CANALLS

AGROECOLOGICAL PRACTICES FOR SUSTAINABLE TRANSITION

D6.1 Practice Abstracts – Batch 1

PROJECT ACRONYM: CANALLS
PROGRAMME: HORIZON Europe
Grant Agreement: No 101083653
TYPE OF ACTION: HORIZON-RIA
START DATE: 1 January 2023
DURATION: 48 months

Funded by the European Union

Document Information

Issued by:	AFAAS, UHOH
Issue date:	25/06/2024
Due date:	30/06/2024
Work package leader:	UHOH
Dissemination level:	Public

Document History

Version	Date	Modifications made by
1	05/06/2024	Initial draft by Nestor Ngouambe, AFAAS
2	13/06/2024	Quality review by Kyriaki Argyropoulou (Q-PLAN) and Diego Cerrudo (CIRAD)
3	21/06/2024	Second draft by Nestor Ngouambe (AFAAS) and Roman Spiegelsberger (UHOH)
4	25/06/2024	Finalisation by Nestor Ngouambe, Morris Egesa (AFAAS) and Roman Spiegelsberger (UHOH)

Authors

First Name	Last Name	Beneficiary
Nestor	Ngouambe	AFAAS
Roman	Spiegelsberger	UHOH
Morris	Egesa	AFAAS
Hycenth	Tim Ndah	UHOH
Beatriz	Herrera	UHOH
Diego	Cerrudo	CIRAD
Kiki	Argyropoulou	Q-Plan
Mehreteab	Tesfai	NIBIO
Charles	Sivirihauma	RIKOLTO
Innocent	Balagizi Karhagomba	INERA

Jules	Ntamwira Bagula	INERA
Alain	Byamungu Burume	Gasd
Janvier	Mulumuna wa Lola	UCB
Kokou	Kintch	IITA
Sam	Fan	Naturland
Audace	Niyonzima	Naturland
Marie-Chantal Burundi	Niyuhire	ISABU
Pierre	Ngendakumana	ISABU
Vicky	Ruganzu	RAB
Emmanuel	Rukundo	IITA
Precillia Ijang	Tata Ngome	IRAD

In case you want any additional information, or you want to consult with the authors of this document, please send your inquiries to: nngouambe@afaas-africa.org, roman.spiegelsberger@uni-hohenheim.de or secretariat@afaas-africa.org

Quality Reviewers

First Name	Last Name	Beneficiary
Diego	Cerrudo	CIRAD
Kyriaki	Argyropoulou	Q-Plan

Deliverable Description: The initial deliverable for WP6: "Scaling Innovations for Agroecological Transitions," is comprised out of 10 Practice Abstracts. The Practice Abstracts will serve to transform the innovative knowledge that emerges from the project activities into accessible, easy-to-use material for end-users. The practical knowledge will be described in simple terms that are easily understood by laypersons and/or specific stakeholders and disseminated in Africa and the EU. In total, we conservatively estimate that there will be at least 30 Practice Abstracts over the course of the project—with 10 abstracts to be produced with this deliverable.

Disclaimer

Funded by the European Union under GA no. 101083653. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or REA. Neither the European Union nor the granting authority can be held responsible for them.

Executive Summary

The promotion of an agroecological transition in the humid tropics of Central and Eastern Africa is dependent on an interplay between scientific and practical considerations. The development, identification, and testing of agroecological practices represent a single aspect of this process. The second aspect is the implementation of these practices on the ground, this is where Deliverable 6.1 comes into play.

The objective of Deliverable 6.1 is to produce 10 Practice Abstracts to facilitate the exchange between science and practice and the replication of agroecological practices in other areas of Africa. To this end, CANALLS is applying the common format of Practice Abstracts by following a standardized approach to disseminate project results in an easily understandable way for practitioners. The Practice Abstracts will be published on the CANALLS website as well as on the European Innovation Partnership Agricultural Productivity and Sustainability project database for practitioners to access. The following report outlines the Deliverable 6.1 development process and includes the content of all 10 Practice Abstracts. In order to identify viable outputs to disseminate at this stage of the project, a desk review was conducted in Task 6.3. The review demonstrated that the co-creation process within the Agroecology Living Labs is well advanced and is likely to provide interesting insights for practitioners. Consequently, the initial 10 Practice Abstracts elaborate on the concept of Agroecology Living Labs, the co-creation process within CANALLS, and the description of the eight specific Agroecology Living Labs. To develop the content of the Practice Abstract, a team of experts from across the project were consolidated as authors. In a feedback process, the authors provided the content, while AFAAS and UHOH adapted the content to the specific requirements of the common format.

The initial set of Practice Abstracts made evident that, at this stage of the CANALLS project, it was not feasible to offer tangible guidance to practitioners. agroecological practices had not yet been subjected to testing, and in many instances, were not even defined for the specific Agroecology Living Labs. Nevertheless, the Practice Abstracts yielded valuable insights into the challenges and prevailing agroecological practices in the focal project areas in Cameroon, Rwanda, Burundi and the Democratic Republic of Congo. For the second batch of Practice Abstracts in M48, it is crucial to examine the agroecological practices tested in CANALLS with a view to providing recommendations that end-users, in particular farmers, can implement in their daily lives.

Table of Contents

List of Figures

List of Tables

List of Terms and Definitions

Table 1: Terms and Definitions

Abbreviation	Definition
AEP	Agroecological Practice
AFAAS	African Forum for Agricultural Advisory Services
ALL	Agroecology Living Lab
BR	Burundi
CANALLS	Central and Eastern Africa through transdisciplinary Agroecology Living Labs
CR	Cameroon
DRC	Democratic Republic of Congo
EIP-AGRI	European Innovation Partnership Agricultural Productivity and Sustainability
EU	European Union
NGO	Non-Governmental Organisations
PA	Practice Abstract
RW	Rwanda
UHOH	University of Hohenheim
WP	Work Packages

1. Introduction

CANALLS aims to drive the agroecological transition in Central and Eastern Africa through Living Labs. Given the transdisciplinary nature of the transition process and looking at the whole food system including stakeholders ranging from civil society to research, there is a need for translation between research and practice. Agroecological practices (AEP) must be identified, developed, and tested, as well as brought to the ground and scaled up in order to effect change.

Work Package 6 (WP6), entitled "Scaling Innovations for Agroecological Transitions," recognizes the transfer from science to practice as a crucial element in fostering the agroecological transition and aims to develop tools that facilitate the replication of AEPs. The following report examines the process of developing such tools, namely Practice Abstracts (PAs), which represent the initial deliverable of WP6. Deliverable 6.1, as part of Task 6.3, "Replication guide and tools for driving agroecological strategies via living labs," is part of the scaling efforts in CANALLS using the concept of PAs to facilitate the exchange between science and practice. In the development of the PAs, the European Innovation Partnership Agricultural Productivity and Sustainability (EIP-AGRI) common format was employed (European Commission, 2016). The following report presents the process and results of the development of Deliverable 6.1, the first batch of PAs.

It follows the structure below:

- Methodology
- List of Practice Abstracts
- Conclusions and Recommendations

2. Methodology

2.1 Practice Abstracts

Task 6.3: “Replication guide and tools for driving agroecological strategies via living labs” aims to provide practical tools to assist stakeholders in replicating the results of CANALLS. To achieve this objective, the concept of PAs according to the EPI-AGRI common format was employed in Deliverable 6.1. (European Commission, 2016).

PAs are a standard format commonly utilized by EU multi-factor projects with the objective of providing recommendations and disseminating the findings of the project in a concise and accessible manner to end-users. The concept facilitates and streamlines the dissemination of project results to a broad, non-scientific audience by using a set of criteria to achieve a unified and effective communication between scientists and practitioners. Accordingly, CANALLS adheres to the EIP-AGRI common format. In consequence, the EPI-AGRI establishes a specific framework for the PAs. PAs under this format are concise summaries of approximately 1,000–1,500 characters, encapsulating the core elements of a project, including recommendations and practices, that can be readily utilized by end-users (European Commission, 2016).

The EIP-AGRI Service Point provides the criteria, which the PAs should at least contain, as follows:

- Introduction
- The main results/outcomes of the activity
- The main practical recommendation(s): what would be the main added value/benefit/opportunities to the end-user if the generated knowledge is implemented? How can the practitioner make use of the PA?
- A picture for illustration
- The contact details of the author

The EPI-AGRI common format set utmost importance that the PAs be written in an engaging and accessible manner for end-users, utilizing straightforward and comprehensible language (European Commission, 2016). It is crucial to bear in mind that English is not the native language of all project partners when drafting the PAs. In CANALLS, this is addressed by providing the PAs in French and English, as these are the official languages spoken in all of the African project countries of the project. The PAs will also be translated into Swahili (Eastern DRC and Rwanda), in Kinyarwanda (Rwanda) and Kirundi (Burundi). In accordance to the specifications outlined by the EPI-AGRI common format, 10 PAs were drafted for Deliverable 6.1.

