

A world map where the landmasses are filled with a repeating pattern of the word "fingo" in a yellow, sans-serif font. The text is oriented horizontally and is densely packed across the continents. The oceans are white.

Building resilience with trees]

By Food and Forest Finland

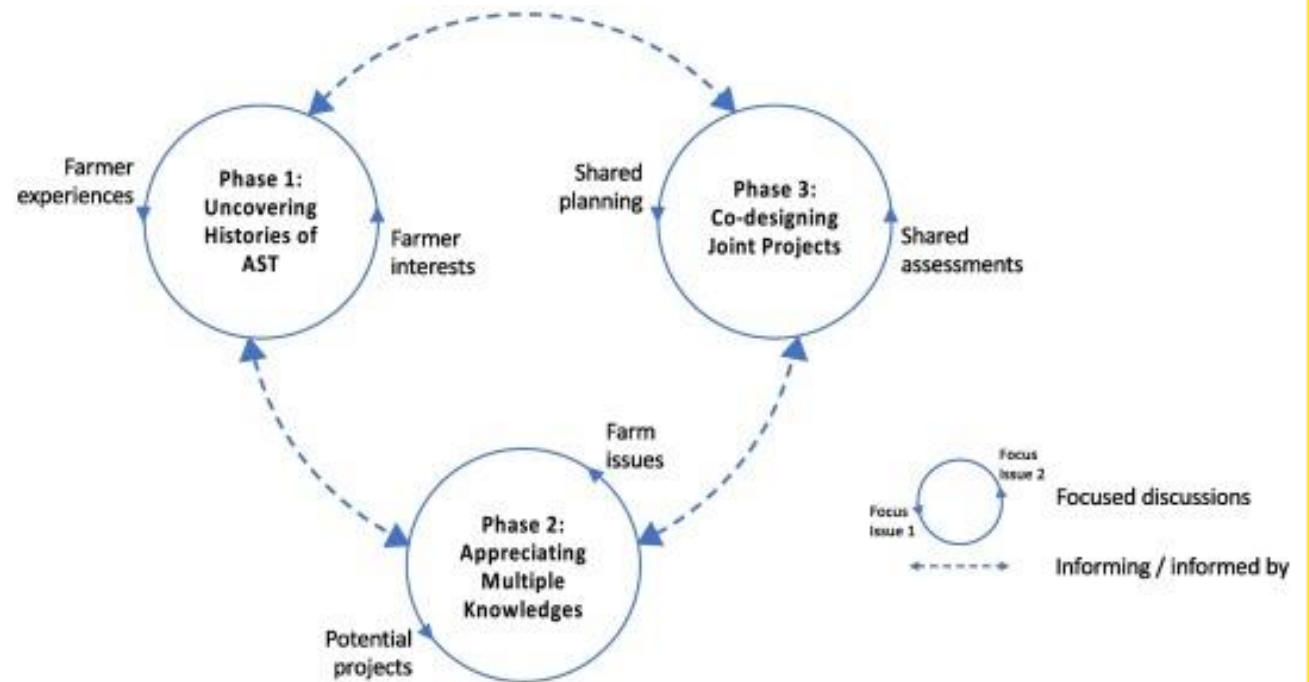
fingo

Background

Improving Farmers' capacities for sustainable climate-resilient crop production intensification and diversification, is often hindered by complex “technology-creation/transfer” processes.

Often, farmers' priorities and constraints are not considered while developing action research, nor are farmers part of the of the research process thus results and recommendations do not reflect the reality on the ground.

Usually, action research does not address the information/knowledge needs of farmers, but rather the priorities of external stakeholders



The role of learning in farmer-led innovation, 2022
<https://doi.org/10.1016/j.agsy.2021.103356>

Aims

Facilitate the involvement of farmers in action research development and implementation, from defining research questions and collecting data to proposing solutions based on empirical information.

Eliminate entry barriers related to complex agroecological concepts that usually require numerical or textual data in situations when literacy levels are a constrain.



Activities

Building Resilience Tool (AgriCord-FFD) Farmers Organisations' members Assessing Climate Risks and Designing Adaptation Actions –Part 1-

General Objective: to facilitate climate risk analysis and adaptation planning by FO members.

Methodology: Participatory risk assessment and planning and adaptation measures

Principles:

- Inclusive and transparent process – with considerations for women and marginalized groups-
- Locally informed and determined analysis

1. **Introduction:** purpose and structure of the tool, introduction of key concepts so that all participants share the same conceptual framework.

Evaluación de vulnerabilidad y riesgo (elementos y conceptos clave)



2. **Context:** the context of climate and vulnerability, first from the perspective of the participants and then supplemented with scientifically validated information.

