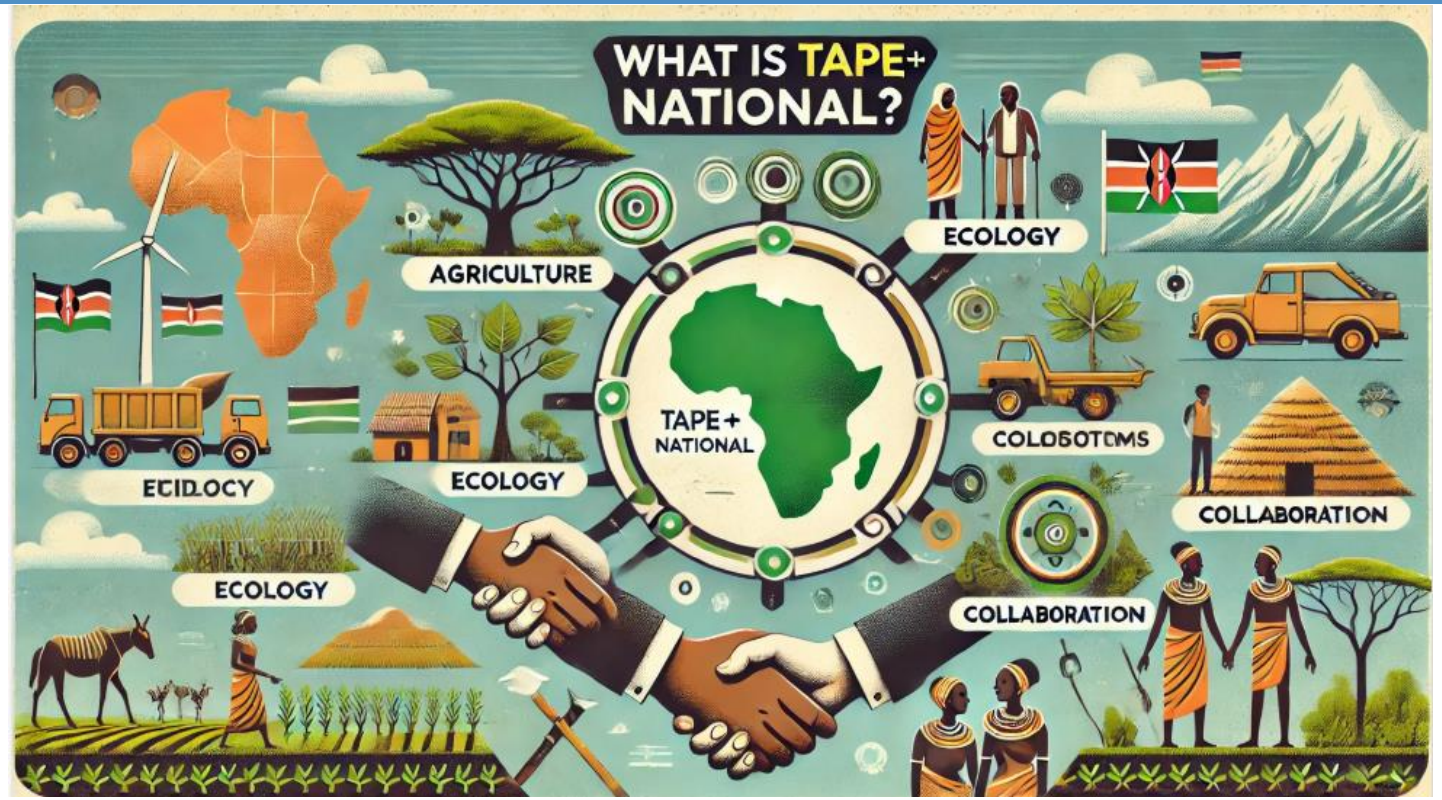
- **improved guidance for users** (contextual factors, sampling design, data quality check…) **training materials, CoP and e-learning modules**
- step 1 refinement (**indicators disaggregation** to make the survey easier, more objective and for better traceability)
- new indicators of performance

An open access **digital platform** will be developed for data collection, validation, and **automated analysis**

Modular approach for TAPE customized to the projects logframes.

GIS will be integrated for improved context-specific insights

What is TAPE+ National?



Funded by the European Union

Specific work with national governments and the FAO Statistics Division (Census and SDGs), in collaboration with farmers' organizations, NGOs, and national and international research centers

- An initiative to assess agroecology at national level (proof of concept)
- To be co-created in each country with a methodology adapted to their specificities
- Starting with **Burundi, Cabo Verde and Kenya**
- Using TAPE (adapted/simplified) framework

TAPE + National Objectives

1	**Assessing agroecology at national level as precisely as possible** *What is the current level of adoption of agroecological practices among farmers, how and why does this differ within the country ? Baseline*
2	**Setting key performance indicators adapted to country priority** *What would be priority areas for food system sustainability?*
3	**Identifying mechanisms to monitor changes overtime**
4	**Supporting policy dialogue with evidence-based recommendations** *What agroecology have to offer?* *What would be priority area for food system sustainability?* *What would be the entry points to support transition?*
5	**Policy: suggesting actionable reforms**