The PAs, together with further information on the project shall be subsequently uploaded to the EPI-AGRI project database to be published (https://eu-cap-network.ec.europa.eu/projects_en). Furthermore, the PAs will be uploaded to the CANALLS website for end-users to access (https://www.canalls-project.eu/resources/public-deliverables).

2.2 Desk review to identify the topics of the Practice Abstracts

In order to identify viable outputs to disseminate via the PAs at the current stage of the project, a desk review was conducted in Task 6.3. The review demonstrated that the co-creation process within the Agroecology Living Labs is well advanced and is likely to provide valuable insights for practitioners.

The desk review entailed an analysis of existing reports and deliverables conducted by AFAAS and UHOH in collaboration with the focal partners. The deliverables under review focused on: the agroecological contexts and needs of rural communities, the systemic factors and innovation support for agroecology, the methodology for co-creating optimal agroecological practice combinations, the holistic agroecology assessment framework used in CANALLS, the plans and achievements of the ALLs and the Consumer segments for agroecological food products (Ndah et al., 2023; Jonas & Millicent, 2023; Cerrudo & Corbeels, 2023; Mulumuna Wa Lola et al., 2023; Mehreteab et al., 2023; Argyropoulou et al, 2023).

The objective was to identify topics that could be disseminated via the PAs. The results of the analysis indicated that, at the current stage of the CANALLS project, it is not possible to provide specific recommendations for agroecological practices (AEPs). The ALLs were still in the initial stages of the co-creation process, defining challenges and potential AEPs to test. Given that the co-creation process was the dominant process at the time of working on D6.1, it was deemed most promising to concentrate on this specific part of the project in order to yield content for the PAs. It is therefore appropriate to focus on the constraints and challenges encountered by the ALLs during the initial year of implementation, followed by key recommendations for the future development of AEPs, as this will provide the most useful information for end-users. Consequently, the initial 10 PAs provide an

elaboration of the concept of ALLs, an account of the co-creation process within CANALLS, and a comprehensive description of the eight distinct ALLs.

The decision regarding the PA topics was validated through a process of consultation with the consortium, particularly the CANALLS WP Leaders and the Project Lead, who provided feedback and suggestions for modification. This resulted in the scheduling of a follow-up meeting with the identified authors of the PAs to facilitate a more detailed analysis and discussion. The result of this process was the following thematic distribution of the PAs: "Characterization of Living Labs" (8 PAs), "Definition of Living Labs" (1 PA), and "Presentation of co-creation methodology" (1 PA). Please refer to Table 2 for a summary of the thematic topics of the 10 Practice Abstracts. The target end-users are producers, processors, traders, NGOs, policymakers, and agricultural practitioners interested in agroecology.

Table 2: Overview of the topics to be addressed in the 10 Practice Abstracts.

Agroecological Principle	Title	WP	Partner
Recycling, Inputs reduction, Soil health, Animal Health, Biodiversity, Synergy, Economic Diversification, Connectivity	Definition and concept of ALLs	3	NIBIO
	Description of ALL Bunia (DRC)	1, 2 & 3	RIKOLTO
	Description of ALL Biega (DRC)	1, 2 & 3	INERA
	Description of ALL Kabare (DRC)	1, 2 & 3	GASD
	Description of ALL Uvira (DRC)	1, 2 & 3	IITA
	Description of ALL Ntui (CR)	1, 2 & 3	IRAD
	Description of ALL Giheta (BR)	1, 2 & 3	Naturland
	Description of ALL Bujumbura (BR)	1, 2 & 3	ISABU
	Description of ALL Kamonyi (RW)	1, 2 & 3	RAB
Co-creation of knowledge	Co-creation as key component of AE-transition within Living Labs	2	CIRAD

2.3 Process of drafting the Practice Abstracts

An online meeting was convened with the initially selected authors (CIRAD, NIBIO, UHOH, and QPLAN) during which a proposal was put forth to designate ALL coordinators as authors of the PAs related to the characterization of the Living Labs. The recommendations from the proposal were subsequently implemented during an additional online meeting with the eight Living Lab coordinators, during which the participants were informed about the nature of PAs and the main expectations associated with them.

A template was developed through a feedback process with Q-Plan, which was designed to serve as a guideline for collecting relevant inputs from the authors (see Figure 1). The process of drafting the PAs was divided into four stages:

1) Request for Inputs
2) Feedback Loop

3) Second Round of Inputs
4) Finalization and Translation

In the initial stage of the process, the authors were contacted via email and requested to provide the content for their specific PA. A guide was provided to the authors with the objective of establishing a unified approach to the different PAs. This guideline establishes the framework for the EPI-AGRI common format and delineates the requisite content. In particular, the ALL-Leads were provided with instructions regarding the content of their PA, with a focus on providing a description for their focal ALL. This included the socio-economic characterization of the Living Lab, the state of the agroecological transition, the AEPs identified and to be applied in the ALL, constraints, and challenges that CANALLS will address. Additionally, a PA from another EU project was provided to the authors as a reference.

Figure 1: Template for the Practice Abstracts

The second stage involved a feedback loop, during which AFAAS and UHOH evaluated the provided inputs, adjusted the specifications to align with the criteria of the EPI-AGRI common format, and unified the content. The revised PAs were subsequently sent to the authors for their final review and approval. Following this, the documents were finalized and translated into French by AFAAS and UHOH.

The English versions of the PAs can be found under Section 3 while the French version of the practice abstracts can be found in the Annex.

3. List of Practice Abstracts

This chapter presents a list of the 10 PAs, accompanied by their respective illustrations, in both the English and French versions.

3.1 PA1: Characterization of Agroecology Living Labs

The Agroecology Living Lab (ALL) in the CANALLS project is a place where people work together to improve agriculture through the concept of agroecology. Farmers, scientists, and other community members work together to find solutions to problems faced by the community.

CANALLS currently has eight Agroecology Living Labs, namely Biega, Bunia, Kabare and Uvira (DRC), Bujumbura and Giheta (Burundi), Ntui (Cameroon), and Kamonyi (Rwanda). Our ALLs are composed of at least 20 stakeholders from different organizations and sectors. They are driven by bottom-up activities that are networked top-down by the CANALLS project management.

ALLs have the potential to transform the different farming systems in the ALLs sites towards higher levels of agroecology by:

- Conducting co-creation workshops where key challenges and root causes are jointly identified, agroecological solutions are jointly developed and implemented
- Involving end-users and other stakeholders in various project activities from the beginning, based on their expertise and resources.

Unrealistically high expectations and a lack of full stakeholder commitment could limit the implementation of ALLs. This risk can be reduced by training and building the capacity of ALL coordinators and stakeholders, informing stakeholders which of their ideas have been taken up and why it was not possible to integrate all of their ideas, making the benefits for all stakeholders visible in the project, and defining the contributions expected from stakeholders.

Genuine collaboration between the Living Lab coordinators, the local project partners, the multi-stakeholders and the project partners as a whole is important for the success of ALLs in the CANALLS project.

Contact: Mehreteab Tesfai, Norwegian Institute of Bioeconomy Research, Oluf Thesens vei 43, 1433 Ås, Norway, mehreteab.tesfai@nibio.no, +4740604100

