CANALLS

AGROECOLOGICAL PRACTICES FOR SUSTAINABLE TRANSITION

D5.1 Consumer segments for agroecological food products

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Executive Summary

This report constitutes Deliverable D5.1: Consumer segments for agroecological food products that have been derived from Task 5.1 of the CANALLS project. The provided analysis and segmentation encompass a thorough examination of both domestic and international markets for agroecological and organic products, with a specific focus on cassava, rice, and maize at the local level, and coffee and cocoa at the international level. The study spans the diverse agricultural landscapes of the Democratic Republic of Congo (DRC), Burundi, Cameroon, and Rwanda.

Cassava is cultivated at the Agroecological Living Lab (ALL) in Kamonyi, Rwanda, and also at the ALL in Uvira, DRC. Maize production takes place at the ALL in Bujumbura, Burundi, while rice is grown at the ALL in Uvira, DRC. Organic coffee is produced at the ALL in Giheta, Burundi, and at the ALL in Biega, DRC. Additionally, coffee cultivation occurs at the ALL in Kabare, DRC. Cocoa is cultivated at the ALL in Ntui, Cameroon, and organic cocoa is produced at the ALL in Bunia, DRC.

The primary objective of this deliverable is to discern nuanced market dynamics, identify distinct market segments, and lay the groundwork for developing tailored value propositions that align with the unique needs of consumers and stakeholders within each market.

Local Markets for cassava, rice and maize

The early stages of development in local markets for agroecological products, encompassing cassava, rice, and maize, present distinctive challenges and opportunities. Within this developmental phase, the report highlights key potential segments, including Urban Consumers, Health-Conscious Consumers, Premium and Niche Markets, Organic and Specialty Stores, the Tourism Industry, Farmers' Markets, and Local Food Networks. It further proposes customized strategies for stakeholders, taking into account the evolving nature of these markets.

International Markets for Coffee and Cocoa

In the international markets for agroecological and organic coffee and cocoa, a global surge in demand for ethically sourced and sustainable products is evident. Consumer preferences are shaped by concerns such as environmental impact, fair trade practices, and product quality. Some promising segments of the international B2C market include Eco-Conscious Consumers, Health and Wellness Enthusiasts, Ethical Consumers, Premium Segment Seekers and Organic Enthusiasts. At the same time, in the B2B international market the following segments appear to be particularly suitable for organic and agroecological coffee and cocoa products Specialty Food and Gourmet Retailers, Organic and Natural Food Manufacturers, Fair Trade and Ethical Brands, Health and Wellness Brands, Conscious Restaurants, Coffee Shops and Cafés and Specialty Roasters.

Challenges, barriers and conclusions

Furthermore, specific challenges and barriers for producing and marketing of agroecological food products in our target countries were identified and relevant addressing strategies were shaped after consulting with both local actors (including consumers) and experts.

The report culminates with the presentation of conclusions derived from the analysis and segmentation of both local and international markets for agroecological products. Some areas for further research and analysis are also highlighted.

Value Proposition Development

A central focus of this report is to serve as the basis for the development of value propositions that resonate with the identified market segments (see Task 5.2: Co-shaping demand-driven and fair value-propositions for agroecological food products). For local markets, the emphasis should be on cultural relevance, health benefits, and community impact. On the international front, value propositions must focus on the transparency of supply chains, adherence to global organic and fair-trade standards, and the unique stories of sustainability inherent in the production of agroecological coffee and cocoa.

Recommendations

The report concludes with actionable recommendations tailored to each stakeholder group. Farmers and cooperatives are encouraged to adopt sustainable practices and form collaborative networks, while processors and exporters are advised to invest in eco-friendly processing, source from certified suppliers, and differentiate their products in the market. Governmental agencies are urged to advocate for policies that support sustainable agriculture, and Certification Bodies and NGOs are recommended to streamline certification processes and engage in community education.

In summary, this report provides a roadmap for stakeholders in the agroecological and organic agriculture sectors in DRC, Burundi, Cameroon, and Rwanda. By leveraging the insights presented here and implementing the recommended strategies, stakeholders can contribute to the development of resilient local markets and successfully position agroecological coffee and cocoa in the global arena, fostering sustainable practices and meeting the evolving needs of consumers worldwide.

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List of Terms and Definitions

Abbreviation	Definition
AAL	Agroecology living lab
AFAAS	African Forum for Agricultural Advisory Services
ARFIC	Autorité de Régulation de la Filière Café
BCC	Burundi Coffee Company
BRD	Banque Rwandaise de Développement
BPD	Banque Populaire du Rwanda
CANALLS	Driving Agroecological transitions in the humid tropics of Central and Eastern Africa through traNsdisciplinary Agroecology Living LabS
CICC	Interprofessional Cocoa and Coffee Council
CIFOR-ICRAF	Center for International Forestry Research and World Agroforestry
CONAPROCAM	Confédération Nationale de Producteurs de Cacao et Café du Cameroun
CSA	Community-Supported Agriculture
DRC	Democratic Republic of the Congo
EAC	East African Community
EAFCA	East African Fine Coffee Association
ECI	Eastern Congo Initiative
FCFA	Central African CFA franc
GDP	Gross Domestic Product
GIZ	German Society for International Cooperation
GMO	Genetically Modified Organism
ICE	Intercontinental Exchange
IITA	International Institute of Tropical Agriculture
IRAD	Institute of Agricultural Research for Development
MINADER	Ministry of Agriculture and Rural Development
NGOs	Non-Governmental Organizations
NYMEX	The New York Mercantile Exchange
NYSE	New York Stock Exchange
OCIBU	Office des Cafés Industriels du Burundi
ODECA	Office for Development of the Coffee of Burundi

Abbreviation	Definition
OHADA	Organization for the harmonisation of Business Law in Africa
PGI	Protected Geographical Indication
RAB	Rwanda Agricultural Board
RAEK	Regroupement des Agriculteurs et Eleveurs de Kabare
RICA	Rwanda Institute for Conservation Agriculture
RSB	Rwanda Standards Board
SODECAO	La Société de Développement du Cacao
UPCCO	Union des Producteurs de Cacao du Congo
WFP	World Food Programme

Table 1: Terms and Definitions

1. Introduction

This report constitutes Deliverable D5.1: Consumer segments for agroecological food products that has been elaborated under Task 5.1: Analysis and segmentation of markets for food products of agroecological practices of CANALLS project. The deliverable aims to analyze and segment the markets for agroecological (and organic) products produced in the project's Agroecological Living Labs. The following table shows the products produced per living lab:

Country	Living Lab	Product	Main Market
Burundi	Giheta	Coffee (organic)	International
Burundi	Bujumbura	Maize	Local
Cameroon	Ntui	Cocoa	International
DRC	Bunia	Cocoa (organic)	International
DRC	Biega	Coffee (organic)	International
DRC	Kabare	Coffee	International
DRC	Uvira	Cassava, rice	Local
Rwanda	Kamonyi	Cassava	Local

Table 2: Products per Living Lab

The document is structured as follows:

- **Section 2** outlines the methodology followed to perform the market analysis and segmentation.
- **Section 3** presents the domestic markets for agroecological (and organic) products, focusing on locally consumed products such as maize, rice and cassava.
- **Section 4** presents the international markets for agroecological (and organic) products focusing on globally consumed products: coffee and cocoa.
- **Section 5** includes conclusions, next steps and recommendations.