Zoom Objective 1: Data collection

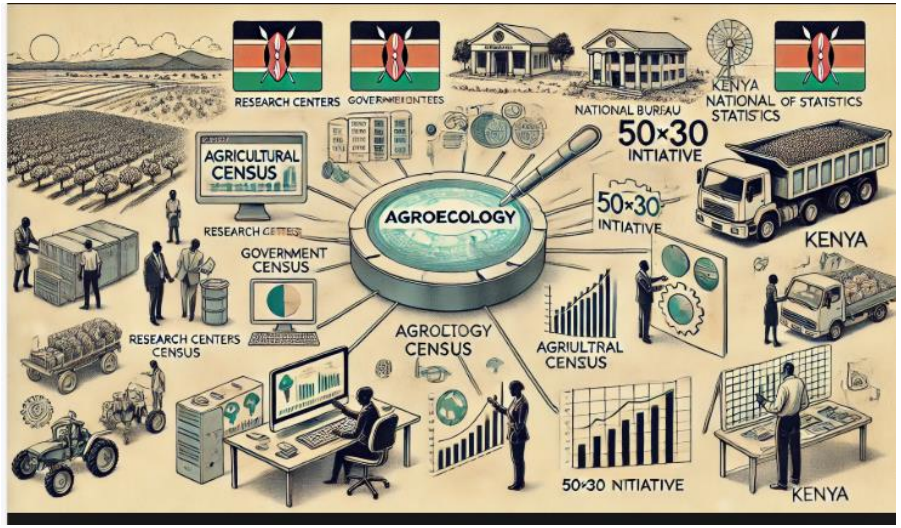
TAPE Step 1

Element		TAPE indicator	Remote sensing	Citizen science	representative sampling	Spatial level
DIVERSITY	1	Crops	X			farm
	2	Animals (including fish and insects)		X		farm
	3	Trees (and other perennials)	X			farm
	4	Diversity of activities, products and services		X	X	farm
IES	5	Crop-livestock-aquaculture integration		X	X	farm

1

Assessing agroecology at national level as precisely as possible

Analysis of data available at different scales, from national (i.e., census) to local (existing TAPE surveys)



Targeted, representative sampling: on-the-ground assessments to gain reliable insights.
Farm-Landscape level with a **simplified version** of TAPE x combined with other surveys (citizen science, focus group discussions, surveys with or without enumerators)

Remote sensing, modelling, Machine learning/AI to assist in large scale data analysis

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2. UNPACKING FAO'S 10 ELEMENTS AND CFS HLPE's PRINCIPLES

10 Elements of Agroecology: Framework endorsed by FAO Members in 2019

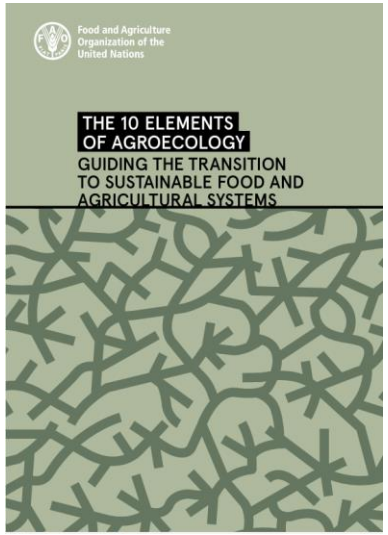
Diversity

Co-creation and Sharing of Knowledge

Synergies

Efficiency

Recycling



Resilience

Human and Social Values

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Holistic framework, interconnected elements, transformative approach