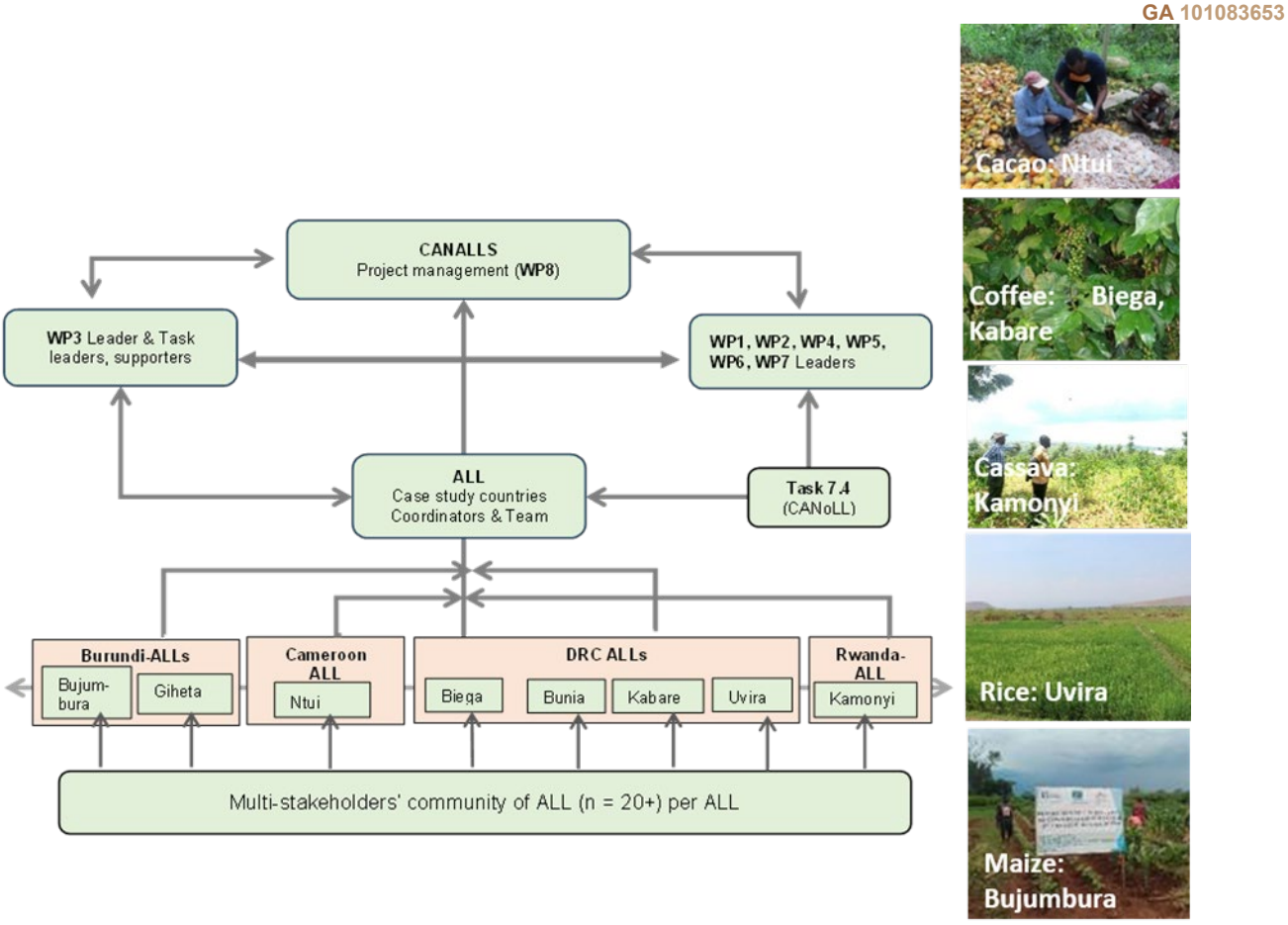

Figure 2: Organizational structure of the Agroecology Living Labs in the CANALLS project, Source: Ntui & Uvira: Balume Kayani Issac, Biega: Balagizi Karhagomba, Kamonyi: Vicky Ruganzu, Bujumbura: Marie-Chantel Niyuhire, The organization structure: Own drawing

3.2 PA2: Co-creation as Key Component of Agroecological Transition within Living Labs

The co-creation process within the CANALLS project comprises a participatory and collaborative development of agroecological practices. This approach brings together different stakeholders who work together to find solutions for their most pressing challenges. Such stakeholders may include farmers, experts, governmental agencies, and representatives from the private sector and civil society.

Co-creation of agroecological practices is a 4-step cycle where we start by:

1) Identifying and understanding the challenges

2) Mapping, prototyping, and prioritizing agroecological practice combinations

3) Evaluating the practice combinations in the field

4) Evaluating the results and planning scaling strategies and the next co-creation cycle

The type of agroecological practices identified in CANALLS include the use of biopesticides, alternative sources to synthetic fertilizers, erosion control techniques, and improved shade management for coffee and cocoa production. Once the specific practices for each Living Lab were identified, field experiments were designed in order to evaluate the practices on cocoa systems in Cameroon, cassava in Rwanda, maize-legume intercropping in Burundi, and coffee and rice systems in DRC.

A co-creation approach can help different stakeholders to tackle their challenges by building both their own scientific knowledge in combination with bottom-up indigenous knowledge. This process requires mid- to long-term efforts. For co-creation to be successful and sustainable, it is important that the energy and commitment of the stakeholders are proportionally matched with the benefits they get, and that their expectations for results match the reality.

Contact: Diego Cerrudo, Centre de Coopération Internationale en Recherche Agronomique pour le Développement, 115 - Ave Agropolis Montpellier 34398, France, diego.cerrudo@cirad.fr, +33 1 53 70 20 00

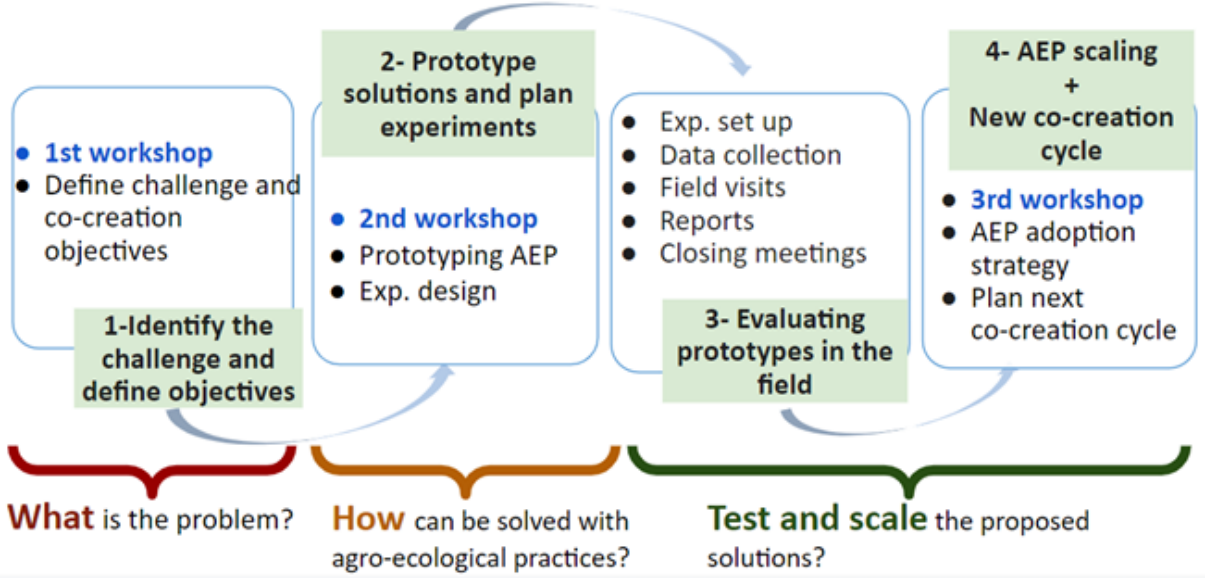

Figure 3: CANALLS co-creation cycle, Source: Framework developed within CANALLS

3.3 PA3: Characterization of the Agroecology Living Lab in Bunia

The Bunia Living Lab is located in the Mambasa Territory of the Democratic Republic of the Congo. Bunia's 812,090 inhabitants mostly practice agriculture, growing mainly food crops and cocoa. The existing Shade-grown Cocoa project (funded by USAID) aims to enhance natural resource conservation and improve rural livelihoods. The project is developing a cocoa value chain platform and will promote stakeholder networking.

Farmers within the Bunia Living Lab lack knowledge and awareness of agroecology. However, traditional agroforestry is practiced through a mix of cocoa with banana and palm oil with annual crops, mostly rice and maize. CANALLS can build on the USAID-funded project, which is working to improve cocoa farming in the Mambasa region.

The main challenges faced by farmers include extreme weather events, especially erratic rainfall and prolonged dry seasons, as well as heavy rains, crop diseases and pests, and forest degradation

The main objective of the Bunia Living Lab is to transform the cocoa agroecosystems, starting with increasing the efficiency of input use and reducing the use of costly, scarce, or polluting inputs to reconnect consumers and producers through the development of alternative food networks. This will be realized in the Bunia Living Lab by testing agroecological practices, including intercropping with diverse shade trees, integrated soil fertility management, integrated pest management, as well as economic and social interventions such as addressing the organic value chain, circular and solidarity economy, culture and food traditions, co-creation, and knowledge sharing.