Contexto climático: perspectiva histórica I (consolidar)



3. **Risks and hazards:** climate risk assessment, starting with the identification of the most likely and most impactful climate risks. We then proceed to identify the livelihoods/production that are most vulnerable to the identified risks.

Peligros más significativos (consolidar)

- Al final lo que se requiere es una priorización de riesgos (los que se localizan en la zona roja/rosada o los que obtienen un mayor puntaje)
- Los peligros más significativos son los que se van a considerar más adelante

Peligro	Vulnerabilidad					Probabilidad			Impacto	Total
	Alta	Media	Baja	Muy Baja	Nula	Alta	Media	Baja		
Sequía	4	3	2	1	0	Alta	3	2	1	7
Inundación	1	2	3	4	5	Alta	3	2	1	7
Tempestades	1	2	3	4	5	Alta	3	2	1	7
Fuertes heladas	1	2	3	4	5	Alta	3	2	1	7

4. **Adaptation:** agreeing on adaptation measures for the most at-risk and vulnerable livelihoods/production. The feasibility and prioritization of these interventions are assessed according to criteria relevant to participants.

Opciones de adaptación y su viabilidad (1)

Para las opciones más viables, y para las opciones menos viables

PELIGRO	Intervenciones	Alta	Media	Baja	Muy Baja	Nula	Alta	Media	Baja	Muy Baja	Nula	Alta	Media	Baja	Muy Baja	Nula
Sequía	Intervención A1															
	Intervención A2															
	Intervención B1															
	Intervención B2															
	Intervención B3															
	Intervención C1 & C2															

5. **Summary and next steps:** Decide the steps to follow for the implementation of the identified interventions, this includes the needs in terms of capacities, funding, collaboration, etc. It is also suggested to establish responsibilities related to the implementation



Activities

People capacitated in the use of the tool:

Fourteen people, 50% female technical staff

Workshops BR-I:

Eight villages consulted

Participants:

More than 300 farmers involved (30% female participants, 40% young farmers, 4% disable farmers)

Also feedback events in each village to present and discuss results



Mwaka	JANETI	MWENERO
2002	Mvua chache	↗
2004	Mvua ya mawe	↗
2006	Mlipuko wa maganja kwaadudu	↗
2008	Mvua nyingi -upepo mkali	↘
2009	-Mvua chache	↘
2010	Mlipuko wa maganja	↗
2015-2020	-ongereko la ukama	↗
2018	-Mvua nyingi	↘
2020-2021	-Mvua kubwa -mawe -uviko	↘
2021/22	-Mvua chache	↗
2022	-Baridi kali	↗



Results



Results

LOCAL CHARACTERISTICS

- Few hill + valleys
- Well defined rain season
- Sandy soil (low water/nutrients holding capacity)

- Cutting trees for charcoal/firewood
- Deforestation
- Cultivation next o water sources

PROBLEMS AFFECTING SYSTEMS WITH TREES

- Insufficient rainfall
- Pest & diseases (avocado + other)
- [Heavy rainfall]

- Problems with fertilization due to wet/dry soils
- Problems with pesticides (too wet or too dry)
- Problems at nurseries and after transplanting

SERVICES OR LIVELIHOODS THAT COULD BE TARGETED

Beekeeping

Support irrigation

Woodlots

Water storage

SUGGESTED INTERVENTIONS RELATED TO TREES

Tree cover to regulate temperature, soil carbon, water conservation (shade)

AF systems to regulate planting area temp/ humidity and improve fertilisers efficiency

Ridge farming/forestry

Organic fertilisers

Mixed-farming

Results

LOCAL CHARACTERISTICS

IP: colder
 - Deep sandy loam and sandy clay loam soils (poor retention -sandy?)
 - Long dry season May-Nov
 MA/WI: warmer
 - Brown/black clay and brown sandy soils (often acidic, dry quick in summer)
 - Long dry season May-Nov

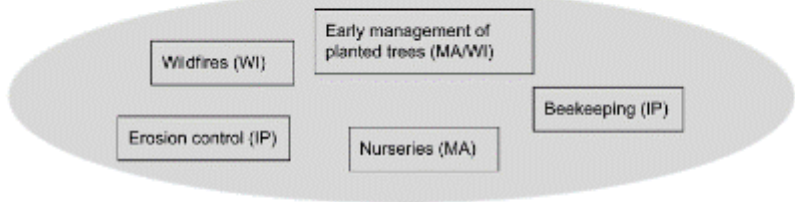
- Young people in agriculture (lack of experience)
 - Use of fire for farm preparation and charcoal making