It is important to note that sections 3 and 4 follow a supply side – demand side structure. Specifically, sections 3 and 4 are further divided in:

- **Section 3.1: "Supply side"** that provides information on the production systems applied in the four countries of interest with regard to the domestically marketed products: maize, cassava and rice.
- **Section 3.2: "Demand side"** that provides information on the local markets for the three domestically marketed products: maize, cassava and rice.
- **Section 4.1: "Supply side"** that provides information on the production systems applied in the countries of interest with regard to the internationally marketed products: coffee and cocoa.
- **Section 4.2: "Demand side"** that provides information on the international markets for the two globally marketed products: coffee and cocoa.

The above structure was chosen with a view to follow a logical progression from the foundational aspects of supply and demand to more specific details and to mirror the natural flow of the

agricultural supply chain, making it easy for readers to follow and understand. Moreover, this structure provides:

- a comprehensive view of the agroecological landscape by addressing both supply and demand aspects;
- insights into the interplay between production and consumption, essential for a thorough understanding of the market.

As the project is still in its first year, the analysis was based on secondary data collected under WP1, field data collected through structured interviews with local actors and on experts' opinions such as the leads of the project's agroecological living labs. It is anticipated that as the project progresses, new insights will force us to revise our analysis and alter the proposed mix of potential customer segments for agroecological (and organic) products. This report will feed the activities of Task 5.2 regarding the development of demand-driven and fair value-propositions for agroecological food products.

2. Methodology

Task 5.1: Analysis and segmentation of markets for food products of agroecological practices aims to identify market segments with homogenous characteristics that can enable the design of demand-driven value propositions and sustainable business models that fit the needs of their target groups.

Methodologically, we divided the market into two broad categories: domestic and international, with a view to reflect the fact that some of our products are more suited for local consumption while others it is better to be marketed at international level.

Each product market is analyzed both at supply and demand level in an attempt to give a comprehensive picture of the course of each product from the field to the final consumer. Of course, particular emphasis is put on the demand side as there lie the various customer segments that we try to identify and profile.

Data for the market analysis came from various sources:

- Data identified from desk research;
- Input from the work done under WP1 including insights into local needs, contexts, agri-food systems, value chains and markets;
- Interviews with local actors based on structured questionnaires;
- Experts' opinions.

Desk research was performed by Q-PLAN in collaboration with local partners with a view to collect some basic market data both at domestic and international level that would aid us in identifying and categorizing distinct groups of potential customers based on relevant characteristics.

The work done under WP1 proved to be very useful in terms of understanding and analysing the local markets and production systems. Particularly, the mapping of food systems, value chains and markets for agroecological products included in deliverable D1.1 involved a comprehensive analysis of key components that contribute to the sustainable production and distribution of agroecological products.

To complement and enrich our database, it was decided to collect primary (field) data for topics not included in WP1 and not covered sufficiently by the desk research. To collect this primary data, we conducted interviews with value chain actors in the regions where the living labs are situated. Guidelines along with a set of tailored semi-structured questionnaires (see APPENDIX II) were prepared by Q-PLAN to ensure consistency, as well as to minimize any potential interviewer-induced bias in the analysis. Furthermore, throughout the primary data collection phase, all necessary precautions were diligently implemented to adhere to pertinent legal and regulatory requirements regarding personal data. This encompassed obtaining explicit consent from participants concerning the handling of their personal data by the project.

Specifically, we identified six distinct types of value chain actors (Producers/ Farmers, Processors, Traders, Transporters, Consumers, Decision makers/ Government officials), and we developed a special questionnaire for each of them in an attempt to collect information on issues such as: familiarity with agroecology, application of agroecological practices in the various points of the value chain, market reach and distribution, pricing, consumption patterns, purchasing behavior and price sensitivity. The completion of the questionnaires was undertaken by the local partners in each living lab. The following table shows the involvement of all local partners in the primary data collection.

A well-established digital tool (ODK) developed by IITA was used for data collection and management. Each living lab employed a team of enumerators for data collection. All teams received a remote training session on the functioning of ODK and on the content of the questionnaires prior to the beginning of the data collection. All in all we managed to collect **346 responses** as detailed in the next table:

Country	Living Lab	Local Partners	Number of questionnaires	Actors
Burundi	Giheta	NATURLAND	12	• Producers:11 • Processors: • Traders: • Transporters: • Consumers:1
Burundi	Bujumbura	IITA, ISABU	27	• Producers: 10 • Processors: 3 • Traders:3 • Transporters: 3 • Consumers: 8
Cameroon	Ntui	IRAD, IITA, CAMFAAS, AFAAS, CIRAD	149	• Producers: 90 • Processors: 14 • Traders:13 • Transporters: 11 • Consumers: 7 • Decision makers:14
Democratic Republic of Congo	Bunia	RIKOLTO,	30	• Producers:10 • Processors: 2 • Traders:3 • Transporters: 3 • Consumers:10 • Decision makers:2
Democratic Republic of Congo	Biega	APDIK	30	• Producers:11 • Processors: 3 • Traders: 4 • Transporters: 1 • Consumers:9 • Decision makers:2
Democratic Republic of Congo	Kabare	IITA, GASD, UCB	31	• Producers:9 • Processors:4 • Traders:3 • Transporters: 2 • Consumers:11 • Decision makers:2

Country	Living Lab	Local Partners	Number of questionnaires	Actors
Democratic Republic of Congo	Uvira	IITA, INERA	34	• Producers:11 • Processors: 5 • Traders:3 • Transporters: 2 • Consumers:11 • Decision makers:2
Rwanda	Kamonyi	RAB, MAGGOT, COPED	33	• Producers: 10 • Processors: 5 • Traders: 4 • Transporters: 2 • Consumers:11 • Decision makers:1
Total			**346**	

Table 3: CANALLS Task 5.1 Interviews information

The total number of questionnaires per stakeholder's category brakes down as follows:

- Producers: 162
- Processors: 36
- Traders: 33
- Transporters: 24
- Consumers: 68
- Decision makers/ Government officials: 23.

These questionnaires were subjected to statistical analysis, employing correlation techniques. Greater emphasis was given to the questionnaires of farmers and consumers, as they yielded the highest number of responses, giving more value to statistical analysis. The questionnaires of the remaining stakeholders were not analysed statistically, but rather qualitatively, taking into consideration the time constraints of the research and the nature of some stakeholders (e.g., decision-makers), for whom gathering a large sample of questionnaires that would make statistical analysis meaningful was not feasible.