Contact: Charles Sivirihauma, Rikolto, Blijde Inkomststraat 50, 3000 Leuven, Belgium, info@rikolto.org, +32(0)16/31.65.80

Figure 4: Participatory community work by women (shelling and preparation of cocoa beans for fermentation) in the Bunia Living Lab, Source: Charles Sivirihauma

3.4 PA4: Characterization of the Agroecology Living Lab in Biega

The Biega Living Lab is located around the Kahuzi Biega National Park at altitudes ranging from 1700 to 2000 m. The moderate climate is favorable to grow coffee, beans, bananas, sweet potatoes,

vegetables and yams. Livestock includes cattle, goats, pigs, chickens, rabbits, and guinea pigs. The Biega Living Lab consists mainly of coffee-based farmers.

In the Biega Living Lab, CANALLS can build on previous programs, as the World Coffee Research, as well as the "Kahawa Bora ya Kivu project ". These coffee programs aimed to empower smallholder coffee producers and organize them into cooperatives to develop sustainable markets for the best quality coffee.

Some agroecological practices are already used by the farmers in the Biega Living Lab. These include the use of manure and cover crops to increase soil fertility, the use of homemade biopesticides, and agroforestry practices to improve soil erosion control.

Through the CANALLS co-creation workshop, it was possible to identify the pressing key challenges for the Biega Living Lab. A major issue is the aging of the coffee plantations. In addition, the lack of adequate pest control and low soil fertility need to be addressed.

To overcome these challenges, good agroecological practices need to be disseminated in the local language. Farmers' capacity should be built through the use of leaflets and community outreach programs based on research findings and tested agroecological practices.

Contact: Innocent Balagizi Karhagomba, INERA, Avenue des Cliniques 13, Kinshasa/Gombe, Democratic Republic of the Congo, balkarh2015@gmail.com, (+243) 971784326

Figure 5: Coffee-banana intercropping system in the Biega Living Lab in the Democratic Republic of the Congo, Source: Innocent Balagizi Karhagomba

3.5 PA5: Characterization of the Agroecology Living Lab in Kabare

The Kabare Living Lab is located North of Bukavu in the Eastern Democratic Republic of the Congo. It covers the area between Birava and Kabamba and lies at an altitude of between 1400 and 1700 m. The climate is strongly influenced by mountains, which provide favorable conditions for agriculture.

The main crops grown in the area are cassava, maize, sweet potatoes, sorghum, bananas, beans, coffee, tea, and sugarcane. Most of the production is either consumed locally or sold to nearby agglomerations.

In the Kabare Living Lab, CANALLS builds on the projects Kivu Specialty Coffee, RUNRES, and Excellence in Agronomy. In the Living Lab, several sustainable farming practices are already in place. Farmers use green manure and biopesticides instead of chemical inputs. Erosion control is achieved through the use of ditches and anti-erosion hedges. The major challenges in the Living Lab identified during the CANALLS co-creation workshops include the aging of old coffee plantations, diseases and pests, inadequate shade management, and declining soil fertility and erosion.

The existing practices are being adapted through the implementation of agroecological practices, which have been identified via the CANALLS co-creation process. The practices to be tested are the recycling of nutrients, the application of waste compost, the use of biopesticides, the retention of water, and the implementation of erosion control measures. These practices have been selected for testing due to their potential to overcome the most common pests and soil degradation issues observed in coffee-based systems in Kabare.

The high percentage of farmers with lower levels of education suggests that new practices need to be designed and disseminated in the local languages.

Contact: Alain Byamungu Burume, GASD Services Sarl, South and North Kivu, Democratic Republic of the Congo, albur2002@gmail.com, +243 815 805 432

Figure 6: Second workshop of the co-creation of agroecological practices aiming at addressing key challenges identified by Kabare Living Lab stakeholders, Source: Muniali Mudekereza Dieumerci

3.6 PA6: Characterization of the Agroecology Living Lab in Uvira

Uvira is located in the Democratic Republic of the Congo with a semi-arid climate, an average altitude of about 1,000 m above sea level, and an annual rainfall of 1,600 mm. Subsistence agriculture constitutes the monopoly of agricultural activities in the area. The main agricultural products are cassava, sweet potato, Irish potato, maize, and rice; among perennial crops, we find banana, oil palm, citrus, coffee, papaya, avocado, and mango. About 55% of agricultural households grow paddy rice and cassava.

In Uvira, CANALLS can build on the PIGAGL project, which is helping to increase sustainable production of rice and cassava through specific agroecological practices. The agroecological practices already used in Uvira include intercropping cassava with other crops, integrated soil fertility management, and rice intensification approaches.

During the CANALLS co-creation workshop at the Uvira Living Lab, farmers identified key challenges in rice and cassava production. Soil fertility was identified as the main challenge. Other challenges include deforestation coupled with erratic rainfall, extreme drought, landslides, annual bush fires, diseases and pests, lack of certified seeds, poor irrigation, and difficulties in transporting manure from farms to fields.

To address these challenges, the Uvira Living Lab is testing the combination of agroecological practices (biopesticides and organic and inorganic fertilizers) in rice production. Demonstration fields, capacity building, and awareness raising through local media and brochures on the combination of agroecological practices for all actors in the value chain would be necessary to facilitate the adoption of these practices.

Contact: Kokou Kintche (International Institute of Tropical Agriculture), IITA-Kalambo Station, Uvira Territory, South-Kivu Province Democratic Republic of the Congo, iita@cgiar.org, +1 201 6336094

Figure 7: Rice field at Luvungi, Uvira Living Lab, Source: Pierre Zibishire

3.7 PA7: Characterization of the Agroecology Living Lab in Giheta

The Giheta Living Lab is located in the highlands in the north of the Gitega Province, in Burundi. The population's main livelihood is agriculture. Traditional agriculture is characterized by small family plots of 3 to 4 fields, the use of a variety of rudimentary tools made of iron, wood, or wicker, and a lack of improved inputs. Coffee and bananas are the main crops grown in the area.

In Giheta, CANALLS can build upon the COCOCA project, which has assisted farmers in producing organic coffee since 2014. Farmers in the Giheta Living Lab use a combination of animals, crops, and trees with integrated soil fertility management to improve crop production, conserve soil, and reduce vulnerability to climate change. Coffee production using the agroforestry approaches has been adopted by some farmers and the process of conversion to organic coffee production is ongoing.

Despite the relatively strong development of the agroecological approaches, the Giheta Living Lab still faces major constraints. These include scarcity of arable land, inadequate agricultural inputs and production structures, crop diseases, and difficult access to markets.

To overcome these challenges, it is important to build multi-stakeholder communities in the adoption of innovative agricultural practices that require fewer production inputs. The market segment for food products derived from agroecological practices should be analyzed and developed through approaches such as the Participatory Guarantee System (PGS), which is a locally focused quality assurance system that links value chain actors. This will help farmers to sell their products locally at a profit.

Contact: Sam Fan, Naturland, Kleinhaderner Weg 1, Munich 82166, Germany, +49 8137 6372-902

Figure 8: Participants in the co-creation workshop at the Giheta Living Lab, Source: Sam Fan

3.8 PA8: Characterization of the Agroecology Living Lab in Bujumbura

The Bujumbura Living Lab is located on the northeastern shore of Lake Tanganyika at altitudes ranging from 774 to 1000m with a population of 374 809 (2021). The moderate climate is favorable for three cropping seasons per year. The soil characteristics allow several cropping systems of which the most important is the maize-based cropping system in the area with many opportunities to test and adopt new technologies. Most of the staple crop production is either consumed locally or sold to nearby markets.

In the Bujumbura Living Lab, some sustainable agricultural practices are already in place. Farmers have been directly involved in the PRDAIGL project (about 35% are women). Biomass energy such as firewood, charcoal, agricultural residues, and peat soils is the main source of energy used by about 95% of the population. Farmers are low external input users. They are using green manure and recycling farm manure and crop residues for composting.

However, farmers in the Bujumbura Living Lab still face challenges related to low soil fertility, and pest, and diseases. To address these challenges, the CANALLS project is introducing the best agroecological practices focused on the maize-based system. These include the use of sanitized human urine and a combination of biopesticides.

To facilitate the adoption of these practices, farmer capacity should be built through tested agroecological practices and the use of pamphlets and local media. The maize seed supply chain needs to be improved and supported at all levels.

Contact: Marie-Chantal Niyuhire, Avenue de la Cathédrale No3, Bujumbura 795, Burundi, info@isabu.bi, +257 22 22 73 49

Figure 9: Second co-creation workshop in Mutimbuzi. Source: ISABU, 2023

3.9 PA9: Characterization of the Agroecology Living Lab in Kamonyi

The Kamonyi district is located in the Southern Province of Rwanda with a total population of 377 257 inhabitants. The district has a moderate climate with adequate rainfall throughout the year. The diversity of agricultural produce includes maize, common beans and soybeans, fruit trees, cassava, vegetables, and bananas.