Agroecology is more than a set of practices


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DIVERSITY

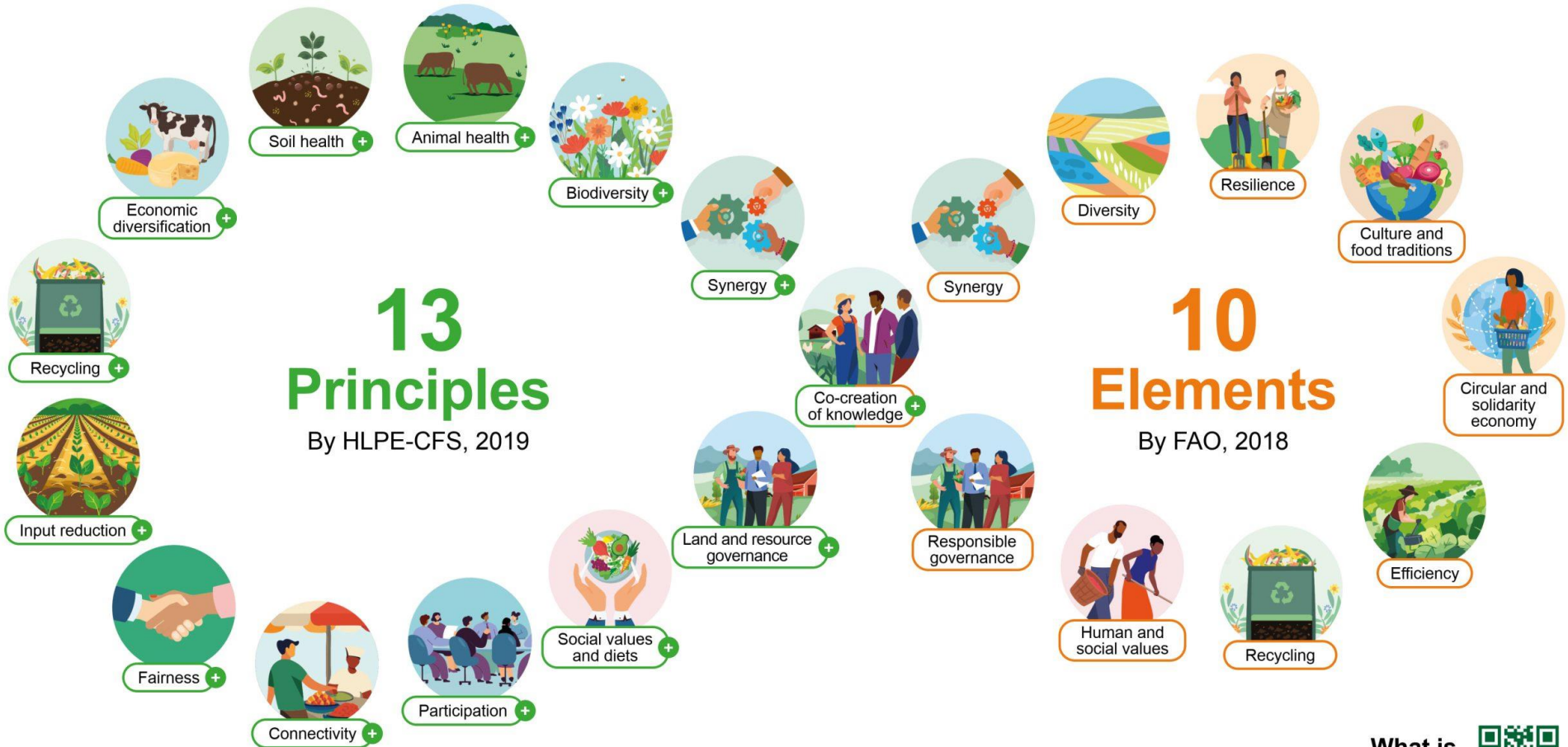
Agroecology Coalition

Agroecology- towards the transformation of food systems

Agroecology, based on a set of principles and elements, is a transformative pathway towards sustainable food systems.

Discover its foundations through theory and practical examples!

Click on the + icon to find out more.



What is Agroecology?

As you explore the infographic, you will come across the word «farmer» several times. This is often used to indicate other food producers (fisher-folks, herders...)

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3. PRESENTATION OF TAPE'S EVALUATION GRID

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3.1
STEP 1 Agroecological level

Step 1: Characterization of Agroecological Transition (CAET)

The **10 Elements of Agroecology** are operationalized through **27 indices** disaggregated into **70 criteria/questions**

Elements	Indexes
Diversity	1.1 Plant diversity (including forage and trees)
	1.2 Temporal and spatial diversity
	1.3 Animal diversity (including fishes and insects)
Synergy	2.1 Crops-livestock-aquaculture integration
	2.2 Integration with trees
	2.3 Habitat and input management
Recycling	3.1 Biomass and waste management
	3.2 Water and energy use
Efficiency	4.1 Management of soil fertility
	4.2 Management of pests and diseases
	4.3 Resource optimization
Resilience	5.1 Social and economic resilience
	5.2 Use of seeds and breeds
	5.3 Soil conservation practices
	5.4 Animal health, nutrition and management

Food culture and traditions	6.1 Dietary diversity and food self sufficiency
	6.2 Local and traditional food heritage
Co-creation and knowledge sharing	7.1 Interest in agroecological knowledge
	7.2 Peer learning and co-creation of knowledge
Human and social values	8.1 Women empowerment and social equity
	8.2 Labour (productive conditions, social inequalities)
	8.3 Motivation in agricultural work and continuity of family farming
Circular and solidarity economy	9.1 Products and services marketed locally
	9.2 Local sourcing and circularity
Responsible governance	10.1 Producers' empowerment
	10.2 Producers' access to and control over resources
	10.3 Producer organizations and associations

1) DIVERSITY: diversification is key to agroecological transitions to ensure food security and nutrition while conserving, protecting and enhancing natural resources

Plant diversity (including forage and trees)	Number of plant species
	Plant genetic diversity (number of varieties of the main cultivated plant)
Temporal and spatial diversity	Temporal diversity: rotation
	Spatial diversity: intercropping
Animal diversity (including fishes and insects)	Number of animal species
	Animal genetic diversity (genetic variation among farm animals)




2) SYNERGIES: building synergies enhances key functions across food systems, supporting production and multiple ecosystem services

Crops-livestock-aquaculture integration	Production of feed consumed by animals
	Variety of services provided by animals
Integration with trees	Integration of trees into the farm's production system
	Services provided by trees
Habitat and input management	Mosaic of plots
	Proportion of the farm with natural and semi-natural elements




3) RECYLING: more recycling means agricultural production with lower economic and environmental costs

Biomass and waste management	Extent of reuse of plant residues or animal manure
	Amount of waste generated
	Plastic waste reduction and management
Water and energy use	Source of irrigation water
	Application of water-saving techniques for irrigation
	Energy consumption and use of renewable energy

4) EFFICIENCY: innovative agroecological practices produce more using less external resources

Management of soil fertility	On-farm nutrient cycling and application
	Nitrogen-fixing plants
	Dependence on purchased fertilizers
Management of pests and diseases	Use of on-farm organic ecological measures
	Dependence on purchased pesticides
	Use of veterinary drugs
Resource optimization	Alignment with natural production seasons
	Storage and processing practices to minimize losses

5) RESILIENCE: enhanced resilience of people, communities and ecosystems is key to sustainable food and agricultural systems

Social and economic resilience	Community cooperation (formal or informal)
	Dependence on external financial support for farm stability
	Diversity of livelihood activities
Use of seeds and breeds	Use of local and self-produced seeds and breeds
	Selection of locally adapted, resilient crop varieties, animal breeds and tree species
Soil conservation practices	Permanent soil cover
	Limiting deep ploughing and soil disturbance
	Erosion control
Animal health, nutrition, and management	Livestock health resilience
	Animal nutrition and feeding strategies
	Livestock housing and risk management




6) CULTURE AND FOOD TRADITIONS: by supporting healthy, diversified and culturally appropriate diets, agroecology contributes to food security and nutrition while maintaining the health of ecosystems

Dietary diversity and food self sufficiency	Food diversity
	Farm produced ingredients
Local and traditional food heritage	Use and preservation of traditional crops and local food practices
	Participation in cultural events related to food and farming
	Valorization of local cultural heritage