The primary aim was to validate a set of hypotheses (included in Annex III) that sought to establish relationships between specific attributes of the interviewees and their attitudes towards various aspects of the agroecological products market. By delving into the correlations between distinct features of respondents and their perspectives on market-related issues, we aimed to uncover valuable insights that could inform a more nuanced understanding of value chain actors' behaviours and preferences within the agroecological products market. Despite our initial hypotheses, the statistical analysis did not substantiate most, if any, of our anticipated correlations. We attribute this divergence to the innovative and evolving nature of the agroecology concept.

Furthermore, we decided to enrich the field data that we had collected through the above interviews, with some more targeted data based on experts' opinions such as the leaders of the living labs and some project partners with great expertise on market issues. To facilitate the discussion with the

experts we developed two interview guides (presented in Annex IV), one for the domestic markets and one for the international markets. The interviews provided insights on issues such as market trends, value chains, government policies and regulations and market segmentation. In total we managed to collect the opinions of **19 experts** with some of them being specialists in the domestic markets while others more knowledgeable on the international markets.

3. Domestic markets (cassava, rice & maize)

Understanding the specific context of the domestic markets is essential for effectively analyzing and segmenting the markets for agroecological food products. By taking into account the countries' agricultural landscape, environmental challenges, cultural considerations, and government support, stakeholders can develop tailored strategies that resonate with local communities. The successful integration of agroecological practices into agricultural production can contribute to sustainable development, food security, and improved livelihoods for citizens.

3.1 Supply side

3.1.1 Maize production in Burundi (Bujumbura ALL)

Overview

Burundi is an agrarian economy with over 90% of its population engaged in agriculture. Maize is a staple crop, serving as a primary source of food and income for many households. However, traditional farming methods, limited access to modern inputs, and environmental challenges have hindered sustainable agricultural growth.

The Department of Agronomy has approximated that a total of 260,000 hectares are dedicated to maize cultivation, boasting an average yield of 1.5 metric tons per hectare[1]. Maize holds a crucial role as a staple food crop in Burundi, contributing to almost half of the total caloric and protein intake in the population's diet.[2]

Maize is grown throughout Burundi. The crop is planted in various regions with different agro-ecological zones, including the highlands and lowlands.

As depicted in the next figure, Burundi's maize production has fluctuated over the years, influenced by factors such as weather conditions and agricultural practices (Figure 1).

Between 2019 and 2022, numerous new factors emerged that significantly impacted agricultural production in Burundi, particularly during the COVID-19 period when there were restrictions on the importation of chemical fertilizers. This situation prompted the development and adoption of organic fertilizers in various regions.

[1] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*
[2] Niyuhire M.C. *(2023), Interview conducted on 08.12.23.*

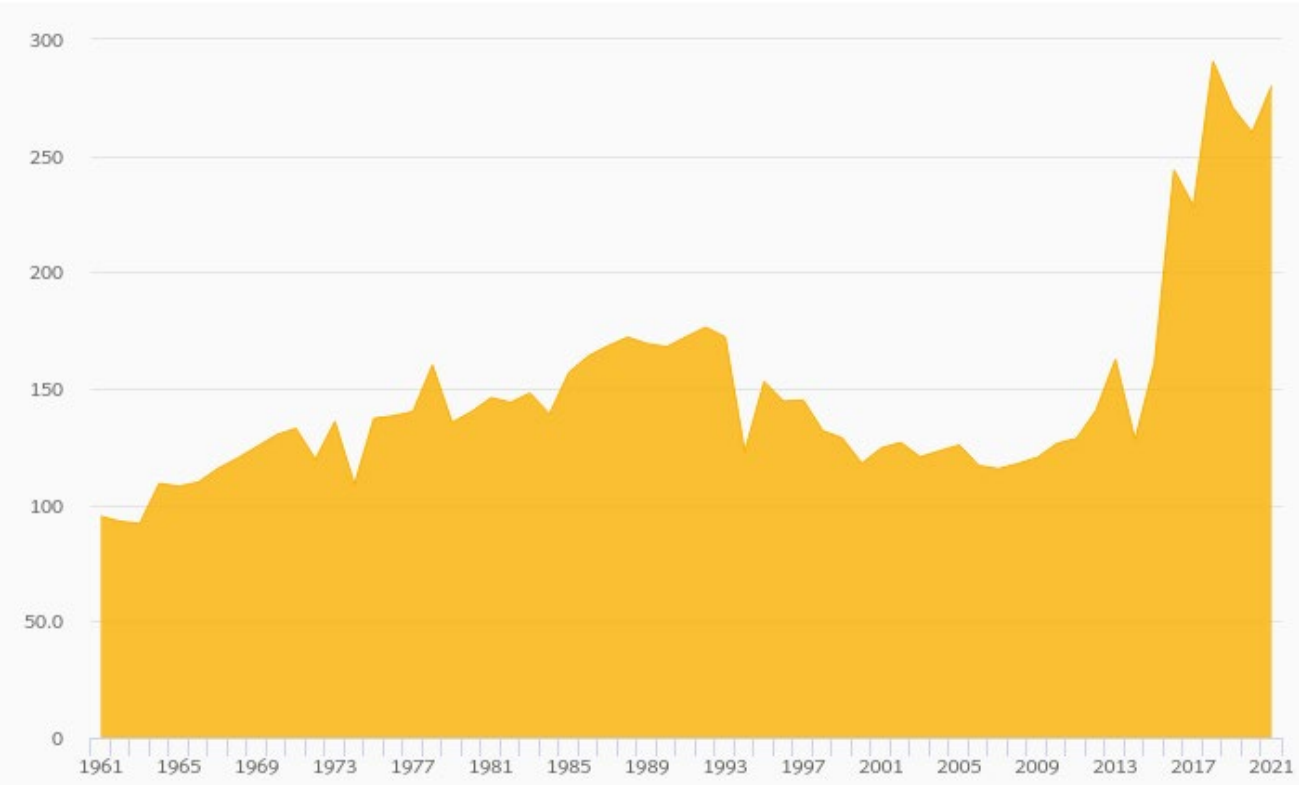


Figure 1: Maize production in Burundi (1961 – 2021)

Source: National Statistical Office

As of 2021, Burundi produced approximately 1 million metric tons of maize per year.

Maize production in Burundi faces several challenges, including limited access to modern agricultural inputs, inconsistent rainfall patterns, pests, and diseases. These challenges can affect both the quantity and quality of maize harvested.

Maize is not only a staple food but also an important cash crop for many Burundian farmers. Burundians generally consume maize flour for patty and porridge. This preference greatly influences the maize market in Burundi. Maize processing has increased significantly in recent years.[3]

The Burundian government and various organizations have been working to improve maize production and address agricultural challenges. Initiatives have been aimed at providing farmers with better access to seeds, fertilizers, and extension services.