In the Kamonyi Living Lab, CANALLS can build on the Rural-Urban Nexus project, which has already introduced agroecological practices to local farmers. Key practices include nutrient recycling through waste management and animal husbandry. By using these practices, farmers optimize soil fertility and crop productivity while reducing dependence on synthetic chemicals. In addition, drainage ditches and agroforestry play an important role in protecting soil and reducing nutrient loss through runoff.

Despite the presence of agroecological practices, several constraints still hinder their effective adoption by farmers. There is a lack of appropriate combinations of practices and low knowledge of farmers to implement soil erosion, soil fertility, and climate-smart agricultural practices, which were identified during the co-creation workshops.

The innovative solutions and support mechanisms to make the landscape more sustainably productive and ensure socio-economic benefits through co-creation, co-testing, and co-validation are recommended. The combination of the use of trenches, agroforestry species, and fodder grasses, the intercropping of cassava legumes, and compost products are the main practices recommended by the co-creation workshops in the Kamonyi Living Lab.

Contact: Vicky Ruganzu Rwanda, Agriculture and Animal Resources Development Board, K 18 Ave Rubilizi Kicukiro Distr, Kigali 5016, Rwanda, infos@rab.gov.rw, (+250) 788385312

Figure 10: Stakeholders of the Kamonyi Living Lab, Source: Jean Claude Siborurema

3.10 PA10: Characterization of the Agroecology Living Lab in Ntui

The Ntui Living Lab in Cameroon is located between three agroecological zones - the humid forest, the high Guinean savannah, and the Western highlands. The main occupation of the population in this region is agriculture, with cocoa being the main cash crop grown by about 77% of the population. Farmers also grow a wide range of food and vegetable crops.

In the Ntui Living Lab, CANALLS builds on the Sustainable Intensification of Cocoa Production through the Development and Dissemination of Integrated Soil Fertility Management (ISFM) Options (CocoaSoils) project. In this context, most cocoa-producing households already use certain agroecological practices in their farming systems, such as tree planting, pruning and shade management, sun drying, and plant-based green manure.

Major challenges to agroecological practices in the Ntui cocoa farming systems include forest degradation and deforestation, diseases, pests, soil nutrient deficiencies, and insufficient adapted labor. In addition, there is a need to find an agroecological market that will encourage cocoa farmers to participate and create a standard for agroecological cocoa.

The CANALLS project will complement and document these practices by testing the response of cocoa physiology to shade, foliar fertilization, and biopesticides. Thus, during the first cycle of co-creation, CANALLS will focus on evaluating individual agroecological practices and their interaction with shade gradient and the combination of Beauveria and Trichoderma on mirids (Sahlbergella singularis) and black pod disease (Phytophthora palmivora), in comparison to synthetic pesticides.

Contact: Precillia Tata Ngome Ijang, Agricultural Research Institute for Development, P.O. Box 2123, Nkolbisson, Yaoundé, ijang2001@yahoo.fr, +(237) 670756154

Figure 11: Cocoa shelling in the Ntui Living Lab, Source: Source: Jonas Ngouhouo-Poufoun

4. Conclusion and recommendations

4.1 Conclusion

Practice Abstracts (PAs) are designed to assist end-users in replicating the recommendations and results of a project. The production of PAs necessitates the collation of a substantial quantity of pertinent data about the project activities. Concerning the current status of the CANALLS project, it proved difficult to obtain concrete results regarding agroecological practices (AEPs) at such an early stage of the project. Consequently, the primary focus of the PAs was on the constraints and challenges faced by stakeholders in the co-creation process within their respective ALLs. This approach was subsequently applied to existing AEPs. Furthermore, it was observed that the Living Labs established in the four countries are at disparate stages of development. As a result, the PAs regarding the description of the ALLs were not easily unified.

Despite the constraints, the initial set of 10 PAs effectively presents an overview of the rationality of the ALLs and the co-creation process in general, as well as a specific focus on the ALLs of the four project countries, to end users. Furthermore, the description of challenges and AEPs within the ALLs can assist practitioners in enhancing their circumstances by identifying common issues and potential solutions.

4.2 Recommendations

It is recommended that in order to design a comprehensive and effective PA, which is able to provide recommendations on AEPs to end-users, it is essential to commence the process at least 18 months after the implementation of the activities. The participative approach must be at the forefront of the methodology to ensure the involvement of all relevant stakeholders.

Consequently, to facilitate the replication of concrete practices by end-users and other actors, it is essential that:

1. The WP2 partners provide further clarification on the roles of each partner in the co-creation process and the key challenges encountered.
2. The partners responsible for Task 3.4 should devote greater attention to the technical aspects of AEPs, receiving additional training and documenting the various stages of the demonstration plots or units they intend to implement.
3. It is also essential to define with precision the practices that can be considered to fall within the scope of AEPs.
4. Furthermore, it is recommended that the socio-economic and organizational management of ALLs be documented.
5. The WP5 leaders must clearly define what can be considered market-oriented agroecological products and provide insights on market constraints along the value chain.

This information will guide AFAAS and WP6 leaders to design concrete and replicable PAs, giving recommendations to end users, during the second batch of Practice Abstracts at M48.

Moreover, the initial set of PAs offers preliminary guidance to end-users. The first two PAs on the concept of ALLs and the co-creation process elucidate the benefits of co-creation processes for end-users. The eight PAs in the description of the ALLs identify significant challenges faced by farmers in their daily practices and suggest AEPs to address these challenges. Here end-users can find a first point for seeking orientation when faced with similar challenges.

The principal recommendations for facilitating an agroecological transition for end-users can be summarized as follows:

- The co-creation process demonstrated that a considerable number of ALLs are confronted with significant challenges pertaining to soil fertility, pest and disease control, and input efficiency. To address these issues, the use of biopesticides, alternative sources to synthetic fertilizers, erosion control techniques, and improved shade management (for coffee and cocoa) were identified as promising solutions.
- A co-creation approach can assist end-users in addressing the challenges by integrating their own knowledge with scientific expertise and indigenous knowledge from the bottom up.

However, it is essential to note that the recommendations are preliminary and based on the current, early stage of the CANALLS project, during which field testing of AEPs has not yet been conducted.

5. Bibliography

❖ Argyropoulou K. Chrysafi A. Bougiouklis M., Papadionisiou P., (2023). Consumer segment for Agroecological food products. CANALLS Deliverable 5.1. technical report. QPLAN.

❖ Cerrudo D., Corbeels M., (2023). Methodology for Co-creating Optimal agroecological practices combination-Initial version. CANALLS Deliverable 2.1. Technical report. CIRAD

❖ European Commission (2016), “Guidelines on programming for innovation and the implementation of agricultural productivity and sustainability” (Report), Directorate-General for Agriculture and Rural Development

❖ Jonas N., Millicent S., (2023). Agroecological Contexts and needs of rural community in the agroecological living Lab. CANALLS Deliverables 1.1. Technical report. IITA, AATF

❖ Mehreteab T et al., (2023). Agroecological Living Labs: Plans and Achievements-Initial version. CANALLS Deliverables 3.1. Technical report. NIBIO

❖ Mulumuna wa Lola J., Birindwa D., Bisimwa E., Munyahali W., (2023). Holistic Agroecological assessment framework-Initial version. CANALLS Deliverable 2.2. technical report. UCB.

❖ Ndah H. T., Herrera B., Ottoviani Aalmo G., Giacopelli E., (2023) systemic factors, policies, and innovation support services for agroecological transitions in Cameroon, Burundi, Rwanda, and Democratic republic of Congo. CANALLS Deliverable 1.2, University of Hohenheim, Stuttgart, Germany

6. ANNEX

6.1 French Version of the Practice Abstracts

PA1: Caractérisation des laboratoires vivants agroécologiques

Le laboratoire vivant d'agroécologie (ALL) est un lieu où les gens travaillent ensemble pour améliorer l'agriculture grâce au concept d'agroécologie. Les agriculteurs, les scientifiques et les autres membres de la communauté travaillent ensemble pour trouver des solutions aux problèmes rencontrés par la communauté.

CANALLS dispose actuellement de 8 laboratoires vivants agroécologiques, à savoir Biega, Bunia, Kabare et Uvira (RDC), Bujumbura et Giheta (Burundi), Ntui (Cameroun) et Kamonyi (Rwanda) composés d'au moins 20 parties prenantes. Ils sont animés par des activités ascendantes qui sont mises en réseau et descendantes par la direction du projet CANALLS.

