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SWOT Analysis for the Beekeeping (lot 1) / Ecotourism (lot 2) / Native Tree Seeds and Seedlings (lot 3) Value Chain for Community Biodiversity Sancta (CBS) in the Eastern province of Rwanda

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Deliverable 2. Progress report 1

RFA Rwanda Forestry Authority

Sida

Enabel

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1 Introduction

1.1 General context

The Eastern Province of Rwanda encompasses 9,813 km² and boasts an array of ecosystems ranging from mid-altitude mountains to lowland savannas. It also houses the Akagera National Park, the largest protected wetland in Central Africa and a vital sanctuary for a myriad of savannah-adapted species. With an estimated population of 3 million people, (about 24% of Rwanda's total population) the Eastern Province also faces significant challenges. About one-third of its inhabitants live in poverty, with 15% in extreme poverty. Moreover, 70% of the province's population depends on agriculture, leading to high levels of land degradation and reduced productivity. Climate change exacerbates these issues, causing frequent droughts, floods, and erratic precipitation, further threatening livelihoods and biodiversity.

To confront these pressing challenges, Rwanda has embarked on a series of strategic initiatives and policies aimed at socio-economic development and biodiversity conservation while enhancing climate resilience. Rwanda Vision 2050 is an ambitious long-term development strategy that aims to transform Rwanda into a high-income country and improve the quality of life for all its citizens. Launched in 2020, it builds on the progress made under Vision 2020 and sets a new trajectory for economic and social development. The foremost of these is the Green Growth and Climate Resilience Strategy (GGCRS), introduced in 2023 in collaboration with the United Nations Development Program (UNDP). Aligned with Vision 2050, Rwanda's long-term development agenda, the GGCRS aims to transition the country towards carbon neutrality while ensuring sustainable economic growth and poverty reduction, in harmony with international agreements such as the Paris Agreement (COP 21) and the Bonn Challenge.

The Rwanda Biodiversity Policy (2011) is an essential framework aimed at conserving and managing the country's biodiversity resources. It aligns with Rwanda's commitment to sustainable development and its international obligations, such as the Convention on Biological Diversity (CBD). Rwanda has also enacted the National Forestry Policy (2018) and the Forestry Sector Strategic Plan (2018-2024) to protect and restore forest ecosystems. These policies reflect Rwanda's commitment to restore 2 million hectares of forest by 2035, thereby safeguarding biodiversity and enhancing soil fertility. Additionally, Rwanda actively participates in collaborative projects like the Alliance for Restoration of Forest Landscapes and Ecosystems in Africa (AREECA), aimed at restoring forest landscapes across the continent while bolstering carbon stocks and smallholder livelihoods.

Within the Eastern Province of Rwanda, the Rwanda Forestry Authority and Enabel, alongside partners such as the International Union for Conservation of Nature (IUCN), are spearheading several initiatives to promote biodiversity conservation and climate resilience.

- The Transforming Eastern Province Through Adaptation to Climate Change via Forests and Agroforestry Landscapes Restoration (TREPA) initiative, funded by the Green Climate Fund, seeks to mitigate climate change impacts by restoring landscapes and enhancing adaptation through ecosystem services promotion.
- The COMBIO Project, funded by the Swedish International Development Agency (SIDA), complements TREPA's objectives with a focus on community-based biodiversity conservation and restoration.
- In addition, the Development of Smart Innovation through Research in Agriculture (DESIRA) project, funded by the European Union, aims to improve farmers' living conditions by promoting agroforestry through research and participatory science. Implemented by IUCN and Enabel, DESIRA seeks to harness the benefits of agroforestry, including enhanced crop performance and soil conservation, to bolster agricultural sustainability in Rwanda.

1.2 The COMBIO project and the CBS concept

The COMBIO project is dedicated to several key objectives aimed at conserving and enhancing biodiversity while promoting sustainable livelihoods in Rwanda. These objectives include:

1. Restoring Biodiversity in protected natural forests, establishing a network of 14 Community Biodiversity Sanctuaries (CBS) across the Eastern Province.
2. Increasing Biodiversity Supportive Areas and their connectivity, integrating native species into crops and forest lands.
3. Appropriation of Biodiversity and nature-based solutions by communities, government agencies, and district authorities.

4. Developing Nature-Based Value Chains (VCs) linked to forest landscape restoration to sustain biodiversity integration in production systems.

The creation of a CBS network (objective 1) is thus a crucial aspect of the COMBIO project. These areas, chosen in coordination with district and sector authorities, are situated on degraded state-owned land to avoid land tenure issues. They range in size from a few hectares to several dozen hectares. In CBSs, native tree species are planted to restore forests, and their management is entrusted to Community-Based Cooperatives (CBCs), ensuring community participation in the process. These cooperatives are composed of all willing CBS neighbors, to prevent the risk of encroachment.

The first and foremost responsibility of CBCs is the operation of a nursery, which will produce the native tree seedlings required for the reforestation/afforestation of the CBS. Cooperative members are paid for the working days spent in the nursery and plantations, and they are assisted by field technicians responding directly to Enabel.

The CBS established by the project will be completed by core elements, and optional elements depending on location and opportunities on each CBS.

Core elements to consider are:

- A nursery containing selected native trees, shrubs, and herbs to support landscape restoration efforts. This may also include melliferous or fruit-bearing plants.
- A botanical garden and educational circuit designed to raise awareness, provide education, and promote ecotourism.

Optional elements could include:

- Establishment of a native species pharmacopeia and/or floriculture garden.
- Development of diversified fruit tree orchards, along with facilities for fruit processing.
- Creation of an essential oil garden.
- Implementation of a nature discovery circuit for tourism.
- Provision of storage and transformation facilities for nature-based products based on selected value chains. These facilities can serve as centers for product valorization and marketing.
- Establishment of Clean Cooking Hubs to support efforts in reducing wood consumption by promoting the use of cooking stoves, wood pellets, or dried fuelwood.

1.3 Objectives of the assignment

The fourth objective of the COMBIO project aims to ensure the self-sustainability of each Community-Based Solution (CBS) by the project's conclusion. This entails the development of economically viable value chains (VCs) within the CBSs, generating significant financial revenue for the cooperative.

To address this objective, Enabel enlisted the expertise of consulting firms, with SalvaTerra chosen to conduct a comprehensive analysis of three nature-based VCs: beekeeping, ecotourism, and native tree seeds and seedlings.

This analysis is intended to result in the creation of viable Business Plans (BPs) tailored to each selected VC in every established CBS. These plans will be adapted to local conditions and will outline the necessary functional and financial support required for successful implementation.

Throughout the assignment, the overarching goal is to empower local communities. This involves planning the establishment of community revolving fund mechanisms, facilitating the integration and monitoring of biodiversity indicators, and disseminating scientific knowledge on biodiversity through awareness campaigns and education programs.

The study is structured into two collaborative phases. Phase 1 involves conducting a thorough Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis of the three identified VCs across 12 CBS, followed by the provision of actionable recommendations. Phase 2 focuses on the development of detailed business plans and roadmaps for six established CBS.

This report presents the outcomes achieved during Phase 1 of the study.

2 Main activities included in component 1

2.1 Analysis of the existing bibliography

The experts, with support from the study's monitoring committee and key informants, conducted a thorough review of existing literature. They focused on understanding: (i) the main technical features of the product or service being studied, (ii) the state of the value chain in Rwanda, especially in the Eastern Province, and (iii) potential connections to regional and international markets. This research was guided by the experts' knowledge and aimed at pinpointing any gaps in information.

During this review, special attention was given to identifying stakeholders involved in the value chains relevant to the Eastern Province. This helped streamline subsequent efforts to map out stakeholders (activity 1.2). The process also considered an ongoing IUCN study on various aspects including animal fodder, timber forests, tree planting materials and seed supply chains, and tree fruits. This comprehensive approach aimed to uncover any potential synergies among these different

2.2 Preparation of field mission #1

The consultants prepared a detailed plan for the first field mission, which took place from March 13th to March 23rd, 2024. In preparation for this mission, they also prepared interview and focus group discussion guides, to be applied for each visited CBS. Interview guides were developed for both existing stakeholders involved in the value chain and potential new stakeholders to include.

These guides aimed to gather detailed information on various aspects, including the legal status of entities, annual activities and quantities of products processed/marketed, successes and operational challenges, financial capacity, gender distribution of employees, existing equipment and facilities, sourcing of input materials, output products, price trends, opportunities, constraints, and potential risks associated with collaborating with the sancta community cooperative. Additionally, interview guides allowed an analysis based on the KISS (Keep, Improve, Start, Stop) principles to highlight key aspects of the interviewee's activities. It also included a value chain assessment with questions dedicated to key prioritization indicators.

2.3 First field mission in Rwanda

2.3.1 Overview of visited CBSs

7 CBS were established across the 7 districts of the province in 2023, and an additional 6 are currently in development. These CBS are depicted in the **Figure 1**. Enabel has already prioritized the potential of each value chain for established CBS, with relevant information summarized in **Table 1**. However, due to land tenure issues the CBS of Bugesera Nyamata had to be excluded from the study.

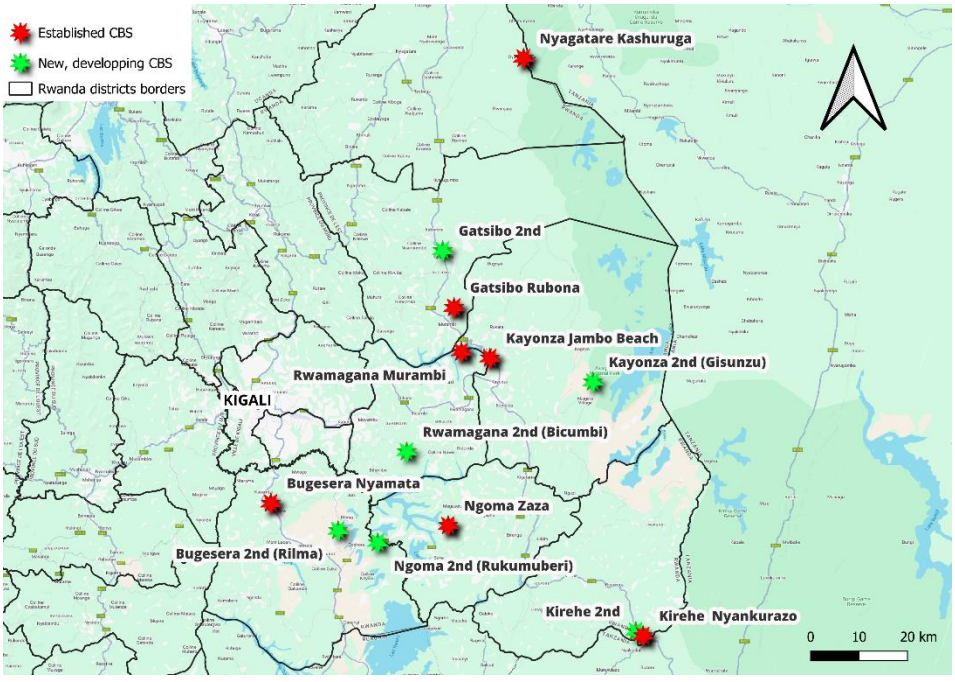


Figure 1: Location of stablished and non-established CBS in the Eastern Province (SalvaTerra).

Table 1: Overview of established CBS and potential for VC development (ENABEL).

CBS	Level of priority of the sector			Common activity	Activities already developed in the CBS	Other Potential
	Beekeeping	Ecotourism	Seeds and seedlings			
Bugesera Nyamata (not considered)	1	2	1	Planted eucalyptus	Botanical garden, Seeds stand,	Will depend on the results of this study.
Ngoma Zaza	1		2	Chilli farms for commercial purposes, hill with ananas croplands, head of the wetland cultivated with rice, (beekeeping), handcrafts, the site is connected to a large natural wetland itself connected to MUGESERA lake	Botanical garden, Seeds stand,	Will depend on the results of this study.
Kirehe Nyankurazo	1	1	2	Husbandry, public and private forests , agriculture, traditional healing practices cross border business and bee keeping	Botanical garden, Seeds stand	Will depend on the results of this study.
Rwamagana Murambi	1	1	1	Husbandry, agriculture, fish farming (kareremba) within the lake, beekeeping	Botanical garden, Seeds stand	Will depend on the results of this study.
Kayonza Jambo Beach	1	1	1	Husbandry and agriculture, hotels and bar-restaurants	Botanical garden, Seeds stand	Will depend on the results of this study.
Gatsibo Rubona			2	Agriculture, cows, Brewery (AGAKEYE)	Botanical garden, Seeds stand	Will depend on the results of this study.
Nyagatare Karushuga	1	2		Agriculture, GABIRO agribusiness, chilli farming and husbandry	Botanical garden, Seeds stand	Will depend on the results of this study.

2.3.2 Fields visits, interviews and focus groups discussions.

In the 12 CBS covered by the study, the following activities were carried out :

- **A field visit** was conducted to the CBS area in the company of CBC members and authorities. During this visit, the consultants surveyed the area, documenting aspects such as soil composition, vegetation including trees, grasses, and plants relevant for beekeeping, human activities such as agriculture and pasture, access points including roads and walking paths, surrounding environments noting risks such as fire hazards and other activities, and identified environmental threats. Additionally, specific sites of interest such as local nurseries, afforestation efforts, beekeeping cooperatives, farms, hotels, lakes, and forests were visited.

- **Discussions with local stakeholders** were held on site, including the members of the forming CBC, to gather information on the area's history, land use and land tenure status, and the vision of the CBS, including its objectives, management practices, stakeholders involved, and potential collaborations with the private sector.

- **Interviews with other key stakeholders** were to gain insights into their roles and connections with the value chains (VCs). These stakeholders included local authorities such as forest, tourism, agriculture and social development officers at cell, sector or district level, representatives from projects or public centers involved in the three VCs, and other relevant individuals. These discussions aimed to understand the entity's involvement with the VC, gather general information and data about the VC in the area, obtain detailed information on existing VCs including production processes, equipment/materials, costs, market dynamics, and identify any existing business plans. Opinions on village and CBS area development were also sought.

In the 6 already established CBS, this analysis was completed with the two following activities:

- **Focus group discussions (FGD)** were conducted with key representatives of the CBC. These meetings included introductions about the COMBIO project and CBS approach, presentations on the project team and objectives, discussions on CBS organization and objectives, income and resource management, and discussions related to the historical and current land uses of the area covered by the CBS.

  Whenever possible, the potentially interesting VCs were ranked by participants based on priority using a set of 7 criteria as shown in **Table 2**, and a first SWOT analysis was performed.

Table 2: Multicriteria analysis for VC ranking in each CBS.

Criteria (score from 0 – lowest – to 4 – highest)	Bee keeping	Tree seeds and seedlings	Ecotourism
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)			
2/ People interest, motivation, availability and confidence to develop the value chain			
3/ Local skills to develop the value chain			
4/ Potential market and customers			
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)			
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)			
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)			
8/ Opportunity of collaboration/contracting with professional actor of the VC			
TOTAL			

- **Participatory workshops** involving 20-25 participants were held. These workshops included all the participants of the FGDs, plus other members of CBS cooperatives and local authorities at cell and sector level.

These workshops were introduced by Enabel with a quick presentation of the COMBIO project and the CBS approach, before delving into discussions on VC scoring tables and SWOT analyses, and brainstorming sessions on VC development projects. Various participatory facilitation techniques were used during the workshops, to allow CBC members to fully express their own analyses of the potential contribution of each VC to local development.

In some cases, group discussions allowed drafting VC development projects including business plans, considering technical and financial feasibility, production, selling, revenues, organization at the CBS level, and partnerships with stakeholders from both public and private sectors.

3 Overview of the three value chains

3.1 Beekeeping value chain

Rwanda, with its rich biodiversity, and especially its four national parks, has emerged as a promising hub for beekeeping, contributing not only to the economic prosperity of farmers but also to fostering sustainable forest management.

With approximately 120 000 beekeepers and a total annual honey production of 5,800 tons, the national demand for honey reaches 17,400 tons, indicating a significant supply-demand gap.

Beekeeping development could potentially address the national supply-demand gap and play a pivotal role in enhancing the livelihoods of rural communities. An enabling environment for the sector has been created by the Rwandan government, positioning Rwandan honey to meet international demands. Specifically, the Beekeeping Law No 25/2013 and the National Beekeeping Strategy 2018-2022 emphasize sustainable practices and quality standards, aligning with international regulations. As a result, since 2016, Rwanda has been accredited to export honey to the European Union, opening new avenues for market growth.

The members of the value chain are organized as follows (Mugabo, 2023[1]):

- Input suppliers, among which:
  - enterprises provide packaging jars,
  - local artisans in rural areas who can produce modern hives such as KTB and Longstroth at affordable prices,
  - semi-formal establishments in Kigali, often collaborating with technical institutions,
  - specialized establishments like AGROTECH, who offer various beekeeping inputs such as hives, bee suits, honey extractors, airtight buckets, smokers, and gloves.
- Producers (beekeepers), among which:
  - individual beekeepers at household level, mainly small players,
  - numerous cooperatives engaged in collective production and marketing, with access to inputs, credit, and training,
  - some private companies, sometimes engaged in out-growing schemes with selected individual producers.
- Processors, in charge of honey extraction and packaging:
  - Individual producers and small cooperatives can do basic processing (cold dripping, cloth pressing, or machine pressing and filtration) or modern extraction (centrifugation) when correctly equipped.
  - Some companies and cooperatives such as Nyabihu Cooperative Union, CODA JYAMBERE Cooperative, and Coporomi Cooperative standardize the process, labeling, and packaging.
- Wholesalers: local intermediaries, retailers, and sometimes producers collect and sell honey to urban consumers or liquor breweries.
- Transporters: companies and cooperatives hire private transport to collect honey while traders and middlemen may use public transport to sell honey in urban areas.
- Retailers are mainly small players but also local and foreign supermarket chains with accreditation from the Rwanda Standard Board (RSB)
- Exporters

[1] Mugabo, 2023, Beekeeping Landscape Analysis in Rwanda, 76p.

Honey can also be used in brewing of liquor and wine, in the food industry (whole wheat bread), cosmetics industry for skin-care products, pharmaceutical industry.

Environmental threats such as climate change, biodiversity loss, deforestation, forest degradation, and excessive pesticide use pose challenges to the value chain. Bee colonies are significantly impacted by environmental changes, affecting both their habitat and health, and leading to colony collapse disorders and severe decreases in production.

High prices of locally produced honey compared to imported alternatives pose a market competitiveness challenge to local beekeepers, while the scarcity of reliable data and market information make the determination of the economic value of honey difficult for producers. There is a clear lack of training solutions in the country.

Needs in market access, export financing, credit access, quality control and certification to provide access to premium markets, but also infrastructure development and research and development should also be evaluated.

Diversification of beekeeping products. While honey remains the primary product of beekeeping in Rwanda, diversifying the range of beekeeping products can unlock additional economic opportunities. Beyond honey, products such as beeswax, propolis, royal jelly, and pollen can be extracted from beehives and utilized in various industries including cosmetics, pharmaceuticals, and food processing. Encouraging beekeepers to explore these alternative products can add value to their operations and expand market opportunities. Rwanda's beekeeping sector has already made advancements in diversifying its product offerings beyond traditional honey. For instance, the Rwanda Development Board's Beekeeping Development Program has supported initiatives to extract beeswax, propolis, and royal jelly, tapping into niche markets both domestically and internationally. One notable example is the collaboration between RDB and local cooperatives in the Musanze district to establish a beeswax processing facility, providing additional income streams for beekeepers while promoting value addition within the sector.

Innovations for the beekeeping value chain. In line with Rwanda's vision for a knowledge-based economy, the adoption of modern beekeeping technologies and practices has been prioritized. The Rwanda Beekeeping Project, implemented in partnership with international organizations such as the FAO introduced innovative hive designs and honey extraction methods tailored to Rwanda's landscape and climatic conditions. Additionally, the Rwanda Agricultural Board has highly supported research and development initiatives focused on disease management and queen bee breeding, ensuring the resilience and productivity of Rwandan bee colonies. Rwanda's commitment to value addition along the beekeeping value chain is exemplified by initiatives such as the Rwanda Honey Value Chain Project. This project, supported by the United Nations Development Program, facilitated the establishment of modern honey processing facilities equipped with modern equipment for filtration, packaging, and labeling. As a result, Rwandan honey has gained recognition for its premium quality and distinctive flavor profiles, commanding higher prices in both domestic and international markets.

Job creations opportunities in apiculture. Beekeeping can create many job opportunities in Rwanda: obviously beekeeper is the first one that come to mind. As overseeing the management of beehives does not demand a lot of time, it is a job that can be taken by farmers as a side activity, or by young people that want to install themselves in the countryside. Apart from beekeepers, many other jobs could be created thanks to the development of the apiculture value chain: where there are bees, the is always a seasonal need for honey harvesters and processors. One thing needs to be considered and that is that bees do not only produce honey, but also wax, propolis or royal jelly. These can be used to make candles or cosmetics for instance. If the demand is present, it could generate additional employment. All these people and facilities would need training, supplies, and equipment, creating further opportunities of employment. Furthermore, beekeeping can be integrated into ecotourism initiatives, offering employment opportunities in guiding beekeeping tours, managing beekeeping-related attractions, and hospitality services.

Rwanda beekeeping recent evolution

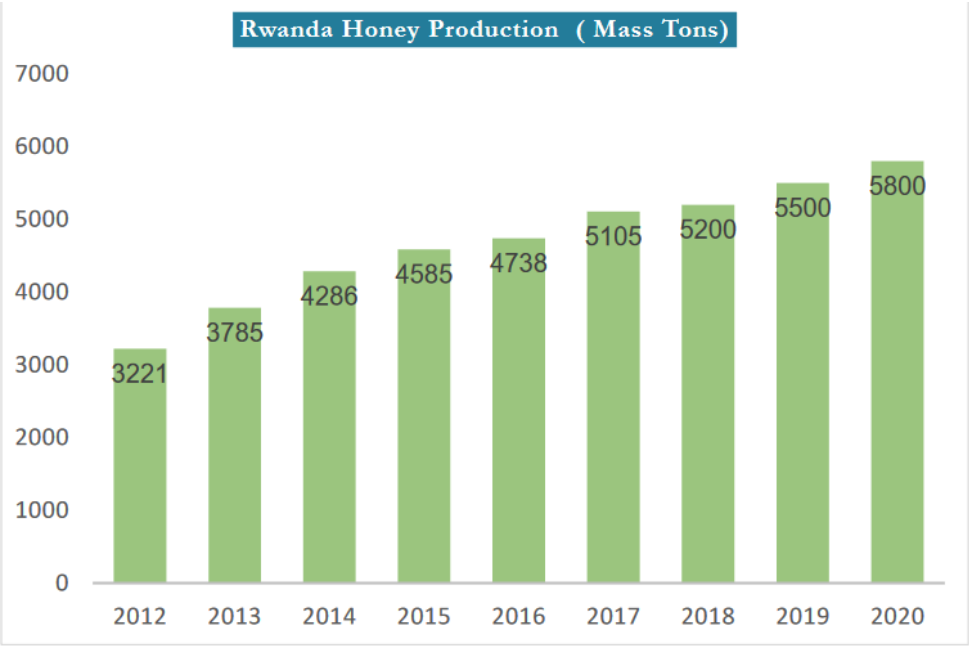


Figure 2. Evolution of Rwanda honey production (in tons) between 2012 and 2020 (Mugabo, 2023[2])

The trend above shows concerted efforts of major institutional and legislative frameworks put in place to organize Rwanda's long-term development for the honey industry. The Rwandan geographical and ecological situation is a major reason why Rwandan bee products have a promising future. The natural forests in Rwanda, which are rich in wild plant resources and home to healthy wild bees that are disease-resistant, create honey manufactured from unique pesticide-free flora. The country's large number of eucalyptus trees also provide a unique and well-liked variety of honey. Moreover, Rwanda is majorly constituted of diverse agricultural lands that offer a diverse range of honey that can be produced, as well as a welcoming environment for bees.

3.2 Ecotourism value chain

The International Ecotourism Society defines ecotourism as “responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education towards both staff and guests”. It unites conservation, communities, and sustainable travel. Ecotourism is a niche segment of nature-based tourism (NBT), pushing sustainability and reduction of environmental and social impacts to another level, while also forming the basis for community-based tourism, culture-based tourism, and sometimes adventure-based tourism.

As such, ecotourism simultaneously tackles the diversification of rural income, biodiversity conservation, and local communities’ empowerment. Additionally, it can be a solution to human-wildlife conflicts by bringing direct financial benefits for biodiversity conservation.

Rwanda implements public policies supporting the sustainable growth of the tourism sector, such as the National Tourism Policy (NTPS) introduced in 2009 and the Revised Rwanda Sustainable Tourism Development Master Plan in 2015 (aligned with the Economic Development and Poverty Reduction Strategy 2013-2018" (EDPRS-2)). Tourism earnings in Rwanda increased by an average of 11 percent per year from 2009 to 2019, contributing to over 20 percent of total export earnings. Despite not fully recovering to pre-crisis levels, the post-COVID-19 context is favorable for the ecotourism sector in Rwanda, with the Rwanda Development Board (RDB) implementing a program for tourism recovery.

While NBT is growing in Rwanda, ecotourism remains relatively low. Efforts to promote ecotourism focus mainly on the country’s four National Parks and the Congo-Nile trail and the Kivu belt. There is strong potential for growth of ecotourism around water-based tourism soon.

[2] Mugabo, Beekeeping value chain landscape analysis in Rwanda, 2023, 74p

Scaling up the ecotourism sector in Rwanda requires a strategic vision to promote ecotourism not only around protected areas but also in cities and non-protected rural areas. By expanding ecotourism beyond traditional locations, Rwanda can enhance sustainable tourism and maximize economic and environmental benefits.

Challenges to developing ecotourism projects in Rwanda include lack of adherence of local communities to the project, lack of training and capacity building solutions for local communities, and vulnerability of the sector to external factors such as environmental variations and global pandemics.