PROBLEMS AFFECTING SYSTEMS WITH TREES

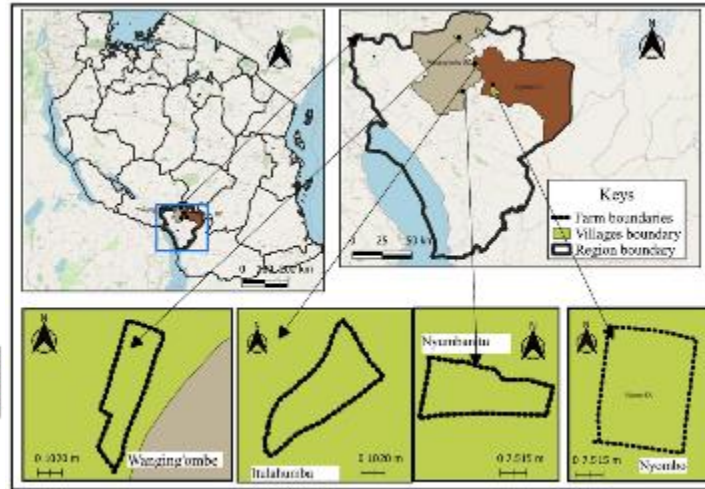
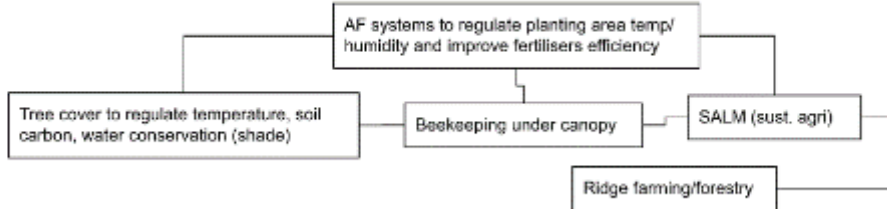
- Low soil fertility
 - Weather variability and uncertainty (IP-WI: highrain, MA: low rainfall & warm temperature)
 - Pests & drought, wildfires in WI

- Heavy rain and fires are affecting honey production
 - High mortality and poor development of trees (+ pest)
 - Rain and fire related erosion

SERVICES OR LIVELIHOODS THAT COULD BE TARGETED



SUGGESTED INTERVENTIONS RELATED TO TREES



Results

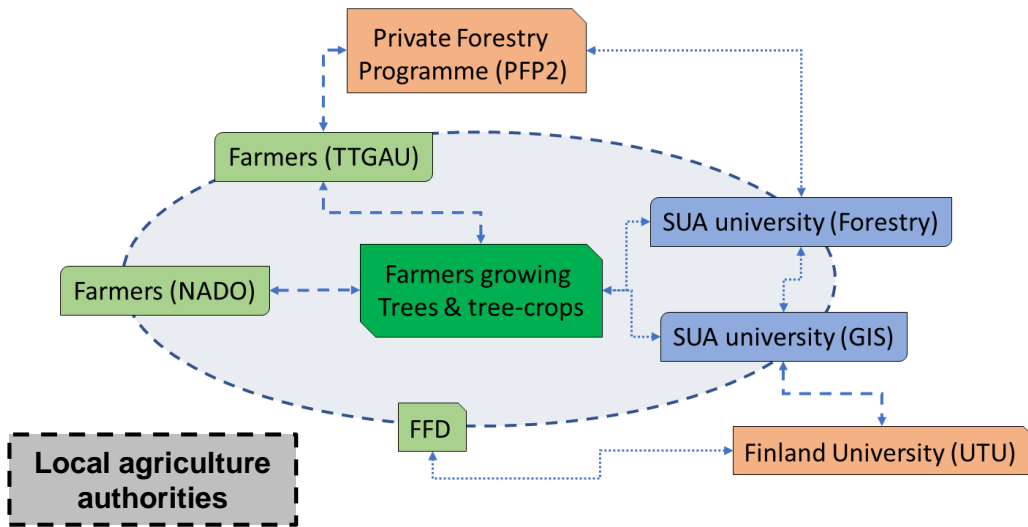
Experiments include:

1. Biochar production and testing in priority crops (maize and beans) and trees
2. Management of beehives (beekeeping experiments)
3. Management alternatives for woodlots
4. Management alternatives for local species at local nursery
5. Testing Apps for monitoring of fires and soil improvements

Lessons/experiences so far:

- Farmers more engaged in the process
- Important not to add more risk for farmers
- Real engagement takes time
- Managing expectations is important but complicated
- Finding the right resource can be as complicated as making your own

Collaborations/ partnerships



Feasibility for scaling

The idea is to scale-up the partnership (FOs / Academy / FFD) in other production systems.

Ideally the partnership remain without direct FFD support specially if other Finnish are involved.

Our small experiment is part of a larger program to support farmers-led research.