Les ALL ont le potentiel de transformer les différents systèmes agricoles des sites vers des niveaux plus élevés d'agroécologie en organisant des ateliers de cocréation au cours desquels les principaux défis et les causes profondes sont co-identifiés et des solutions agroécologiques sont co-élaborées et en impliquant dès le départ les utilisateurs finaux et les autres parties prenantes du projet, selon leur expertises et ressources.

Des attentes irréalistes et un manque d'engagement total des parties prenantes pourraient limiter la mise en œuvre de l'approche globale de l'agriculture. Ce risque peut être réduit en formant et en renforçant les capacités des parties prenantes, en informant les parties prenantes des idées qui ont été retenues et des raisons pour lesquelles il n'a pas été possible d'intégrer toutes leurs idées.

Une véritable collaboration entre les coordinateurs du laboratoire vivant, les partenaires locaux du projet, les parties prenantes multiples et les partenaires du projet dans son ensemble est importante pour la réussite des ALL dans le projet CANALLS.

Contact: Mehreteab Tesfai, Norwegian Institute of Bioeconomy Research, Oluf Thesens vei 43, 1433 Ås, Norway, mehreteab.tesfai@nibio.no, +4740604100

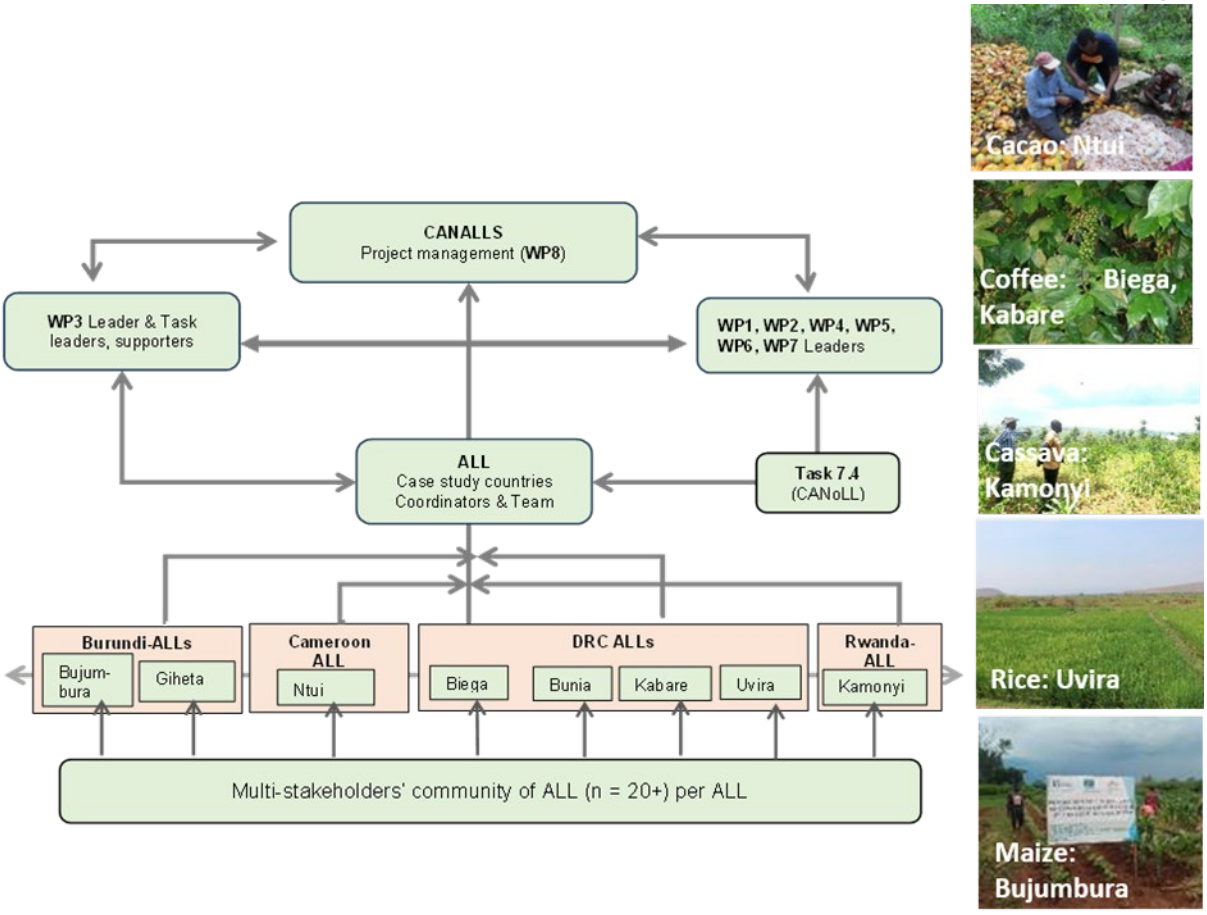

Figure 12: Structure organisationnelle des laboratoires agroécologiques dans le cadre du projet CANALLS, Source: Ntui & Uvira: Balume Kayani Issac, Biega: Balagizi Karhagomba, Kamonyi: Vicky Ruganzu, Bujumbura: Marie-Chantel Niyuhire, La structure de l'organisation: Dessin personnel

PA2: La co-création comme composante clés de la transition agroéologique dans les laboratoires vivants

Le processus de co-création au sein du projet CANALLS est un développement participatif et collaboratif de pratiques agro-écologiques qui rassemble différentes parties prenantes travaillant ensemble pour trouver des solutions à leurs problèmes les plus urgents. Il peut s'agir d'agriculteurs, d'experts, d'agences gouvernementales, du secteur privé et de la société civile.

La cocréation de pratiques agroécologiques est un cycle en quatre étapes à savoir :

1) Identifier et comprendre les défis.

2) Cartographier, prototyper et hiérarchiser les combinaisons de pratiques agroécologiques.

3) Évaluer les combinaisons de pratiques sur le terrain

4) Évaluer les résultats et planifier des stratégies de mise à l'échelle et le prochain cycle de co-création.

Les pratiques agroécologiques identifiées dans CANALLS comprennent l'utilisation de biopesticides, l'alternative aux engrais synthétiques, de techniques de contrôle de l'érosion et d'une meilleure gestion de l'ombrage. Les pratiques spécifiques à chaque Laboratoire vivant font objet des expériences de terrain afin de leur évaluer sur les systèmes de cacao au Cameroun, manioc au Rwanda, culture intercalaire de maïs et de légumineuses au Burundi, et les champs de café et de riz en RDC.

La co-création peut aider les acteurs à relever leurs défis en s'appuyant à la fois sur leurs propres connaissances, les connaissances scientifiques et les connaissances indigènes ascendantes. Ce processus nécessite des efforts à moyen et long terme. Pour que la co-création soit réussie et durable, il est important que l'énergie et l'engagement des parties prenantes soient proportionnels aux avantages qu'elles en retirent, et que leurs attentes en matière de résultats correspondent à la réalité.

Contact: Diego Cerrudo, Centre de Coopération Internationale en Recherche Agronomique pour le Développement, 115 - Ave Agropolis Montpellier 34398, Franc, diego.cerrudo@cirad.fr, +33 1 53 70 20 00

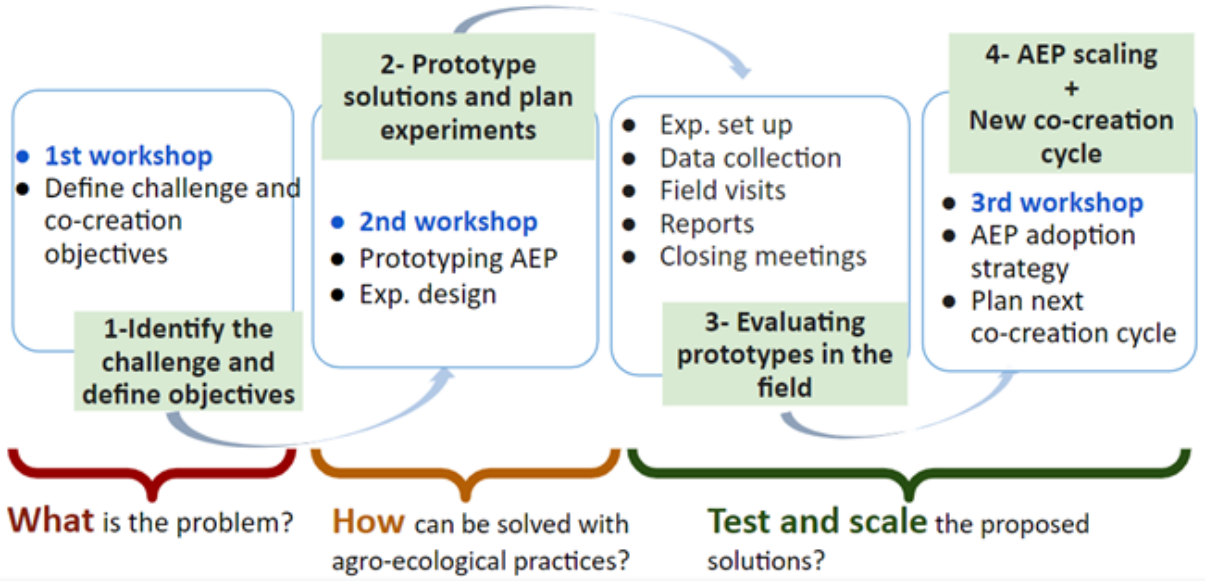

Figure 13: Cycle de co-création de CANALLS, Source: Cadre développé au sein de CANALLS, Source: Dessin personnel