Policies in favor of biodiversity conservation. The Rwanda Biodiversity Policy (2011) aims to conserve and sustainably manage the country's rich biodiversity. It focuses on protecting natural habitats, ensuring the sustainable use of biodiversity resources, and promoting equitable sharing of benefits derived from genetic resources. The policy emphasizes the expansion of protected areas, community involvement, restoration initiatives, research, and strengthening legal frameworks to address challenges such as habitat loss, climate change, and invasive species. Rwanda's National Biodiversity Strategy and Action Plan (NBSAP, 2014) is a comprehensive framework for biodiversity conservation aligned with international commitments like the Convention on Biological Diversity (CBD). The NBSAP outlines strategic goals, including conserving biodiversity, promoting sustainable use, and enhancing the benefits from biodiversity. It sets specific targets and actions, such as habitat restoration, species protection, community-based conservation initiatives, and capacity building. The NBSAP also integrates biodiversity considerations into various sectors to ensure a coordinated approach.

The National Environment and Climate Change Policy of Rwanda (2019) addresses the interconnected challenges of environmental degradation and climate change. This policy provides a holistic approach to sustainable development, emphasizing the importance of environmental protection and climate resilience. Key areas include promoting sustainable land use, water resource management, pollution control, and renewable energy. The policy also focuses on enhancing adaptive capacity to climate change, reducing greenhouse gas emissions, and integrating environmental and climate considerations into national planning and development processes.

Rwanda is implementing since 2023 a revised Green Growth and Climate Resilience Strategy (GGCRS) to create a carbon neutral country. This strategy was established by the Ministry of Environment, with the help of the United Nations Development Program. The GGCRS is built around four Thematic Program Areas, with each being focused on two Programs of Action (PoAs). The revised GGCRS reaffirms the Government of Rwanda’s long-term commitment to effectively implement green and solidarity-based growth, to achieve the country’s climate action agenda (adaptation and mitigation), while focusing on sustainable economic growth and poverty reduction. The GGCRS is aligned with Vision 2050, which is the master plan to develop Rwanda into a high-income country by 2050. The GGCRS will ensure that this growth will not be detrimental to the landscapes and ecosystems of Rwanda, in accordance with the Paris agreements (COP 21) and the Bonn Challenge. Also related to this Vision, the National Forestry Policy (2018) and the Forestry Sector Strategic Plan (2018-2024) aim to protect and restore the forest. It follows the pledge Rwanda made in 2011 to restore 2 million hectares of forest and preserve a forest cover of 30% by 2035. Thus, many projects are contributing to these environment policies, such as for instance the AREECA project (Alliance for Restoration of Forest Landscapes and Ecosystems in Africa) which is led by a consortium of WWF, the IUCN, the World Bank, the FAO, the World Resources Institute and AUDA-NEPAD. The objective of this project is to restore forest landscapes in Africa. The aim is to restore and increase carbon stock, and biodiversity and improve soil fertility and smallholder livelihood.

Water-based ecotourism. Water-based tourism is based on natural attractions such as lakes, rivers, and wetlands, which serve as the primary draw for tourists. These are quite common and untouched in Rwanda, making them suitable for ecotourism. Local communities and tour operators will play a crucial role in providing services such as boat rides, guided tours, and accommodations. Several community-based tourism initiatives have been established in the Eastern province, allowing local communities to directly benefit from water-based ecotourism. These initiatives often involve the training and empowerment of community members to serve as tour guides, boat operators, and hospitality staff, thereby generating income and fostering community development. Efforts to promote sustainable ecotourism in water-based environments often involve the implementation of projects and policies aimed at community development. These may include initiatives such as the establishment of protected areas, the creation of eco-friendly tourism infrastructure, and the implementation of responsible tourism guidelines. Furthermore, government policies and regulations can help to ensure that ecotourism activities are conducted in an environmentally and socially responsible manner. Rwanda has

implemented various environmental conservation policies and regulations to protect its natural resources, including those related to water-based ecotourism. These policies may include restrictions on fishing practices, guidelines for waste management, and measures to prevent water pollution, ensuring the sustainability of ecotourism activities in the region. However, challenges such as inadequate funding, lack of enforcement, and competing interests for natural resources can hinder the effectiveness of these projects and policies. Therefore, it requires careful planning, collaboration, and ongoing monitoring to achieve sustainable outcomes. An example of the integration of water-based tourism in the ecotourism initiatives in the Rwandan Eastern Province is the Akagera National Park, located in the Eastern province. It is managed by the Rwanda Development Board in partnership with African Parks, a non-profit conservation organization. This partnership focuses on restoring and conserving the park's natural habitats, including its lakes and rivers, to attract tourists interested in water-based activities such as boat safaris and fishing.

Akagera National Park, the example of Rwanda's efforts to promote ecotourism. In the Eastern province of Rwanda, various ecotourism initiatives and projects are underway, aimed at leveraging the region's natural resources for sustainable development. Akagera National Park, managed jointly by the Rwanda Development Board and African Parks, stands as a prominent example. The park has undergone significant transformation in recent years, marked by habitat restoration, wildlife reintroduction efforts, and community engagement initiatives. Once depleted due to poaching and habitat loss, Akagera is now constituted of a diverse array of ecosystems, including savannah, wetlands, and lakeshores, providing habitat for a remarkable variety of wildlife species. Visitors to the park can embark on game drives, guided walks, and boat safaris to observe iconic African wildlife such as elephants, lions, giraffes, and hippos, alongside an impressive array of birdlife. Akagera's links to ecotourism extend beyond wildlife viewing, with community-based tourism initiatives playing a pivotal role in promoting sustainable development in the region. Local communities residing adjacent to the park actively participate in tourism activities, offering guided tours, cultural experiences, and homestays to visitors. These initiatives not only provide economic opportunities for residents but can also trigger a sense of stewardship and pride in the park's conservation among local stakeholders. Infrastructure development has further enhanced Akagera's ecotourism appeal, with the construction of visitor centers, lodges, and campsites enhancing the visitor experience while minimizing environmental impact. Additionally, interpretive signage, educational programs, and guided tours educate visitors about the park's biodiversity and conservation efforts, fostering a deeper appreciation for Rwanda's natural heritage. However, challenges persist in ensuring the sustainable management of Akagera's ecotourism activities. Balancing conservation objectives with the socioeconomic needs of local communities, mitigating human-wildlife conflicts, and addressing infrastructure deficits remain ongoing priorities. Nevertheless, Akagera National Park stands as an example of successful ecotourism in Rwanda, where conservation, community development, and tourism converge to create a model for sustainable wildlife-based tourism in the region.

Ecotourism initiatives threats and challenges. Ecotourism initiatives in Rwanda face a range of threats and challenges, both current and anticipated, which could potentially hinder their long-term sustainability. One significant challenge is the delicate balance between conservation and tourism development. While ecotourism aims to promote environmental conservation and community empowerment, poorly managed tourism activities can lead to habitat degradation, wildlife disturbance, and the depletion of natural resources. Additionally, the impacts of climate change, such as unpredictable weather patterns and shifting habitats, pose a threat to biodiversity and the overall tourism experience. Furthermore, the success of ecotourism initiatives depends on an effective governance and management. In Rwanda, limited institutional capacity, inadequate funding, and competing interests for land use present obstacles to the sustainable management of natural resources and protected areas. Ensuring that ecotourism benefits are equitably distributed among local communities is also crucial to enhance support for conservation efforts and mitigate social tensions. Moreover, the COVID-19 pandemic has highlighted the vulnerability of the tourism sector to external shocks. Travel restrictions, health concerns, and economic downturns have significantly impacted tourist arrivals and revenue generation, posing immediate challenges to ecotourism initiatives in Rwanda. Looking ahead, the rapid pace of development and urbanization in Rwanda may pose additional threats to biodiversity and natural habitats. As infrastructure projects expand and land is converted for agricultural or industrial purposes, pressure on ecosystems intensifies, potentially diminishing the appeal of ecotourism destinations and disrupting local livelihoods dependent on tourism.

3.3 Tree seeds and seedlings value chain

Rwanda prioritizes the preservation and rejuvenation of its indigenous tree species through comprehensive seed collection, propagation, and planting endeavors. Experts and conservationists gather seeds from a variety of native tree species found in diverse ecosystems, with a particular focus on public forests.

This process entails identifying, collecting, and storing seeds under controlled conditions to uphold their viability. Subsequently, these collected seeds are nurtured within nurseries, where collaboration among local communities, non-governmental organizations (NGOs), and government agencies is common to facilitate the propagation of seedlings. Employing specialized techniques, these stakeholders ensure the robust growth of the seedlings until they reach an optimal stage for transplantation. Once matured to the appropriate level, these seedlings are planted in numerous locations throughout the country as part of comprehensive reforestation and afforestation initiatives.

The main stakeholders in the native tree seedlings value chains in Rwanda are presented below.

Institutional	Organizations	NGOs	Technical
Rwanda Agriculture and Animal Resources Development Board (RAB) Rwanda Forestry Authority (RFA) Rwanda Environment Management Authority (REMA)	ENABEL IUCN GCF EU FAO GIZ	World Vision Rwanda ICRAF WWF Rwanda Wildlife Conservation Association Rwanda Mountain Tea	National Tree Seed Centre (NTSC) in Huye Seed cooperatives and seed farmers Private nurseries held by investors: 6 in the Eastern Province (Bugesera, Kirehe and Gatsibo districts) Community nurseries Rural Resource Centers

The NTSC is operating under RFA responsibility and is the only institution mandated to deal with the treatment of tree seeds and their commercialization in Rwanda.

Initiatives on native tree seeds and seedlings value chain development aim to combat deforestation, promote biodiversity, and restore degraded landscapes. However, this national effort tends to be limited due to its heavy dependence on external funding. The creation of profitable (demand-driven) native plant nurseries can be a good way of combining reforestation with restoration, education, income generation, etc.

In 2023 and 2024, around 45 native tree species have been planted in the different CBS. In most of the cases, the initiative started from scratch without any prior information on how to grow those trees. In a detailed mapping and design of Community Biodiversity Sancta (CBS) report, ENABEL provides some presentations and analysis about key native species with high potential for future plantations, for instance :

- Coffea eugenioides - Ikawa
- Kigelia africana – Ikivungavungo
- Vachellia sieberiana - Umunyinya
- Markhamia obtusifolia - Nyiragasave
- Pappea capensis – Umumena
- Syzygium guineense – Umugote
- Garcinia buchanani - Amasarasi
- Combretum molle - Umurama
- Ficus sur – Umudoboro
- Ficus sycomorus – Umurehe/umukuyu
- Securidaca longepedunculata – Umunyagasozi
- Ziziphus mucronate – Umukugutu
- Tetradenia riparia – Umuravumba
- Erythrina abyssinica – Umuko
- Olea europea subsp. Africana – Umunzenze
- Albizia adiantifolia

- Albizia gummifera
- Albizia amara – Umumeyu
- Etc.
- :

Since the adoption of the Bonn Challenge by Rwandan authorities, 80 restoration projects have been implemented nationwide, with ongoing large-scale efforts currently underway resulting in the planting of millions of tree seedlings. Previous initiatives such as the Support Program to the Forestry Sector in Rwanda (PAREF) and the Forest Management and Biomass Energy project (FMBE) have focused on restoration and private sector concession of public forests, as well as the management of private woodlots under consolidated Forest Management Units led by landowner cooperatives. Successful approaches, such as the establishment of Community Vigilance Committees to support tree plantation and sustainable management of protective road/river side tree plantations, have been developed.

Initiatives like sustainable forestry, agroforestry, and biomass energy management for climate resilience in the Gatsibo district, as well as the "Border to border forest landscape restoration" project led by IUCN/RFA (2016-2018), have provided valuable insights into the local context and helped overcome barriers regarding species adopted by farmers. Other notable projects focused on landscape restoration include Green Amayaga in the South region, the Landscape Approach to Forest Restoration and Conservation (LAFREC) project, Nyandungu Eco-tourism Park, Green Gicumbi, the “Building resilience to climate change and sustainable agriculture value chains in agro-systems around Mukura Forest and Lake Kivu Catchment Landscape” - MuLaKiLa project in the Western region, and the TREPA and COMBIO projects.

While developing community tree nurseries can be beneficial, several pitfalls can impede their success. To ensure effective and sustainable value chain development, it is crucial to address these pitfalls:

- Lack of community engagement: active involvement and buy-in from the local community are essential for project support and sustainability. Engaging community members from the outset, involving them in decision-making, and considering their needs and perspectives throughout the process is key.
- Limited seedling diversity and inadequate choice of species: neglecting the importance of native species diversity and farmer preferences can undermine the ecological impact and economic viability of the nursery.
- Inadequate training and capacity building: comprehensive training on nursery management, seedling care, and tree planting techniques is essential for success, along with financial and organizational skills development.
- Poor nursery site selection: choosing an inappropriate location for the nursery can negatively impact seedling growth.
- Lack of long-term planning and support: secure long-term support, funding, and a clear strategy for continuity are crucial for sustaining the nursery beyond the initial stages of development.
- Limited availability of good-quality seeds and inadequate infrastructure and specific material can pose serious limitations to the development of the native tree seedlings value chain.
- Disregarding economic and cultural factors: insufficient consideration of local environmental conditions, cultural practices, and traditional knowledge can hinder the acceptance and success of the nursery development. Compatibility with traditional agriculture and other potential obstacles should be carefully assessed.

The involvement of local communities is crucial in developing nurseries adapted to the local context and sustainable. Economic incentives, capacity building, access to resources, community ownership, environmental conservation, and recognition of social and cultural factors are among the levers that can encourage local community participation in nursery development.

Seed distribution. The distribution of tree seeds and seedlings is facilitated through various channels, including government-run nurseries, private nurseries, and community cooperatives. Government agencies such as the Rwanda Agriculture and Animal Resources Development Board and the Rwanda

Forestry Authority play a crucial role in coordinating seedling distribution efforts, particularly through the National Tree Seed Center, providing technical assistance, and disseminating information on tree planting techniques and species selection. Additionally, partnerships with international organizations and donor agencies have enabled Rwanda to access funding, expertise, and technology to strengthen its reforestation efforts. Projects such as the Forest Landscape Restoration Initiative and the Green Fund Rwanda have supported the establishment of community-managed nurseries, the promotion of agroforestry practices, and the implementation of sustainable land management strategies to enhance forest resilience and ecosystem services.

The National Tree Seed Center (NTSC). The National Tree Seed Center in Huye, Rwanda, is an important piece in the development of the Rwanda reforestation policies and promotes sustainable forestry practices. Located within the Rwanda Agriculture and Animal Resources Development Board complex, the center serves as a hub for the collection, processing, storage, and distribution of tree seeds to support afforestation and agroforestry initiatives nationwide. Equipped with modern facilities and expertise, the center plays a vital role in ensuring the availability of high-quality seeds from indigenous tree species, including those essential for soil conservation, biodiversity enhancement, and climate resilience. Through collaborations with government agencies, research institutions, and international partners, the National Tree Seed Center contributes to Rwanda's reforestation goals by providing access to diverse seeds, conducting research on seed biology and propagation techniques, and disseminating knowledge on sustainable tree planting practices. Moreover, the center serves as a focal point for capacity building and training programs aimed at empowering local communities, nurseries, and forest managers in seed collection, processing, and nursery management.

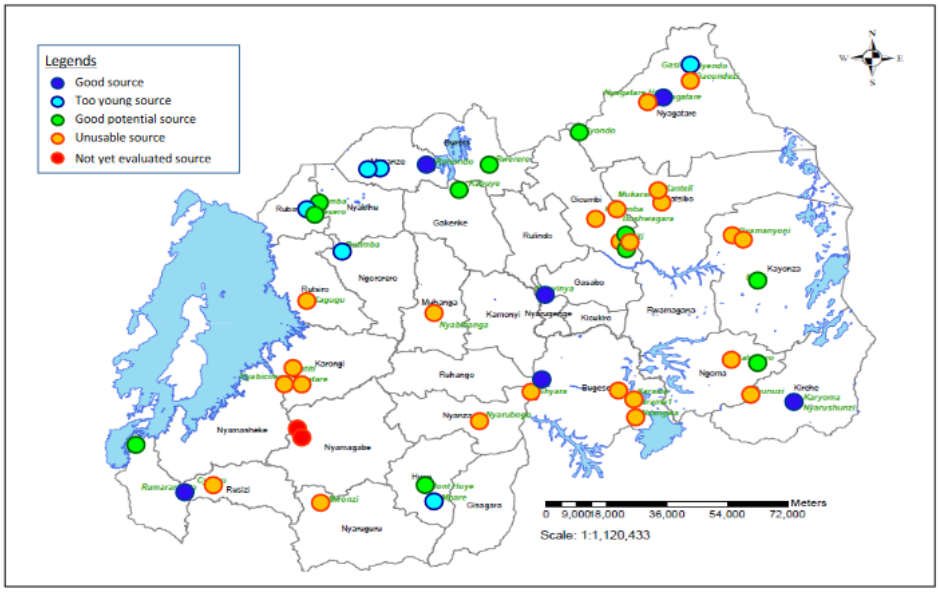


Figure 3. Ranking of tree seed quality provenances according to Ministry of Lands and Forestry (2018[3])

[3] Ministry of Lands and Forestry, 2018, National Tree Reproductive Materials Strategy 2018-2024, 59p

Rwandan forests actual state. Forests of Rwanda occupy now about 724,695 hectares of the total country land (30.4%) of which 387,425 hectares (53.5%) are plantations, 130,850 hectares (18.1%) are natural mountain rainforests, 161,843 hectares are wooded savannah (22.3%), and 43,963 hectares are Shrubs (6.1%) (Ministry of Environment, 2019[4]*).* Eastern province takes up to 38% of the total forestland (274,630 hectares). Comparing forest cover between 2009 and 2019 has shown that Rwanda forestry policies regarding afforestation and reforestation are becoming effective: countrywide, about 105,713 hectares have been deforested (i.e. 15.7% decrease), while new 139,674 hectares have been planted i.e. 20.7% increase of forest cover from 2009 to 2019. The net balance is about 5% afforestation rate over 10 years i.e. on average 0.5% of forest areas are added each year.

Eastern province forest situation. While Eastern Province is the most forested province of Rwanda, almost half of these forests (45%) are highly degraded, according to the RFA in 2019. Rather than afforestation, the main stake for the Eastern Province forests seems to be restoration of degraded forests. This is not true for all the eastern districts: Ngoma and Rwamagana still have rather scarce forest covers, of about 12% and 13%, and are therefore in need of afforestation. It is important to restore degraded forests because they are highly vulnerable to many threats including high dry episodes, that have been occurring recently in Rwanda and will continue to repeat themselves at a high frequency and intensity due to the climate changes.

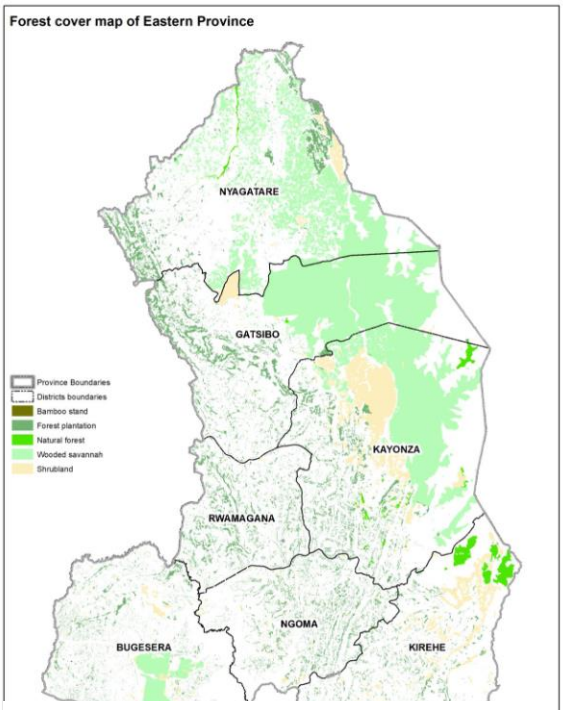


Figure 4. Map of the Eastern Province Forest cover in 2018 (Ministry of Environment, 2019)

[4] Ministry of Environment, Rwanda Forest Cover Mapping, 2019, 235p

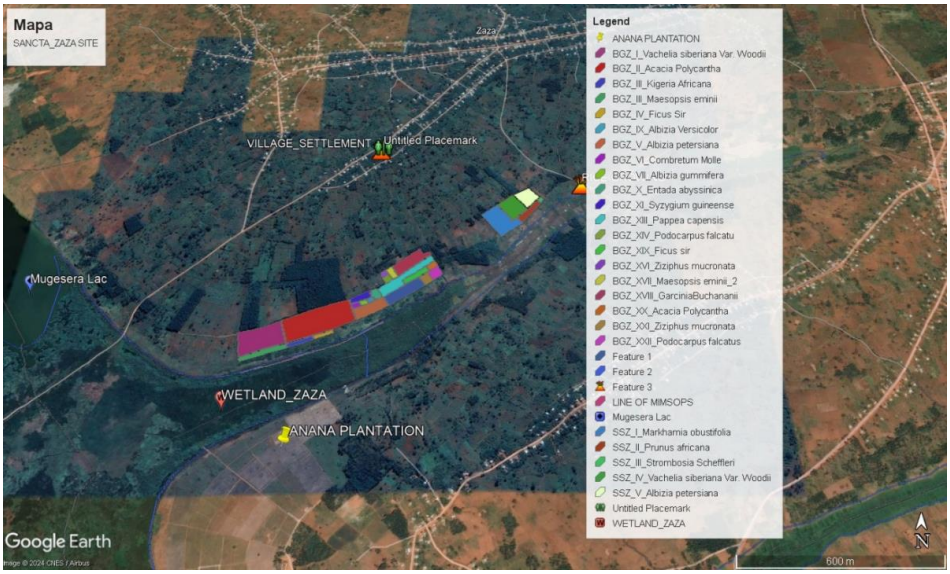
4 General description of the CBSs

4.1 Established CBSs

4.1.1 Ngoma Zaza

Zaza Sanctum was established in May 2023. It is located on the borders of a wetland, itself constituting an extension of the Mugesera lake. The wetland is protected by the law although it is used by neighboring pineapple plantations (which are part of the Ngoma women correctional facility) to harvest grass that is used for mulching. The CBS has expanded to include a private property owned by a Belgian citizen who has a keen interest in agroforestry and ex situ biodiversity conservation.

Approximately 8 hectares of botanical garden and 2.7 hectares of seed stands have been planted, with plans to plant an additional 4 hectares this year (2024), focusing mainly on essential oil and pharmacopeia native tree species. The CBS nursery is directly located on-site, benefiting from the availability of water.



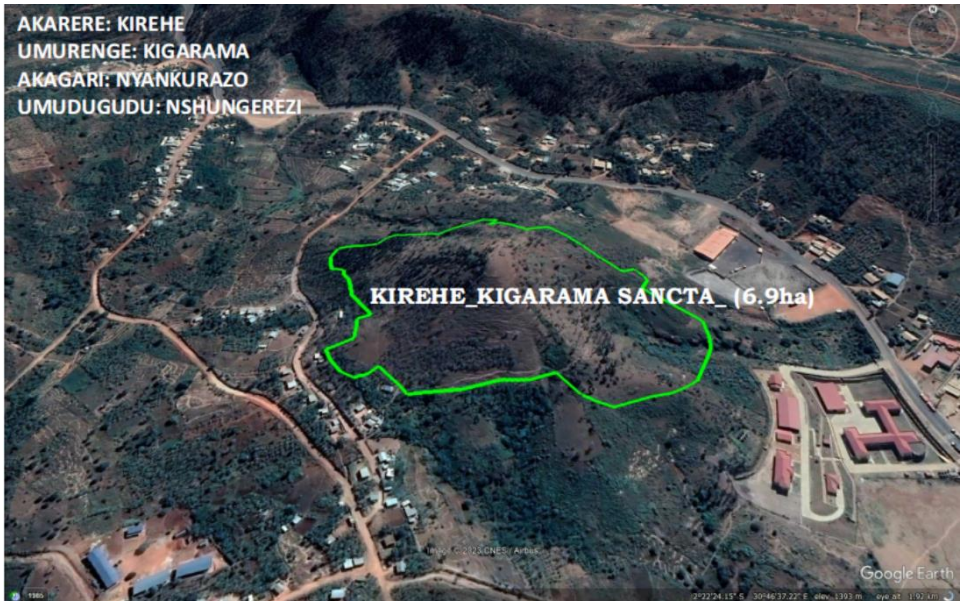
The upper part of the CBS is neighboring eucalyptus plantations and maize fields. The vegetative fence, or live fence, surrounding the sanctuary is primarily composed of *Senegalia brevispica*, chosen for its dense growth and prickly thorns, providing effective security. This species is valued for its forage, firewood, and honey production, making it an asset in the region. Supplementary species planted alongside *Senegalia brevispica* include *Ficus thonningii*, *Erythrina abyssinica*, and *Euphorbia turicalli*. These species hold cultural significance and are utilized for their medicinal properties, further enriching the biodiversity and cultural heritage of the area.

Agriculture, fishing, and husbandry are the main activities surrounding the site, which is characterized by banana plantations interspersed with *Ficus thonningii* trees (imivumu) or *Grevillea robusta* trees. Additionally, the region is home to commercial farms cultivating crops such as chili, rice, and pineapple, with rare agroforestry trees interspersed throughout. Beekeeping is also a prominent activity in the area. The region is renowned for its traditional healers who utilize medicinal plants and other traditional remedies.

4.1.2 Kirehe Nyankurazo

The CBS in Nyankurazo cell, in the Kigarama sector of Kirehe district, covers roughly 7 ha on and around a steep hill located close to the main road and near the Rusumo border with Tanzania. The hill is locally known as Ibere ry'inkumi ("a young lady's breast"), due to the regularity and smoothness of its shape.

The top of the hill offers a beautiful view on the Akagera river and surrounding wetlands. This, along with its closeness with Rusumo falls and the forecasted development of traffic and accommodation facilities on the Rusumo border, motivated the RDB to earmark the place for touristic development in the National Land Use and Development Master Plan 2020-2050.

