



# REFOOTURE

from sustainability towards regenerative thinking

## TOWARD DEVELOPING A LIVING LAB IN ETHIOPIA FOR REGENERATIVE AND INCLUSIVE FOOD SYSTEMS

Living lab development strategy and selection of areas to operate

Remko Vonk, Marianna Siegmund-Schultze, Tewodros Tefera.

30/06/2021



---

This paper describes the strategy to develop the Ethiopian living lab, specialised in innovating for more regenerative and inclusive practices in the potato and spices sectors.

Vonk R.<sup>1</sup>, Siegmund-Schultze M.<sup>2</sup>, Tefera T.<sup>3</sup> 2021. **Towards living lab in Ethiopia: selection of areas to operate and development approach.** Wageningen, Wageningen Environmental Research, Strategy paper.

1. Wageningen Environmental Research
2. Wageningen Plant Research
3. Stichting Wageningen Research Ethiopia

© 2021 Wageningen Environmental Research (an institute under the auspices of the Stichting Wageningen Research), P.O. Box 47, 6700 AA Wageningen, The Netherlands,  
T +31 (0)317 48 07 00, [www.wur.nl/environmental-research](http://www.wur.nl/environmental-research). Wageningen Environmental Research is part of Wageningen University & Research.

Acquisition, duplication, and transmission of this publication are permitted with a clear acknowledgement of the source.

Acquisition, duplication, and transmission are not permitted for commercial purposes and/or monetary gain.

Acquisition, duplication, and transmission are not permitted of any parts of this publication for which the copyrights clearly rest with other parties and/or are reserved.

Wageningen Environmental Research assumes no liability for any losses resulting from the use of the research results or recommendations in this report.

The REFOOTURE project (July 2020 – March 2023) has been commissioned by University Fund Wageningen and has been financially supported by IKEA Foundation.



---

# Contents

- 1. Introduction 4**
- 2. South Achefer 4**
  - 2.1 Background South Achefer..... 4
  - 2.2 Potential for REFOOTURE ..... 5
  - 2.3 Professionalizing a regenerative potato economy in South Achefer..... 5
- 3. Tepi 6**
  - 3.1 Professionalizing a regenerative spices economy in Tepi ..... 6
- 4. Approach to establish the living labs 8**
  - 4.1 Activities at the level of the 2 regions ..... 8
  - 4.2 Activities to be carried out at federal level..... 9
- 5. Deliverables and millstones 9**
- 6. Time schedule 10**



---

# 1. Introduction

REFOOTURE started activities in Ethiopia in April 2021. To spread risk in a period of political tension due to the civil war, the Ethiopian living lab has to areas of operation. The benefit of this contingency strategy is that we are able to cover and learn about two different farming systems: annual crop-livestock based system and perennial cash crop-based system, located in the South Achefer and Tepi woredas.

The selection of these two areas had been the result of initial mapping studies that had been carried out using the REALISE and CASCAPE programme network in the country, covering the South Achefer and Tepi woredas and one study at the national level. Based on the mapping of stakeholders and the local opportunities, these two areas have been identified as potential as they are cash crop systems emerging as game changers. The goal of the mapping was to explore the context for development and innovation and investments in more regenerative and inclusive approaches.

These mapping results are instructive for the development of the two operation areas of the Ethiopian living lab. South Achefer, where improved potato varieties, together with improved agricultural practices have contributed significantly to improved livelihoods of local farmers (as potato is both a food security and cash crop), and Tepi, where spices are a driving factor in the local economy. Both systems have the potential to professionalize at the production, processing and value chain (marketing) levels. This process of professionalization provides an opportunity to introduce regenerative and inclusive practices/principles throughout the production, processing and value chains.

This background report explains the choice to set-up activities in these two operation areas and introduces the living lab development approach.