7) CO-CREATION AND SHARING OF KNOWLEDGE: agricultural innovations respond better to local challenges when they are co-created through participatory processes

Interest in agroecological knowledge	Use of local and context-specific knowledge in farming
	Intergenerational knowledge transmission in farming
	Diversity of knowledge sources
Peer learning and co-creation of knowledge	Sharing of agroecological innovations
	Involvement in knowledge-sharing platforms between farmers
	Involvement in co-creation and sharing of knowledge (formal and informal) processes



8) SOCIAL AND HUMAN VALUES: protecting and improving rural livelihoods, equity and social well-being is essential for sustainable food and agricultural systems

Women empowerment and social equity	Women's role in decision-making on the farm
	Youth access to resources
	Schooling for children
Labour (productive conditions, social inequalities)	Working condition for farmer
	Working conditions of employees
	Agroecological innovations and adapted mechanization for improved labour conditions
Motivation in agricultural work and continuity of family farming	Motivation in farming activity
	Availability for activities outside the farm



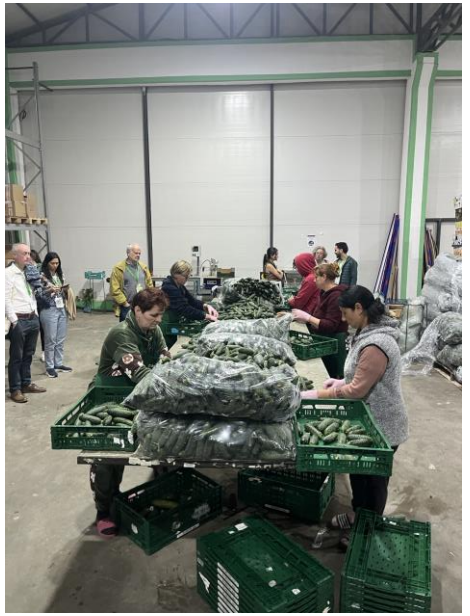
9) CIRCULAR AND SOLIDARITY ECONOMY: circular and solidarity economies that reconnect producers and consumers provide innovative solutions for living within our planetary boundaries while ensuring the social foundation for inclusive and sustainable development

Products and services marketed locally	Local food system
	Farmer-consumer partnerships and trust-based certification
Local sourcing and circularity	Origin of inputs and services
	Local processing and services
	Resource sharing practices

10) RESPONSIBLE GOVERNANCE: sustainable food and agriculture responsible and effective governance mechanisms requires at different scales – from local to national to global

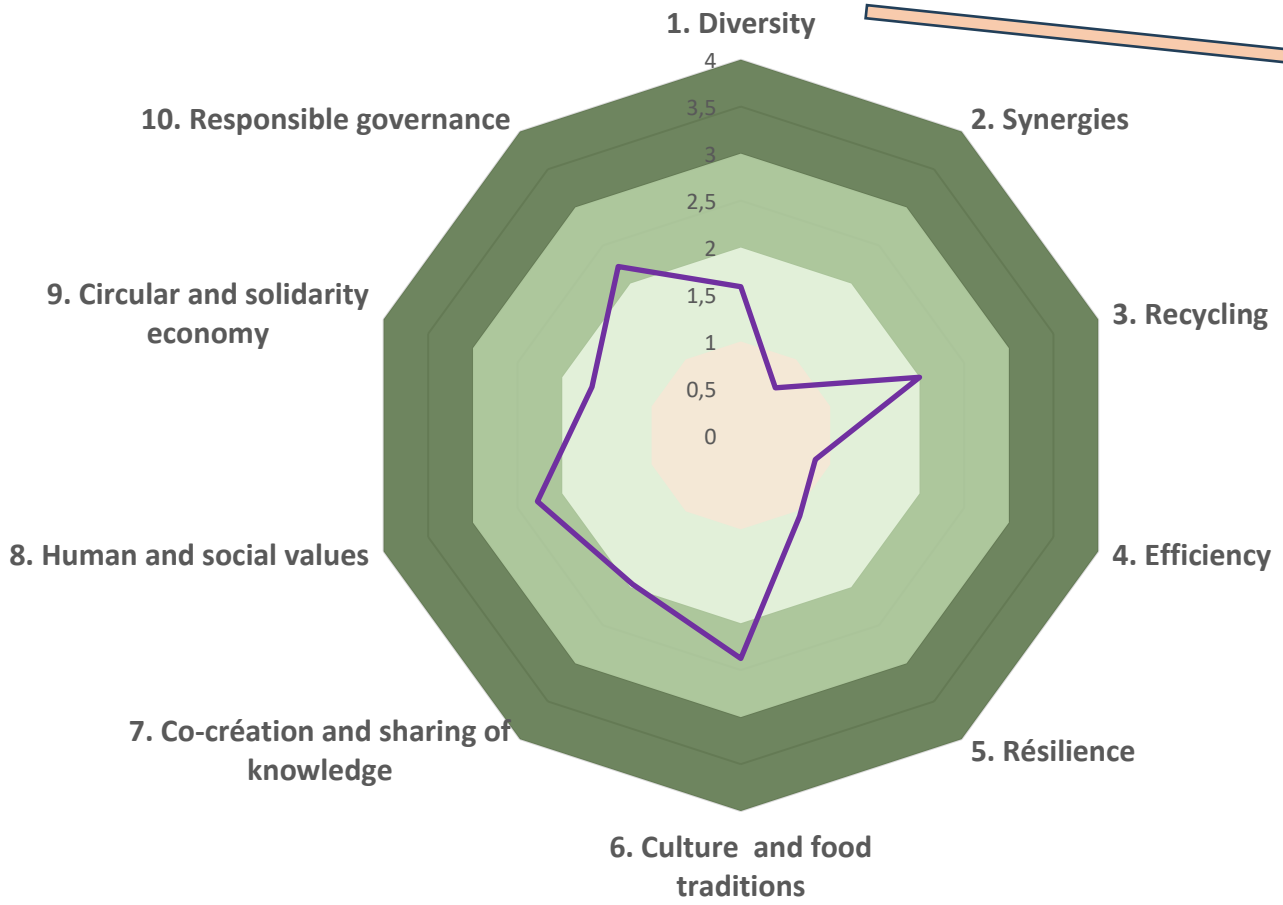
Producers' empowerment	Autonomous decision-making
	Access to financial resources and ability to self-finance
	Access to markets
Producers' access to and control over resources	Access and control over land
	Access and control over water
	Control over genetic resources (seeds & livestock & breeds)
Producers' organizations and associations	Engagement in grassroots farmer organizations for agroecology
	Inclusiveness and participatory decision-making in producer organizations
	Farmers’ involvement in public policies