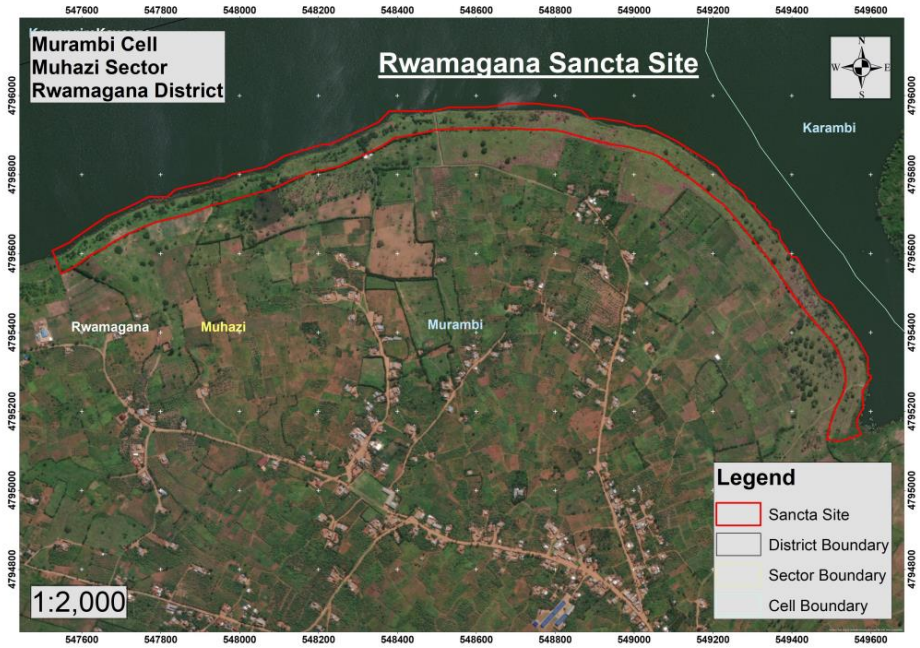


Before the CBS establishment in 2023, the area was already partially covered with trees. The area has been planted in 2023 and more plantings are due in 2024 to complete the restoration of the CBS.

4.1.3 Rwamagana Murambi

Muhazi CBS is located in Rwamagana District, Muhazi sector and Murambi cell. It offers a splendide view on lake Muhazi and was previously grazed by cattle though it is in the lake buffer zone protected by the Enviropnmental law.

It is a site that used to graze by cattle from farms located closer the the lake buffer zone. It counts some remnant trees of Vachelia sieberiana, Senegalia polyacantha and some native shrubs like Pavetta ternifolia, Clerodendrum johnstonii and so forth.

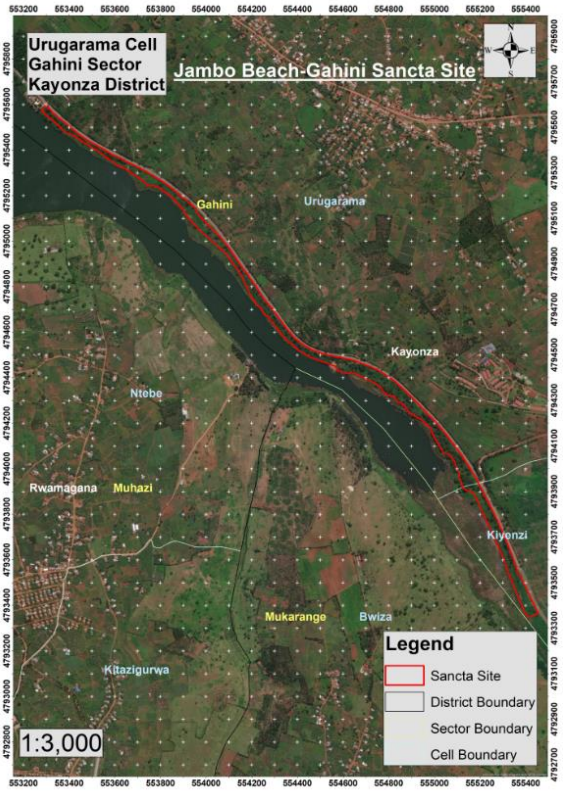


4.1.4 Gahini Jambo Beach Kayonza

The Gahini CBS situated in Kayonza along Jambo Beach, spans over a 12.7-hectare elongated area adjacent to the main road connecting Kigali to Akagera National Park. Positioned on the shores of Muhazi lake, it lies between Kayonza, less than 3 kilometers away, and Murambi.

The CBC comprises 54 members located in the Urugarama cell of Gahini sector, Kayonza District. The cooperative includes 16 women and 12 young individuals under the age of 35. Notably, five members engage in small-scale beekeeping operations, with the cooperative president among them.

Most beekeepers within the cooperative utilize traditional beehives, lacking formal training in modern beekeeping techniques. One member possesses 15 modern Langstroth hives, yet faces challenges as the bees “don’t like thithe modern hives and fly away”, leading to decreased productivity. Despite the difficulties, beekeepers note the CBS's favorable conditions for beekeeping, citing the area's natural vegetation and the introduction of new melliferous plant species.



4.1.5 Gatsibo Ryarubamba (Rubona)

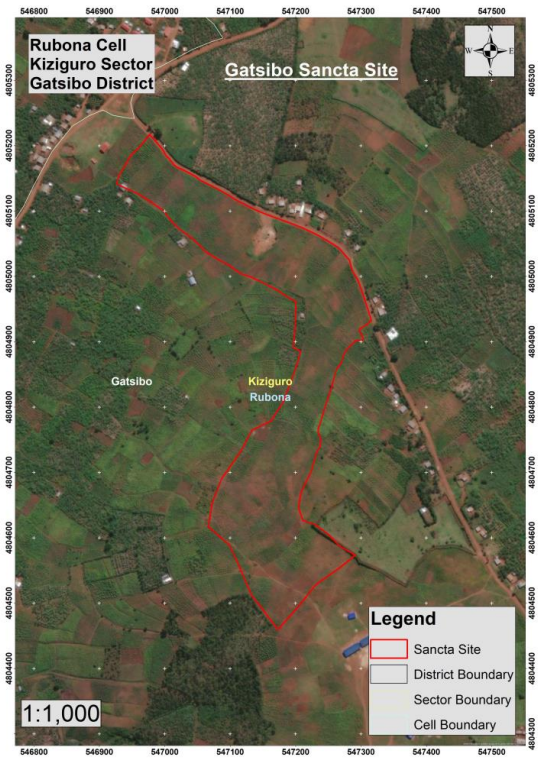
Ryarubamba CBS is located in Gatsibo District in the midst of crops and in the surroundings of a Secondary school.

The main activities are dominated by agriculture with some small business oriented in selling commodities sourced from Kayonza or Kiramuruzi. This means that some value chains like bee keeping, and honey production are almost impossible to be developed

It is an area where traditional healers are still present meaning that Pharmacopeia and essential oils products value chain can be valorized.

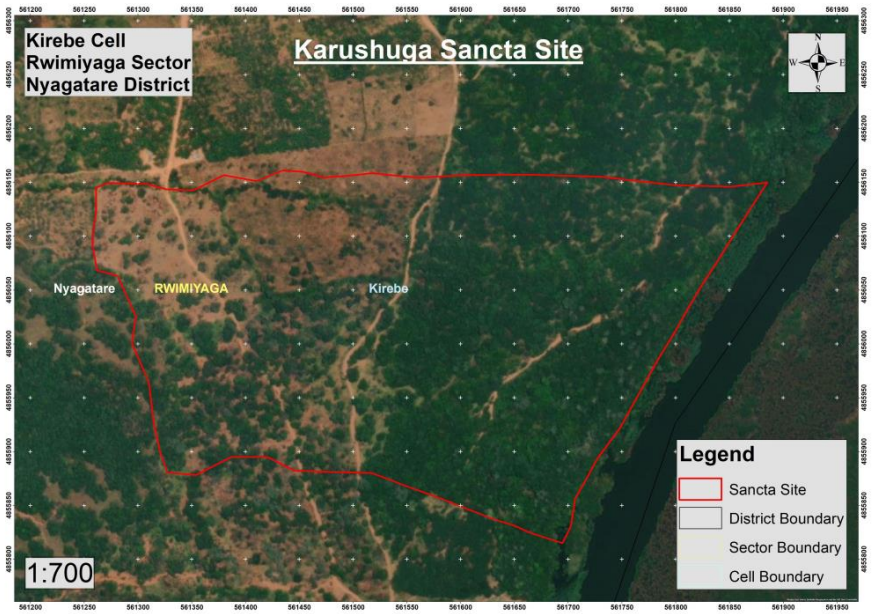
The sector is mostly known for its unique a brewery (AGAKEYE) that manufacture banana wine mixed with sorghum.

Current consumer and investor trends are for products that are sustainably sourced, plant based, unique, have a cultural background and story, health benefits, and bring variety to the market. Justas moringa, chia seeds, Himalayan salt, and other location and ecology based products have become major global products. This shows enough how Rwanda’s uniqueness can benefit from creating new global products such as “Biodiversity Beer/ Beverages” based on its unique culture and rich biodiversity. AGAKEYE produced by BWUJE Ltd may benefits from plants extracts to be used as bitters or flavors and aroma enhancers for additional value to its products.



4.1.6 Nyagatare Karushuga

Karushuga site is located along Akagera river and host extremely rare tree species like *Diospyros abyssinica* and *Mimusops bagshawei*. These species have been recorded only in this site where they are represented by less than 20 individuals each.



The site is connected to the Karushuga natural forest protected by the government of Rwanda and planned to be rehabilitated. It is a site favorable for bee keeping as it is very close to a protected and forested area on the other side of Akagera river in Tanzania

The site is also located in a remote area where the population is still relying on medicinal plants for diseases and sicknesses treatment. This means that pharmacopeia value chain development will be welcome by the local community and CBS leadership. Only one school exist nearby the Karushuga CBS: GS Gatebe.

5 SWOT analysis for the beekeeping value chain

5.1 Established CBSs

5.1.1 Ngoma Zaza

SWOT analysis

The beekeeping VC in Ngoma Zaza CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
- Strong support of the community: the cooperative is confident that BK can be a strong contribution to its development - Homogeneity: all cooperative members are farmers, they share the same activities and the same concerns - Many of the trees that have been planted and many pre-existing tree plots nearby are suitable for honey production - Land and water are not a limit for the implantation of bee hives - Several Cooperative members have traditional BK knowledge - A MoU has been signed with the RFA, which provides security and perspective to continue the activities on the site	- Limited knowledge and skills, and no experience in modern BK in the cooperative - The lack of infrastructures will complicate the access to supplies and to markets - The cooperative has no equipment and no processing facility to start with
Opportunities	**Threats**
- Few competitors and high demand in the sector, the marketing perspectives are high - There is someone in the sector that can build modern bee hives - The government through RFA, is supporting the initiative	- Pesticides used by rice, maize and tomato farmers nearby can jeopardize the bee colonies (but as most neighbors are cooperative members, arrangements are likely to be found) - Pests and diseases are always a risk

VC scoring

During the focus group discussions and the participatory workshop, an exercise of ranking matrix has been conducted with a group of cooperative members. They tried to rate each criterion in a participatory way and explain and discuss their choice with the other members. SalvaTerra's experts also crosschecked these ratings by considering more objectively the situation and perspectives for the VC development. The table below presents the beekeeping VC scoring in Ngoma Zaza CBS.

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
*Coeff = Indice of importance (1 to 3)		Beekeeping	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	4	The sitee is ideally localted, with access to water and melliferous species nearby, inlcuding private eucalyptus plantations.
2/ People interest, motivation, availability and confidence to develop the value chain	2	3	Modern BK is considered as a great opportunity for local development in the CBC, and members have shown a strong resolve to develop the CV.
3/ Local skills to develop the value chain	2	1	Various CBC members are traditional beekeepers, but there is no skills in modern BK
4/ Potential market and customers	3	2	Marketing outlets are limited and the honey already produced in the sector is typically sold at household level. However, the demand is reportedly strong.
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	2	The situation seems to be rather secure, but some concerns have been expressed regarding potential contaminations due to pesticide use in nearby fields. Training is a strong challenge
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	3	The CBC is still in early stages of its development, but seems to be functioning efficiently, with various individuals showing leadership abilities.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	2	The CBC is already implementing collective saving schemes for future investments. However, the CBC is still in early stages of its development and their financial capacity is low.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	1	There is no actor of importance identified near the CBS that could help with the development of the VC. Existing initiatives to develop modern Beekeeping have been failing to provide sufficient training and market access to supported beekeepers.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**2,32**	

Synthesis of SWOT and VC scoring

The idea of developing BK in Ngoma Zaza CBS benefits from strong community support and good environmental conditions, including the abundance of melliferous species. Despite some CBC members having traditional beekeeping knowledge, gaps in skills and infrastructure, along with the absence of equipment and processing facilities, pose initial challenges. Market prospects are favorable with few competitors and high demand, but the lack of transport infrastructure might hinder the access to national outlets.

Threats such as pesticide use by neighboring farmers and risks of diseases and pests remain, but the cooperative is considering cooperative solutions to mitigate these potential hazards.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Beekeeping in Ngoma Zaza CBS	3 (recommended)	The development of modern BK is feasible and recommended in the CBS although several prerequisites should be considered to ensure its success will require : i) strong initial training and capacity building of the members, including honey processing and packaging ii)

		good and efficient internal organization for the activity, iii) addressing access to markets, including transportation challenges.

5.1.2 Kirehe/Rusumo

SWOT analysis

The beekeeping VC in Kirehe Nyankurazo CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
- Strong support of the community: BK is the cooperative's first choice for VC development - Many of the trees that have been planted are suitable for honey production - BK can be started with a low investment and maintenance needs are not high - BK doesn't require additional land not likely to generate conflict with the surrounding communities - The demand for honey is strong and there are few competitors around - A variety of products can be produced, e. g. beeswax candles, cosmetics and pharmaceuticals, etc. - Rusumo is close to the Akagera river, so the bees have access to water.	- There is virtually no one with skills or experience in modern BK in the cooperative. Only one member has experience with traditional BK - Input suppliers are far (Kigali), there is no retailer nearby - Market outlets are not identified, and existing examples (two cooperatives in Kirehe district) only sell "original honey" locally - RSB certification can be expansive, and difficult to get considering the technical gap - Specialized training for BK is not locally available - Water is not directly available on site
Opportunities	**Threats**
- Huge production gap to fill in Rwanda, and the market is growing (people are shifting from cane sugar to honey) - Rusumo is located on the TZ border with a lot of traffic and a "border market", this could be a good starting point for commercialization	- Pesticides used by tomato farmers can jeopardize the bee colonies - Natural disasters can occur - Local support could be altered by the fear of getting stung

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
*Coeff = Indice of importance (1 to 3)		Beekeeping	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	2	The site is ratgher suitable, although there is no direct access to water and there is a lack of land availability to establish a procesing infrastructure, and the proximity of the road main pose a problem for the establishment of beehives.
2/ People interest, motivation, availability and confidence to develop the value chain	2	3	BK is the CBC's first choice for economic development with a strong collective dynamic to commit in honey production
3/ Local skills to develop the value chain	2	0	The starting point is very low in this regard, with only one traditional beekeeper in the CBC
4/ Potential market and customers	3	3	Although there is no marketing outlet clearly idetified at this stage, the CBS is located in Rusumo border, a highly transited area. The truck drivers waiting for customs approbation could represent an interesting potential market
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	2	The situation seems to be rather secure, although some minor concerns have been expressed regarding potential contaminations due to pesticide use in tomato fields (althoug these tomato fields are reportedly rather frar from the CBS). Skills development is a major
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	2	The CBC is still in early stages of its development, although its dynamism is acknowledgeable.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	2	The CBC is already implementing collective saving schemes for future investments. However, the CBC is still in early stages of its development and their financial capacity is low.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	1	The CBS is established far from the KODUNA cooperative, which seems to be the best onr in Kirehe district, while KOPAKI seems to be at a low point. Only one relevant stakeholder has been mentioned, which is an individual trainer called Medard in Gahara sector of Kirehe District.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**1,95**	

Synthesis of SWOT and VC scoring

The SWOT analysis of the beekeeping venture in Kirehe/Rusumo CBS reveals several strengths, including strong community support, suitable tree varieties for honey production, and low investment requirements. However, weaknesses such as a lack of modern beekeeping skills and limited current access to input suppliers and markets pose challenges. Moreover, the CBS site is located on a steep hill, thus limiting the possibility to build apiaries.

Opportunities lie in the growing demand for honey in Rwanda and the potential for commercialization at the border market in Rusumo. Threats include pesticide use by nearby farmers and the risk of natural disasters.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Beekeeping in Kirehe/Rusumo CBS	**3 (recommended)**	The development of modern BK is feasible in the CBS, but the following conditions should be met before investing in the activity : i) strong initial training and continuous capacity building of the members is

		paramount, ii) considering the land limitations, the organization of the activity will require a mix of collective and individual production only achievable through high-level collective organization iii), a strong emphasis should be put on the access to inputs and marketing outlets.

5.1.3 Rwamagana/Muhazi

SWOT analysis

The Bee Keeping VC in Rwamagana/Muhazii CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
- Suitable natural site for beekeeping with existing melliferous vegetation (Sisyphus, Marcamia sp.) and more than 10 new native melliferous trees planted. - Interest and motivation of the CBS cooperative members to develop the beekeeping value chain, including women. - Some CBS cooperative members are already beekeepers. - The CBS site is close to the Murambi village and easily accessible for the cooperative members	- Most of the CBS cooperative members are not practicing beekeeping and are not trained in this activity. - The cooperative has no building for honey extraction and storage, no beekeeping equipment and no experience for this activity. - Most of the native trees planted in the CBS will last years to grow and before producing large number of flowers. - Few beekeepers in the area (sector) and no other beekeeping cooperative in the sector. - According to some beekeepers, there is no or few demand for honey in the area/sector (4 km from the main road). - No beekeeping equipment and input providers/sellers in the district (only in Kigali). - There are few available bee colonies in the district, they have to be bought and transported from others Districts. - The CBS cooperative is not formally registered yet and poorly organized.
Opportunities	**Threats**
-The beekeeping activity can be profitable if it is well managed (e.g. 30 to 40 kg/y/beehive at 5,000 to 6,000 RWF/kg) - High national market demand for good quality honey. - The CBS has a full support from the local government (district and sector).	- Starting a new cooperative involved in beekeeping activities could be risky due to the low level of organization and governance of the cooperative, the lack of financial capacities, the lack of experience and skills of its members in the activity. - The site is slightly landlocked, 4 km (20 min by car) from a main road along a rough dirt track. It could impact negatively the market opportunities. - Low quality honey is difficult to sell at a good price, the demand for these products come from alcohol producers (brewers) with low prices (around 2500 RWF/kg). - The collaborative organization for beekeeping activities could lead to management problems and complications for the revenue sharing. - Local farmers use pesticides and others chemical than can kill bees. - Climate change can threaten the harvesting season (too much rain or prolonged dry season). . - Competition with the Tanzanian honey which is cheaper (3,000 RWF/kg) and available in the Rwandan market...

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
Coeff = Indice of importance (1 to 3)		**Beekeeping**	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	2	The site is easily accessible for the cooperative members and suitable for beekeeping. The site is located 4 km from a main road and not easily accessible for honey buyers. The CBS site is surrounded by agricultural fields with risks linked to pesticide use
2/ People interest, motivation, availability and confidence to develop the value chain	2	3	The cooperative members are highly motivated to develop the beekeeping VC in the CBS site. Most of them are confident in their capacity to start this new activity.
3/ Local skills to develop the value chain	2	1	No or very low capacities and skills in beekeeping. Few traditional beekeepers in the cooperative but they are not properly trained for modern beekeeping. Need a lot of basic training.
4/ Potential market and customers	3	3	High national demand for good quality honey. Potential customers (brewers, alcohol producers) for low quality honey at low prices. Very few local customers or potential buyers coming to the area (4 km from the main road).
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	2	Several threats and challenges due to the fact that the cooperative is new and not involved yet in the beekeeping VC. Modern beekeeping is a labor-intensive and technically demanding activity. Climate change impact, pesticides used in agriculture, etc.
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	2	The cooperative is starting from zero but seems quite dynamic with several members very motivated to develop the project. Several women and youth participated to the focus group and workshop and seems dynamic. The cooperative still needs to be formalized and the members trained on cooperative management.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	1	The cooperative has no financial investment capacities for a new and unsecured activity. The cooperative has not been trained yet on UMUSAVE revolving fund.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	2	For the moment, the cooperative is not producing honey. If the production starts and if the quality is good, there will be probably contracting opportunities with private companies.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**2,00**	

Synthesis of SWOT and VC scoring

Generally speaking, the development of a beekeeping value chain is possible in the CBS. We note, of course, that the cooperative is new and under construction, and that its members are not yet trained in the activity, which can be complex and demanding. But the site's location and general environment remain favorable to the pilot development of a beekeeping activity. The cooperative members are motivated and committed to develop this activity. The many challenges to be met can be anticipated and mitigated by close support from the cooperative and training and monitoring of the activity over a period of 1 to 2 years. An important point will be to put in place an organizational system to ensure good management of the apiary and motivating conditions for the involvement of the most interested members.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Beekeeping in Rwamagana/Muhazi CBS	**Feasible under certain condition (2)**	The development of beekeeping VC is feasible in the CBS but will require : i) strong training and capacity building of the members, ii) good and efficient internal organization for the activity, iii) securing a site and building a honey extraction and storage facility, iv) securing a market for the production.

5.1.4 Gahini (Kayonza)

SWOT analysis

The Bee Keeping VC in Gahini CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
- Suitable natural site for beekeeping with existing and divers melliferous vegetation and more than 10 new native melliferous trees planted. - Interest and motivation of the CBS cooperative members to develop the beekeeping value chain, including women. - Some CBS cooperative members are already beekeepers. - The CBS site is close to the Gahini village and easily accessible for the cooperative members	- Most of the CBS cooperative members are not practicing beekeeping and are not trained in this activity. - The cooperative has no building for honey extraction and storage, no beekeeping equipment and no experience for this activity. - Most of the native trees planted in the CBS will last years to grow and before producing large number of flowers. - Few beekeepers in the area (sector) and no other beekeeping cooperative in the sector. - No beekeeping equipment and input providers/sellers in the district (only in Kigali). - There are few available bee colonies in the district, they have to be bought and transported from others Districts. - Lack of ownership and capacities of some cooperative members. - The CBS cooperative is not formally registered yet and poorly organized.
Opportunities	**Threats**
-The beekeeping activity can be profitable if it is well managed (e.g. 30 to 40 kg/y/beehive at 5,000 to 6,000 RWF/kg) - High national market demand for good quality honey. - The CBS is situated close to the city of Kayonza and along a main road between Kigal and Akagera NP (market opportunities with tourists coming back from Akagera NP and others buyers). - The CBS has a full support from the local government (district and sector).	- Starting a new cooperative involved in beekeeping activities could be risky due to the low level of organization and governance of the cooperative, the lack of financial capacities, the lack of experience and skills of its members in the activity. - Low quality honey is difficult to sell at a good price, the demand for these products come from alcohol producers (brewers) with low prices (around 2500 RWF/kg). - The recreational activities for local population and ecotourism activities could be threatened by the presence of bees in the CBS (risk for humans). - The collaborative organization for beekeeping activities could lead to management problems and complications for the revenue sharing. - Tourists have others opportunities to by honey near the Akagera NP (Akagera community center). - Local farmers use pesticides and others chemical than can kill bees. - Climate change can threaten the harvesting season (too much rain or prolonged dry season). - Existing cases of theft of beehives in the village. - Competition with the Tanzanian honey which is cheaper and available in the Rwandan market...

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
Coeff = Indice of importance (1 to 3)		Beekeeping	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	1	The site is easily accessible and suitable for beekeeping. The site is close to a main road with potential restriction of distance for beehives installation (+50-100 from a road). If the site is used for recreational and ecotourism activities, there is a potential risk for humans linked to the beekeeping activity.
2/ People interest, motivation, availability and confidence to develop the value chain	2	2	The cooperative members are highly motivated to develop the beekeeping VC in the CBS site. Most of them are confident in their capacity to start this new activity.
3/ Local skills to develop the value chain	2	1	No or very low capacities and skills in beekeeping. Few traditional beekeepers in the cooperative but they are not properly trained for modern beekeeping. Need a lot of basic training.
4/ Potential market and customers	3	2	High national demand for good quality honey. Potential customers for honey with the proximity of Kayonza city (3 km), 2 hotels (300 m) and the main road to/from Akagera.
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	1	Production from existing beekeepers dropped Several threats and challenges due to the fact that the cooperative is new and not involved yet in the beekeeping VC. Modern beekeeping is a labour-intensive and technically demanding activity.
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	2	The cooperative is starting from zero, the President seems dynamic and several members are motivated to develop the project. Several women and youth participated to the focus group and workshop and seems dynamic. The cooperative still needs to be formalized and the
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	1	Most of the cooperative members are poor and cannot afford financial investment in a new and unsecured activity. There are no clear indications about their willingness to integrate the UMUSAVE revolving fund.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	2	For the moment, the cooperative is not producing honey. If the production is starts and if of good quality, there will be probably contracting opportunities with private companies.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**1,47**	

Synthesis of SWOT and VC scoring

The development of a beekeeping value chain is no recommended in the CBS, mainly because of its location close to a main road. The cooperative is new and under construction, and that its members are not yet trained in the activity, which can be complex and demanding.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Beekeeping in Gahini CBS	**Feasible but not recommended (1)**	The site could become a recreational area and is too close to a main road for the development of BK value chain (security issues).