## 2. South Achefer

### 2.1 Background South Achefer

Certain innovations introduced through the CASCAPE programme created game changers. Yields for potatoes in the South Achefer area went from 8MT/ha to 35 MT/ha. This created a chain of changes in the investment potential of the farmers. They went from subsistence level farming with minimal capital inputs to more commercial oriented farming where investments were made possible by the income from potatoes. We observed that farmers were willing to adopt a whole series of best practices introduced by CASCAPE, such as Rhodes grass, hybrid maize, minimum tillage. The introduction of Rhodes grass coincided with the introduction of dairy cows by other projects. Farmers then started investing in dairy which also meant they went from free grazing on communal land to stall feeding. This in turn led to the making of compost using cow manure. The compost was recycled back into the farming system, mostly for potato and Rhodes grass and to some extent vegetable gardening.



---

This chain of innovations has clearly – visibly – improved the livelihoods of the farmers. Children look better fed, are sent to schools and colleges, houses are upgraded. Households invested in both improved living conditions but also back in agriculture.

## 2.2 Potential for REFOOTURE

This area provides a unique insight into what can happen once a true game changer triggers investments in more regenerative / circular agriculture. Therefore, this area is of interest to be followed up by the REFOOTURE project. REFOOTURE aims to bring a community together to innovate for more regenerative and inclusive food systems. By creating a learning and reflection space amongst partners, REFOOTURE wants to explore what is more possible in such a flourishing innovation environment. At the same time, the area can be a source of inspiration for new developments in the Tepi area.

## 2.3 Professionalizing a regenerative potato economy in South Achefer

Given that potatoes have been the successful trigger for improving livelihood in South Achefer, it is important to further strengthen the potato economy in a more regenerative way, so it can continue to serve as the backbone of the regional farming system.

Initially, the focus was on increasing the productivity of potato, but over the years, seed potato production, seed storage (diffused light storage systems), crop management, market linkages and rotation management have emerged as critical issues that require innovation as well. However, the CASCAPE programme has come to an end, and these aspects have not all received the attention they deserve.

In terms of regenerative practices, South Achefer has experienced the following innovations. The increase in potato production has been successful, and the farmers that grow the improved varieties have been able to strengthen their farming systems. Investments in dairy farming for instance, have led to the introduction of zero grazing systems, and the use of manure for making compost. The compost in return is now used to fertilize potato fields. Many farmers have replaced maize by potato, which has led to a shortage of fodder, as the livestock was fed on maize stalks in the dry season. To circumvent this, the CASCAPE programme successfully introduced Rhodes grass, which now supports the dairy zero grazing systems. This combined dairy – potato innovation has led to a more integrated and regenerative agricultural system.

In the scope of REFOOTURE, the Ethiopian team sees the following three entry points for further professionalizing the potato sector in line with regenerative practices:

- Improved seed and improved management (IPM, crop management, rotation management). In addition, a one timad package (for 0.25 ha) and a half a timad package for potatoes can be developed to give more farmers access to improved potato technology.
- Opportunities for local processing (chips, starch, improved storage)



- 
- Improved and fair marketing linkages, including identifying potential buyers and their needs (processors, restaurants, wholesalers, vendors)

The living lab plans to bring actors together and create strong links with markets, technical resources, research, and practitioners. Potential living lab actors are:

**Research:** The Adet research Centre is a center of excellence for potato research working on varietal improvement, breeder potato seed production, and storage.

Bahir Dar University, which was the key implementing partner on the CASCAPE programme for Amhara Region, and that has co-invested with CASCAPE in the distribution of potato best practices in the region.

**Extension:** All the NGO projects in the region that show an interest in the subject

The Bureau of Agriculture at the regional, zonal and woreda levels

**Processing:** Existing local processors

Processors from Addis Ababa

Bahir Dar University Bahir Dar Institute of Technology (BIT)

**Marketing:** Local buyers (restaurants – hotels, supermarkets, wholesalers from Bahir Dar and Addis)

It is possible that the living lab will form sub-groups to deal with the elements of production, processing and marketing.

Possible future topics for innovation may be organized around essential oil (eucalyptus) and poultry. In both cases, circularity, and the use of distilled eucalyptus leaves.