PA3: Caractérisation du laboratoire vivant agroécologique de Bunia

Le laboratoire vivant de Bunia est situé dans le territoire de Mambasa, en RDC. Les 812 090 habitants de Bunia pratiquent majoritairement l'agriculture dont les cultures vivrières et cacao. Le projet Shade-grown Cocoa (financé par l'USAID) vise à renforcer la conservation des ressources naturelles et à améliorer les moyens de subsistance des populations rurales. Le projet développe une plateforme qui va promouvoir la mise en réseau des acteurs de cacao.

Les agriculteurs de Bunia manquent de connaissances et de sensibilisation à l'agroécologie. Cependant, l'agroforesterie traditionnelle est pratiquée à travers un mélange de cacao, de bananes et d'huile de palme avec des cultures annuelles du riz et du maïs. CANALLS peut s'appuyer sur le projet UCLA, financé par l'USAID, qui vise à améliorer la cacaoculture dans la région de Mambasa..

Les principaux défis des agriculteurs sont la météo extrême(les pluies irrégulières, saisons sèches prolongées, les fortes pluies), les maladies et les parasites des cultures et la dégradation des forêts.

Le principal objectif à Bunia est de transformer les agroécosystèmes cacao par l'utilisation efficace des intrants, la réduction de l'usage d'intrants coûteux, rares ou polluants, pour rétablir le lien entre les consommateurs et producteurs grâce au développement de réseaux alimentaires alternatifs. Cet objectif sera atteint à Bunia en testant des pratiques agroécologiques comme la culture intercalaire avec arbres d'ombrage, la gestion intégrée de la fertilité, la lutte intégrée contre les ravageurs, et des interventions socio-économiques (chaîne de valeur biologique, économie circulaire et solidaire, culture et les habitudes alimentaires, co-création et partage des connaissances).

Contact: Charles Sivirihauma, RIKOLTO, Blijde Inkomststraat 50, 3000 Leuven, Belgium, info@rikolto.org, +32(0)16/31.65.80

Figure 14: Travail communautaire participatif effectué par les femmes (écossage et préparation des fèves pour la fermentation), Source: Charles Sivirihauma

PA4: Caractérisation du laboratoire vivant agroécologique de Biega

Le laboratoire vivant de Biega est situé autour du parc national de Kahuzi Biega, à 1700-2000 m d'altitude. Le climat modéré est favorable à la culture du café, des haricots, des bananes, des patates douces, des légumes et des ignames. Le bétail comprend des bovins, des chèvres, des porcs, des poulets, des lapins et des cochons d'Inde.

A Biega, CANALLS peut s'appuyer sur des programmes antérieurs, notamment le World Coffee Research, le projet "Kahawa Bora ya" au Kivu. Ces programmes visaient à renforcer les capacités des petits producteurs de café et à les organiser en coopératives afin de développer des marchés durables pour le café de meilleure qualité.

Certaines pratiques agroécologiques sont déjà utilisées par les agriculteurs de Biega . Il s'agit notamment du fumier et de cultures de couverture pour accroître la fertilité des sols, de l'utilisation de biopesticides faits maison et de pratiques agroforestières pour améliorer le contrôle de l'érosion des sols.

L'atelier de co-création CANALLS a permis d'identifier des défis clés encore pressants pour le Laboratoire vivant de Biega . L'un des principaux problèmes est le vieillissement des plantations de café. En outre, le manque de contrôle adéquat des parasites et la faible fertilité des sols doivent être abordés.

Pour relever ces défis, les bonnes pratiques agro-écologiques doivent être diffusées dans la langue locale. Les capacités des agriculteurs doivent être renforcées par l'utilisation de brochures et de programmes de sensibilisation communautaires basés sur les résultats de la recherche et les pratiques agro-écologiques testées.

Contact: Innocent Balagizi Karhagomba, INERA, Avenue des Cliniques 13, Kinshasa/Gombe, Democratic Republic of the Congo, balkarh2015@gmail.com, (+243) 971784326

Figure 15: Système de culture intercalaire café-banane dans le laboratoire vivant de Biega en RD Congo, Source: Innocent Balagizi Karhagomba

PA5: Caractérisation du laboratoire vivant agroécologique de Kabaré

Le laboratoire vivant de Kabare est situé au nord de Bukavu, dans l'est de la RDC. Situé à une altitude de 1400-1700m, il couvre la région entre Birava et Kabamba. Le climat est fortement influencé par les montagnes, ce qui offre des conditions favorables à l'agriculture dont le manioc, maïs, patates douces, sorgho, bananes, haricots, café, thé et la canne à sucre. La majeure partie de la production est consommée localement ou vendue aux agglomérations voisines.

A Kabare, CANALLS s'appuie sur les projets Kivu Specialty Coffee, RUNRES et Excellence in Agronomy. Plusieurs pratiques agricoles durables sont déjà en place. Les agriculteurs utilisent des engrais verts et des biopesticides au lieu d'intrants organiques. Le contrôle de l'érosion est assuré par l'utilisation de fossés et de haies anti-érosives. Les principaux défis identifiés lors des ateliers de cocréation sont le vieillissement des vieilles plantations de café, les maladies et les parasites, la gestion inadéquate de l'ombrage, la baisse de la fertilité des sols et l'érosion.

Les pratiques existantes changent progressivement vers les pratiques agroécologiques identifiées lors du processus cocréation. Les pratiques à tester sont le recyclage des nutriments, l'application de compost de déchets, l'utilisation de biopesticides, la rétention de l'eau et la mise en œuvre de mesures de contrôle de l'érosion. Celles-ci ont été sélectionnées en raison de leur potentiel à surmonter les problèmes les plus courants de ravageurs et de dégradation des sols observés dans les systèmes basés sur le café à Kabare.

Le pourcentage élevé d'agriculteurs ayant un faible niveau d'éducation suggère que les nouvelles pratiques doivent être conçues et diffusées dans la langue locale.

Contact: Byamungu Burume Alain, Gasd Services Sarl, South and North Kivu, Democratic Republic of the Congo, albur2002@gmail.com, +243 815 805 432

Figure 16: Deuxième atelier de cocréation de pratiques agroécologiques visant à réduire les principaux défis ciblés par les parties prenantes du laboratoire vivant de Kabare, Source: Muniali Mudekereza Dieumerci

PA6: Caractérisation du laboratoire vivant agroécologique de Uvira

Uvira est une localité en RDC avec un climat semi-aride et une altitude moyenne d'environ 1,000 m au-dessus du niveau de la mer. La pluviométrie annuelle est de 1,600 mm. L'agriculture de subsistance constitue le monopole des activités agricoles dans la région dont les principaux produits sont le manioc, la patate douce, la pomme de terre, le maïs et le riz; parmi les cultures pérennes, on trouve la banane, le palmier à huile, les agrumes, le café, etc. Environ 55% des ménages agricoles cultivent le riz paddy et le manioc.

A Uvira, CANALLS peut s'appuyer sur le projet PIGAGL, qui contribue à augmenter la production durable de riz et de manioc grâce à des pratiques agro-écologiques spécifiques. Les pratiques agroécologiques déjà utilisées à Uvira comprennent la culture intercalaire du manioc avec d'autres cultures, la gestion intégrée de la fertilité des sols et les approches d'intensification de la riziculture.

Au cours de l'atelier de co-création CANALLS au Laboratoire vivant d'Uvira, les agriculteurs ont identifié les principaux défis liés à la production de riz et de manioc. La fertilité des sols a été identifiée comme le principal défi. Parmi les autres défis figurent la déforestation associée à des précipitations irrégulières, la sécheresse extrême, les glissements de terrain, les feux de brousse annuels, la gestion des maladies et des parasites, le manque de semences certifiées, l'irrigation insuffisante et les difficultés de transport du fumier entre les fermes et les champs.