5.1.5 Gatsibo Ryarubamba

SWOT analysis

The Bee Keeping VC in Gatsibo Ryarubamba CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
-Land is available at Sancta site for apiary and processing site installment, however the main apiary cannot be put on the Sancta site as per few challenges: distance to nearest school and habitations, proximity with agricultural fields, etc. -Site is easily accessible, near the main road -Water is available in the marshland -Proximity of eucalyptus forest whose owner is part of the Sancta	-Lack of knowledge on modern beekeeping and almost no beekeeper within the Sancta (except 1 practicing traditional beekeeping) -Lack of equipment for production, processing and packaging -Lack of beekeeping infrastructure such as processing unit and selling points -Proximity of agricultural fields and schools, and lack of other alternatives for an apiary site -Access to inputs is not guaranteed (equipment, feed, packaging, etc.)
Opportunities	**Threats**
-Political will to develop beekeeping in the country and Eastern Province -Policies and guidelines on small scale beekeeping available -Various type of melliferous plants available in the area (Imivumu, Umusilizi, Vernonia amygdalina, eucalyptus, etc.) and newly planted species with the support of ENABEL (although pollination potential will take few years) -Market is available locally and at all levels (sector, district, etc.) -Indigenous knowledge of plants and bee's health	-Various pests and diseases such as termites, wax moth, rodents, rat, birds, etc. -Climate change with longer drought period and impact on flowering and pollen -Important use of pesticides in nearby agricultural fields, some deadly to bees -Theft and robbery can present a serious threat if apiary left unprotected

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
*Coeff = Indice of importance (1 to 3)		Beekeeping	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	1	Land is available for beekeeping value chain development on the Sancta site for an apiary, but it is surrounded by other fields where farmers are working, and schools (from 50 to 200m around), as well as low protection from robbery in open land. Alternatively there is a eucalyptus forest near the site. Lack of water access.
2/ People interest, motivation, availability and confidence to develop the value chain	2	3	High interest for beekeeping, considered as a low labor intensive activity with high gain, but lack of awareness on challenges linked to commercial practice of beekeeping. Although interest is high, confidence is alterated due to lack of knowledge and experience on BK. Lower interest from young women.
3/ Local skills to develop the value chain	2	1	No skills are currently available among cooperative members, as there is only one beekeeper, practicing traditional method. Members have not received any training, and are not used to modern beekeeping practices.
4/ Potential market and customers	3	3	Honey market has a high attractivity potential in the area, especially because of traditional medicine culture, in which honey is believed to strenghthen immunity system and prevent illness. Honey is sold up to 3,500rwf/kg locally, but the price can be higher if processed and then sold in the city.
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	1	Traditional beekeepers in the area did not manage to collect honey in the past seasons. Causes commonly brought are climate change, high use of pesticides, predators (insects and birds), lack of protection from hives (theft and children damaging hives), and lack of eggs in the colony because of pollen's unavailability.
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	2	The cooperative's group, although of big size (72 members) and new, shows a quite mature approach to ideas and their potential operationalisation. However, committes are taking the lead and other members are less participative/involved. Special caution due to the fact that the village president is also the Sancta president, that can lead to conflict of interest. Women seem to have special place within the cooperative, due to several women with educational level.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	2	Due to the fact that village president is also the Sancta cooperative's president, there is potential for co-investment, through land, additional work, or even through direct investment. There is however potential risk of conflictual situation.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	2	There is no specifically identified opportunity of collaboration with a professional actor of the value chain, but cooperative members could be encline to collaborate with an external purchaser if agreement was benefitial, to ensure market access and commercialisation.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**1,89**	

Synthesis of SWOT and VC scoring

The CBS site is located in a farming area, surrounded by productive lands with several crops under production (roots, tubers, vegetables), with a consequent use of harmful pesticides. The site is located where a forest used to stand, but there is no remain of the previous forest. Nearby the site there is however a small eucalyptus forest. CBS members are aware of the importance of reviving the ancient forest, and raising awareness on reducing pesticide use. Another challenge is linked to proximity of the site to schools, thus limiting potential for implanting an apiary. Despite these challenges, sancta members are highly motivated for beekeeping development, and are undergoing efforts to identify and secure suitable site for apiary instalment.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Beekeeping in Gatsibo RyarubambaCBS	**Feasible under certain condition (2)**	The development of beekeeping VC is feasible in the CBS but will require : i) strong training and capacity building of the members, ii) good and efficient internal organization for the activity, iii) securing a site and building a honey extraction and storage facility, iv) verification and

		adaptation of the compatibility of the beekeeping activity with other recreational and ecotourism activities

5.1.6 Nyagatare Karushuga

SWOT analysis

The Beekeeping VC in Nyagatare Karushuga CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
-Water availability from the river -Wide range of diverse plant and tree species from Karushuga forest including melliferous species -Honey from Karushuga area is famous for quality and uniqueness in the district/province -Strong know-how based on former beekeeping cooperative with half of the CBS members trained and experienced on beekeeping -Local use of honey for medicinal purpose	-Lack of knowledge in modern beekeeping (high bee mortality in recent years from modern beehives) -Limited investment capacity with limited other economic sources -Inadequate equipment for modern beekeeping -Lack of beekeeping infrastructures (Apiary, processing site, selling point) -Use of pesticide in nearby production fields -Low price in the village, as compared to city price, but remoteness induces transportation costs
Opportunities	**Threats**
-Political will to develop beekeeping -RAB and ICRAF will support beekeeping development in the area -Potential for high productivity increase thanks to modern beekeeping management (if trained and supported) -Potential for bee products as honey wax (candles, cream), propolis, etc. -Various type of melliferous plant species planted through COMBIO project -Indigenous beekeeping knowledge -Available market: local, provincial, national, and international	-Pests such as termites, wax moth and ants predating on bees -Climate change with longer drought period, scattered rains, delayed flowering -Robbery of honey or hives -High pesticide use from nearby farms (along Karushuga forest) used for tomato, potato and maize -High mortality of bees in the past 2-3 years with low to no harvest, due to several factors: misuse of modern hives, pesticides, etc. -Projects such as the extension of Gabiro Agri-hub and future Tanzania border, threatening Karushuga forest

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
Coeff = Indice of importance (1 to 3)		Beekeeping	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	3	Site proximity to Karushuga forest with diverse range of trees and melliferous species present a strong potential for beekeeping, however due to distance to village, sancta members fear to keep hives in the forest (thefts). Water access is also nearby with Akagera river. Land is however limited, and installation of modern beehives/apiary can be complicated. Proximity to road is an asset although it is not in good condition. Proximity to Gabiro Hub and Qatar project can be opportunities for selling along the way.
2/ People interest, motivation, availability and confidence to develop the value chain	2	3	High interest from sancta members, with a basis already anchored. Specific interest rose from women as well, may be sligthly less for youth. Due to former project, investor and organisational mistakes, members of former BK cooperative have never received any yield or income in years of work, as production's earnings were used in the cashbox as saving and investment fund. Cooperative's president (also village chief) is suspected by others of misappropriation. Current sancta group is highly inclusive, aware and motivated, but the former BK's coop seems too involved in the sancta's development (through wife in Executive Committee) which can cause mistrust and management issues.
3/ Local skills to develop the value chain	2	3	At least half of the sancta's members have been part of a beekeeping cooperative (KOTEKA) since 2 to 8 years, and have been trained by ICRAF through training of trainers. Since FAO's support to shift to modern beehives, know how has not been acquired on modern beekeeping management and skills are lacking on modern beehives, leading to high bee colony mortality rate.
4/ Potential market and customers	3	2	Honey being integrant part of illness prevention, customers are easy to find in the village, on the main road (people passing from/to Gabiro center, etc.), in the city of Nyagatare, and elsewhere. Selling rate varies according to market trend. Honey sold locally was around 4,000rwf/kg, and at sector level around 7,000/kg. Other beekeepers were also selling unprocessed honey to the BK cooperative for around 2 500/kg)
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	2	Production from existing beekeepers dropped consequently since 2022 because of climatic events with longer and stronger rains and droughts, affecting blossoming capacity of trees and this access to bee feed/pollen. Other threats include predators, such as big ants who killed entire bee colonies, land access to put hives and proximity with inhabitants (1 kid killed in fatal bee attack). Use of pesticides is also a major threat to bee colonies (rocket, cyperméthrine), as well as cattle treatment contaminating bees.
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	2	The group is of adequate size (25 members) with great diversity of members (gender, age, etc.) and understanding of beekeeping potential and threats due to big part of members being beekeepers. Leadership is quite shared and ideas were fast to emerge. However, point of attention is put on involvement of former BK coop's chief (village chief), that can create tensions. Support will be required to the sancta to get better structured for BK activity's success.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	2	As several of the sancta members have been part of the BK cooperative, hives and equipment (production + processing) have been acquired from former support (such as 20 landslot hives from FAO/RDB, 13 hives bought by the coop). It is however unclear, now that the BK cooperative is being dismantled, if the former members will get equipment back from the cooperative's president. Sancta members are also suggesting to undergo similar revolving fund mechanism as BK cooperative, by saving most yields into the main cash register, used for most operational needs.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	1	Former experience in 2020-2022 of BK cooperative with private company, KAYTANA, failed and led to mistrust and cash loss (up to RWF 2 million) as initial division of 70% earning for the company by provding equipment and market, and 30% for the cooperative, was not respected and the cooperative was not paid for honey provision. This enhanced distrust of members and villagers in private investors.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**2,26**	

Synthesis of SWOT and VC scoring

On the shores of Akagera river, and just by Karushuga forest, where the past years regeneration and afforestation efforts have led to a renewed stock of species diversity, including a range of melliferous species. Beekeeping also has a great potential due to the fact that almost half of the Sancta's members

were part of a beekeeping cooperative, and despite failure of the former, they benefited training and experience. Specific caution on relationship and trust management within the CBS, as per members of the former BK cooperative suspected of misappropriation, so members will need a strengthened support in restructuring, especially as part of the members are trained and experienced, and others are new to the activity.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Beekeeping in Nyagatare Karushuga CBS	**Recommended (3)**	The development of beekeeping VC is recommended in the CBS, due to the big quantity of feed stock in the area, and important know how and knowledge from part of the CBS members. It will still require (i) training and capacity building of the members through mentorship within the group (with trained beekeepers training new beekeepers), ii) good and efficient internal organization for the activity, iii) securing a site and building a honey extraction and storage facility

5.2 CBSs in development

Community biodiversity Sanctas (CBS) in development have observed a different methodology than in the already established CBS, due to several factors:

- Recent nature of the group with only one call for volunteers to join the cooperative, the focus group discussions held were often the first meeting for every group;
- Most of CBS cooperatives were not yet registered;
- ENABEL's support had not started, with the temporary nursery instalment and first planting season planned in fall 2024;
- Topics were still new to most of CBSs members, because of the above factors.

In this context, SWOT analysis in CBSs in development mainly consisted in (i) focus group discussions with 8 to 15 members, based on rationale behind their involvement in the cooperative, collective and individual goals, site & village context and potential / threats, expected activity development, etc. ; (ii) site visits ; sometimes completed by (iii) stakeholders or complementary site visits in the nearby areas.

The Beekeeping VC has been analyzed based on a SWOT framework, based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Rwamagana Bicumbi / Nzige

Strengths	Weaknesses
-Land is available at Sancta site for apiary and processing site installment - Mostly forestry area, with two forests: former State forest kept untouched with wide density and diversity of trees and plant species, including melliferous, and exploited forest by villagers -Site is reachable from the main road -Water source is available nearby the site -Area surrounded by forests, with reduced threats from pesticide use	- Most of the CBS cooperative members are not practicing beekeeping and are not trained in this activity - Local forest on the right side of the road, part of the Sancta, is used by villagers for various activities (construction material such as stones and sand, fire or timber wood, etc.) which can lead to conflictual situation -Lack of equipment for production, processing and packaging -Lack of beekeeping infrastructure such as roof on modern hives, processing unit and selling points -The CBS cooperative is not formally registered yet and poorly organized.
Opportunities	**Threats**
-Political will to develop beekeeping in the country and Eastern Province -Various type of melliferous plants available in the area	-Lack of knowledge on pests and diseases -Climate change with longer drought period and impact on flowering and pollen -Starting a new cooperative involved in beekeeping activities could be risky due to the low level of organization and governance of the cooperative, the lack of financial capacities, the lack of experience and skills of its members in the activity.

Kayonza Gisunzu

Strengths	Weaknesses
- Suitable natural site for beekeeping with water access and existing melliferous vegetation in the Akagera NP and its buffer zone (to be restored) -Interest and motivation of the CBS cooperative members to develop the beekeeping value chain, including women. - the CBS site is close to a main road and to the Gisunzu village and easily accessible for the cooperative members - Existence of a beekeepers' cooperatives' Union with extraction equipment close to the Akagera Community Center (but quality and market problems)	- None of the CBS cooperative members are practicing beekeeping and none of them are trained in this activity. Even in the village (10 beekeepers), none of them is trained to modern beekeeping. - The cooperative has no building for honey extraction and storage, no beekeeping equipment and no experience in this activity. - Most of the native trees planted in the CBS and the Akagera NP buffer zone will last years to grow and before producing large number of flowers. - No beekeeping equipment and input providers/sellers in the district (only in Kigali). - The CBS cooperative is not formally registered yet and poorly organized.
Opportunities	**Threats**
-The beekeeping activity can be profitable if it is well managed (e.g. 30 to 40 kg/y/beehive at 5,000 to 6,000 RWF/kg) - High national market demand for good quality honey. - The CBS is situated along a main road and close to the Akagera NP Southern entrance (market opportunities with lodges and tourists coming back from Akagera NP). - The CBS has a full support from the local government (district and sector).	- Starting a new cooperative involved in beekeeping activities could be risky due to the low level of organization and governance of the cooperative, the lack of financial capacities, the lack of experience and skills of its members in the activity. - Low quality honey is difficult to sell at a good price, the demand for these products come from alcohol producers (brewers) with low prices (around 2500 RWF/kg). - The recreational activities for local population and ecotourism activities could be threatened by the presence of bees in the CBS (risk for humans). - The collaborative organization for beekeeping activities could lead to management problems and complications for the revenue sharing. - Tourists have others opportunities to by honey near the Akagera NP (Akagera community center). - Local farmers use pesticides and others chemical than can kill bees. - Climate change can threaten the harvesting season (too much rain or prolonged dry season). - Competition with the Tanzanian honey which is cheaper and available in the Rwandan market...

Gatsibo Gitoki

Strengths	Weaknesses
-Land is available at Sancta site for apiary and processing site installment, but quantity and diversity of melliferous plant species are limited-Site is very close to the main road, shops, and near Gatsibo market -CBS group is quite strong, diverse and inclusive, with great and high education background members -Water source is available nearby the site -State forest with potential for bee pollination, that bees should be able to access	-Lack of knowledge on modern beekeeping, even though some beekeepers within the Sancta are practicing traditional beekeeping - The cooperative has no building for honey extraction and storage, no beekeeping equipment and no experience for this activity -Lack of beekeeping infrastructure such as roof on modern hives, processing unit and selling points -Proximity of agricultural fields -Lack of dedicated time for honey collection, as at the same time of other farming and commercial activities -Lack of forest areas and pollen stock nearby the site
Opportunities	**Threats**
-Political will to develop beekeeping in the country and Eastern Province -Various type of melliferous plants available in the area (Imivumu, Umusilizi, Vernonia amygdalina, eucalyptus, etc.) and newly planted species with the support of ENABEL (although pollination potential will take few years) -Highly favorable market access by the CBS, with shops selling honey as well as main Gatsibo market on Wednesdays (both wholesale and retail)	-Various pests and diseases such as termites, wax moth, rodents, rat, birds, etc. -Climate change with longer drought period and impact on flowering and pollen -Important use of pesticides in nearby agricultural fields, some deadly to bees (rocket, Permethrin, etc.) -Market competition, with a local beekeeping cooperative on the other side of the mountain -CBS group is quite big (more than 100 members), which will make it difficult to manage activities and members

Kirehe Gahara

Strengths	Weaknesses
- Strong enthusiasm from the community - There is a private beekeeper who is also a renowned trainer (Medard) in the same sector - Various CBC members are beekeepers, mostly traditional, but with a general idea of how to shift to modern - Honey harvesting can be done twice a year	- The vegetation is scarce on the site. Planted species may be melliferous, but the establishment of suitable vegetation might take time - Water is not directly available on site - The site is located in a remote place with very few visitors
Opportunities	**Threats**
- Huge production gap to fill in Rwanda, and the market is growing (people are shifting from cane sugar to honey)	- Common pests are always a threat

Ngoma Rukumberi

Strengths	Weaknesses
- Strong enthusiasm from the community - The CBS is located close to Kigali, with a huge potential market and high prices (RWF 8000/Kg), and a better availability of inputs and training - Various CBC members are beekeepers, mostly traditional, but with a general idea of how to shift to modern - Honey harvesting can be done twice a year	- The vegetation is scarce on the site. Planted speciied may be melliferous, but the establishment of suitable vegetation might take time - Water is not directly available on site
Opportunities	**Threats**
- Huge production gap to fill in Rwanda, and the market is growing (people are shifting from cane sugar to honey) - The road is being modernized, and Rukumberi will be an import passage point between Bugesera/Kigali and Ngoma	- Common pests are always a threat - Beware of security issues (thieves?) - The presence of hippos in the nearby wetland can be a problem

Bugesera Rilima Kamabuye

Strengths	Weaknesses
- Suitable site for beekeeping with existing eucalyptus forest and Vernonia amygdalina trees. - Interest and motivation of the CBS cooperative members to develop the beekeeping value chain. - Before 2015, a World Vision project supported a cooperative in bekeeping activities (60 modern behives, 32 were productive) until the activity was forbiden for military issues in the CBS area (to be clarified?) - There are at least 8 trained beekeepers in the cooperative, some of them are already members of another beekeeping cooperative near the lake.	- The restauration process of the CBS plans to replace the eucalyptus with native trees. These trees will last years to grow and produce enough flowers. - The cooperative has no building for honey extraction and storage, no beekeeping equipment. - No beekeeping equipment and input providers/sellers in the district (only in Kigali). - The CBS cooperative is not formally registered yet and poorly organized.
Opportunities	**Threats**
-The beekeeping activity can be profitable if it is well managed (e.g. 30 to 40 kg/y/beehive at 5,000 to 6,000 RWF/kg) - High national market demand for good quality honey. - Even it is not along a main road, the village is not very far from Kigali which is the main national market for honey - The CBS has a full support from the local government (district and sector).	- Starting a new cooperative involved in beekeeping activities could be risky due to the low level of organization and governance of the cooperative, the lack of financial capacities, the lack of experience and skills of its members in the activity. - Low quality honey is difficult to sell at a good price, the demand for these products come from alcohol producers (brewers) with low prices (around 2500 RWF/kg). - The collaborative organization for beekeeping activities could lead to management problems and complications for the revenue sharing. - Local farmers use pesticides and others chemical than can kill bees. - Climate change can threaten the harvesting season (too much rain or prolonged dry season). - Competition with the Tanzanian honey which is cheaper and available in the Rwandan market...

5.3 General Beekeeping Value Chain recommendations

1. **Support progressive shift from traditional to modern beekeeping.**

Shifting from traditional to modern BK is challenging, since modern BK requires a higher understanding of bee colonies, e.g. for queen management, to avoid untimely swarming, etc. Because of this, starting with modern BK can be frustrating for beekeepers used to traditional methods. It is therefore recommended that modern BK be introduced gradually, starting with a few experimental beehives to allow CBC members to acquire the necessary knowledge and skills before upscaling production.

This situation is all the more true and marked in the case of CBCs that had little or no traditional beekeeping in the past. In such cases, the very basics of beekeeping and the functioning of a bee colony need to be taught. What's more, when beekeeping is not widely practised in a village, its introduction must be considered in a very gradual and modest way.

2. **Provide constant follow-up and continuous training, during the first year of modern BK introduction.**

While the basic skillset for modern beehive management can be acquired in a short timeframe of 5 days, the minimum training to achieve autonomy is estimated to be at least 30 days. The complete development of BK skills to reach full productivity typically requires several years of practice and informed observation.

For example, pest management success heavily relies on early detection and the timely application of corrective measures. These skills should be acquired through initial training and hands-on practice with the adequate technical assistance,

We therefore recommend that the project implement a thorough capacity building strategy, with various sessions of initial training implemented before the first harvesting season, and a constant follow-up and reinforcement afterwards, e.g. through peer-to-peer training, field visits in successful cooperatives, etc.

Based on this training, cooperative members should be able to identify and implement an apiary management model adapted to the local context, human capacities and objectives of the cooperative.

3. **Prevent, detect, and address external threats early, and engage the community.**

External threats such as pesticides application, loss of habitat (e.g. areas bearing important melliferous species) typically arise from the action of external stakeholders. In most cases, simple actions can be taken to mitigate the risks. For example, pesticide applications can be diminished and done in the late afternoon when bees are getting back to the safety of their hives.

The fact that CBC members are typically composed of farmers owning neighboring lands is a risk mitigation factor, since it means that internal regulations can be adopted to protect bee colonies within the CBS.

External actors, however, should be sensitized to the importance of bees (e.g. for the pollination services they provide), and informed about the risk mitigation measures that can be implemented. We therefore recommend that the project supports the participative elaboration of sensitization strategies that should be implemented by CBC members. This support should include financing some basic outreach materials such as posters to display in administrative offices, churches, and schools.

4. **Support professional and quality standards operationalization while adapting to smallholder's context (simple use material, processes, etc.)**

Considering the technical requirements of RSB certification, and the implications of these requirements in terms of investments, organizational and management skills, etc., achieving such certification for CBS produced honey seems unrealistic in the short-term. However, we recommend that the project would open the way for future upgrading, by including training on professional honey processing and standardization.

This training should be adapted to local conditions: whereas achieving industrial hygiene standards would be unrealistic, simple but efficient hygiene and sanitary precautions and traceability rules can be easily implemented.

5. **Explore flexible marketing and sales models for honey and other bee products.**

In most cases, locally produced "traditional" honey is sold locally and even rural cooperatives seldom have a proactive marketing strategy, waiting for buyers to come and buy the production directly at household or warehouse level. We recommend that the support to CBC include the participatory development of active marketing strategies, e.g. targeting markets at district or sector level, actively promoting the products in local shops, etc.

In some cases, selling part of the production to (wisely chosen) intermediaries (which can also be cooperatives) can be a good option to increase sales. These associations should rely on clear terms and conditions, with informed price negotiations.

6. **Provide capacity development in business/apiary management and financial skills**

The pricing of honey is still mainly based on the traditional model, with a strong emphasis on harvesting and processing labor but no integration of other production costs like the acquisition of modern equipment and other labors. While the increased productivity of modern BK theoretically compensates for these increased costs, it is important that CBC members have clarity on the real cost of their honey so they can ensure that pricing is optimized for profitability and competitiveness.

We therefore recommend that training includes participatory assessment of the financial balance of honey production and marketing, among other financial literacy skills.

6 SWOT analysis for the ecotourism value chain

6.1 Established CBSs

6.1.1 Ngoma Zaza

SWOT analysis

The ecotourism VC in Ngoma Zaza CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
- The CBS is not very far from Zaza city, with many catholic establishments (schools, seminaries, etc.) that could provide a small demand for tourism. - Kigali is only 2 hours away	- No skills or knowledge whatsoever in the cooperative. - No visitors come to the CBS - The development of the activity could imply significative investments, permanent presence, and maintenance will be required
Opportunities	**Threats**
- The road to Bugesera is being improved, thus providing a better and direct access to Kigali - The new airport in Bugesera could result in increased visitors influx	- The development of a touristic attraction may not be profitable due to insufficient frequentation

Synthesis of SWOT and VC scoring

The decision not to explore ecotourism as an option in Ngoma Zaza was primarily influenced by several factors. These include the remote location of the CBS, inadequate transportation infrastructure, limited accommodation options, and the absence of scenic attractions comparable to established tourist destinations. Despite its natural beauty, Ngoma Zaza lacks the features necessary to attract significant tourist traffic.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Ecotourism in Ngoma Zaza CBS	**May be feasible but not recommended (1)**	Ngoma Zaza CBS may have potential in the long-term if the road construction and the new airport bring the expected opportunities. In the short-term however, the VC development seems too risky to recommend.

6.1.2 Kirehe Rusumo

SWOT analysis

The ecotourism VC in Kirehe Rusumo CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
- The Rusumo hill has already been remarked by the RDB as a tourist site in Kirehe - The name of the hill is appealing, it means the young lady's breast (Ibere ry'inkumi) - Trails and steps are already planned by ENABEL, the creation of a botanical circuit and the training of a guide are planned by ENABEL	- No skills or knowledge whatsoever in the cooperative. Only one cooperative member has been tourist once - There is no accommodation nor any touristic attractions functioning locally - There is currently very few people interested in the ascension of the hill, perhaps 50 persons per year - The cooperative's land doesn't have a direct access to the road, nor a possibility to propose parking area - The development of the activity could imply significative investments, permanent presence, and maintenance will be required
Opportunities	**Threats**
- The conservation of the hill will make it more attractive to tourists (shade provided by trees, wildlife may come back) - The activity can be combined with others (apitourism, handicrafts made of beeswax, etc.) - The proximity of the border implies that many trailers are stopped nearby and the drivers could be interested in visiting the hill - Youngsters with IT, social media and communication skills in the surrounding villages might engage in the activity.	- The development of a touristic attraction may not be profitable due to insufficient frequentation

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
*Coeff = Indice of importance (1 to 3)		Ecotourism	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	3	The CBS is located on a site earmarked withind RDB's master plan for touristic development, with a potential for sight seeing, and the proximity with the Tanzanian border is considered an asset. However, there is a strong lack of supporting ecosystem locally
2/ People interest, motivation, availability and confidence to develop the value chain	2	2	CBC members have showin interest in ecotourism development but remain prudent in terms of expectations since, there is no clarity on what could/should be done. The activity is percieved as high investment and high risk.
3/ Local skills to develop the value chain	2	0	There is nobody in the CBC with the necessary skills and experience to start with the activity
4/ Potential market and customers	3	2	The development of ecoturism would nearly exclusively rely in the transit already occuring because of the proximity with Rusumo border. There is no touristic offer nearby to attract newcomers
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	2	There is no specific threats, but a lot of challenges to overcome. The development of ecotourism woul place the CBS in a position of an unprepared first mover.
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	2	The CBC is still in early stages of its development, although its dynamism is acknowledgeable.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	1	The CBC is already implementing collective saving schemes for fuyure investments. However, the ecotourism value chain is percieved as high risk and require higher ivestments, that CBC members cannot provide.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	2	No such actors were identified, but the fact that the site has been earmarked for touristic development implies that there is a public support in favor of touristic investments in the area.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**1,79**	

Synthesis of SWOT and VC scoring

The “Ibere ry'inkumi” hill is a beautiful site with scenic landscapes on the Akagera river floodplain. Its proximity with Rusumo border with Tanzania and the Rusumo falls, and hydropower plant motivated the District authorities and RDB to earmark is as a priority site for tourism development.