STEP 1 implementation – BioProd farmer

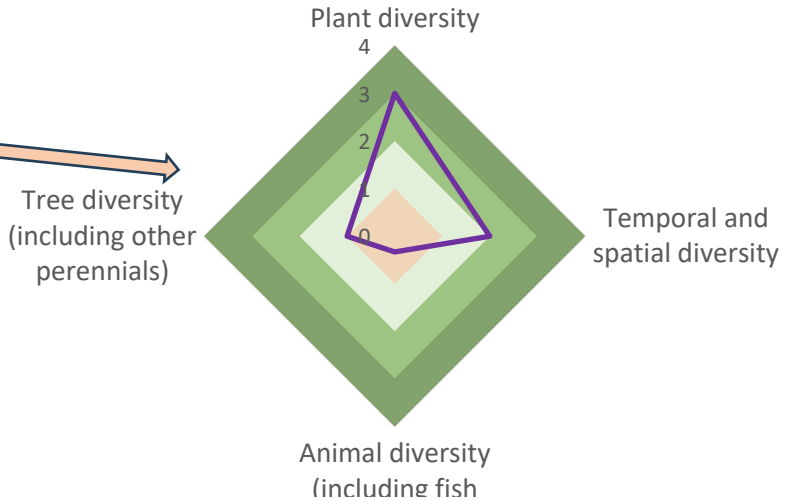


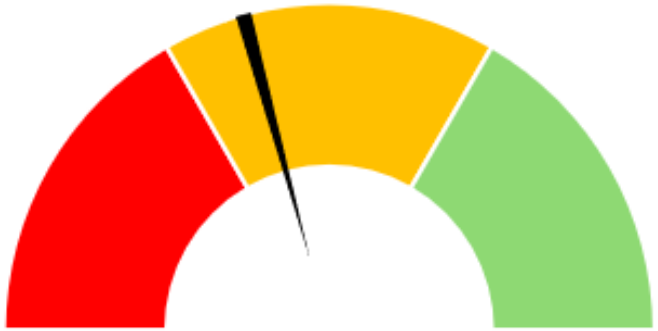
Step 1 results : Agroecological level

Characterisation of Agroecological Transition



Diversity





42%

STEP 1 : Characterization of Agroecological Transition

Measuring Agroecology and its Performance (MAP)

Key findings from applying the FAO Tool for Agroecology Performance Evaluation (TAPE) in Benin, Ethiopia, Kenya, and Madagascar in the context of the Global Programme Soil Protection and Rehabilitation for Food Security (ProSoil)

Average score of the level of agroecological transition in the four countries with a comparison between beneficiaries of the project (Prosoil) and non beneficiaries.

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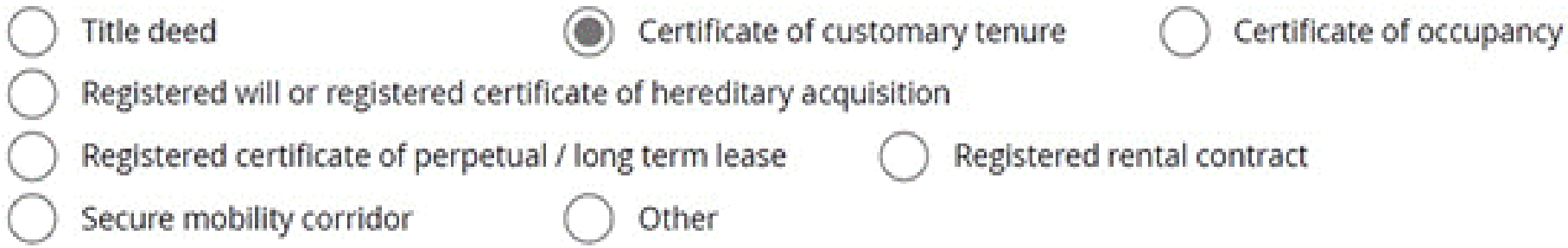
3.2
STEP 2 Multidimensional performance