The majority of maize production in Burundi comes from smallholder farmers. These farmers typically cultivate maize for both subsistence and sale in local markets.

Certification according to industry standards is in its early phases and lacks significant importance within the maize market in Burundi.[4]

[3] *Ndayishimiye J. M. (2023), Interview conducted on 01.12.23.*
[4] *Ndayishimiye J. M. (2023), Interview conducted on 01.12.23.*

The maize sector in Burundi lacks specific standards. The existing norms and standards apply broadly to all agricultural products. There is a need for enhanced business conditions within the maize sector in Burundi.[5]

Government policies and regulations

Some years back, the government set the price of maize, causing an increase in maize prices in Burundi. Despite the presence of maize processing units, the industry remains weak. There is a subsidy for mineral fertilizers and hybrid maize seeds, serving as incentives for production and exports.[6]

The Burundi government has strategically incorporated maize into comprehensive initiatives aimed at stimulating agricultural development. It extends subsidies to farmers, particularly for essential inputs like seeds and fertilizers. Maize is specifically prioritized in the National Development Strategy (SAN) formulated by the Ministry of Agriculture and Livestock (MINEAGRIE).[7]

For the past two years, the government has been actively raising awareness and providing financial support for maize production.[8]

The maize value chain in Burundi[9]

As presented in the next figure, the main actors in the maize value chain are input providers, seed multipliers, farmers, traders/aggregators, collectors and transporters, processors (mills), researchers and downstream participants in activities such as retail, food manufacturing, brewing, and animal feed production.

[5] *Ntidendereza S. (2023), Interview conducted on 26.11.23.*
[6] *Ndayishimiye J. M. (2023), Interview conducted on 01.12.23.*
[7] Niyuhire M.C. *(2023), Interview conducted on 08.12.23.*
[8] *Ntidendereza S. (2023), Interview conducted on 26.11.23.*
[9] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*

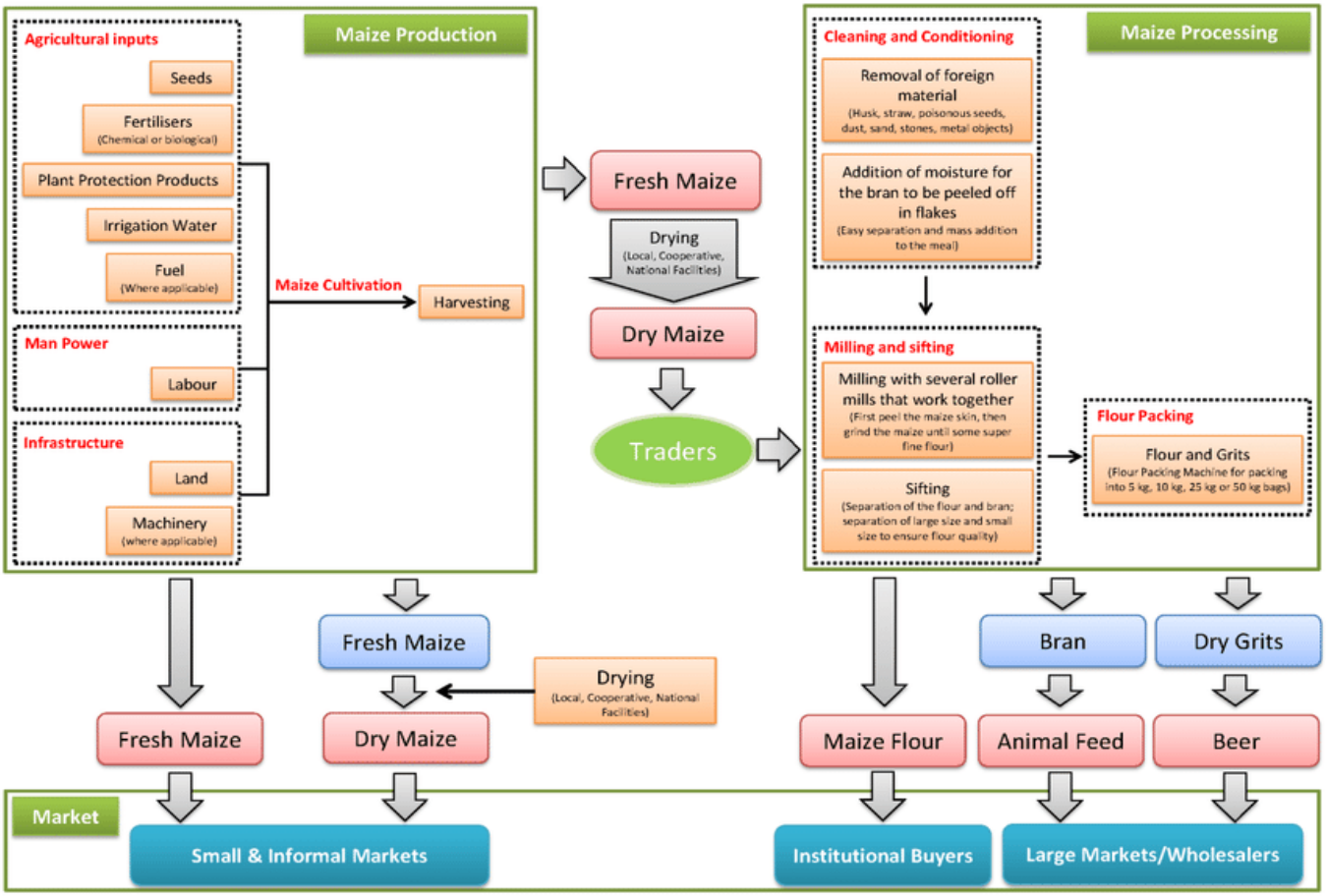


Figure 2: The maize value chain in Burundi

Farmers: Farmers are at the core of the maize value chain. They cultivate maize and are responsible for the initial stages of production, including planting, cultivating, and harvesting.

Cooperatives: Cooperatives are organizations that bring together groups of farmers for collective action. In the maize industry, cooperatives can facilitate bulk purchasing of inputs, provide training and extension services, and help farmers access markets collectively.

Ministry of Agriculture: The Ministry of Agriculture in Burundi is responsible for providing policy direction, regulatory frameworks, and support services to the agricultural sector, including maize production. It plays a role in formulating and implementing policies that affect farmers and the industry as a whole.

Microfinance institutions: Microfinance institutions provide financial services, including credit and loans, to farmers and cooperatives. They play a crucial role in supporting smallholder farmers who may not have easy access to traditional banking services.

Traders: Traders are involved in the marketing and distribution of maize. They purchase maize from farmers or cooperatives and sell it to processors, retailers, or end consumers.