However, Ecotourism development in the Kirehe Rusumo CBS should proceed cautiously due to the lack of skills within the CBS and absence of existing tourism initiatives in the area. Initial investments should focus on small, low-cost accommodations such as hiking tracks and scenic viewpoints to attract visitors. Securing road access and parking facilities through collaboration with neighboring landowners is a priority, along with the installation of road signs for increased visibility. Close coordination with district authorities is essential to promote the site to external investors and facilitate further tourism development.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Ecotourism in Kirehe Rusumo CBS	**Feasible under**	The "Ibere ry'inkumi" hill near Rusumo has potential for tourism, but development should proceed cautiously due to

	certain condition (2)	limited local skills and existing initiatives. Initial investments should focus on low-cost accommodations and amenities to attract visitors, while securing road access and promoting the site. Further development would necessarily require collaboration with authorities and neighboring landowners and the participation of external investors.

6.1.3 Rwamagana Muhazi

The map below shows the location of several hotels and lodges around the Muhazi Lake. It gives an idea of the high competition level in the area for any new project with accommodation and/or food.

SWOT analysis

The ecotourism VC in Rwamagana Muhazi has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
- Beautiful site next to the natural lake of Muhazi. - The native trees planted in the CBS seems to grow well, the forest restauration process is ongoing. - The cooperative members are committed and motivated to implement the ecotourism VC in the CBS. - Some people in the cooperative are skilled in cultural arts. - Some people in the cooperative have skills in boat driving. - Some people in the cooperative know historical stories about the lake and the area.	- The CBS site is not along the main road and the access is difficult for short stops (4 km, 20 min from the main road). - The cooperative members have no experience, no facilities, no equipment and very low capacities for ecotourism activities. - The cooperative members do not have the basic requirements to interact with foreign visitors (English or French language). - The cooperative members lack sufficient knowledge about the lake Muhazi, its environment, biodiversity and the newly indigenous trees planted. - There are already several private hotels and restaurants around the lake Muhazi with a professional touristic offer for visitors. - It is not allowed (and dangerous) to swim in the Muhazi lake without an appropriate monitoring system and special permits
Opportunities	**Threats**
- An ecotourism project could create jobs for youth and women. - The proximity of the lake Muhazi brings opportunity to develop water-based tourism products (fishing, boat rides, bird watching, swimming, etc.) - The CBS site could be used for conservation-education activities (exchange learning visits, school field visits, botany courses, etc.)	- Ecotourism is a competitive sector which requires high investment and management capacities and specific skills that could be very difficult to reach for a local and newly created cooperative. - There are others bar-restaurants-hotels around the lake, it could be very difficult for the CBS cooperative to compete with them for drink, food, accommodation and others touristic offers. - According to the law N°48/2018 of 13/08/2018 on Environment, no activities or buildings are authorized in a 50 m buffer zone around the lake, except activities aiming at protecting lakes,

- Possibility to create hiking and biking trails in the CBS. - Possibility of creating an “ecomarket” and selling agricultural products. - The CBS has a full support from the local government (district and sector).	rivers, shores or activities authorized by the Minister in charge of Environment - For foreign visitors, the site has no unique product or service to offer (competition with Akagera NP and others sites in Rwanda). - Lack of strong domestic tourism in the area.

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
Coeff = Indice of importance (1 to 3)		Ecotourism	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	2	The site has natural environment interesting for ecotourism and water-based activities (lake Muhazi). The site accessibility is not good for short stops and medium for few hours or 1 day visits : 20 min (4 km) from the main road in Rwamagana. If the site is used for recreational and ecotourism activities, there is a potential risk for humans linked to the beekeeping activity.
2/ People interest, motivation, availability and confidence to develop the value chain	2	2	The cooperative members are highly motivated to develop the ecotourism VC in the CBS site. However, most of them seems to have no clear idea about what (and how) could be developed in terms of offer, products and activities for tourists in the CBS
3/ Local skills to develop the value chain	2	0	No capacities and skills in ecotourism. Low knowledge about ecosystems and biodiversity of the lake Muhazi. No knowledge about the native trees’ species planted in the CBS. Very low English and French speaking capacities.
4/ Potential market and customers	3	1	The site has nothing exceptional to attract international tourists going or coming back from Akagera NP. The sector is highly competitive with existing hotels-bar-restaurants nearby. There are doubts about the prospects for developing an ecotourism activity on the
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	1	Several threats and challenges due to the fact that the cooperative is new and has no skills and capacities in ecotourism. A project in ecotourism would need important investment, management and marketing capacities that the cooperative does not have. For accommodation, food and drinks, the proximity of others restaurants-hotels, could be a strong limitation (competition).
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	2	The cooperative is starting from zero but seems quite dynamic with several members very motivated to develop the project. Several women and youth participated to the focus group and workshop and seems dynamic. The cooperative still needs to be formalized and the members trained on cooperative management.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	1	The cooperative has no financial investment capacities for a new and unsecured activity. The cooperative has not been trained yet on UMUSAVE revolving fund.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	1	There are already several hotels and restaurants around the lake. There are no evidence that the location could attract a new operator in the sector.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**1,26**	

Synthesis of SWOT and VC scoring

On the shores of Lake Muhazi, the CBS site offers a beautiful view and a calm place for rest. Plantations of native trees could be used to develop botanical trails and a nature-oriented tourism offer. However, the site is not easily accessible (4 km, 20 min by car), the cooperative is new and its members have no tourism skills, making it difficult to envisage a touristic project in this sector. There are also several hotels and restaurants around the lake Muhazi which make the sector highly competitive. In our opinion, it is not recommended to develop the ecotourism VC in this site.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Ecotourism in Rwamagana Muhazi CBS	**May be feasible but not recommended (1)**	The development of ecotourism VC is not recommended because of : i) the site location (difficulty of access), ii) the competition in the ecotourism sector in the area of lake Muhazi, iii) the low capacities of the cooperative for this kind of activities.

6.1.4 Gahini (Kayonza)

SWOT analysis

The ecotourism VC in Gahini CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
- The CBS site is along a main road with easy access and many tourists going and returning from the Akagera NP (52,000 visitors in 2023). - Very beautiful site next to the natural lake of Muhazi, some tourists make stops to see the lake. - The native trees planted in the CBS seems to grow well, the forest restauration process is ongoing. - According to the cooperative leaders, one young member is trained in hospitality management. - The cooperative members are ambitious, committed and motivated to implement the ecotourism VC in the CBS.	- The cooperative members have no experience, no facilities, no equipment and very low capacities for ecotourism activities. - The cooperative members do not have the basic requirements to interact with foreign visitors (English or French language). - The cooperative members lack sufficient knowledge about the lake Muhazi, its environment, biodiversity and the newly indigenous trees planted. - Most of the foreign tourists are going to Akagera NP without long stop in the road from or to Kigali. They have others opportunities near the Akagera NP for community-based tourism. - There are already several private hotels and restaurants around the lake Muhazi with a professional touristic offer for visitors, two of them are close to the CBS (Jambo Beach and Seeds of Peace Center) - It is not allowed (and dangerous) to swim in the Muhazi lake without an appropriate monitoring system and special permits - Lack of a stop over and a good branding of the CBS
Opportunities	**Threats**
- The CBS has a good accessibility along a main road that brings opportunities to attract tourists for CBS visit and/or selling products (honey, dried medicinal plants, essential oils, seedlings, etc.) - The CBS site is close to the Kayonza city which has several hotels that could be potential partners for ecotourism VC - The Jambo beach bar-restaurant-camping and the Seeds of Peace Center are close to the CBS and receive many tourists, mostly nationals. They propose drinks, food, camping, accommodation and boat tours. - The proximity of the lake Muhazi brings opportunity to develop water-based tourism products (fishing, boat rides, bird watching, swimming, etc.) - The CBS site could be used for conservation-education activities (exchange learning visits, school field visits, botany courses, etc.)	- Ecotourism is a competitive sector which requires high investment and management capacities and specific skills that could be very difficult to reach for a local and newly created cooperative. - The Jumbo beach bar-restaurant-camping and the Seeds of Peace Center are the main points of interest for tourists in the area, it could be very difficult for the CBS cooperative to compete with them for drink, food, accommodation and others touristic offers. - According to the law N°48/2018 of 13/08/2018 on Environment, no activities or buildings are authorized in a 50 m buffer zone around the lake, except activities aiming at protecting lakes, rivers, shores or activities authorized by the Minister in charge of Environment - For foreign visitors, the site has no unique product or service to offer (competition with Akagera NP and others sites in Rwanda). - Lack of strong domestic tourism in the area.

- Possibility to create hiking and biking trails in the CBS. - Idea of developing an organic farming around the CBS and an eco-market setting along the road. - The CBS has a full support from the local government (district and sector).	

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
Coeff = Indice of importance (1 to 3)		Ecotourism	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	3	The site is easily accessible and interesting for ecotourism and water-based activities (lake Muhazy). The site is along a main road between Kigali and Akagera NP (52 000 visitors in 2023) If the site is used for recreational and ecotourism activities, there is a potential risk for humans linked to the beekeeping activity.
2/ People interest, motivation, availability and confidence to develop the value chain	2	3	The cooperative members are highly motivated to develop the ecotourism VC in the CBS site. However, most of them seems to have no clear idea about what (and how) could be developed in terms of offer, products and activities for tourists in the CBS
3/ Local skills to develop the value chain	2	1	No capacities and skills in ecotourism. Low knowledge about ecosystems and biodiversity of the lake Muhazi. No knowledge about the native trees' species planted in the CBS. Very low English and French speaking capacities.
4/ Potential market and customers	3	2	Potential customers with the proximity of 2 hotels (300 m) and the main road to/from Akagera. The sector is highly competitive with existing hotels-bar-restaurants nearby. The site has nothing exceptional to attract international tourists.
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	2	Several threats and challenges due to the fact that the cooperative is new and has no skills and capacities in ecotourism. A project in ecotourism would need important investment, management and marketing capacities that the cooperative does not have. For accommodation, food and drinks, the proximity of Jambo Beach restaurant and Seeds of Peace restaurant, could be a strong limitation (competition).
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	2	The cooperative is starting from zero, the President seems dynamic and several members are motivated to develop the project. Several women and youth participated to the focus group and workshop and seems dynamic. The cooperative still needs to be formalized and the members trained on cooperative management.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	1	Most of the cooperative members are poor and cannot afford financial investment in a new and unsecured activity. There are no clear indications about their willingness to integrate the UMUSAVE revolving fund.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	2	For the moment, it is not clear if the site could intest some professional stakeholder in tourism. It will probably depend on the conditions proposed and the analysis of the competitors in the area.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**2,00**	

Synthesis of SWOT and VC scoring

On the shores of Lake Muhazi, the CBS site offers undeniable ecotourism potential, thanks in particular to its easy accessibility, favorable environment and nice view on the lake . Plantations of native trees could be used to develop botanical trails and a nature-oriented tourism offer. However, the cooperative is new and its members have no tourism skills, making it difficult to envisage a community project in this sector. The CBS is also very close to 2 well-known restaurant-bars that also offer accommodation solutions, which would constitute strong competition. In our opinion, any possible ecotourism project should involve an investor and professional stakeholder in the sector such as a private company or a

specialized NGO. The construction restrictions in the buffer zone of the lake are an important issue that could be managed by promoting a project with small buildings using natural materials such as bamboos and/or timber.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Ecotourism in Gahini CBS	**Feasible under certain condition (2)**	The development of ecotourism VC is feasible in the CBS but will require : i) a partnership with a private company or specialized NGO as a principal investor. ii) special building authorizations in the buffer zone of the lake and/or a project based on the use of natural materials, iii) identification and capacity building of young and motivated people in the cooperative.

6.1.5 Gatsibo Ryarubamba (Rubona)

SWOT analysis

The ecotourism VC in Gatsibo Ryarubamba CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
-Sancta site by the main road with easy accessibility -Important indigenous knowledge of plants and specifically medicinal plants and their cultural and traditional usage with several traditional healers -Knowledge of foreign languages from some of the Sancta members -Awareness on importance of native plant and tree species within the group, specifically because of high ecosystem degradation in the area, and cultural importance of local pharmacopeia -Women's leadership, including young women with interesting educational background	-No specific potential for attractivity in the area nor on the Sancta site, mainly agricultural land -No landscape uniqueness on the Sancta site or around -Former forest on Sancta site, deforested, and site exposed to soil erosion and landslides -Lack of knowledge on hosting visitors, basic services, etc.
Opportunities	**Threats**
-Research and study fields linked with secondary schools nearby, and regular visits from university students, can provide opportunity for a gathering place (coffee shop, restaurant, etc.) -Future pharmacopea activities in the Sancta can provide opportunities for pedagogical and commercial activities	-Current governance and model are too nascent to handle private actor relationship -Lack of experience on ecotourism coupled with a new structure are risky for this activity

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
Coeff = Indice of importance (1 to 3)		Ecotourism	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	1	The site does not offer strong potential for ecotourism development, as it is in degraded state, plain open land surrounded by farming fields presenting low interest for tourism and no assets. Pedagogical initiatives could however take place on botanical garden and pharmacopea knowledge in a few years when plants will have grown tall.
2/ People interest, motivation, availability and confidence to develop the value chain	2	2	Interest and motivation are quite high for ecotourism, as tourism is commonly known to attract market opportunities and investors ; however sancta members are aware of main barriers to ecotourism development on their site, as lack of attraction potential, and no unique nature, wildlife, landscapes or cultural assets.
3/ Local skills to develop the value chain	2	1	There are no specific skills available among sancta members such as hospitality, visitor's management, service industry, etc. Few members however speak English language.
4/ Potential market and customers	3	1	Because of lack of natural or cultural assets, potential ecotourism market is compromised, as there won't be source of attractivity big enough to bring visitors or investors in the near future. If the site is regenerated and preserved in the coming years with regrowing forest, there could be potential for educational visits.
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	1	Main challenges are linked to human management, with big group quite heterogeneous, and potential conflicts of interest (president, nursery cooperative head, etc.). Also, lack of visitors in the area does not offer great visibility. If students are visiting, it is not known when will be the next visits and for how many, and if they will have the financial mean to consume proposed services.
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	2	The cooperative's group, although of big size (72 members) and new, shows a quite mature approach to ideas and their potential operationalisation. However, committes are taking the lead and other members are less participative/involved. Special caution due to the fact that the village president is also the Sancta president, that can lead to conflict of interest. It seems that the group is however not mature enough to handle an ecotourism project, requiring the right assets and organisation.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	1	Due to the fact that village president is also the Sancta cooperative's president, there can be potential for co-investment (through land or direct investment), but it is not guaranteed as ecotourism infrastructures are more costly.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	0	Due to lack of access to the area, opportunity to attract and interest private investors is quite low.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**1,11**	

Synthesis of SWOT and VC scoring

The CBS site is located in a farming area, surrounded by productive lands with several crops under production (roots, tubers, vegetables). The site is located where a forest used to stand, but there is no remain of the previous forest, and current planting efforts supported by ENABEL will take years to show results. Despite the promising botanical trail, pharmacopeia development and great motivation from the group, there are no assets on the CBS and in the area that can attract visitors. Relying solely on few visitors or students cannot provide a strong basis for development.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Ecotourism in Gatsibo Ryarubamba CBS	**May be feasible but not recommended (1)**	The development of ecotourism VC may be feasible in the CBS but is compromised by the lack of natural and cultural assets, not consequent enough to promote ecotourism or CBT.

6.1.6 Nyagatare Karushuga

SWOT analysis

The ecotourism VC in Nyagatare Karushuga CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
-Natural resources and overall site: Karushuga forest (with interesting density and diversity since regeneration efforts) and proximity of Akagera river -Presence of wildlife: baboons, hippos, monkeys, crocodiles, fish, birds -Beekeeping and tree nursery (botanic garden) as attraction for visitors -Fresh weather thanks to the forest generating micro-environment during strong heat -Specific type of cows (Inyambo) and strong cow raising and rangeland culture -Unique tree species within the forest: ebeny and *Mimusops bagshawei* -Traditional fishing know how and practice	-Lack of knowledge on hosting visitors, foreign language, basic services, etc. -No experience nor project on ecotourism in the area, nor developed facilities -No electricity and lack of basic infrastructures (school, market nor hospital) -No to low investment or co-investment capacity, but experience in tontine management -Quite remote area (2 hours from Nyagatare city with bad road) is a no go for visitors
Opportunities	**Threats**
-Proximity of projects with potential to bring visitors and professionals: Gabiro AgriHub, KInvest, Qatar, etc. -Future border with Tanzania will bring visitors but in the long term (6 to 10 years) -Afforestation projects such as TREPA, COMBIO, AREECA -Potential for attraction with botanical garden tours -High potential for hiking or biking trail and bird watching, as well as mirador -Learning about forest regeneration, traditional fishing, plant and tree species, etc.	-Current governance and model are too young to handle private actor relationship -During dry season, burning fires on Tanzania side which poses a threat to the forest -Lack of experience on ecotourism coupled with a new structure are risky for this activity -Protection and valorization of wildlife can cause damage to nearby farming activities (hippos, baboons, etc.) -Pandemic from cattle stops trade relationships (foot-and-mouth disease) -Road access during rainy season is even less guaranteed

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
Coeff = Indice of importance (1 to 3)		Ecotourism	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	2	The site offers great potential with Karushuga regenerated forest and its diversity of species (including rate tree species such as ebene), Akagera river, view on Akagera park and Tanzania hills, presence of birds and wild animals (Hippos, crocodiles, baboons, reptiles, etc.). However road access is long and difficult from Nyagatare city (2h with bad road conditions) which is a red flag. Also, the border with Tz project can bring visitors in the future (not expected in the next 5-6 years) but can also pass on Karushuga forest and disable main potential attraction.
2/ People interest, motivation, availability and confidence to develop the value chain	2	2	Interest and motivation are quite high for ecotourism, as tourism is commonly known to attract market opportunities and investors ; however sancta members are aware of main barriers to ecotourism development on their site: mainly road accessiblity and lack of electricity.
3/ Local skills to develop the value chain	2	0	There are no specific skills available among sancta members such as hospitality, visitor's management, English or foreign language knowledge, etc.
4/ Potential market and customers	3	0	Because of road conditions, potential ecotourism market is compromised, as tourists reaching Nyagatare would need strong reason to reach Karushuga. If employees and few visitors are passing by the area for Gabiro Agribusiness hub and Kinvest projects, customers are not guaranteed.
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	1	Challenges include basic infrastructures such as road condition, remoteness, electricity, lack of schools and hospitals, and lack of space/land for potential coffee shop or visitor centre.
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	2	The group is of adequate size (25 members) with great diversity of members (gender, age, etc.) and high dynamism / pragmatism. Leadership is quite shared and ideas were fast to emerge.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	0	Investment capacity in ecotourism infrastructures is limited, as well as land availability.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	1	Due to lack of access to the area, opportunity to attract and interest private investors is quite low.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**0,95**	

Synthesis of SWOT and VC scoring

The site is located on the shores of Akagera river, and just by Karushuga forest, where the past years regeneration and afforestation efforts have led to a renewed stock of species diversity. Current location presents strong assets, such as the forest's density and lushness with potential for hiking trails, the river's proximity, wildlife presence (baboons, hippos, birds, fish and crocodiles) and views on Akagera park and Tanzania hills. However, due to the remoteness of the area, with at least two hours drive from the closest city, Nyagatare, with road in bad state, ecotourism is not recommended. Indeed, the risk for lack of visitors is too high to counterbalance strong assets from the CBS.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Ecotourism in Nyagatare Karushuga CBS	**May be feasible but not**	The development of ecotourism VC may be feasible in the CBS as per the breathtaking landscapes and assets, but as long as the access to the site is not favorable for

	recommended (1)	supporting visitors, and opening to the sector, it is not recommended.

6.2 CBSs in development

Community biodiversity Sanctas (CBS) in development have observed a different methodology than in the already established CBS, due to several factors:

- Recent nature of the group with only one call for volunteers to join the cooperative, the focus group discussions held were often the first meeting for every group;
- Most of CBS cooperatives were not yet registered;
- ENABEL's support had not started, with the temporary nursery instalment and first planting season planned in fall 2024;
- Topics were still new to most of CBSs members, because of the above factors.

In this context, SWOT analysis in CBSs in development mainly consisted in (i) focus group discussions with 8 to 15 members, based on rationale behind their involvement in the cooperative, collective and individual goals, site & village context and potential / threats, expected activity development, etc. ; (ii) site visits ; sometimes completed by (iii) stakeholders or complementary site visits in the nearby areas.

The Ecotourism VC has been analyzed based on a SWOT framework, based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Rwamagana Bicumbi / Nzige

Strengths	**Weaknesses**
-Sancta site nearby the main road with easy accessibility, and close to Kigali -Knowledge of foreign languages from several Sancta members -High site attractivity, with dense and lushy forest area, and great viewpoints on the surrounding mountains	-One of the forest areas (local forest) is in degraded state -Lack of knowledge on hosting visitors, basic services, etc. -The cooperative members have no experience, no facilities, no equipment and very low capacities for ecotourism activities -The cooperative members Lack sufficient knowledge about the local environment and biodiversity.
Opportunities	**Threats**
-Proximity of Kigali with potential for bringing visitors -Possibility to create hiking trail in the CBS -High potential for birdwatching, and mirador to observe surrounding landscapes -Potential for developing an attraction based on native tree species and their cultural value	-Ecotourism is a competitive sector which requires high investment and management capacities and specific skills that could be very difficult to reach for a local and newly created cooperative -Lack of experience on ecotourism coupled with a new structure are risky for this activity -Risks linked to high presence of poisonous snake species (black mamba, cobra) in the forest, with villagers not entering the forest after 10am

Kayonza Gisunzu

Strengths	Weaknesses
- The CBS site is along a main road with easy access and many tourists going and returning from the Akagera NP (52,000 visitors in 2023). The site is close to the main entrance of the Akagera NP and several lodges. - The cooperative members are ambitious, committed and motivated to implement the ecotourism VC in the CBS. - There are several trails for hiking and biking around th CBS and close to the Akagera NP fences (possibility to see animals)	- The cooperative members have no experience, no facilities, no equipment and very low capacities for ecotourism activities. - The cooperative members do not have the basic requirements to interact with foreign visitors (English or French language). - the cooperative members Lack sufficient knowledge about the local environment and biodiversity. - Most of the foreign tourists are going to Akagera NP without long stop in the road from or to Kigali. They have others opportunities near the Akagera NP for community-based tourism.
Opportunities	**Threats**
- The CBS has a good accessibility along a main road that brings opportunities to attract tourists for CBS visit and/or selling products (honey, dried medicinal plants, essential oils, seedlings, etc.) - Several logdes are close to the CBS and receive many tourists, nationals and internationals. Some of these tourists could be interested in community-based ecotourism activities. - Possibility to create hiking and biking trails in the CBS. - The CBS has a full support from the local government (district and sector).	- Ecotourism is a competitive sector which requires high investment and management capacities and specific skills that could be very difficult to reach for a local and newly created cooperative. - There are already few community based tourism offers in the area which are well implemented and connected to the Akagera NP and operators, it could be very difficult for the CBS cooperative to compete with them for drink, food, accommodation and others touristic offers. - For foreign visitors, the site has no unique product or service to offer (competition with Akagera NP and others sites in Rwanda).

Gatsibo Gitoki

Strengths	Weaknesses
-Sancta site by the main road with easy accessibility -Knowledge of foreign languages by several Sancta members -Awareness on importance of native plant and tree species within the group, specifically because of high ecosystem degradation in the area, and cultural importance of local pharmacopea -Strong assets within the groups, and several members with certain level of education and knowledge -Interesting viewpoint with potential for improvement	-Degraded land and area, with former landslides leading to eroded area -Lack of forest, high urbanisation in nearby area -Lack of knowledge on hosting visitors, basic services, etc. -The cooperative members have no experience, no facilities, no equipment and very low capacities for ecotourism activities -The cooperative members Lack sufficient knowledge about the local environment and biodiversity.
Opportunities	**Threats**
-Proximity of Gatsibo market bringing visitors -On the way back from Northern Akagera entrance -Possibility to create hiking and biking trails in the CBS -The CBS has a good accessibility along a main road that brings opportunities to attract tourists for CBS visit and/or selling products (honey, dried medicinal plants, essential oils, seedlings, etc.)	-Ecotourism is a competitive sector which requires high investment and management capacities and specific skills that could be very difficult to reach for a local and newly created cooperative -Lack of experience on ecotourism coupled with a new structure are risky for this activity -For foreign visitors, the site has no unique product or service to offer (competition with Akagera NP and others sites in Rwanda) -Most of the foreign tourists are going to Akagera NP without long stop in the road from or to Kigali. They have others opportunities near the Akagera NP for community-based tourism.

Kirehe Gahara

Strengths	Weaknesses
- The site is beautiful, with a nice view on the surrounding valleys and wetlands	- The place is remote, with few visitors - There is nos skills whatsoever for Toutism development - There is no presence of tour operators, or projects of any kind close to the CBS
Opportunities	**Threats**
- None	- Nothing to mention

Ngoma Rukumberi

SWOT analysis

Strengths	Weaknesses
- The CBS is strategically located on the Ngoma-Kigali road, - Overhanging view on the wetlands and Akagera - Touristic development exist in the surroundings, ataking advantage of the abundance of lakes	- The place is currently barren, with nothing to offer to potential tourists
Opportunities	**Threats**
- The construction of the new international airport in bugesera might imply an increased demand for touristic businesses, including accomodation and restaurants - Youngsters are aquiring the necessary skills to run and promote touristic businesses	- There might be some concurrence from other touristic developments in the district - Everything depends on the growth of the trees, which can take some time given the poor quality of the ground.

Bugesera Rilima Kamabuye

The CBS site is no easily accessible, has no interest for ecotourism and the area do not have any touristic interest or frequentation. No potential for ecotourism in this CBS.