## 3. Tepi

### 3.1 Professionalizing a regenerative spices economy in Tepi

Spices and coffee are the backbone of the economy in the Tepi area. Black pepper and turmeric are two widely cultivated spices. Even though they are quite different, with black pepper being a perennial crop which is often grown in a home-gardening setting, and turmeric being an annual crop grown as a monocrop in fields, they share some processing steps. For both crops, the value chains are underdeveloped and lack transparency.

For both crops, there are smallholders and larger commercial farmers. The larger commercial farmers are more willing to invest in more innovative approaches, but unfortunately these innovations do not find much adoption at the smallholder level.



---

The Tepi spices research center has carried out research into spice cultivation for decades. However, the linkages with extension and farmers are weak. The research station does not have the logistical capacity to validate its research findings at the farmer level.

The following are areas that would deserve special attention in the REFOOTURE context:

1. Improved crop management.
  - a. The Tepi research center has developed improved – more disease resistant- varieties that may give a boost to production. They must be available to farmers.
  - b. Improved soil fertility management, using integrated soil fertility management, combining compost and fertilizer.
  - c. Pepper is a vine plant and requires a support to climb into. The farmers in the area use *Grevillea robusta* for this purpose. Tepi research has identified a local *Erithrina* species that is known for its nitrogen fixing ability as a good alternative to this Australian species.
  - d. Turmeric is a root crop that is susceptible to soil borne diseases and at the same time nutrient mining crop. It requires rotation, good soil fertility management and good crop residue management to get to a solid–regenerative and productive–cropping system. However, farmers often grow turmeric year after year on the same plot of land.
2. Improved processing.
  - a. The processing of both turmeric and black pepper requires that the crop is dipped into boiling water for a few minutes to kill pathogens. The technology used for this is boiling water in half an oil drum on a three stone fire. Jute bags with either turmeric or black pepper are dipped into the water for about 5 minutes. As the water is not refreshed between treatments, it accumulates dirt in the course of the day. At the end of the day, the water is very dirty, and actually deposits a layer of filth on the crops. Also, the use of an open fire is not energy efficient at all.
  - b. The black pepper and turmeric are both susceptible to aflatoxin and the quality of processing is extremely important to get to a viable marketable product.
  - c. Only turmeric is graded, into a higher and lower grade. Better cropping practices and better processing will lead to a higher percentage that can get the higher grade.
3. Improved market linkages.
  - a. Farmers have limited access to market information. They have to accept the prices they are offered. Better price information will lead to better market transparency. The living lab will work with



---

all concerned market parties to improve farmers' access to higher prices.

- b. An effort can be made to get better product quality grading and thus a better price for farmers that apply best practices.

The living lab will serve to bring actors together and create strong links with markets, technical resources, research and practitioners. Potential living lab actors are:

**Research:** The Tepi research center is a designated spices research center with research on varietal improvement, cropping practices and the testing of new potentially interesting species.

Jima University, which was the key implementing partner on the CASCAPE programme for Western Oromia, and that a special mandate to do research and education on spices.

**Extension:** All the NGO projects in the region that show an interest in the subject

The Bureau of Agriculture at the regional, zonal and woreda levels

**Processing:** Existing local processors

Processors from Addis Ababa

Jima University Institute of technology

**Marketing:** Local buyers (middlemen, larger farmers)

The future candidate innovation cases for the Tepi area are turmeric eucalyptus oil and ginger.

## 4. Approach to establish the living labs

### 4.1 Activities at the level of the 2 regions

The following activities have been proposed to establish and set up operations in the areas of South Achefer and Tepi:

1. Create a team in the two regions to carry out the living lab activities
2. Develop a MOU both at the national and regional levels to get proper buy in and collaboration from the concerned partners, including the government
3. Report the results of the initial studies back to the regional stakeholders.
4. Launch the living lab and the two areas of operation
5. Divide the living lab activities according to innovations in production, processing, and marketing
6. Provide support to activities (financial and technical assistance) proposed by the living lab.
7. Exchange experiences and learn from the experiences in Uganda and Kenya