Processors: processors are responsible for transforming raw maize into value-added products such as flour and porridge. These processed products may be sold in local markets or distributed to broader markets.

Agricultural Research Centers: agricultural research centres focus on developing improved maize varieties, providing guidance on best agricultural practices, and conducting research to enhance the overall productivity and sustainability of maize farming.

Provincial Agricultural Offices: Provincial agricultural offices serve as local government entities that implement agricultural policies at the regional level. They may provide extension services, disseminate information, and support farmers and cooperatives within their jurisdiction.

NGOs: NGOs may be involved in various aspects of the maize value chain, providing support in terms of capacity building, training, and community development. They may work with farmers and cooperatives to improve livelihoods and sustainable agricultural practices.

Input Suppliers/ dealers: Input suppliers provide essential agricultural inputs such as seeds, fertilizers, and pesticides to farmers. They play a critical role in ensuring that farmers have access to quality inputs for maize cultivation.

Extension Agents: Extension agents provide technical assistance and advisory services to farmers. They play a crucial role in disseminating information about best agricultural practices, new technologies, and market trends.

3.1.2 Cassava production in Rwanda (Kamonyi ALL)

Overview

In Rwanda, cassava is the third most important crop after banana and sweet potato, contributing to food security and income generation for many farmers. Because of its importance in several tropical regions and its relatively good performance on marginal lands under suboptimal climatic conditions, cassava is recognized as a subsistence crop to overcome food insecurity for the fast-growing population in areas prone to important climatic changes. Although cassava plays an important role as a food security crop in sub-Saharan Africa, it is also used as a cash crop in various cassava-growing regions.[10]

Cassava production in Rwanda varied between 3,000 and 3,701 Mt of fresh roots per year from 2015 to 2018 with a reported average yield of about 14.5 tons per hectare[11]. According to the expert's opinion, in recent years cassava has become scarce due to low production coupled with high demand for exports.[12]

Cassava is a staple food in Rwanda and is consumed in various forms, including as a side dish, in porridge, or processed into flour for making bread and other products.

Cassava is grown in different parts of Rwanda, with variations in climate and soil influencing the choice of cassava varieties and cultivation practices.

[10] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*
[11] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*
[12] *Kantengwa S. (2023), Interview conducted on 24.10.23.*

Cassava is often cultivated by smallholder farmers, contributing to both subsistence and commercial agriculture. Smallholders typically grow cassava alongside other crops in mixed farming systems.

The Rwandan government has implemented various initiatives to support cassava farmers including get a subsidy for chemical fertilizers to boost the production.

Despite its importance, cassava production in Rwanda faces challenges such as diseases, low productivity, and limited access to processing facilities. Efforts are underway to address these challenges and boost cassava production.

Cassava value chain in Rwanda

According to the experts the cassava value chain in Rwanda includes in brief:

- farmers who produce raw cassava;
- local processors who buy fresh cassava from farmers, soak and dry it into pellets;
- whole sellers who buy cassava pellets from local processors and sell it to various markets in the country, mainly to Kigali and smaller cities;
- intermediate sellers who buy cassava pellets from whole sellers, mill and package it and finally market it to consumers.

A more detailed analysis of the cassava value chain in Rwanda is provided by USAID 2010, as listed below:

- **Input suppliers:** The primary input for cassava cultivation is cassava cuttings. Typically, farmers contribute these cuttings from their own fields. Nevertheless, when it comes to new varieties, the Rwanda Agricultural Board (RAB) takes charge of distributing them for multiplication. RAB then supplies these planting materials to secondary multipliers, which may include model farmers or their organizations. Subsequently, these secondary multipliers serve as intermediaries, facilitating the distribution of planting materials to individual farmers or cooperatives, ensuring the widespread dissemination of improved cassava varieties.
- **Producers:** There are two categories of cassava producers; individual farmers who may be small or large and groups who can be associations or cooperatives.
- **Middlemen/ Traders:** These actors vary in size and are prevalent in rural areas. They operate by purchasing cassava at relatively lower prices, amassing substantial quantities and selling them in urban areas.
- **Transporters:** In rural areas, the transportation of cassava to collection centers or local markets often involves a combination of human labor, bicycles, and vans. These modes of transport are employed for shorter distances within the community. However, when it comes to transporting cassava to regional and national markets, the predominant means is the use of trucks. This shift to larger, motorized vehicles for longer distances helps facilitate the efficient movement of cassava produce beyond local boundaries.
- **Processing:** The processing of cassava in Rwanda is conducted at different scales and by various entities. Here's a breakdown of the processing methods and entities involved:
    - **Family Level Processing**: At the family level, processing is typically done individually using traditional methods, often involving the use of a mortar. Families process cassava for their own consumption or for local use within their communities.

- **Commercial Processing by Millers**: Commercial processing for broader local markets is carried out by millers. These individuals or businesses specialize in processing cassava on a larger scale, providing cassava products to local markets.
- **Large-Scale Processing by Kinazi Factory**: Kinazi Factory is a significant player in cassava processing at a large scale in Rwanda. This factory has the capacity to produce 20 tons of cassava flour per day. It is owned by private sector investors in collaboration with the government. Large-scale processing facilities like Kinazi Factory play a crucial role in meeting the demand for cassava products on a broader scale.
- **Small-Scale Processing by Cooperatives or Private Sector**: There are also small-scale processing initiatives, often owned by cooperatives or private sector entities. These smaller processors contribute to local economic development and provide additional processing capacity to meet diverse market demands.

- **Retailers**: Local markets, small shops and supermarkets offer cassava flour at different prices depending on the selling point
- **Consumers**: Most of the consumers are cassava growers, people of low and middle income in rural and urban areas, and schools.
- **Research**: The Rwanda Agricultural Board conducts various research on cassava including research on adaptability of varieties, pests and diseases, and soils
- **Financial Institutions:** The Banque Populaire du Rwanda, CLECAM and CAF ISONGA are the major source of loans for cassava farmers but currently BRD (Banque Rwandaise de Développement) has also started to give loans to cassava farmers approved by Kinazi Cassava Plant.
- **Governmental Agencies:** It's evident that the government plays a crucial role in shaping and influencing the agriculture sector in Rwanda, with a specific focus on cassava. Here's a breakdown of the key influencers and their roles:
  - **Ministry of Agriculture**: The Ministry of Agriculture is a major influencer, providing strategic direction and policies for the overall development of the agriculture sector. The policies set by this ministry, such as the land consolidation policy, regionalization of crops policy, and distribution of improved cassava cuttings policy, have a direct impact on cassava cultivation and production.
  - **Ministry of Commerce**: The Ministry of Commerce is involved in shaping policies related to the trade and marketing aspects of agricultural products, including cassava. Policies related to the commercialization, distribution, and export of cassava products fall within the purview of this ministry.
  - **Local Governments (Districts):** Local governments, represented by districts, play a significant role in the implementation of agricultural policies at the grassroots level. They contribute to the effective execution of national policies and may also develop localized strategies that address the specific needs and conditions of their respective regions.
  - **Rwanda Bureau of Standards:** The Rwanda Bureau of Standards contributes to the agricultural sector by setting policies related to safety and standardization. Ensuring

that cassava products meet safety and quality standards is crucial for both domestic consumption and international trade.[13]