6.3 General Ecotourism Value Chain recommendations

1. **Identify and select quick win and value-added community-based tourism (CBT) products for development and upgrading**

Assess local resources and strengths through a thorough assessment of the CBS's resources, culture and unique offering (go deeper into local festivals, habits, foods or drinks, stories, etc.) and identify existing assets and their valorization potential, such as natural attractions, cultural heritage, traditional crafts and local expertise.

Look for low-hanging fruit that can be implemented relatively quickly and yield positive results such as guided nature walks, bird watching, cultural workshops, Api tourism, etc.

Consider how to enhance existing offerings to create value-added products through improvement of quality, unique experiences or additional services, by considering visitor preferences and demand and involving CBS members in the decision-making process.

2. **Facilitate private stakeholder mentorship on product packaging, guiding, hygiene, customer care, marketing, revenue sharing and organizational management**

Identify key private stakeholders who can contribute significantly to the cooperative's success. These stakeholders could include experienced tour operators, marketing professionals, and business leaders.

Support the tailoring of mentorship programs to address specific areas relevant to ecotourism (product packaging, guiding, hygiene, customer care, marketing, revenue sharing and organizational management)

Organize field visits to ecotourism sites, where stakeholders can observe best practices firsthand. Conduct practical training sessions. Mentorship should extend beyond a one-time event. Encourage ongoing relationships between stakeholders and cooperative members. Regular check-ins, workshops, and knowledge-sharing sessions can foster continuous learning.

Acknowledge stakeholders' contributions by offering incentives such as recognition, joint marketing efforts, or revenue-sharing agreements.

3. **Formulating strong private-public-community partnerships to enhance ecotourism potential**

Identify Partners and engage private businesses, government agencies, NGOs and the local community. Collaborate along the value chain, from conception to implementation.

Align partners around a common vision for sustainable ecotourism and shared goals, define roles, share resources, and build capacity.

Involve all partners in planning through inclusive decision-making and adapt as needed.

4. **Assess and support the establishment of nature-based tourism initiatives simple to put in place and prevent potential negative impact on the environment**

Ensure stakeholder engagement by involving local leaders, neighboring stakeholders, and relevant experts, and seek their input on potential initiatives and their impact on the environment.

Prioritize activities that have minimal negative impact on the environment, such as guided nature walks (exploring local trails and natural landscapes without disturbing flora and fauna), birdwatching (encourage visitors to observe birds without disturbing nesting sites) and photography tours.

Develop programs that raise awareness about local ecosystems, wildlife, and conservation, and educate visitors on responsible behavior, especially regarding littering. Train local guides to provide accurate information about the environment and emphasize the importance of preserving natural habitats.

Design infrastructure (e.g., trails, viewing platforms) that minimizes soil erosion and habitat disruption, and use eco-friendly materials and construction techniques.

5. **Focus on few sites with high potential but do not try to develop ecotourism project in remote sites or sites without any specific interest for national and international tourists.**

International tourists spend few times in Rwanda (usually around one or two weeks) and are mainly interested in strong and uncommon experiences centered around the country's National Parks. Tourists visiting the Eastern Province are attracted by Akagera National Park, and sometimes by Lake Muhazi.

It is advised to focus on high-potential sites and prioritize sites with biodiversity hotspots, scenic beauty, cultural significance and reasonable accessibility. Avoid remote or uninteresting sites, by discouraging developing ecotourism projects in remote areas (sites far from infrastructure, difficult to reach, or lacking amenities) or uninteresting sites (locations without unique features or attractions).

Concentrate efforts on a few high-potential sites to ensure quality over quantity. Develop infrastructure (trails, signage, facilities) while minimizing environmental impact.

7 SWOT analysis for the tree seeds and seedlings value chain

7.1 Established CBSs

7.1.1 Ngoma Zaza

SWOT analysis

The tree seeds and seedlings VC in Ngoma Zaza CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
- Suitable land near the marsh with access to water is available within the CBS - The cooperative is committed and willing to engage in the activity - There is already some experience and skills in the cooperative on seed preparation - The cooperative knows suitable providers for seeds and materials	- The CBS cooperative lacks knowledge on many aspects: seedling preparation, grafting, alternative species, materials to be used, etc. - Suppliers are far away from the CBS - Lack on transportation infrastructures - The cooperative investment capabilities are low
Opportunities	**Threats**
- Regular tenders are emitted for reforestation projects like TREPA, 1 ECO fund, COMBIO, etc. and these projects require many seedlings - Local market also exist, farmers like to plant fruit and agroforestry trees in their lands (like grevillea, but native alternatives might exist) - There is support to the CBS cooperative at all administrative levels - Few competitors in the sector can produce seedlings	- Low quality seeds can jeopardize the production - Seedlings are sensitive to pests and diseases - Training is not easily available

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
*Coeff = Indice of importance (1 to 3)		Tree seeds & seedlings	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	4	The CBS is ideal for nursery activities, with direct access to water and flat land
2/ People interest, motivation, availability and confidence to develop the value chain	2	3	CBC members seem to be well organised and committed to current nursery activities, the development of the tree seeds and seedlings value chain would therefore be based on exiting strengths
3/ Local skills to develop the value chain	2	2	Current nursery activities are acrried with success by CBC members, and many of them also had preexisting skills and interest in planting activities (of non-native trees, however).
4/ Potential market and customers	3	1	Same as everywhere else, the marketing of native tree seeds and seedlings is very dependent on public tenders. Local demand for native trees is almost non existent, while fruit and agroforestry trees are in higher demand. It is doubtful that the VC would sustain itself just with local demand.
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	2	No specific threats were identified,but the VC development faces many challenges (lack of training, insufficient infrastructure, distance from suppliers, etc.)
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	3	The CBC is still in early stages of its development, but seems to be functioning efficiently, with various individuals showing leadership abilities.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	2	The CBC is already implementing collective saving schemes for future investments. However, the CBC is still in early stages of its development and their financial capacity is low.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	2	There might be possible collaborations with local actors, e. g. private planters of diferent profiles, but there is no history of such collaborations for the moment.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**2,37**	

Synthesis of SWOT and VC scoring

Zaza CBS possesses advantageous features for TSS VC development, including suitable land near the marsh with water access, as well as the cooperative's commitment and existing skills in seed preparation. Additionally, the cooperative has knowledge of reliable seed and material suppliers.

However, challenges such as limited knowledge in various aspects of tree nursery management, distant suppliers, inadequate transportation infrastructure, and low investment capabilities hinder progress. Despite these obstacles, opportunities arise from regular tenders for reforestation projects, local market demand for fruit and agroforestry trees, and support from administrative levels. Threats such as low-quality seeds, susceptibility to pests and diseases, and limited training availability must be addressed to ensure success in the venture.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Tree seedlings in Ngoma Zaza CBS	**Feasible under certain condition (2)**	Zaza CBS has favorable conditions for TSS VC development, including accessible land with water nearby and a committed cooperative with seed preparation skills. However, distant suppliers, and transportation issues must be addressed to allow the CBC to bid for public tenders for reforestation projects other threats such as low-quality seeds and susceptibility to pests must be addressed

7.1.2 Kirehe Rusumo

SWOT analysis

The tree seeds and seedlings VC in Kirehe Rusumo CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
- There is already significant skills, organization and experience in the cooperative for tree seedlings production and plantation - The cooperative already won a tender in the context of AREECA project to supply and plant 26 300 seedlings for 15 km of roadside plantation. - Gatsibo Tree seed center is near to provide Tree seeds, - Available native tree species in Akagera National Park, - Priority native tree species has been selected.	- The CBS site lacks water and a flat land to establish the nursery. - Land must be leased annually close to the river. - Lack of skills on tree species name, - Lack of knowledge on nursery maintenance and establishment.
Opportunities	**Threats**
- Regular tenders are emitted for reforestation projects - The cooperative could produce fruit trees to supply local farmers, - Agroforestry tree seedlings will be needed by farmers, - MoU signed to manage the sancta,	- High dependency to public tenders for reforestation/afforestation projects, - It is a seasonal investment, - Farmers do not like native tree species, - Fund availability

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
*Coeff = Indice of importance (1 to 3)		Tree seeds & seedlings	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	2	The CBS site itself is not suitable for the establishment of a nursery. The nursery has been established in public land on the flood plain of the Akagera river made available by expropriation because of the Rusumo falls hydropower plant.
2/ People interest, motivation, availability and confidence to develop the value chain	2	3	People show a strong interest and willingess to develop this VC, although amny questions remain on the business model, and especially on the possibility to produce non native tree seedlings which are easier to market locally
3/ Local skills to develop the value chain	2	2	The experience of the nursery and planting on the CBS allowed the CBC to develop the basic skillset for tree seeds and seedlings production.
4/ Potential market and customers	3	2	The potential market for native trees and seedlings is still not much developed and mostly consist in public tenders for afforestation projects. The CBC has already won a tender. Non-native treee species (fruit and agroforestry trees) are on demand.
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	3	The CBC has shown its ability to win a tender, but the lack of a site within the CBS can be a serious threat to sustain the develop the VC.
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	2	The CBC is still in early stages of its development, although its dynamism is acknowledgeable.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	2	The CBC is already implementing collective saving schemes for future investments. However, the CBC is still in early stages of its development and their financial capacity is low.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	2	The CBC has won a tender, showing it is possibble to find such collaborations. Apart from COMBIO/ARECCA/TREPA projects, no other relevant stakeholders have been identified, which could pull the development of the VC.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**2,21**	

Synthesis of SWOT and VC scoring

The TSS VC development in Kirehe Rusumo CBS should leverage the CBC's experience in winning public tenders for afforestation projects, indicating a solid understanding of project requirements. The CBC benefits from existing skills and experience, past tender successes, nearby seed sources, and a selection of native tree species.

However, securing land with direct water access is crucial for sustainable annual production, especially for public tenders, as the CBS site lacks direct access to water and flat land at the CBS site. Gaps in species knowledge and nursery maintenance remain to be addressed.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Tree seedlings in Kirehe Rusumo CBS	**Feasible under certain condition (2)**	TSS VC development potential has been demonstrated by the CBC's success in winning public tenders. With existing skills, successful tender history, nearby seed sources, and native tree varieties, there is a strong foundation to build upon. However, securing land with direct water access is

		crucial for sustained annual production, given the site's limitations. Addressing gaps in species knowledge and nursery maintenance is also essential for future success.

7.1.3 Rwamagana Muhazi

SWOT analysis

The tree seeds and seedlings VC in Rwamagana Muhazi CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
'- The nursery looks to be well managed (number and diversity of seedlings, condition of seedlings, etc.). - The CBS nursery is coordinated by Enabel staff with good technical expertise. - High commitment of the CBS members to restore the CBS area with native species. - Some members of the cooperative have been trained in tree seeds and seedlings - The nursery site is close to the Murambi village and easily accessible for the cooperative members	- The nursery site is far from a main road (4 km) and uphill, not close to water source (lake Muhazi) and without irrigation system, watering is quite difficult for the workers (75 to 100 m on a steep slope). - The nursery site is on a private land which is rented for the moment by Enabel (100 000 RWF/y). - The nursery lacks a building for storage of equipment and seeds, it also lacks a nursery shade to protect the seedlings from the sun. - The CBS members do not know most of the new seeds and planted native species. Most of them are not trained for nursery keeping. - All the seeds used by the nursery are collected and/or bought by Enabel without intervention of local people. The supply is totally dependent. - Some of the seeds and seedlings received by the cooperative were of poor quality (low germination rate, diseases, etc.). - The tree nursery does not offer yet what the CBS members and farmers are interested in (fruits species, fast growing species). - The CBS cooperative is not formally registered yet and poorly organized.
Opportunities	**Threats**
- The proximity of Rwamagana and Kayonza could bring market opportunities for hotels, restaurants, District buildings, hospitals and private houses, etc. - The new objectives of RFA and projects (COMBIO, TREPA, ARCOS, etc.) to promote and plant native trees could bring opportunities for production and selling of seedlings. - The native tree seedlings nursery could be a new business in the area, with a specific offer. - The nursery could diversify its offer with organic fruit seedlings - The CBS has a full support from the local government (district and sector).	- The current site of the nursery is not adapted for commercial objectives, because of the distance to a main road (4 km) and o a source of water. Any pumping equipment would require fuel (additional expanses). - The trees seedlings nursery would be probably a small-scale activity with few employment and incomes possibilities for the cooperative members. - Most of the farmers are not very interested to plant native species with low growth rate in their private land. For the moment, native tree species are seen by farmers as non-promising for economic income (timber sector, food, medicinal plants, etc.). - The market perspectives would be always linked to RFA and projects demands for native trees seedlings. Compared to private companies and big cooperatives, it would be impossible to compete in public tenders and to guarantee big numbers of seedlings.

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)		
Coeff = Indice of importance (1 to 3)	**Tree seeds & seedlings**	
Criteria	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	1	The nursery site is easily accessible for the cooperative members. But it is far from a main road (4 km), not along a secondary road (no visibility) and up hill with no easy access to water source. The nursery site is in a private land that s rented by
2/ People interest, motivation, availability and confidence to develop the value chain	2	The cooperative members are available to develop the tree seedlings VC with the idea to get jobs and income. The cooperative is seen as a good mean of organization for this development. In the same time, the members complain about watering conditions and have doubts about sales
3/ Local skills to develop the value chain	2	Low capacities and skills in tree seeds and seedlings production. Few cooperative members have been trained for basic seedlings production and nursery management. The cooperative still needs a lot of technical training.
4/ Potential market and customers	1	The potential market for tree seedlings is highly linked to reforestation and afforestation projects in the area. The market for the cooperative will be probably limited by the incapacity to respond to public tenders' processes. Few local customers coming to the area (4 km from the
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	1	Several threats and challenges due to the fact that the cooperative is new and just starting the seedling production activity without a commercial approach for the moment. The distance of the nursery to a source of water is a main threat for the good maintenance and watering of
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	The cooperative is starting from zero but seems quite dynamic with several members very motivated to develop the project. Several women and youth participated to the focus group and workshop and seems dynamic. The cooperative still needs to be formalized and the
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	1	The cooperative has no financial investment capacities for a new and unsecured activity. The cooperative has not been trained yet on UMUSAVE revolving fund.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	The main collaboration opportunities are with the TFA and forestry projects in the area. There are also some opportunities with the District level and few hotels and restaurants in Rwamagana.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	**1,42**	

Synthesis of SWOT and VC scoring

Generally speaking, the production of native tree seedlings can be continued and developed in the coming months and years, in particular to meet the objectives of the COMBIO project and the RFA in the area. However, the inappropriate location of the nursery remains an issue to be addressed, notably because it is located on private land rented by Enabel, and because watering is difficult due to its distance from the lake (around 75 m with slope). In the longer term, the development of the VC with commercial objectives and organization is much more uncertain and highly dependent on the approaches, needs and possible orders of reforestation/afforestation projects and public institutions.

While it is important to raise farmers' awareness of the use of native species, they are likely to retain a short-term focus on profitability, particularly in view of their poverty.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Tree seedlings in Rwamagana Muhazi CBS	**May be feasible but not recommended (1)**	The development of tree seedlings VC is feasible but not recommended, because of: i) Difficult access to the village and nursery, which would limit market prospects. ii) The nursery is located on a private site rented by ENABEL, which is not in a favorable location (difficult access to water).

7.1.4 Gahini

SWOT analysis

The tree seeds and seedlings VC in Gahini CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
'- The nursery looks to be well managed (number and diversity of seedlings, condition of seedlings, etc.). - The nursery is close to water source which facilitates watering (Muhazi lake). - The nursery is located along a main road, close to Kayonza city and between Kigaly and Aagera NP. It is clearly visible from road for potential customers. - The CBS nursery is coordinated by Enabel staff with good technical expertise. - High commitment and motivation of the CBS members to develop the tree seedlings VC. - Some members of the cooperative have been trained in tree seeds and seedlings. - One of the cooperative member already manage a private nursery in the area, selling ornamental, native and exotic trees and plants. - The nursery site is close to the Gahini village and easily accessible for the cooperative members.	- The nursery lacks a building for storage of equipment and seeds. - The CBS members do not know most of the new seeds and planted native species. Most of them are not trained for nursery keeping. - All the seeds used by the nursery are collected and/or bought by Enabel without intervention of local people. The supply is totally dependent. - Some of the seeds and seedlings received by the cooperative were of poor quality (low germination rate, diseases, etc.). - The tree nursery does not offer yet what the CBS members and farmers are interested in (fruits species, fast growing species). - The CBS cooperative is not formally registered yet and poorly organized.
Opportunities	**Threats**
- The location along a main road and the proximity of Kayonza city could bring market opportunities for hotels, restaurants, District buildings, hospitals and private houses, etc. - The new objectives of RFA and projects (COMBIO, TREPA, ARCOS, etc.) to promote and plant native trees could bring opportunities for production and selling of seedlings. - The nursery could diversify its offer with organic fruit and or nuts seedlings - The CBS has a full support from the local government (district and sector).	- One of the members of the cooperative already manage a successful and well-known private nursery. His vision and objectives for the cooperative nursery is not clear and a competition and/or conflicts could emerge. - The trees seedlings nursery would be probably a small-scale activity with few employment and incomes possibilities for the cooperative members. - Most of the farmers are not very interested to plant native species with low growth rate in their private land. - The market perspectives would be always linked to RFA and projects demands for native trees seedlings. - Climate change and drought are challenges for the seedlings production.

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
*Coeff = Indice of importance (1 to 3)		Tree seeds & seedlings	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	3	The nursery site is easily accessible for the cooperative members. It is in public land, close to a source of water (lake) and along a main road (visible for potential customers). The land is flat and adapted to the activity.
2/ People interest, motivation, availability and confidence to develop the value chain	2	3	The cooperative members are available and motivated to develop the tree seedlings VC with the idea to get jobs and income. The cooperative is seen as a good mean of organization for this development. One member of the cooperative already manage a private nursery. Interrogation about his objectives and vision of potential competition.
3/ Local skills to develop the value chain	2	2	Most of the members have low capacities and skills in tree seeds and seedlings production. Few cooperative members have been trained for basic seedlings production and nursery management. The cooperative still needs a lot of technical training. One member of the cooperative is already a professional in nursery and tree seedlings production.
4/ Potential market and customers	3	2	The location along a main road is favorable for market perspectives. The potential market for tree seedlings is highly linked to reforestation and afforestation projects in the area. The market for the cooperative will be probably limited by the incapacity to respond to public tenders' processes. Low interest of local farmers for indigenous species and low investment capacities.
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	2	Several threats and challenges due to the fact that the cooperative is new and just starting the seedling production activity without a commercial approach for the moment. Climate change impact (drought), pesticides used in agriculture, etc.
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	2	The cooperative is starting from zero but seems quite dynamic with several members very motivated to develop the project. Several women and youth participated to the focus group and workshop and seems dynamic. The cooperative still needs to be formalized and the members trained on cooperative management.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	1	Most of the cooperative members are poor and cannot afford financial investment in a new and unsecured activity. There are no clear indications about their willingness to integrate the UMUSAVE revolving fund.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	2	The main collaboration opportunities are with the TFA and forestry projects in the area. There are also some opportunities with the District level and few hotels and restaurants in Rwamagana.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**2,11**	

Synthesis of SWOT and VC scoring

Generally speaking, the production of native tree seedlings can be continued and developed in the coming months and years, in particular to meet the objectives of the COMBIO project and the RFA in the area. In the longer term, the development of the VC with commercial objectives and organization is more uncertain and highly dependent on the approaches, needs and possible orders of reforestation/afforestation projects and public institutions. The potential competition with a local private nursery (managed by a member of the cooperative) should be managed carefully. While it is important to raise farmers' awareness of the use of native species, they are likely to retain a short-term focus on profitability, particularly in view of their poverty. In conclusion, it is difficult to determine the feasibility of commercial development of seedling production, but as investment is limited, the cooperative will in principle be able to adapt, even with diversifying its productions with valuable species (fruits trees, nuts, etc.). An important point will be to put in place an organizational system to ensure good management of the nursery and motivating conditions for the involvement of the most interested members.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Tree seedlings in Gahini CBS	**Feasible under certain condition (2)**	The development of tree seedlings VC is feasible in the CBS but will require : i) strong training and capacity building of the members, ii) good and efficient internal organization for the activity, iii) securing markets for the seedlings and building long-term partnerships with potential customers.

7.1.5 Gatsibo Ryarubamba (Rubona)

SWOT analysis

The tree seeds and seedlings VC in Gatsibo Ryarubamba CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
-Temporary nursery well maintained as incorporated in existing commercial nursery -At the current Nursery site, water is accessible few hundred meters by the site -Land availability with fertile soil near the current Nursery site -Easy accessibility to manure (livestock area and cow keepers in the Sancta) -Available skills in seedling production with president of Nursery enterprise in the Sancta -Good road condition and Nursery just by the road, easily accessible and visible -Sancta members are neighbors to the site, thus ensuring its protection and security	-There is no water source on the site, and water access is not guaranteed -For the nursery site, there is no identified site near a water source yet -Limited diversity of species -Lack of capacity for seedling production -Inadaptability of ecosystem for specific species (attempts failure in previous season) due to climate inadequacy from where it was collected (rainforests) -Lack of quality seeds (access to seeds, no natural forests nearby)
Opportunities	**Threats**
-Existing nursery cooperative can support and incorporate native plant nursery range, including technically with the president being a Sancta member -According to National policies, among new plantations and afforestation projects, 20% have to be native species -Opportunity for plants with economic importance such as aromatics, fruit trees (demand from schools and hospitals, through World Vision project) -Proximity of Gatsibo tree seed center	-Various pests and diseases, and lack of knowledge on pest control for native plants, due to lack of native tree experience and expertise in the country -Climate change leading to increasing drought period and rain variability, with impact on seed availability and growth -Potential conflict of interest on nursery management if current nursery site, at existing nursery cooperative, remains there, especially on general management, operations and budget

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
Coeff = Indice of importance (1 to 3)		Tree seeds & seedlings	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	2	Sancta site is located on a piece of land that is easily accessible to Sancta members and big enough for the planned activities. However, water access is difficult as there is no water point no water source nearby. Only solutions suggested would be to dig a well and use water pump, but it is unlikely, or get a land near water source. There is however the option of renting part of the current commercial Nursery, also less risky than going for new instalment.
2/ People interest, motivation, availability and confidence to develop the value chain	2	2	High general interest, but lack of interest for native seeds and seedlings production and commercialisation, because of lack of market opportunities, no experience in the region and country on native plants, low visibility on future needs from projects, etc. But interest is higher with potential for diversification with local species presenting economic importance (aromatic, fruit, etc.).
3/ Local skills to develop the value chain	2	2	Basic skills within the CBS, with first experience through ENABEL's temporary nursery establishement and planting in 2023. A Nursery professional is part of the cooperative, bringing practical and technical knowledge about Nursery management and organisation. However not experienced on native plants.
4/ Potential market and customers	3	2	There is no pre-established or flourishing BtC nor BtB market for native seeds and seedlings locally nor nationnally, so sancta members expect projects, such as COMBIO or World Vision (greening schools and hospitals), to provide direct market opportunities. Plants of economic importance such as fruit and aromatic species are however of interest to increase market potential (avocado, mango, orange, jackfruit, etc.). If nursery establishes in existing nursery cooperative, market options could be more diverse as it already has visibility and customers.
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	1	Threats and challenges include lack of knowledge on native seedling production, climate change leading to stronger droughts linked to low seedling germination, and pest and disease biocontrol. Also, if native seedling production has a chance to sustain by staying anchored in the existing Nursery cooperative, there is a clear risk linked to conflict of interest, lack of delimitation of activity between the two cooperatives, and issues linked to general management and financial ownership of those activities
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	2	The cooperative's group, although of big size (72 members) and new, shows a quite mature approach to ideas and their potential operationalisation. However, committes are taking the lead and other members are less participative/involved. Caution due to the fact that the Nursery cooperative president is part of the CBS committee, and that the cooperative has a distinct functioning than what is expected from the CBS
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	3	Due to the fact that Nursery cooperative president is part of the Sancta's committee, there is potential for co-investment and mutualisation of existing facilities, workforce and equipment. Caution to the potential risk of conflictual situation.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	3	Due to the fact that Nursery cooperative president is part of the Sancta's committee and 2023 temporary nursery activity took place at the Nursery cooperative site, there is potential for collaborating with the existing Nursery, who could subcontract the native tree seedling production.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**2,16**	

Synthesis of SWOT and VC scoring

The production of native tree seedlings can be continued and developed in the coming months and years, in particular to meet the objectives of the COMBIO project and the RFA in the area. In the longer term, the development of the VC with commercial objectives and organization is more uncertain and highly dependent on the approaches, needs and possible orders of reforestation/afforestation projects and public institutions. The potential competition with a local private nursery (managed by a member of the cooperative) should be managed carefully, even though it is provided potential for fast learning and investment/resources mutualization. While it is important to raise farmers' awareness of the use of native species, they are likely to retain a short-term focus on profitability, particularly in view of their poverty. In conclusion, it is difficult to determine the feasibility of commercial development of seedling production, but as investment is limited, the cooperative will in principle be able to adapt, even with diversifying its productions with valuable species (fruits trees, nuts, etc.). An important point will be to

put in place an organizational system to ensure good management of the nursery and motivating conditions for the involvement of the most interested members.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments
Tree seedlings in Gatsibo Ryarubamba CBS	**Recommended (3)**	The development of tree seedlings VC is recommended in the CBS because of the presence of a nursery professional in the cooperative, and possible mutualization of investments and workforce. It will still require : i) strong training and capacity building on native plants, ii) good and efficient collaboration with existing nursery, iii) securing a more adapted site for the nursery, iv) securing markets for the seedlings and building long-term partnerships with potential customers.

7.1.6 Nyagatare Karushuga

SWOT analysis

The tree seeds and seedlings VC in Nyagatare Karushuga CBS has been analyzed based on a SWOT framework, in a participatory way with the cooperative members and based on SalvaTerra's experts' skills, observations and analysis. The work results in a SWOT matrix presented below.