STEP 2: Core criteria of performance

Main dimension	#	Core criteria of performance	Proposed method of assessment in survey
Governance	1	**Secure land tenure (mobility for pastoralists)**	Type of tenure over land: property, lease + duration, verbal, not explicit (SDG 1.4.2, 5.a.1 and 2.4.1 sub-indicator 11) Existence and use of pastoral agreements and mobility corridors
Economy	2	**Productivity**	Gross output value per hectare (SDG 2.4.1 sub-indicator 1) Gross output value per person
	3	**Income**	Income from crops +animals +other activities +subsidies –inputs –operating expenses –depreciation –taxes –interests (SDG 2.4.1 sub-indicator 2)
	4	**Added value**	Gross output value –depreciation –expenditures for inputs
Health & nutrition	5	**Exposure to pesticides**	Quantity applied, area, toxicity and existence of risk mitigation equipment and practices
	6	**Food security and dietary Diversity**	Food insecurity experience scale (FIES) and Minimum Dietary Diversity for Women - FAO & FHI (2016)
Society & Culture	7	**Women's empowerment**	Abbreviated Women's Empowerment in Agriculture Index, A-WEAI (IFPRI, 2012)
	8	**Youth employment**	Access to jobs, training, education or migration (SDG 8.6.1)
Environment	9	**Agricultural biodiversity**	Relative importance of crops varieties, livestock breeds, trees and semi-natural environments on farm (SDG 2.4.1 sub-indicator 8.1, 8.6 and 8.7)
	10	**Soil health**	SOCLA agroecological method to assess soil health, based on 10 indicators (Nicholls et al., 2004)

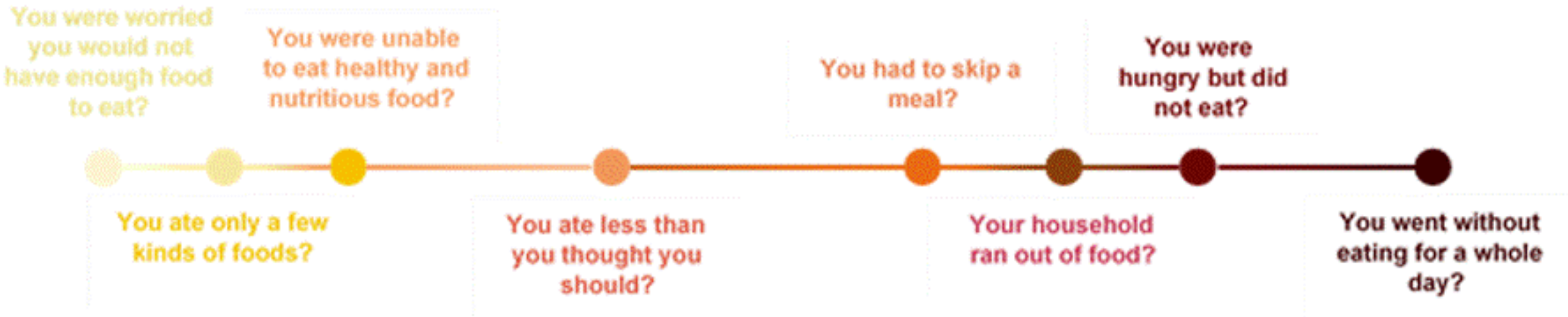
1. Secure land tenure

- Based on SDG 1.4.2 "Proportion of total adult population with secure tenure rights to land"
  - ***a) legally recognized documentation*** (0 – No, 1 – Yes);



  - ***b) who perceive their rights to land as secure*** (0 – No, 1 – Yes)
  - ***c) right to sell, right to bequeath, right to inherit*** (0 – No, 1 – Yes in at least one)
- **Land tenure score** = (***a*** + ***b*** + ***c***) / 3 * 100%
- Calculated separately for men and women

6b. FIES (Food Insecurity Experience Scale)



1 : Never
0.66 : Rarely
0.33 : Sometimes
0 : Often

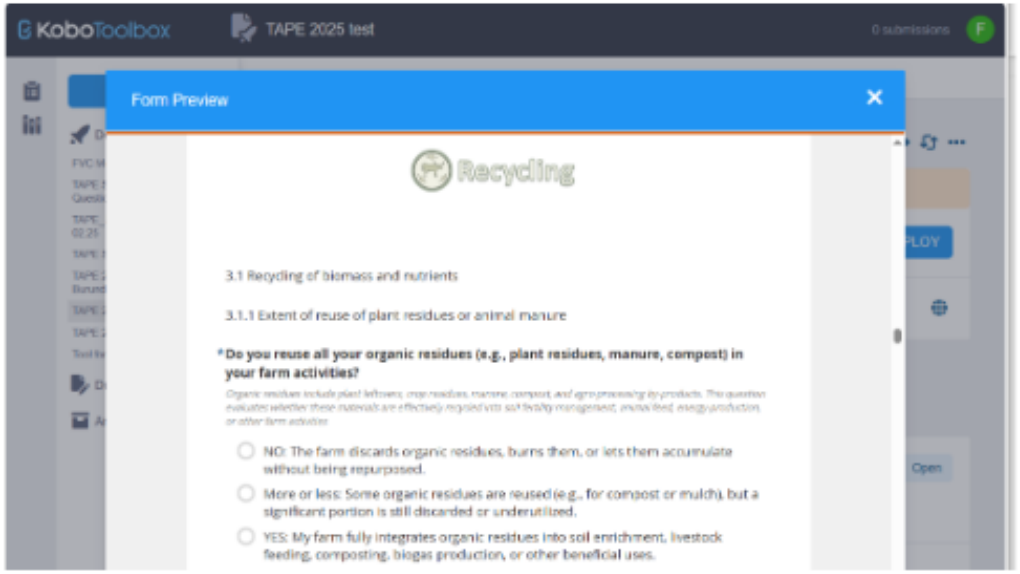
FIES Score = *average of scores in 8 FIES questions*

Prevalence of:
1) severely food insecure and
2) moderately food insecure
calculated using ***statistical modeling***

KoboToolbox and KoboCollect

1) As a first step start creating an account on Kobo

KoboToolbox is a free and easy-to-use app that allows you to collect data in the field using android phones, tablets, or computers. It works online or offline and allows you to record responses to a digital questionnaire. Simply create an account on Kobo to access the form and begin collecting data on the farm.