Government policies and regulations

The government of Rwanda provides subsidies for chemical fertilizers to enhance the production of all crops grown in the country. The government provides subsidies for exports in general to foster entrepreneurship. New institutions, such as RICA (Rwanda Institute for Conservation Agriculture), have been established to issue certificates facilitating the export of local products to the international market.[14]

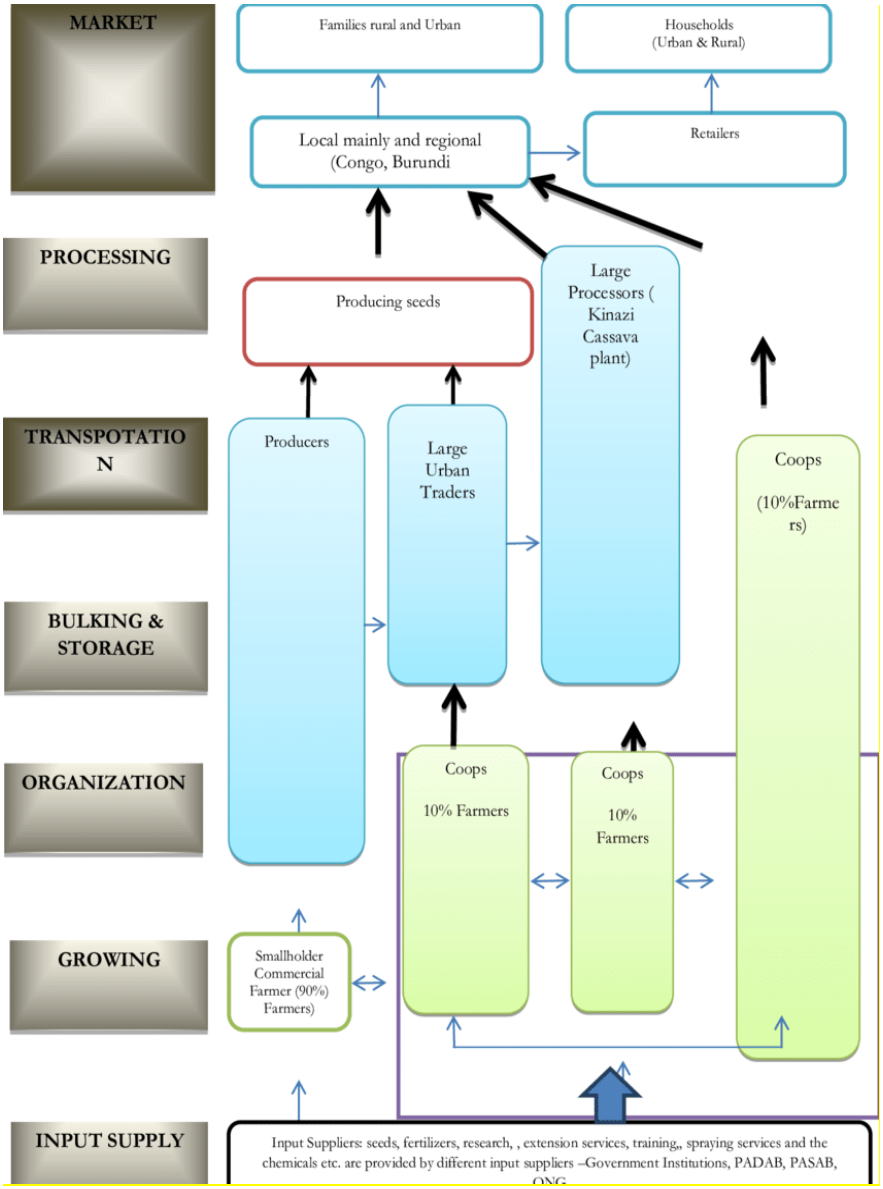


Figure 3: The cassava value chain in Rwanda

[13] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*
[14] *Kantengwa S. (2023), Interview conducted on 24.10.23.*

3.1.3 Cassava production in DRC (Uvira ALL)

Overview

Cassava (Manihot esculenta) is a significant crop in the Democratic Republic of the Congo (DRC) and plays a crucial role in food security, income generation, and rural livelihoods. Cassava is a staple food crop in the DRC, and it is a primary source of calories for many households. It is a versatile crop that can be processed into various forms, such as flour, starch, and fermented products.

Cassava is cultivated across different regions of the DRC, taking advantage of the country's diverse agroecological zones. Farmers grow various cassava varieties adapted to local conditions. Cassava is often grown by smallholder farmers, contributing to both subsistence and commercial agriculture. Small-scale cultivation is common, and cassava is often intercropped with other crops.

The DRC is one of the top cassava-producing countries in Africa. Cassava production is significant, and the crop plays a crucial role in ensuring food security for the population. Cassava production in the DRC faces challenges such as pests and diseases, post-harvest losses, and limited access to modern farming technologies. Addressing these challenges is crucial for sustaining and increasing cassava productivity.

Cassava value chain in DRC[15]

According to the experts, the cassava value chain in DRC includes:

- **Production:** This part of the value chain comprises of small-scale farmers, medium-scale producers and large-scale producers. **Small-scale farmers** rely on traditional technologies and do not use advanced inputs such as improved planting material and fertilizers. Production practices are improved among **medium-scale producers** who often tend to have good relationships with extension services; have access to quality planting material and training; commonly use hired labour; and sometimes apply integrated soil fertility management (ISFM) although not sustainably. In general, **large-scale farmers** are the most innovative among producers. Large-scale producers frequently hire technicians to manage their farms; combine crops with livestock production activities; and apply improved inputs including planting material and fertilizers.
- **Marketing**: Practices during cassava marketing vary with the scale of production activities. Small and medium-scale producers usually sell their cassava as fresh roots in contrast to large-scale producers who add value by processing the roots into dried chips. Market outlets among the small and medium scale producers include **travelling traders** (about 50% of the produce), rural assemblers (10% to 20% of the produce) and **local markets** (10% of the produce). Large-scale producers on the other hand sell their produce directly to either the **wholesalers or retailers** (50% of the produce in each case).
- **Processing & Retailing**: This part of the value chain comprises of **millers** and **retailers** who buy dry cassava chips, they grind them to make flour which they package and sell to consumers.