Strengths	Weaknesses
-Temporary nursery was well maintained until structure damage (wildlife impact on temporary structure), then remained in abandoned state -Water availability is guaranteed thanks to Akagera river's proximity -Proper site for tree Nursery near water source by Karushuga forest -Availability of green manure thanks to livestock rearing in the area (farmers part of CBS) -Basic knowledge with first conclusive experience (ENABEL COMBIO) -Availability of a wide range of native tree including endemic tree species (such as ebeny trees)	-Lack of knowledge in Nursery management, especially when threats occur -Current Nursery structure not adapted to environmental conditions and threats -More difficult water access during dry season, when river level is decreasing -Karushuga is a remote area with no possibility of access to equipment/inputs -No to low passing from people due to bad road condition and remoteness -Since external damages (hippos, baboons), repairs were not applied by Sancta members -Site near main road, but road condition in bad state -Presence of baboons, hippos and termites damaging nursery's structure & production
Opportunities	**Threats**
-Government shift from exotic to native plants (20% all new project plantations) -Initiative pioneer native seeds and seedlings -Mainly direct and local market opportunity for fruit tree seedlings -Government and projects support (COMBIO, TREPA, etc.) for native seedling business -Develop a botanical garden for visits / Potentially interesting for research field -Potential for other crops of economic importance (aromatic, fruit, etc.)	-Extension of Gabiro Agri-hub and future Tanzania border, threatening current site -Reduction of seeds from trees because of the rain, sun exposition and drought -Low experience in the sector in the area, and risky business due to structure's youth -Lack of knowledge in pest control (fungi, virus, insects) for small seedling -Without market visibility and if projects reduce seedling needs, risk of interest drop -Lack of market opportunities in the area, outside of projects (TREPA, COMBIO)

VC scoring

VALUE CHAIN SCORING (0 Very low - 1 Low - 2 Medium - 3 High - 4 Very high)			
Coeff = Indice of importance (1 to 3)		Tree seeds & seedlings	
Criteria	**Coeff**	**Score**	**Results**
1/ Site suitability for the value chain (land tenure, accessibility, attractivity, natural resources, etc.)	3	2	Current nursery site is located on the shore of the river within Karushga forest (under regeneration). Although water is easily available, water level can be consequently reduced during dry season. The site is however subject to threats by ots proximity to forest and river such as hippos and baboons damage. Site is accessible from the village and near agricultural fields. Road proximity is also an asset. A future project is also threatening the site: building of new border with Tanzania, passing through the forest and over sancta's site. Electricity is not available in the area.
2/ People interest, motivation, availability and confidence to develop the value chain	2	2	High general interes for plant production, but lack of interest for native seeds and seedlings production and commercialisation, because of lack of market opportunities, no experience in the region and country on native plants, low visibility on future needs from projects, etc. But interest is higher with potential for diversification with local species presenting economic importance (aromatic, fruit, etc.)
3/ Local skills to develop the value chain	2	2	Since the temporary nursery establishement with the support of ENABEL through COMBIO project, first experience on native tree seeds and seedlings was conclusive. However, members are still struggling with know how on seed collection, seed processing before planting, seed re-burying, general nursery management and pest biocontrol.
4/ Potential market and customers	3	2	There is no pre-established or flourishing BtC nor BtB market for native seeds and seedlings locally nor nationnally, so sancta members expect projects, such as COMBIO, to provide direct market opportunities. Plants of economic importance such as fruit and aromatic species are however of interest to diversify market potential (avocado, mango, orange, jackfruit, etc.).
5/ Lack of threats and challenges (anthropic, technical, pest & diseases, climate change, conflictual situation etc.)	2	1	Main threats include hippos, nesting (digging trench down) and damaging the nursery, on their habitat near the shore of the river, at night. Baboons are also considered a threat to seedlings and nursery's fragile structure, as well as termites. Metal structure would be prefered by sancta members to solidify and avoid continuous repair.
6/ Group's maturity (dynamism, shared leadership, collective ideas, place of women & youth, etc.)	2	3	The group is of adequate size (25 members) with great diversity of members (gender, age, etc.) and high dynamism / pragmatism. Leadership is quite shared and ideas were fast to emerge. It seems that all members are not equally interested by nursery activity, and members would require support to get better structured around economic activities.
7/ Willingness and financial investement capacity (participation in the co-funding, integration in UMUSAVE revolving fund, etc)	3	1	Co-investment from sancta members could come from land provision, if nursery's permanent site needed to be moved away from its current temporary position. Members would be willing to invest in the case when market and orders are more trusted.
8/ Opportunity of collaboration/contracting with professional actor of the VC	2	2	Due to the sancta site's proximity to Gabiro Agribusiness hub and Kinvest project, visitors or investors from agricultural background may pass by the site. Synergy potential has to be more clearly assessed with both projects about the interest from specific native or domesticated plants sold by the nursery.
Total scoring (= sum of scores of each criteria weighted by thier importance indice)	19	**1,84**	

Synthesis of SWOT and VC scoring

The production of native tree seedlings can be continued and developed in the coming months, in particular to meet the objectives of the COMBIO project and the RFA in the area. There are however, for the long term, issues inherent to the current nursery location and regular intrusions from wild animals (baboons, hippos) causing high damage, that would require customized permanent nursery structure, with adapted materials. In the longer term, the development of the VC with commercial objectives and organization is more uncertain because of the site's remoteness, with quite difficult access to market and sales. Village area is also far from the sancta although close to agricultural fields, leading to insecurity of the nursery.

0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority)

CBS and VC	Feasibility ranking	Comments

Tree seedlings in Nyagatare Karushuga CBS	**May be feasible but not recommended (1)**	The development of tree seedlings VC could be feasible in the CBS due to high motivation and great involvement of its members, but faces high challenges, such as remoteness with low access to market, and damages linked to baboons and hippos night nesting presence. It is also far from the village area.

7.2 CBSs in development

Rwamagana Bicumbi / Nzige

Strengths	Weaknesses
-Easy accessibility to plant residues for mulching -Good road condition not too far from the main road, easily accessible -Sancta members are neighbors to the site, thus ensuring its protection and security, but it is not sure where nursery site will be established because of water access and availability -High commitment and motivation of the CBS members to develop the tree seedlings VC	-Suitable land/site has not been identified yet, as site is hilly and mainly forest area -There are water points nearby, but not directly on the site -The CBS members do not have a good knowledge of the native species. None of them are trained for nursery keeping -All the seeds needed by the nursery have to be collected and/or bought by Enabel, the supply is totally dependent
Opportunities	**Threats**
-According to National policies, among new plantations and afforestation projets, 20% have to be native species -Opportunity for plants with economic importance such as aromatics, fruit trees (demand from schools and hospitals, through World Vision project) -OneAcreFund buying consequent amount of seedlings, as well as World Vision, mainly fruit and agroforestry species for 'greening schools' project -The new objectives of RFA and projects (COMBIO, TREPA, ARCOS, etc.) to promote and plant native trees could bring opportunities for production and selling of seedlings.	-Various pests and diseases, and lack of knowledge on pest control for native plants, due to lack of native tree experience and expertise in the country -Climate change leading to increasing drought period and rain variability, with impact on seed availability and growth -The trees seedlings nursery would be probably a small-scale activity with few employment and incomes possibilities for the cooperative members -Low interest in planting native species with low growth rate by farmers, seen as non-promising for economic income (timber sector, food, medicinal plants, etc.) -Security can be an issue depending on where the nursery site is established

Kayonza Gisunzu

Strengths	Weaknesses
- The CBS site is suitable for the implementation of a nursery (access, water, slope, etc.) - The nursery could be located along the main road to and from Akagera NP, and close to the Gisunzu village. - Enabel staff already has a good technical expertise and could help to start a new nursery and train some workers. - The CBS nursery is coordinated by Enabel staff with good technical expertise. - High commitment and motivation of the CBS members to develop the tree seedlings VC.	- the nursery is not existing yet. it lacks a building for storage of equipment and seeds. - the CBS members do not have a good knowledge of the native species. None of them are trained for nursery keeping. - All the Seeds needed by the nursery have to be collected and/or bought by Enabel.B5 the supply is totally dependent. - Most of the CBS members and farmers are interested in fruits species and fast growing species. They have to be convinced and trained about the interest of native species. - The CBS cooperative is not formally registered yet and poorly organized.
Opportunities	**Threats**
- The location along a main road and the proximity of Akagera NP buffer zone could bring market opportunities (buffer zone restauration, lodges, etc.) - The new objectives of RFA and projects (COMBIO, TREPA, ARCOS, etc.) to promote and plant native trees could bring opportunities for production and selling of seedlings. - The nursery could diversify its offer with organic fruit and or nuts seedlings - The CBS has a full support from the local government (district and sector).	- There are already Few existing nurseries in the area supported by World vision (competition?) - The trees seedlings nursery would be probably a small-scale activity with few employment and incomes possibilities for the cooperative members. - Most of the farmers are not very interested to plant native species with low growth rate in their private land. For the moment, native tree species are seen by farmers as non-promising for economic income (timber sector, food, medicinal plants, etc.). - The market perspectives would be always linked to RFA and projects demands for native trees seedlings. Compared to private companies and big cooperatives, it could be difficult to compete in public tenders and to guarantee big numbers of seedlings. - Climate change and drought are challenges for the seedlings production.

Gatsibo Gitoki

Strengths	Weaknesses
-High availability of plant residues for mulching -Good road condition and site just by the road, easily accessible and visible -Sancta members are neighbors to the site, thus ensuring its protection and security -Few sancta members have experience in nursery handling with at least 3 people trained by RAB in seedling production through Ministry of Agriculture programme	-Suitable land/site has not been identified yet, as site is hilly and degraded, but there may be possibility to develop the Nursery at the bottom of the site, near the road -There are water points nearby, but it is not state land so access is not guaranteed -The CBS members do not have a good knowledge of the native species. None of them are trained for nursery keeping -All the Seeds needed by the nursery have to be collected and/or bought by Enabel.B5 the supply is totally dependent
Opportunities	**Threats**
-According to National policies, among new plantations and afforestation projects, 20% have to be native species -Opportunity for plants with economic importance such as aromatics, fruit trees (demand from schools and hospitals, through World Vision project) -Proximity of Gatsibo tree seed center -The new objectives of RFA and projects (COMBIO, TREPA, ARCOS, etc.) to promote and plant native trees could bring opportunities for production and selling of seedlings.	-Various pests and diseases, and lack of knowledge on pest control for native plants, due to lack of native tree experience and expertise in the country -Climate change leading to increasing drought period and rain variability, with impact on seed availability and growth -The trees seedlings nursery would be probably a small-scale activity with few employment and incomes possibilities for the cooperative members - Most of the farmers are not very interested to plant native species with low growth rate in their private land. For the moment, native tree species are seen by farmers as non-promising for economic income (timber sector, food, medicinal plants, etc.).

Kirehe Gahara

Strengths	Weaknesses
- None to mention	- The site is barren on the top of the hill, with shallow soil, or on steep slopes not suitable for nursery establishment. The availability and accessibility of a suitable site is unclear.
Opportunities	**Threats**
- Regular tenders are emitted for reforestation projects - The cooperative could produce fruit trees to supply local farmers - Agroforestry tree seedlings will be needed by farmers.	- High dependency to public tenders for reforestation/afforestation projects - It is a seasonal investment, - Farmers do not like native tree species, - Fund availability is not guaranteed if the activity is to be carried on a stop-and-go basis

Ngoma Rukumberi

Strengths	Weaknesses
- The CBS is close to the Akagera river.	- The site has a very low fertility, the soil has been scraped of all organic contents, so access to quality soil will be a problem - Conflicts with wildlife, especially hippos, is probable - No direct access to water
Opportunities	**Threats**
- Regular tenders are emitted for reforestation projects - The cooperative could produce fruit trees to supply local farmers - Agroforestry tree seedlings will be needed by farmers.	- High dependency to public tenders for reforestation/afforestation projects - It is a seasonal investment, - Farmers do not like native tree species, - Fund availability is not guaranteed if the activity is to be carried on a stop-and-go basis

Bugesera Rilima Kamabuye

There is no access to water in the CBS. The nursery should be installed near the lake, 2 km from the village (not visited). Thus, the nursery would be far from the CBS and from a main road which make difficult to develop a business approach. The nursery still can be developed for CBS restauration but any commercial approach should be analyzed based on 1-2 years of nursery work.

7.3 General Tree seeds and seedlings Value Chain recommendations

1. **Continue and strengthen CBS nurseries activities under the COMBIO project to contribute to restoration activities in the area (in relation with RFA and others projects), improve their ability to respond to public tenders.**

Until the end of the COMBIO project, the existing nurseries and new nurseries will be supported for native trees seedlings production. These efforts will contribute to restore degraded lands in collaboration with RFA and others partners.

However, the cooperative should be prepared for the next steps, after the end of the project, in particular for the ones that plan to develop the value chain as a commercial activity.

2. **Improve the visibility of the nurseries to attract more customers.**

All the active nurseries that could become commercial ones should be clearly identified and visible with a road sign that could attract new customers.

3. **Raise awareness among local farmers about the use of native species in their private lands.**

One of the objectives of the COMBIO project is to raise awareness among local farmers about the interest and use of native species in their own lands. The restored CBS should play a demonstrative role about the possibility to plant these species and get benefits through their services and products (pharmacopeia, melliferous trees, etc.).

4. **Centralize seedling needs from afforestation projects (TREPA, COMBIO, AREECA, World Vision, RFA, etc.) and place orders before the start of the season and produce on demand**

   The COMBIO project is linked to key (or in contact with) national and international institutions and projects involved in afforestation and reforestation activities. COMBIO should strongly promote its CBS approach, in particular its native trees species use specificity and seedlings production capacity.

   While most of the nurseries around the country mainly produce fast growing indigenous trees, fruit trees and ornamental plants, COMBIO could promote the native trees seedlings production and centralize the needs of others projects and initiatives for native species seedlings. Depending on the targeted area, COMBIO should facilitate the link and negotiation process between potential buyers and the CBC.

5. **Connect the CBC to the national tree seeds regulations and formal supply mechanisms through the tree seeds centers.**

Up to now, the COMBIO project has been self-supplied with seeds through collections in the wild. The CBCs have had little or no involvement in species selection and seed supply for their tree nursery. For the approach to be sustainable, it is important that CBCs are trained and involved in seed provisioning, in particular by training them in the various aspects of seed resource management, in conjunction with tree seed centers.

6. **Support knowledge sharing on seedling production and plant dissemination between all established CBS through exchanges, workshops and networks (e.g. whatsapp group)**

7. **Strengthen capacities on general reproductive cycles for tree and seed requirement as well as NTSC recommended protocol, as well as pest and disease integrated management**

General reproductive cycles for tree from germination, planting, maintenance, flowering to seed; and seed requirement including seed collection, seed maturity quality handling, postharvest issues and transportation.

8. **Diversify plant and tree species to integrate species with local economic importance and market potential**

While promoting native trees species plantations and uses among local population is important for the project, the economic viability of the nurseries should not be ignored. It is clear that the market demand for seedlings also includes fruit and nuts trees and shrubs. Thus, the nurseries have to diversify their offer to reach the local demand. In each CBS, a quick market study should be conducted to assess and identify the most demanded species in the area.

9. **Gradually make the cooperatives more self-sufficient in supplying seeds and materials, managing nurseries and prospecting for new markets. Consolidate a pricing grid based on real experience.**

8 Final opportunity choice for established CBS

CBS	Potential of the sector score (based on VC analysis) 0 Very Low – 1 Low – 2 Medium – 3 High – 4 Very High			Final opportunity choice 0: not feasible, 1: may be feasible but not recommended, 2: feasible under certain condition, 3: recommended, 4: highly recommended as priority			Comments
	Beekeeping	Seeds and seedlings	Ecotourism	Beekeeping	Seeds and seedlings	Ecotourism	
Ngoma Zaza	2,32	2,37	0	3	2	1	The CBS site is very well suited for both BK and TSS VCs, and the CBC is incipient, but dynamic and promising. On the other hand, the area is not well connected, and there are strong concerns on marketing, skills, and input acquisition for both VCs.
Kirehe Rusumo	1,95	2,21	1,79	3	2	2	The CBS site is a steep hill with no direct access to water and close to the main road, thus limiting the development of infrastructures onsite. The CBC has no experience or skills for BK or ET development but has a history of selling seedlings for afforestation projects.
Rwamagana Muhazi	2	1,42	1,26	2	1	1	The CBS site is suitable for BK but the cooperative has to be organized, trained and accompanied for this new activity. The nursery is situated in a rented private land with a quite difficult access to water, and an accessibility issue for market development of the TSS VC. The CBS is situated on the shores of the lake Muhazi but the development of the ET VC is not recommended due to several challenges.
Kayonza Gahini	1,47	2,11	2	1	3	2	The CBS site is not suitable for BK for security reasons (road). The nursery for TSS VC development is easily accessible (near Kayonza), situated along a main road with water access. The CBS is situated on the shores of the lake Muhazi and close to two existing hotels-restaurants, the ET VC development is possible with a private partner but challenging.
Gatsibo Ryarubamba	1,89	2,16	1,11	2	3	1	The CBS site is suitable for BK processing and selling point, but not for apiary instalment, and the cooperative has to be organized, trained and accompanied for this new activity. The nursery for TSS VC is easily accessible, but without direct water access. ET VC is not recommended due to the lack of assets and potential in the area, aside of pharmacopeia knowledge, not enough to attract visitors.
Nyagatare Kashuruga	2,26	1,84	0,95	3	2	1	The CBS site is highly suitable for BK, with half of the members trained as part of a former BK cooperative, but the cooperative has to be organized, trained and accompanied for this new activity. The nursery is located near water source, but its current location faces several challenges such as damages by animals, and remoteness from market opportunities. Despite the site's assets (viewpoints, Akagera and Tanzania proximity, forest and wildlife), ET development is not considered because of the site's remoteness.
Bugesera Nyamata	(removed from the study's scope by ENABEL)						

9 Summary of recommendations over the CBS and value chains

1. **Promote community-based sancta's cooperative professionalization and governance.**

Provide training on business model elaboration, and financial management, cooperative record, bookkeeping and financial monitoring and reporting.

Provide training on cooperative leadership, organization and management, inclusive decision-making, and supporting establishment of meetings and tools for healthy and collaborative management.

2. **Prevent internal or external conflicts (social safeguards).**

Identify and contact former users of CBS sites (e.g. cattle owners, farmers), to ensure that they could either relocate their activities or benefit from the CBS development.

Establish and validate participatively rules for the sharing and repartition of any income generated by Cooperative activities.

Ensure that regular meetings are held within the cooperative to raise and address any potential disagreements or concerns before the situation evolves in a conflict.

3. **Support partnership and mutualization with the local ecosystems.**

Facilitate alliances and partnerships with VC stakeholders, including possible competitors to enhance resource sharing and market access, bolstering competitive positioning.

Improve the visibility and recognition of the CBS in the local environment, through appropriate communication and signage.

4. **Start small and allow progressive and grassroot-based evolution.**

Avoid standardized approach and allow room for adaptation and local initiative. Business models for VC development should be based on the interests expressed of CBC members, with leeway for individual initiative and variations.

Likewise, the organizational strengthening of cooperatives should be based on peer-to-peer capacity reinforcement with other established cooperatives, while technical training should be based on a learning by doing approach.

5. **Adapt support strategies linked to the intrinsic risk profile of the Value Chains**

Beekeeping: Medium Investment; Medium Risk. Can be considered a safe investment considering the high demand, but adequate training, follow-up, and marketing support are critical to success.

Ecotourism: High Investment ; High Risk. In most cases, the investments required for development of this VC cannot be supported by the cooperative, while the risk of failure is important. The development of this VC should rely on strong partnership with external investors and prioritize low hanging fruits.

Native tree seeds and seedlings: Low Investment ; High Risk. This VC is probably unable to achieve profitability through local marketing since the demand for seedlings (and especially native seedlings) is unlikely to generate enough income for the CBCs. However, it doesn't require high investments nor outstanding technical skills. Moreover, and can be "activated" on a stop-and-go basis, depending on market opportunities such as public tender notices. However, this strategy requires the CBC to be able to always keep some investment capacity to be reactive to market signals.

6. **Put in place gradual transition at the project end to ensure long term success**

Ensure that the benefits and positive outcomes achieved during project's implementation continue beyond its lifespan, through an adapted exit strategy for a sustained source of resources for the cooperative even after project closure.

Empower cooperative members to manage operations effectively without external support and consider ways to keep stakeholders engaged, motivated, and committed to the cooperative's success.

Establish linkages with governmental organizations and other entities to provide ongoing support, access to markets, and technical assistance even after the project ends.

Allow for a gradual process of exit, where responsibilities are gradually transferred to the cooperative, allows for smoother transitions and better sustainability.

10 Concluding remarks and next steps

The first phase of the study was conclusive, as all planned activities were undertaken successfully with the support and coordination of ENABEL's officers, and with the presence of CBS members throughout all stages of the consultative process.

Initial focus group discussions among existing CBS were fruitful and dynamic, as well as the workshops, despite a higher number of participants and the presence of local authorities. Participation and group cohesion varied according to each CBS, where voices were generally shared among members and there appeared to be significant involvement (with some exceptions), especially from women and youth. Committee members were commonly more active than the rest of the group.

SalvaTerra team encouraged a participatory approach by dividing members into groups and giving them the lead to provide inputs on SWOT for each VC and VC scoring, which led to great results and a better involvement.

In the CBS under establishment, due to the recent formation of groups, it was generally more difficult to obtain solid inputs, but a general impression based on visits and discussions allowed for a preliminary assessment of each VC's SWOT analysis.

Key points of concern include the imperative to **consider the overall risk** of starting new businesses with starting from a generally low skilled population. In this regard, a specific attention should be given to the **different risk profiles** of each VC (refer to 9. Summary of Recommendations). Another point of concern is related to emerging governance structures. Some CBS cooperatives have already displayed **signs of divided leadership** between presidents/committee members and other members, as well as a risk of leaders monopolizing economic power. Additionally, the large membership size in many cooperatives (exceeding 50 members) poses substantial risks due to inadequate organizational structures and the innovative nature of the proposed VC activities. It is crucial to undertake extensive structuring work and provide ongoing support during the initial phases of implementation.

CBS members clearly showed **high interest in all VCs**, especially those which are perceived with a high revenue potential such as Beekeeping and Ecotourism**. Beekeeping has a better potential for implementation** given the higher and more secure market opportunities of honey at local and national scale. **Ecotourism is still a new concept in the Eastern Province** with rare exceptions around Akagera National Park. It was only considered as potentially feasible by the teams when visitor presence in the area was ensured (on the main road from Akagera NP or at the border crossing in Rusumo), so as not to rely solely on future actions dedicated to attracting the market. Ecotourism opportunities may be reassessed in a few years in some areas where infrastructure or investor presence would have developed.

Gender equality and women's empowerment were considered during focus group discussions and workshops, regularly integrating women's voices in the group, with variable participation but generally high involvement of women committee members. Groups led by women showed a generally more inclusive and better shared leadership. It will, however, be important to include women's leadership support sessions by experienced members in the initial stages of project implementation and cooperative governance support, to ensure that decision-making is shared beyond conception. Women showed great interest in all VCs and specified interest in post-harvest BK activities instead of production.

Youth integration during FGDs and workshops was conclusive and strong, particularly for young people with a higher education level than their peers. Participation by young women was variable. Youth expressed a higher interest in entrepreneurship activities such as ecotourism promotion. It is generally suggested to ensure youth involvement in marketing and sales strategy definition, and to promote specific roles for their empowerment.

Next steps include a second field mission, planned from April 29th to May 5th, 2024, dedicated to (i) validating results in the Eastern Province workshop #1 (see Appendix 11.3), and conducting workshops at the level of each of the six established CBS for roadmap and business plan development for each VC. Information will then be compiled into Progress Report #2, and results will be validated in an Eastern Province workshop #2 in June or July 2024. Final validation is planned to occur in July 2024, and project implementation is scheduled to begin at the end of the year 2024.

Appendix

Appendix 1. Field Mission guide – Value chain analysis at CBS level

Field visit of the CBS area with CBS members and authorities

Go to the CBS area, walk around, see, and document the soils, vegetation (trees, grasses, plants for bee keeping, etc.), human activities (agriculture, pasture, fire, etc.), access (road, walking time, etc.), surroundings (risks of fire, other activities, etc.), environmental threats, etc.

Visit specific interest sites such as local nurseries, afforestation efforts, beekeeping cooperatives, farmers, hotels, lakes, forests, etc.

Ask about the history of the area, the land tenure situation, etc.

Discuss with the members their vision of this CBS, why and for what, objectives, way of management, people concerned, link with the community, link with private sector & private initiatives, existing cooperatives, groups, or businesses among CBS members, etc.

Interview of key stakeholders

Type of stakeholders:

Local authorities

Projects or public centers involved in the 3 VC.

Any relevant stakeholder involved in the 3 VC.

Etc.

The objective is to discuss and understand:

The role and link of the entity with the VC: short presentation of the organization and its roles and activities in the area and VC.

Get general information and data about the VC in the area: regulation, importance, dynamic, potential, other key stakeholders, market, main issues, good practices and innovations, etc.

Get detailed information on existing VC: presentation of all the production steps from first investment to the final consumer, equipment/material and costs (identify buyers), running costs, inputs and work needed (human resource), transformation, market and selling prices, demand and possible customers, etc.

Existence of business plans for the VC?

Discuss SWOT: Strength, weaknesses, opportunities, and threats…

Opinion on the village and CBS area and approach for developing the VC.

Focus Group discussion (FGD)

The idea is to start with a **general discussion**, to set up the objectives of the meeting and to answer all relevant questions about the CBS (steps 1 to 5 below). This is a good opportunity as well to answer the CBS members' questions to create a **climate of mutual trust**.

The potentially interesting **VCs are then ranked by order of priority** by the participants (step 6), before carrying the **SWOT analysis** for each VC (step 7).

The most interesting/highest priority VC is discussed first. Then, the people not interested in the others VC can leave. Be efficient and try to do all the work in a maximum of 3 hours.