L'implication des agriculteurs et des autorités locales aiderait à surmonter les difficultés liées à l'amélioration du rendement des cultures ciblées.

Contact: Kokou Kintch (International Institute of Tropical Agriculture), IITA-Kalambo Station, Uvira Territory, South-Kivu Province Democratic Republic of the Congo, iita@cgiar.org, +1 201 6336094

Figure 17: Rizière à Luvungi, Uvira Living Lab, Source: Pierre Zibishire

PA7: Caractérisation du laboratoire vivant agroécologique de Giheta

Le laboratoire vivant de Giheta est situé dans les hautes terres au nord de la province de Gitega. La population vit principalement de l'agriculture caractérisée par de petites parcelles familiales de 30 à 40 champs, l'utilisation des outils rudimentaires (fer, bois ou osier) et l'absence d'intrants améliorés. Le café et les bananes sont les principales cultures de la région.

Naturland travaille avec la COCOCA depuis 2014 pour aider les agriculteurs à produire du café biologique à Giheta. Ils utilisent une combinaison d'animaux, de cultures et d'arbres avec une gestion intégrée de la fertilité des sols pour améliorer la production agricole, conserver les sols et réduire la vulnérabilité au changement climatique. La production de café à l'aide du système agroforestier a été adoptée par certains agriculteurs et le processus de conversion à la production de café biologique est en cours.

Malgré le développement relativement important du système agroécologique, Giheta est toujours confronté aux contraintes majeures dont la rareté des terres arables, l'inadéquation des intrants agricoles et des structures de production, des maladies des cultures, et la difficulté d'accès aux marchés.

Pour relever ces défis, il est important de créer des communautés multipartites en vue de l'adoption de pratiques agricoles innovantes nécessitant moins d'intrants de production. Le segment de marché des produits agroécologiques devrait être analysé et développé par le biais du Système de Garantie Participatif (SGP), qui est un système d'assurance qualité axé sur le local qui relie les acteurs de la chaîne. Ce système aidera les agriculteurs à vendre leurs produits localement et à réaliser des bénéfices.

Contact: Sam Fan, Naturland, Kleinhaderner Weg 1, Munich 82166, Germany, +49 8137 6372-902

Figure 18: Participants de l'atelier de co-création au Laboratoire vivant de Giheta, Source: Sam Fan

PA8: Caractérisation du laboratoire vivant agroécologique de Bujumbura

Le laboratoire vivant de Bujumbura est situé sur la rive nord-est du lac Tanganyika à des altitudes allant de 774m à 1000m avec une population de 374809 habitants (2021). Le climat modéré est favorable à trois saisons de culture et le sol à plusieurs systèmes de culture, dont le maïs, qui offre des possibilités de tester et adopter de nouvelles technologies.

Certaines pratiques agricoles durables sont déjà en place à Bujumbura. Les agriculteurs ont été directement impliqués dans le projet PRDAIGL (35 % de femmes). L'énergie de la biomasse (bois de chauffage, le charbon, les résidus agricoles et les sols tourbeux) est la principale source d'énergie utilisée par environ 95 % de la population. Les agriculteurs utilisent peu d'intrants externes car ils font des engrais verts (par exemple le tithonia) et recyclent le fumier et les résidus de culture pour le compostage.

Cependant, les agriculteurs de Bujumbura sont toujours confrontés aux défis (faible fertilité des sols, lutte contre les ravageurs et maladies, accès limité aux semences). Pour relever ces défis, le projet CANALLS introduit les meilleures pratiques agroécologiques axées sur le maïs qui comprennent l'agriculture de conservation et l'utilisation du haricot velouté (Mucana pruriens) comme culture de couverture, ainsi qu'une combinaison de biopesticides. Il s'agit notamment de l'utilisation d'urine humaine désinfectée et d'une combinaison de biopesticides.

Pour faciliter l'adoption de ces pratiques, il faut renforcer les capacités des agriculteurs par des pratiques agroécologiques testées, des écoles d'agriculture de terrain et l'utilisation de

brochures et de médias. La chaîne d'approvisionnement en semences de maïs doit être améliorée et soutenue à tous les niveaux.

Contact: Marie-Chantal Niyuhire, Avenue de la Cathédrale No3, Bujumbura 795, Burundi, info@isabu.bi, +257 22 22 73 49

Figure 19: Deuxième atelier de co-création à Mutimbuzi. Source: ISABU, 2023

PA9: Caractérisation du laboratoire vivant agroécologique de Kamonyi

Le district de Kamonyi est situé dans la province méridionale du Rwanda et compte 377 257 habitants. Le climat est modéré avec des précipitations suffisantes tout au long de l'année. On observe une diversité des produits agricoles (maïs, haricots, soja), les arbres fruitiers, le manioc, les légumes et les bananes.

A Kamonyi, CANALLS peut s'appuyer sur le projet Rural-Urban Nexus, qui a déjà introduit des pratiques agroécologiques auprès des producteurs. Celles-ci comprennent le recyclage par la gestion des déchets et l'élevage. Grâce à ces pratiques, les agriculteurs optimisent la fertilité des sols et la productivité tout en réduisant leur dépendance à l'égard des produits chimiques de synthèse. En outre, les fossés et l'agroforesterie jouent un rôle important dans la protection des sols et la réduction des pertes d'éléments nutritifs par ruissellement. Malgré l'existence de pratiques agroécologiques, plusieurs contraintes empêchent leur adoption effective par les agriculteurs. Car Il y a un manque de combinaisons appropriées de pratiques et une faible connaissance des agriculteurs sur l'érosion et la fertilité des sols, l'agriculture climato-intelligentes, qui ont été identifiées au cours des ateliers de co-création.

Les solutions innovantes et les mécanismes de soutien pour rendre le paysage plus durablement productif et garantir des avantages socio-économiques par la cocréation, le co-test et la co-validation sont recommandés. La combinaison de tranchées, d'espèces agroforestières et de graminées fourragères, la culture intercalaire de manioc et de légumineuses et les produits de compostage sont les trois pratiques recommandées par les ateliers de co-création pour être testées à Kamonyi.

Contact: Vicky Ruganzu Rwanda, Agriculture and Animal Resources Development Board, K 18 Ave Rubilizi Kicukiro Distr, Kigali 5016, Rwanda, infos@rab.gov.rw, (+250) 788385312

Figure 20: Parties prenantes du Laboratoire vivant de Kamonyi et la structure organisationnelle, Source: Jean Claude Siborurema

PA10: Caractérisation du Laboratoire Vivant agroécologique de Ntui

Le laboratoire vivant de Ntui, au Cameroun, est situé entre trois zones agroécologiques : la forêt humide, la savane guinéenne et les hauts plateaux de l'ouest. La principale occupation de la population de cette région est l'agriculture, le cacao étant la principale culture de rente cultivée par environ 77 % de la population. Les agriculteurs cultivent également un large éventail de produits alimentaires et de légumes.

A Ntui, CANALLS s'appuie sur le projet CocoaSoils (Intensification durable de la production de cacao par le développement et la diffusion d'options de gestion intégrée de la fertilité des sols). Ainsi, plusieurs cacaoculteurs utilisent déjà certaines pratiques agro-écologiques dans leurs exploitations, telles que la plantation d'arbres, l'élagage, la gestion de l'ombre, le séchage au soleil et l'engrais vert.

Les principaux défis liés aux pratiques agro-écologiques dans le système de cacaoculture de Ntui sont la dégradation des forêts et la déforestation, les maladies, les parasites, les carences en nutriments du sol et l'insuffisance de main-d'œuvre adaptée. En outre, il est nécessaire de trouver un marché agroécologique qui encouragera les cacaoculteurs à participer et à créer une norme pour le cacao agroécologique.

Le projet CANALLS complétera et documentera ces pratiques en testant la réponse de la physiologie du cacao à l'ombre, à la fertilisation foliaire et aux biopesticides. Ainsi, au cours du premier cycle de cocréation, On évaluera 1 - les PEA individuels et de leur interaction avec le gradient d'ombrage et 2 - la combinaison de Beauveria et de Trichoderma sur les mirides (Sahlbergella singularis) et la maladie des cabosses noires (Phytophthora palmivora) en comparaison avec les pesticides synthétiques.

Contact: Precillia Tata Ngome Ijang, Agricultural Research Institute for Development, P.O. Box 2123, Nkolbisson, Yaoundé, ijang2001@yahoo.fr, +(237) 670756154

Figure 21: Photo du Laboratoire vivant de Ntui, Source: Jonas Ngouhouo-Poufoun