Kobo questionnaire

TAPE 2025_Burundi | KoboToolbox

Follow this link for instructions Collecting data on the field through Kobo tool box and Kobo collect **to:**

1) create a KoboToolbox account

2) collect data with the KoboCollect app a) WITH a username and password or b) WITHOUT a username and password

STEP 2 : Characterization of multidimensional Performance

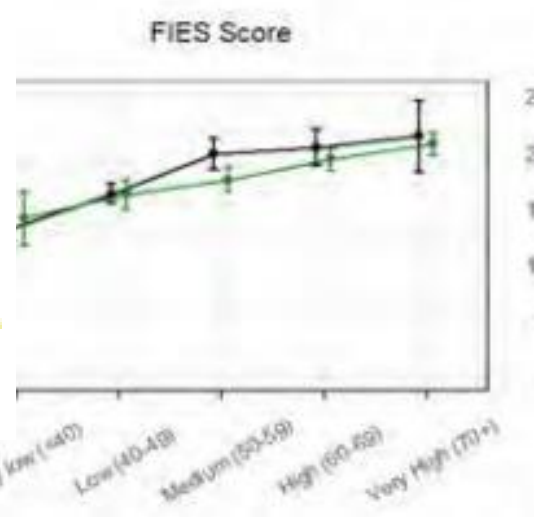
Measuring Agroecology and its Performance (MAP)

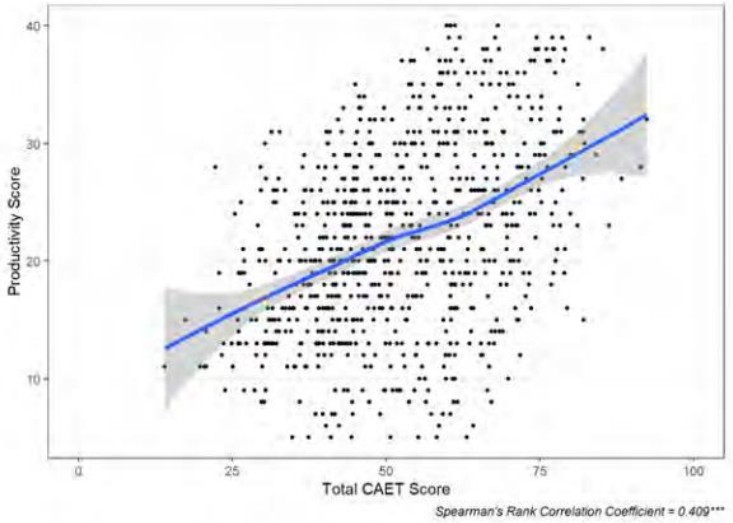
Key findings from applying the FAO Tool for Agroecology Performance Evaluation (TAPE) in Benin, Ethiopia, Kenya, and Madagascar in the context of the Global Programme Soil Protection and Rehabilitation for Food Security (ProSoil)

The study shows that enhancing **agroecology correlates** with:

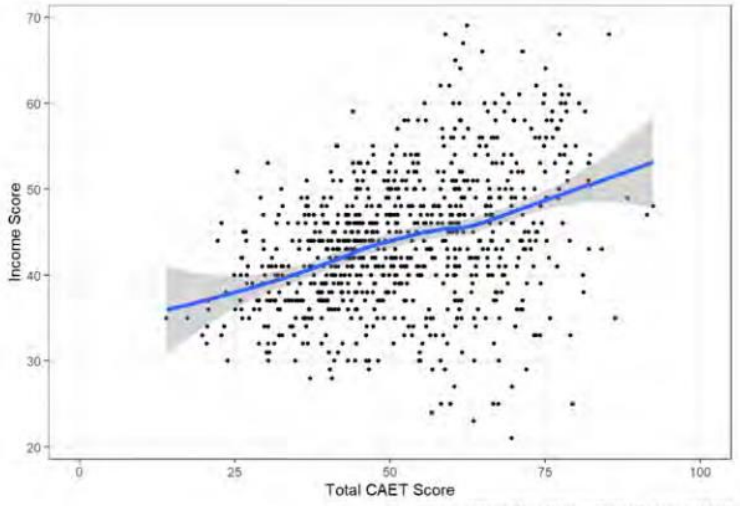
- Improving **food security and nutrition**
- Increasing **farm productivity** and **households' net income**
- Protecting and restoring **agrobiodiversity** while improving **soil health parameters**