The meeting contents are summarized below:

1. Short **introduction** about the COMBIO project and CBS approach (ENABEL if possible).
2. Presentation of our **team and objectives**: diagnostic and SWOT analysis of 3 VC in CBS / Business plans development for prioritized VC. 2 missions, this first one and another in April/May. Overall contribution to CBS and VC development in the communities.
3. Presentation of the **FGD methodology**:

- Participative discussion to listen to everyone (give specific attention to women and youth).
- General talk about the CBS and its objectives and management system.
- Specific talk about each VC (if relevant): Seed and seedlings, bee keeping, ecotourism.

4. General talk on the **organization of the CBS**:
   - Who is part of this project in the community (number of people, inclusion of women/young community members, other specific groups?
   - How are you organized (leaders, committees, etc.) or how do you plan to organize the CBS management (repartition of responsibilities)?
   - Who are your leaders (names, functions, qualifications, decision-making etc.)?
   - What are the objectives of the CBS? What do you want to achieve (vision) and what are your priorities?
   - Do you have specific rules or any ideas of specific rules to put in place?
   - Are there any conflicts or issues related to the CBS?
   - Etc.
5. Focus on the **income and resource management**:
   - What are the most important resources for your community? What are the main income-generating activities?
   - How are these resources or productive activities managed at CBS level?
   - What are the biggest challenges (also some specific to women and youth) and solutions to overcome them?
   - What are the best opportunities and interest to develop around your CBS?
6. VC **ranking and prioritization**:
   - What are the most important VCs to develop in your CBS?
   - With respect to the Beekeeping, Tree seedlings and Ecotourism VCs, how would you evaluate the following criteria, from 0 (very low) to 4 (very high):

The important arguments to justify the prioritization by the CBS members should be noted and will serve as triggers for the SWOT analyses.

Criteria	**Bee keeping**	**Tree seeds and seedlings**	**Ecotourism**
People general interest and confidence to develop the VC in the CBS (if 0, go to the next VC)			
Local skills or training solutions to develop the VC			
Available resources (natural resources, raw material)			
Available workforce			
Market opportunities / customers			
Natural, anthropic, or technical threats and challenges (climate change, use of pesticides, low rainfall, land conflict, human-wildlife conflict etc.)			
Specific interest for women and/or youth			

TOTAL			

7. Specific **discussion on each VC and SWOT analysis**:

Examples of triggering questions are provided below, but the list can be extended as required. Try to get technical and prices data on each VC.

Bee keeping:

- How would you like to develop this VC in the CBS?
- Number and types of beehives? Needs for investment and equipment?
- What kind of plants are suitable for honey production in the area? What other plants could be planted?
- Who would be involved the activity (qualification and needs for training)?
- How the activity could be organized among the CBS members?
- Potential partners for the activity?
- Products and commercialization?
- Potential challenges (predators, use of phytosanitary products, know-how, etc.)

Tree seeds and seedlings:

- How would you like to develop this VC in the CBS?
- What are the most interesting or easiest species to reproduce / plant / sell?
- Needs for investment and equipment in nurseries?
- Who would be involved in the activity (qualification and needs for training)?
- How could the activity be organized among the CBS members?
- Potential partners for the activity?
- Products and commercialization? Try to get technical and prices data on the VC.

Ecotourism:

- How would you like to develop this VC in the CBS?
- Most valuable sites and possible activities in the area (wildlife, nature, culture)?
- Existing tourism stakeholders in the area?
- Any potential unique ecotourism product or experience in the area?
- Any existing visitors in the area (approximate number, frequency, typology)?
- Needs for investment (assets, equipment, financial support, capacity building etc.) for ecotourism?
- Who would be involved the activity (qualification and needs for training)?
- How the activity could be organized among the CBS members and how many/which CBS members would be interested and eligible?
- Potential partners for the activity (contract or relationship)?

Participatively fill 1 SWOT table per VC per CBS.

Strengths **Product Quality**: Assess the quality of agricultural products, unique features, certifications, or special attributes that could give a competitive edge. **Infrastructure**: Evaluate strong transportation, storage facilities, technology, or efficient processes that enhance productivity. **Access to Resources**: Consider advantages like fertile land, skilled labour, favourable climate, and access to water resources.	**Weaknesses** **Technological/Knowledge Gaps**: Identify communities knowledge/organization gaps, outdated machinery, inefficient processes, or lack of access to technology hindering productivity. **Low investment capacity** of communities and value chain stakeholders to improve SMEs **Supply Chain Issues**: Evaluate bottlenecks, inefficiencies, or gaps in the supply chain that lead to lack of access to inputs/outlets, wastage, delays, or increased costs. **Market Access/Dependence**: Assess access to market or over-reliance on specific markets, limited product diversification, or vulnerability to changing market trends, etc.
Opportunities **State support:** Explore whether value chains can be the subject of special support from the State **Market Expansion**: Explore new markets, emerging consumer trends like national tourism, or export opportunities that can be tapped into. **Technological Advancements**: Identify opportunities for adopting new technologies, precision agriculture, or innovations to improve efficiency and productivity. **Partnerships/Collaborations**: Look for possibilities to collaborate with research institutions, government programs, or industry players to enhance knowledge or gain access to resources.	**Threats** **Pests/Diseases**: Assess risks related to crop diseases, infestations, or climate change affecting productivity. **Climate change:** Consider the potential impact of extreme weather events and seasonal changes **Market Competition**: Consider the threat posed by competitors, both locally and globally, and the potential impact on market. **Regulatory/political Changes**: Evaluate potential risks arising from changes in political context, regulations, trade policies, or environmental laws affecting the industry. **Pandemics** or other events involving restrictions on movement may be a significant threat **Degradation of the natural environment**: anthropic pressure, deforestation, etc. can pose a threat to certain value chains such as ecotourism.

Participative workshop (20-25 people).

1. Introduction by ENABEL and local authorities
2. Short presentation of CBS, its situation, points of interest, issues, etc.
3. Presentation of the VCs scoring table + other criteria mentioned by people.
4. Presentation of the SWOT analysis for each VC
5. Reactions / comments / complements by people. Based on the SWOT, discussion about how to maximize the opportunities and to avoid/limit the threats…

The following steps are optional, and will depend mainly on the profile of the participants, level of organization of the CBS etc.

6. Group brainstorm on VC development (world café or other facilitation techniques). Divide the people in 1 to 3 groups of interest (1 by VC) to work on a draft VC development project (including business plan).
    - Thinking about the possible project, its objectives, organization, stakeholders, and main activities (step by step)…
    - Technical and financial feasibility: initial investments and equipment (type, number, and price), workers (need for work per week/day and periods during the year), running costs (inputs, water, protection, etc.), qualifications/training, etc.
    - Production / selling / revenues: estimated production per year (1 to 5), types of products, prices, possible markets, and customers, etc.

- Organization at the CBS level: governance, involved stakeholders and partnerships (public or private sector? Projects?), etc.

7. Collective restitution of the VC projects/business plans. At this stage, it will be difficult to present detailed business plans with consolidated date/figures. Explain that it will be consolidated in the next step/mission.

Complementary questions to local authorities (district / sector) or key institutions / stakeholders:

Ecotourism

1. Are there any plans or initiatives to improve tourism infrastructure within the district/sector? Who are the primary target markets for ecotourism activities within the district/sector?
2. What are the existing or potential revenue streams generated from ecotourism activities within the DISTRICT? How are the economic benefits of ecotourism distributed among the local community? Are there any initiatives or strategies in place to enhance the economic impact of ecotourism on local livelihoods?
3. What are the main challenges faced in developing and managing ecotourism initiatives within the district/sector? Are there any untapped opportunities or areas for improvement within the ecotourism value chain?
4. How do you envision the future growth and sustainability of ecotourism in the district/sector?
5. What are the existing partnerships or collaborations with government agencies, NGOs, or private sector entities to support ecotourism development? How effective are these partnerships in achieving the goals of biodiversity conservation and community empowerment?

Bee keeping

1. Are there any plans or initiatives to promote bee keeping within the district/sector? What are the concrete actions that are taken to promote the activity?
2. What are the main downstream players (collectors, brewers, distributors, etc.)? What kind of market do they target (domestic/international)? Do they comply with national and international standards?
3. What are the main service providers in the district for honey production (equipment, specialized veterinaries, etc.). Evaluate the accessibility of key inputs, such as modern beehives, frames, extractors, etc.
4. Focus on financial services: how do producers finance the necessary investments to launch and maintain their production? Evaluate the possible dependence to downstream actors.
5. Is there a risk of pesticide or GMO contamination of honey in the area? Do we know who might be responsible? What are the options to avoid or check for this?

Tree seeds or seedlings

1. Try to see the **Tree Seed Center in Gatsibo**
2. Have a look to **24-03-06 RW ENABEL TBE - Deep mapping CBS-surligné** (list of planted species in each CBS)
3. Are there any plans or initiatives to promote native trees seeds and seedlings within the district/sector? What are the concrete actions that are taken to promote native trees plantations? Results/issues?
4. What are the main stakeholders and equipment providers in tree seeds / seedlings sector in the area? Are there any data about recent plantations and objectives?
5. Are there specific issues regarding competition for lands between agriculture and forest plantations? Where do we plant trees and are there negative effects on food production/agriculture?
6. Please note and eventually discuss the list of key species grown in the CBS : Coffea eugenioides, Kigelia africana (Ikivungavungo), Vachellia sieberiana (Umunyinya), Markhamia obtusifolia (Nyiragasave), Pappea capensis (Umumena), Syzygium guineense (Umugote), Garcinia buchanani (Amasarasi), Combretum molle (Umurama), Ficus sur (umudoboro), Ficus sycomorus (Umurehe/umukuyu), Securidaca longepedunculata (Umunyagasozi), Ziziphus mucronate (Umukugutu), Tetradenia riparia (Umuravumba), Erythrina abyssinica (Umuko),

Olea europea subsp. Africana (Umunzenze), Albizia adiantifolia, Albizia gummifera, Albizia amara-Umumeyu.

Appendix 2. List of Visited stakeholders

Date	Location	Stakeholder	VC
12/03/2024	Kigali	Working session at COMBIO project office with Project officers: Pr. Elias Bizuru, Gaspard Munyaneza, François Hakorimana	All
12/03/2024	Kigali	Meeting with Rwanda Development Board Ecotourism Analyst: Mr. Cedric Tuyisenge	Ecotourism
14/03/2024	Nyagatare Rwimiyaga	Meeting with sector leader : Mr. Anthony Bagabo	All
14/03/2024	Nyagatare Karushuga	Focus group discussion with a Beekeeping Cooperative, KOTEKA, with 6 members	Beekeeping
14/03/2024	Nyagatare Karushuga	Meeting and focus group discussion with the Nyagatare Karushuga cooperative and local authorities : 10 members + sector agronomist.	All
14/03/2024	Nyagatare Karushuga	Visit of the Nyagatare Karushuga CBS	All
14/03/2024	Gahini, Kayonza	Visit of the Gahini Jambo Beach nursery (with the ENABEL's local technician : Esther)	Tree seeds & seedlings
14/03/2024	Gahini, Kayonza	Visit of the Gahini Jambo Beach CBS	All
14/03/2024	Gahini, Kayonza	Meeting and focus group discussion with the Gahini JB cooperative and local authorities : 14 members (including 3 women) + sector agronomist.	All
14/03/2024	Gahini, Kayonza	Visit of a private trees and plants nursery with Mr. Vianney Busengumuremyi	Tree seeds & seedlings
14/03/2024	Gahini, Kayonza	Visit of the Jambo Beach bar-restaurant and interview with the Manager : Mr. Félicien Hakizimfura.	Ecotourism
14/03/2024	Gahini, Kayonza	Visit of the apiary of a local beekeeper member of the cooperative : Mr. Bonavenure Nkihemuka	Beekeeping
14/03/2024	Rusumo, Kirehe	Visit and focus group discussion with the Rusumo CBS	
14/03/2024	Kirehe, Kirehe	Interview with the KODUNA honey cooperative	Beekeeping, Tree seeds and seedlings
15/03/2024	Kirehe, Kirehe	Interview with the KOPAKI honey cooperative	Beekeeping
15/03/2024	Nyagatare Karushuga	Workshop with the Nyagatare Karushuga cooperative and local authorities : around 25 people	All
15/03/2024	Murambi, Rwamagana	Visit of the CBS and the nursery with the ENABEL's local technician : Pacifique.	All
15/03/2024	Murambi, Rwamagana	Meeting and focus group discussion with the Murambi Rwamagana cooperative and local authorities : 15 members (including 6 women) + sector agronomist.	All
15/03/2024	Gasharo village, Murambi, Rwamagana	Visit of a restored site with trees plantations in the shores of the Muhazi lake.	Tree seeds & seedlings
15/03/2024	Nyankurazo, Kirehe	Workshop with the Rusumo CBS and sector authorities	All
16/03/2024	Akagera Community Center	Visit of a modern apiary, beekeeping equipment and interview with the responsible of a beekeepers' cooperatives Union	Beekeeping

16/03/2024	Akagera area	Interview with the Inyanga Akagera cooperative : cultural danse and songs	Ecotourism
16/03/2024	Mpanga, Kirehe	Visit of the KODUNA honey cooperative	Beekeeping, Tree seeds and seedlings
17/03/2024	Akagera National Park	Visit and interviews with the Akagera National Park management	Ecotourism
18/03/2024	Gatsibo	Meeting and visit at the Gatsibo Tree seed center	Tree seeds & seedlings
18/03/2024	Gatsibo Ryarubamba	Meeting and focus group discussion with the Gatsibo Ryarubamba cooperative and local authorities : 15 members + sector agronomist.	All
18/03/2024	Gisunzu, Nihiry, Kayonza	Visit of the new CBS and focus group discussion with the cooperative (9 members)	All
18/03/2024	Murambi, Rwamagana	Workshop with the Murambi Rwamagana cooperative and local authorities : around 30 people	All
18/03/2024	Gahara, Kirehe	Visit and Focus Group Discussion with the Gahara new CBS	All
18/03/2024	Gahara, Kirehe	Visit and interview with Medard, a private Beekeeper and trainer for modern beekeeping	Beekeeping
19/03/2024	Gatsibo Ryarubamba	Visit and meeting with existing Nursery cooperative's president	Tree seeds and seedlings
19/03/2024	Gatsibo Gitoki	Visit of the new CBS and focus group discussion with the cooperative (10 members)	All
19/03/2024	Gahini, Kayonza	Visit of the Seeds of Pace Center : accommodation, drinks, food, boat tours, etc.	Ecotourism
19/03/2024	Gahini, Kayonza	Workshop with the Gahini Jambo Beach cooperative and local authorities : around 25 people (including 6 women and 8 young people)	All
19/03/2024	Zaza, Ngoma	Visit and Focus group discussion with the Zaza CBS	All
19/03/2024	Zaza, Ngoma	Interview with Raymond Bizagwira, a private tree seedlings producer for local farmers	Tree seeds and seedlings
19/03/2024	Kigali	Visit of the Nyandungu Urban Wetland EcoPark	Ecotourism
20/03/2024	Zaza, Ngoma	Interview with the Association des Eglises Baptistes au Rwanda, which is providing support to Beekeepers	Beekeeping
20/03/2024	Zaza, Ngoma	Workshop with the Zaza CBS and sector authorities	All
20/03/2024	Zaza, Ngoma	Interview with Joseph Ngendahimana, a private beekeeper trained by the AEBR	Beekeeping
20/03/2024	Gatsibo Ryarubamba	Workshop with the Gatsibo Ryarubamba cooperative and local authorities : around 25 people	All
20/03/2024	Kamabuye village, Rilima, Bugesera	Visit of the new CBS and focus group discussion with the cooperative (9 members, including 2 women and 3 young)	All
20/03/2024	Kigali	Visit and interview with Beekeepers' Gift LtD managers : Mr. Jean-Marie and Mrs. Abigael	Beekeeping
20/03/2024	Kigali	Visit and interview with EH HONEY : Mr. Ahmed Allan	Beekeeping
20/03/2024	Rwamagana	Visit and interview of Beekeeping cooperative of retired people: 7 members, and visit of the processing unit	Beekeeping
21/03/2024	Rwamagana Nzige	Visit of the new CBS and focus group discussion with the cooperative (8 members)	All
21/03/2024	Rwamagana	Visit and interview with beehive construction company, S.E.A.L	Beekeeping

21/03/2024	Rukumberi, Ngoma	Visit and Focus group discussion with the Rukumberi new CBS	All
22/03/2024	Kigali	Meeting with ARCOS project, 3 people (Leader of community management, Director of development and Leader of ecosystems)	Tree seeds & seedlings
22/03/2024	Kigali	Meeting with Rwanda Development Board's Ecotourism, Tourism product development and Conservation officers: Mr. Cedric Tuyisenge, Jean Aime Sibomana and Richard Muvunuyi	Ecotourism
22/03/2024	Kigali	Meeting with ICRAF team	Beekeeping

Appendix 3. Minutes from Eastern Province Workshop #1 (02nd May 2024)

The first Eastern Province Workshop was foreseen under activity 1.5 and 2.2 of the methodology. The objective was to share the finding and recommendations of the consultants on the different targeted value chains, and discuss and jointly agree with all the key stakeholders on the most opportune and feasible value chain to be developed and to be considered by the consultants for the participatory development of the simplified business plan and value chain development road maps (activity 2.3 and 2.4).

The workshop (see the below agenda) took place in Rwamagana and involved the presence of representatives from Rwanda Forestry Authority (RFA), Tree seed center, Ministry of Environment (MoE), Eastern Province districts such as Vice-Mayor, ENABEL, COMBIO project, TREPA project, IUCN, ICRAF, RAB, RDB, Arcos, two representatives by CBS, and teams of consultants (SalvaTerra, Ikirezi and EMS).

Tableau 1 Eastern Province Workshop #1 agenda

9:00	Introduction	
9:10	Welcome remark	RFA
9:20	Context of the study and objective of the workshop	Enabel
9:30	Presentation of Beekeeping VC findings and Q&A	Salva-Terra
10:00	Presentation of Ecotourism VC findings and Q&A	Salva-Terra
10:30	Tea break	
10:45	Presentation of Seed&Seedling VC findings and Q&A	Salva-Terra
11:15	Presentation of Essential oil VC findings and Q&A	Ikirezi
11:45	Presentation of opportunities for native fruit trees and Q&A	Enabel
12:15	Presentation on Pharmacopiea and Q&A	EMS
12:45	General discussion & brainstorming	
13:15	Lunch	
14:00	Summary overview of every VCs per CBS, discussion and joint agreement on most opportune/feasible VC per site	Enabel
16:00	End remark and conclusion	
16:30	End	

The Workshop allowed each VC team to present overall value chain findings (bibliographic review summary, global VC SWOT analysis, results from VC scoring and by CBS, along with final opportunity choice and conditions for success.

Key take away messages from the workshop included the following:

1. **Beekeeping (BK) VC**. It is commonly agreed that this value chain is encountering the widest interest among CBS members, thought to present less risk to achieve great income. Some challenges were however highlighted, such as threats of bees attacks to the community (proximity to kids and schools, farmers, etc.), death related to bee stings linked to personal allergies, use of chemicals in nearby fields and access to market in remote areas. The team acknowledged these challenges, by precising that the VC scoring methodology integrated such criteria to confirm feasibility of beekeeping activity in each sancta, including the proximity with schools, road, etc.

2. **Ecotourism (ET) VC**. Debates from the workshop highlighted the fact that ecotourism terminology still brings some confusions between various types of tourism, community-based tourism, nature-based tourism, conservation tourism, etc. The team's choice to keep only two CBS for ecotourism development (Kayonza Jumbo Beach and Kirehe Nyankurazo) raised questions among few workshop members, as some thought that there could be, even in unconsidered CBS, potential for valorization of local activities such as agritourism. The team recalled unavoidable criteria for ecotourism to be selected in a CBS, such as easy accessibility, source of attraction already present (Akagera NP's proximity, Tanzania border) bringing visitors or as a crossing point.
3. **Tree seeds and seedlings (TSS) VC**. This VC raised less debate among workshop members, and was reiterated the need for diversification of species, such as fruit species (avocado, mango, etc.), to avoid risks linked to native plant production only if the market is unsecured (and prone to tender application success).

4. General comments

a. The importance of considering the district management plan was highlighted, under development, to integrate future plans into the understanding of CBS potential. It was recommended for ENABEL project officers and district authorities to feed each other's future plan for the district and CBS.

b. Clarification was brought on the fact that UMUSAVE fund would be eligible to CBS respecting certain conditions, such as restoring native trees in the sancta.

c. Emphasis was made on the fact that CBS who obtained the final opportunity choice of 3 for a VC would mean that the feasibility assessment would continue, and the grade of 2 would mean that the assessment would also continue, but not ensuring it would remain until the end.

5. CBS-specific comments

a. **Ngoma Zaza** CBS kept the grade of 3 for BK and 2 for TSS, but ecotourism was leveled up from 0 to 1, to acknowledge natural features of the Sancta;

b. **Kirehe Nyankurazo** CBS kept the grades of 2 for ET (presence of a tourism masterplan under development was recalled) and TSS, but the BK grade was leveled from 2 up to 3, as per richness of nearby forests;

c. **Rwamagana Murambi** CBS kept the grades of 2 for BK and 1 for ET and TSS;

d. **Kayonza Jambo Beach** CBS kept the grades of 2 for BK and ET, and 3 for TSS;

e. **Gatsibo Ryarubamba** CBS kept the grades of 1 for ET and 3 for TSS, but the BK grade was leveled up from 1 to 2;

f. **Nyagatare Karushuga** CBS kept the grades of 3 for BK, 1 for ET, but TSS was leveled up from 1 to 2.

Appendix 4. Field mission #1 schedule (13th to 23rd March 2024)

DATE	TIME	Team 1 Sophia Lyamouri + Willy Mwiza Enabel : Gaspard	Team 2 David Combaz + Eric Kazubwenge Enabel : François	Team 3 Anis Chakib + Ange Imanishimwe Enabel : Elias
		TL Ecotourism + KE Beekeeping (+ tree seedlings)	**TL Beekeeping + KE Tree seedlings (+ ecotourism)**	**TL Tree seedlings + KE Ecotourism (+beekeeping)**
13/03/2024 Wednesday	AM	Travel from France and from Southern Rwanda to Kigali		
	PM	Travel from Kigali to Nyagatare Karushuga	Meeting between all experts	
14/03/2024 Thursday	7AM		3-4h : Kigali - Kirehe Nyankurazo	1h30 : Kigali - Kayonza Jambo Beach
	AM	Nyagatare Karushuga (P1 BK): visits & interviews (sector, beekeeping coop, Gabiro, etc.)	Kirehe Nyankurazo (P1 BK; ET): visits & interviews (sector, then site)	Kayonza Jambo Beach (P1 BK; ET; TS): visits & interview (sector, then site)
	PM	Nyagatare Karushuga (P1 BK): FGD (12 members)	Kirehe Nyankurazo (P1 BK; ET): FGD (15 members)	Kayonza Jambo Beach (P1 BK; ET; TS): FGD (15 members)
15/03/2024 Friday	AM	**Nyagatare Karushuga (P1 BK): Workshop (CBS representatives, local authorities, tree nusery & beekeping coop rep., etc.) max 20-25 at cell level**	**Kirehe Nyankurazo (P1 BK; ET): Workshop (CBS representatives, local authorities, coop rep, etc.) max 20-25 at cell level**	**Kayonza Jambo Beach (P1 BK; ET; TS): Workshop (CBS representatives, local authorities, etc.) max 20-25 at sector level**
	PM	Complementary visits & interviews: farmers	Kirehe Nyankurazo (P1 BK; ET): visits & interviews	Kayonza Jambo Beach (P1 BK; ET): visits & interviews: Jumbo Beach, tree nursery operator, etc.
16/03/2024 Saturday	AM	Nyagatare - Kayonza (2h)	Complementary visits & interviews	Complementary visits & interviews
		Kayonza		
17/03/2024 Sunday	AM	Internal coordination or field visits (if possible)	Internal coordination or field visits (if possible)	Internal coordination or field visits (if possible)
	PM			
18/03/2024 Monday	7AM-4PM	Gatsibo 2nd : visits & interviews	Kirehe 2nd : visits & interviews (Site of nursery in bufferzone, Essential oil company (Ikirezi), etc.)	Kayonza 2nd : visits & interviews
	4PM	Gatsibo Rubona : visits & interviews (sector, nursery cooperative, beekeeper, farmers)	Ngoma 2nd : visits & interviews	
19/03/2023 Tuesday	AM	Gatsibo Rubona : visits & interviews (sector, nursery cooperative, beekeeper, farmers)	Ngoma Zaza (P1 BK): visits & interviews (sector, farmers, site for nusery, etc.)	Rwamagana Murambi (P1 BK; ET; TS): visits & interviews (sector, site, Native tree species stand, Hotels / lodge, Local beekeeper)
	PM	Gatsibo Rubona : FGD (15 members)	Ngoma Zaza (P1 BK): FGD (15 members)	
20/03/2023 Wednesday	AM	**Gatsibo Rubona : Workshop (CBS representatives, local authorities, tree nusery & beekeping coop rep., etc.) max 20-25 at cell level**	**Ngoma Zaza (P1 BK): Workshop (CBS representatives, local authorities, etc.) max 20-25 at cell level**	Rwamagana Murambi (P1 BK; ET; TS): focus group discussions (FGD) (15 members)
	PM	Complementary visits & interviews: farmers	Ngoma Zaza (P1 BK): complementary visits & interviews	
21/03/2023 Thursday	7AM-5PM	Rwamagana 2nd : visits & interviews: sector chief, farmers, etc.	Bugesera 2nd : visits & interviews	**Rwamagana Murambi (P1 BK; ET; TS): Workshop (CBS representatives, local authorities, tree nusery & beekeping coop rep., etc.) max 20-25 at cell level**
	7AM-5PM	2h : Rwamagana - Kigali	30min : Bugesera - Kigali	2h20 : Rwamagana - Kigali
22/03/2023 Friday	7AM-5PM	Additional meetings/interviews in Kigali	Additional meetings/interviews in Kigali	Additional meetings/interviews in Kigali
	PM	International flight back	International flight back	International flight back

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