[15] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*

- **NGO's**: Non-Governmental Organizations (NGOs) play a crucial role in various stages of the cassava value chain in DRC including agricultural extension and training, research and development, capacity building and empowerment and market access and linkages.
- **Research Institutions**: Research institutions also play a vital role in shaping and improving various aspects of the cassava value chain in DRC. Their contributions include developing and promoting improved cassava varieties, dissemination of efficient crop management practices and shaping strategies for managing cassava diseases and pests.
- **Governmental agencies**: Governmental agencies play a crucial role in shaping and overseeing various aspects of the cassava value chain in DRC including Policy development, regulatory oversight, subsidies, infrastructure development and research and development funding. [16]

The following figure depicts the value chain actors of cassava production in DRC:

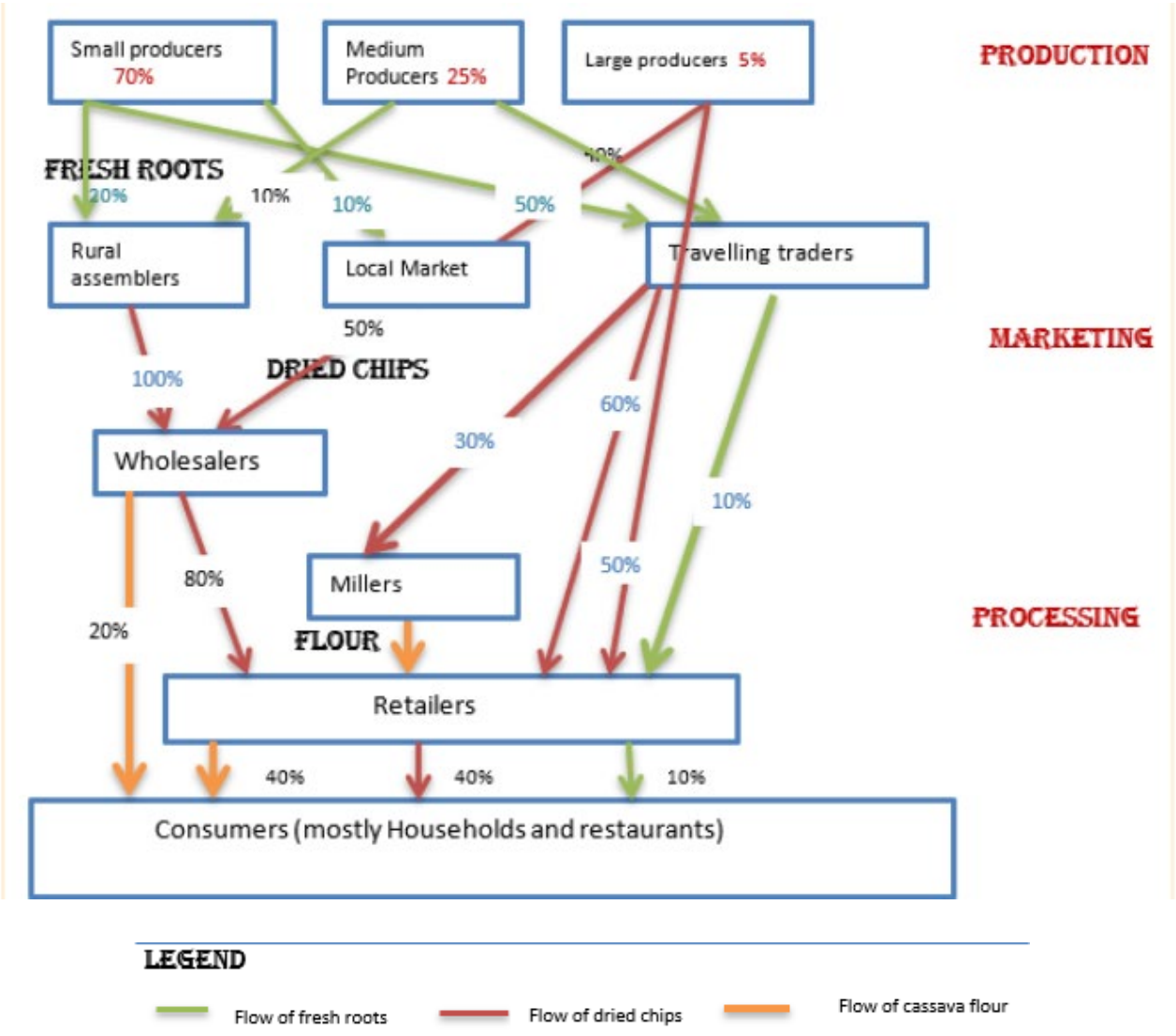


Figure 4: The cassava value chain in DRC

[16] *Musale K. (2023), Interview conducted on 22.11.23.*

3.1.4 Rice production in DRC (Uvira ALL)

Overview

Rice is a crucial staple crop in the Democratic Republic of Congo (DRC), and it is consumed by both rural and urban populations. Smallholder farmers produce around 50% of the 700,000 MT of rice consumed in the country, while the remaining 50% is imported. The rice produced by local farmers is mainly consumed by themselves and purchased by local market consumers. In contrast, imported rice is consumed in urban areas and used by breweries.

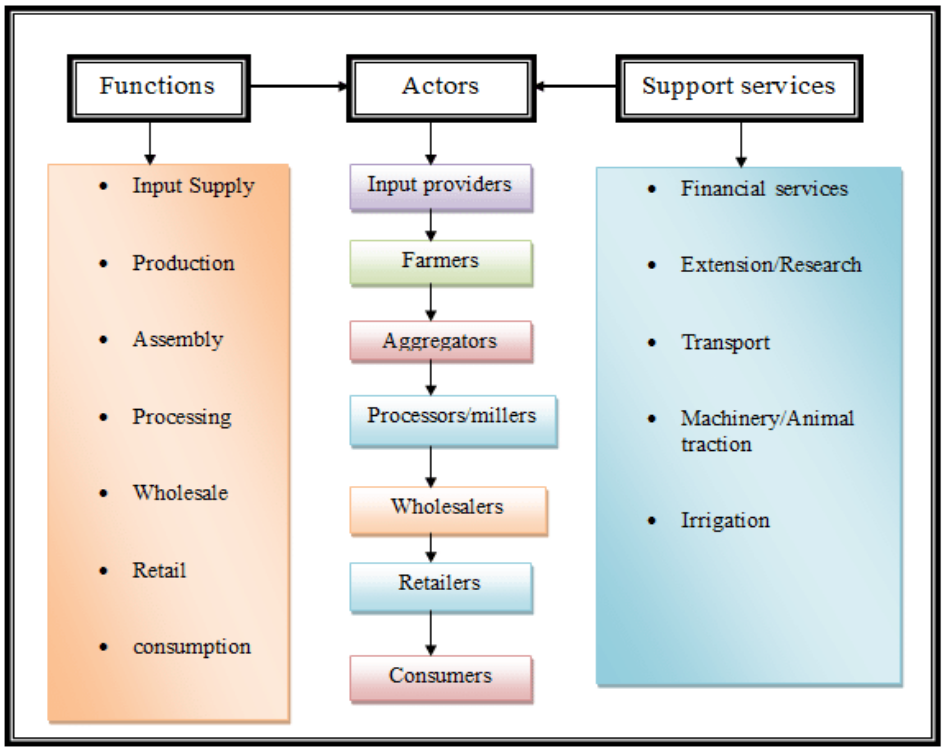
Rice is cultivated in various regions of the DRC, taking advantage of suitable agroecological conditions. The country has both upland and lowland areas suitable for rice cultivation.