Agroecology and food security

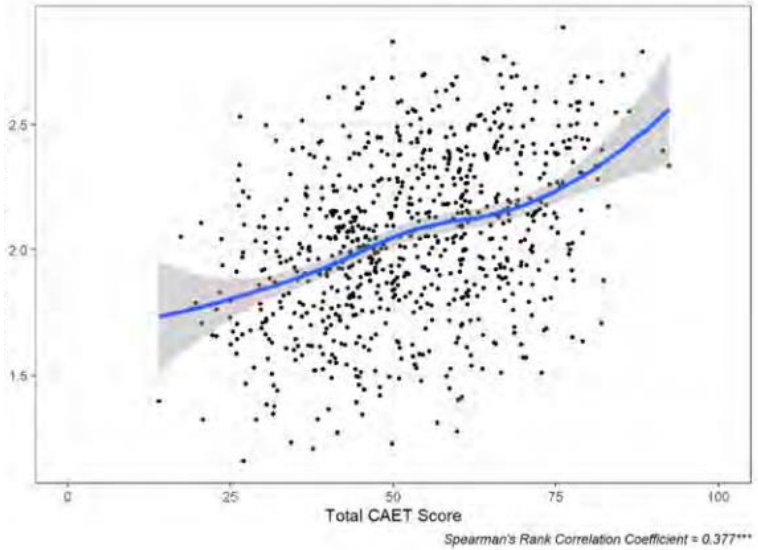




Agroecology and productivity



Agroecology and income



Agroecology and dietary diversity

TAPE first results: impacts of agroecology

Agroecology contribution to sustainability

In most instances, agroecology **positively impacts:**

1. **Soil health**

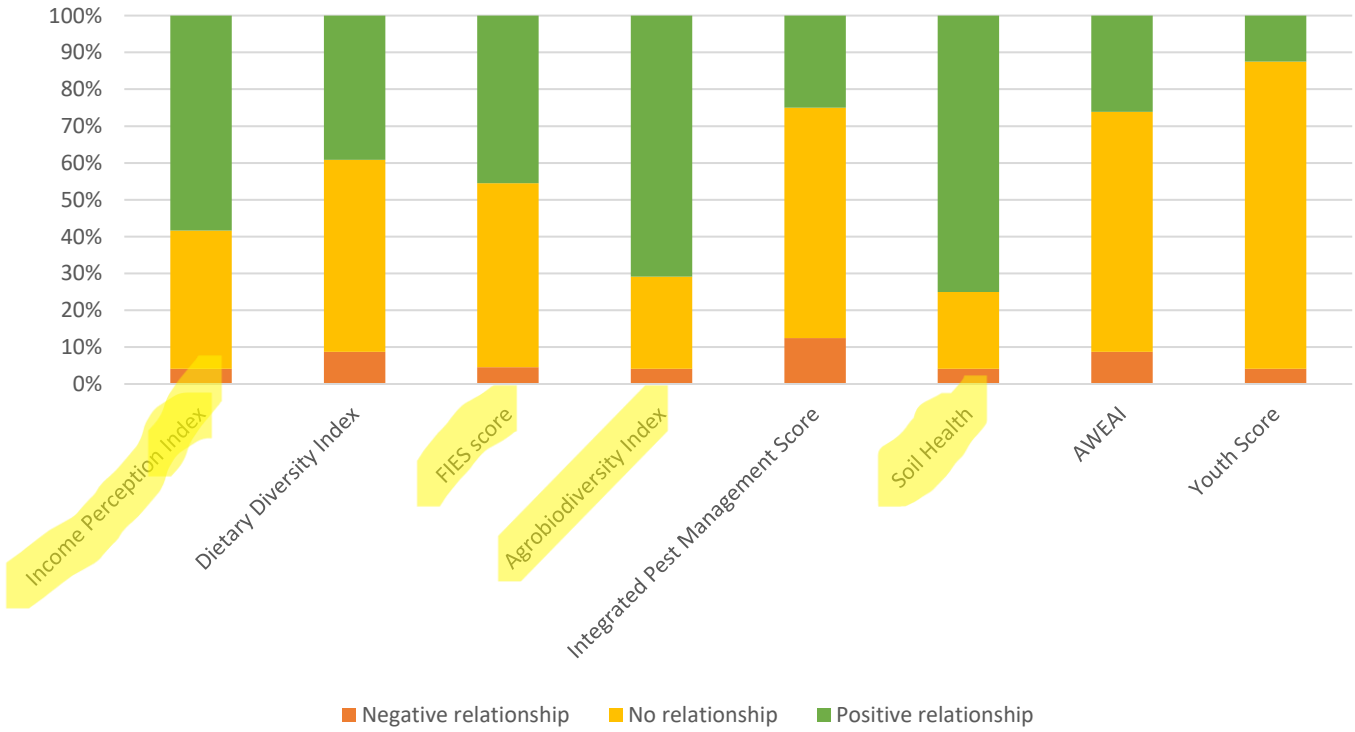
2. **Agrobiodiversity**

3. **Income perception**

4. **Food security**

Pilot phase: multi-country analysis

- 24 TAPE projects (*12 projects in East Africa*) from 2020 to 2024
- 18 countries from Africa (*7 in East Africa*), Asia and Latin America
- **5,032 farm household**



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4. PRACTICAL EXERCISE

Case study in Mali: Oumar Diabate

La Ferme de 2 ha se compose de plusieurs ateliers :

- L'élevage (bétails, volailles et poissons)
- Les cultures céréalières
- Le maraîchage
- Les arbres fruitiers
- La production fourragère
- Les plantes médicinales

The 2-hectare farm is composed of several production units:

- Livestock farming (cattle, poultry, and fish)
- Cereal crops
- Vegetable production
- Fruit trees
- Forage production
- Medicinal plants

La finca de 2 hectáreas se compone de varias unidades de producción:

- Ganadería (bovinos, aves de corral y peces)
- Cultivos de cereales
- Producción de hortalizas
- Árboles frutales
- Producción de forraje
- Plantas medicinales

Instructions for Quiz

Mentimeter

Go to www.menti.com

Enter the code **3296 6423** to answer the questions.

Or use QR code

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Agroecology for Africa

CERTIFIED COURSE

This course introduces how agroecological elements, principles and practices can contribute to the social, economic and ecological transformation of agrifood systems. It also explores ways that governments, civil society and the private sector can support the scale-up and scale-out of agroecology. The course illustrates the uptake and spread of agroecology across Africa through practical examples and case studies.

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THEMATIC AREA: Plant Production, Pre-breeding and Crop Improvement; Sustainable food systems

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Information on TAPE

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https://www.fao.org/agroecology/tools-tape/en/

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How it works

Partners

Tool for Agroecology Performance Evaluation (TAPE)

There is an increasing amount of evidence showing the positive impacts

publications, reports, guidelines, information available

For more information

https://www.fao.org/agroecology/tools-tape/en/

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