8. Develop new innovation cases together with the concerned stakeholders
9. Organize exchange visits to research centers, private and government processing centers, market centers for living lab members
10. Organize capacity building trainings

## 4.2 Activities to be carried out at federal level

1. Organize learning and reflection events to initiate scaling support
2. Organize policy dialogue on issues emerging from the two innovation cases target areas
3. Backstop innovation cases areas in partnership (stakeholder) management and event organizations

## 5. Deliverables and millstones

Major tasks	Milestones	Deliverables
<b>1. Learning, reflection and partnership building</b>	Agree on key findings of the mapping surveys and defined priorities for action	<ul style="list-style-type: none"> <li>• Identification of Stakeholders related to Achefer and Tepi innovation cases</li> <li>• Workshop proceedings</li> <li>• Priority areas for action</li> </ul>
<b>2. Establishment of living lab (LL)</b>	Two living labs established	<ul style="list-style-type: none"> <li>• Living lab members defined</li> <li>• Living lab launching report</li> <li>• MOU signed               <ul style="list-style-type: none"> <li>○ Role and responsibilities agreed</li> <li>○ Operational Modalities</li> <li>○ Resource allocation agreed (manpower, logistic and finance)</li> </ul> </li> </ul>
	Preliminary LL Plan and intervention areas Developed	<ul style="list-style-type: none"> <li>• Work plan and intervention priority document produced</li> </ul>
	Achefer	<ul style="list-style-type: none"> <li>○ Quick assessment report on improved seed supply chain and improved management options identified</li> <li>○ Assessment report on Opportunities for local processing and value addition compiled</li> <li>○ Report on improved and fair marketing linkages, including identifying potential buyers and their needs produced</li> </ul>
	Tepi area	<ul style="list-style-type: none"> <li>○ Improved crop management</li> </ul>

		<ul style="list-style-type: none"> <li>○ Improved processing</li> <li>○ Improved market linkage</li> </ul>
<b>2.1. Baseline established from the mapping surveys and other sources</b>	Baseline related to innovation cases established	<ul style="list-style-type: none"> <li>• Key Performance Indicator (KPI) established</li> </ul>
<b>3. Capacity building</b>	Development of training need to project staff and stakeholders	<ul style="list-style-type: none"> <li>• Copy of training curriculum</li> </ul>
		<ul style="list-style-type: none"> <li>• List of attendees</li> </ul>
		<ul style="list-style-type: none"> <li>• Training evaluation report</li> </ul>
<b>4. Event organization</b>	Periodic LL meetings	Meeting minutes
	Dialogue and learning	Reports
	Learning and inspiration tours	Tour report
	Trade fair	Number of producers and buyers attended
	National meeting	Meeting reports
<b>5. Promotion of regenerative inclusive food system</b>	More innovation cases identified	Number of innovation cases identified and promoted
	Adoption of regenerative agricultural practices improved	Adoption survey report
	Scaling up of best fit innovation cases by LL members and stakeholders	Assessment report

## 6. Time schedule

	Task, sub task and milestone	FY20QTR3&4				FY21QTR1			FY21QTR2			FY21QTR3			FY21QTR4		
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Learning, reflection and partnership building																
M1	Agree on key findings of the mapping surveys and defined priorities for action	◆															
2	Establishment of living lab (LL)																
M1	Two living labs established		◆														

M2	Preliminary LL Plan and intervention areas Developed			◆														
2.1	Baseline established from the mapping surveys and other sources	■																
M1	Baseline related to innovation cases established	◆																
3	Capacity building				■	■	■											
M1	Development of training need to project staff and stakeholders				◆													
4	Event organization	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
M1	Periodic LL meetings		◆			◆			◆			◆			◆			
M2	Dialogue and learning						◆			◆							◆	
M3	Learning and inspiration tours		◆															
M4	Trade fair																◆	
M5	National meeting			◆								◆						
5	Promotion of regenerative inclusive food system											■	■	■	■	■	■	■
M1	Adoption of regenerative agricultural practices improved												◆					
M2	Scaling up of best fit innovation cases by LL members and stakeholders											◆	◆					