Both rainfed and irrigated rice cultivation practices are employed. However, rainfed cultivation dominates at it is applied by approximately 800,000 smallholder farmers resulting in low yield of about only 0.8 MT/ha. Flood irrigation, employed by only 32,000 farmers, is far more productive with yields of about 2 MT/ha.

Challenges in rice production in the DRC include limited access to agricultural inputs, post-harvest losses, pest and disease management, and the need for improved agricultural extension service.

Rice value chain in DRC[17]

The rice value chain in DRC includes inputs used in rice production such as seeds, fertilisers, and pesticides. Harvested rice is processed in local mills for onward sale to middlemen and wholesalers who distribute primarily to local retailers unless the end user is a brewery. Imported rice is bought by traders for urban retail distribution and by breweries.



[17] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*

Figure 5: The rice value chain in DRC

Farmers: Smallholder farmers are key players in the rice value chain, responsible for cultivating rice paddies and harvesting the crops.

Input Suppliers: Input suppliers provide farmers with agricultural inputs such as seeds, fertilizers, pesticides, and equipment necessary for rice cultivation.

Extension Services: Agricultural extension services play a role in providing farmers with training, advice, and information on best practices in rice cultivation.

Processors: Rice processors are involved in milling and processing paddy rice into marketable products. They may operate small-scale mills or larger processing facilities.

Traders and Wholesalers: Traders and wholesalers purchase rice from farmers or processors and play a crucial role in the distribution of rice to various markets within the country**.**

Retailers: Retailers are involved in selling rice to consumers at the local level. This includes both formal and informal retail outlets such as grocery stores, markets, and street vendors.

Consumers: Consumers are the end-users of rice and play a vital role in driving demand for rice products**.**

Transportation and Logistics Providers: Companies or individuals involved in transportation and logistics play a critical role in moving rice from farms to processing facilities and markets.

Understanding the roles and interactions of these actors is essential for developing strategies to improve the efficiency, sustainability, and inclusivity of the rice value chain in the Democratic Republic of the Congo.

3.2 Demand side

3.2.1 The maize market in Burundi

Overview

The maize market in Burundi is characterized by a mix of formal and informal trading. Maize is sold in local markets, and there is a network of traders involved in buying and selling. Maize is consumed in various forms, including whole maize grains, maize flour (used to make porridge or other dishes), and processed products. The consumption patterns vary across regions and communities. Maize prices are influenced by factors such as weather conditions, harvest seasons, and market demand. Price stability is a concern for both farmers and consumers. While Burundi produces maize domestically, there may also be periods of reliance on imports, especially during times of low production or increased demand.

Challenges in the maize market in Burundi include issues related to post-harvest losses, limited access to credit for farmers, vulnerability to weather fluctuations, and the need for improved agricultural practices.

Opportunities exist for enhancing value addition in the maize sector, promoting sustainable farming practices, and strengthening market linkages between producers and consumers.

The demand for Burundian maize has evolved in recent years at the local level where there has been an increase in maize production and marketing on local markets. The COVID-19 pandemic has significantly reduced trade at regional and international level.[18]

Moreover, according to experts, the demand for maize at the local level has increased to the point of becoming a priority crop for the government of Burundi[19]. The local demand for maize experiences consistent growth each season and year. It's important to highlight that the current demand is still unmet, despite the presence of various stakeholders contributing to the development of the maize value chain[20]. In addition to local maize production, Burundi also imports a significant quantity of maize from Uganda and Tanzania (see next figure)[21].

[18] *Ndayishimiye J. M. (2023), Interview conducted on 01.12.23.*
[19] *Nimbeshaho F. (2023), Interview conducted on 26.11.23.*
[20] *Ntidendereza S. (2023), Interview conducted on 26.11.23.*
[21] Niyuhire M.C. *(2023), Interview conducted on 08.12.2023,*

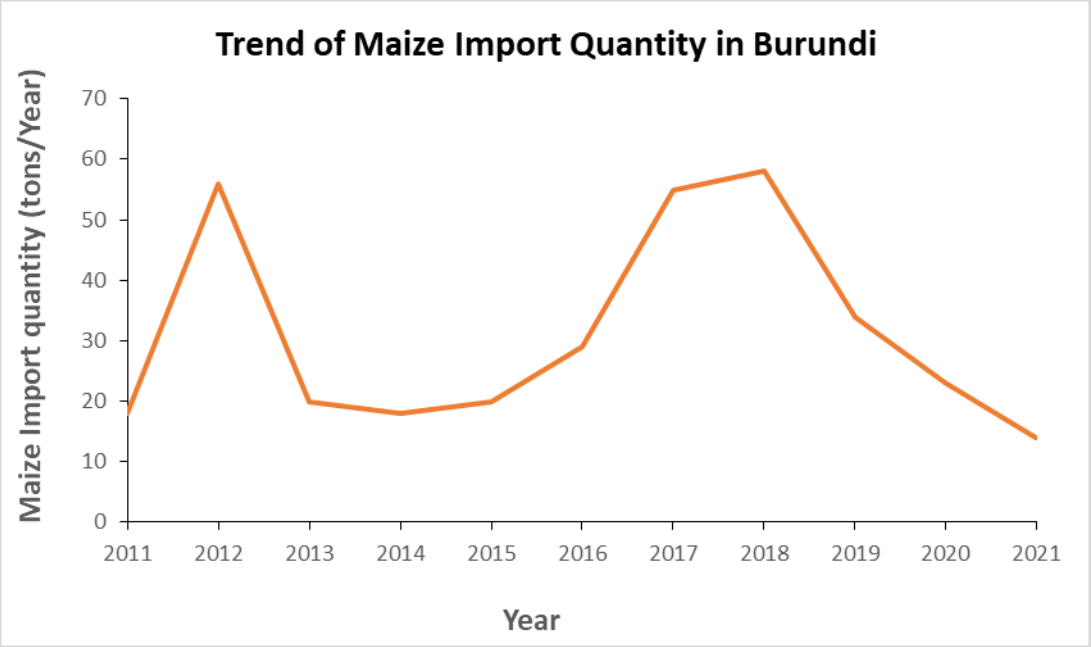


Figure 6: Trends in maize import quantities in Burundi (2011-2021)

Source: Faostat

Maize is a highly consumed and sought-after food commodity in the country. Maize's popularity has witnessed substantial growth since the 2010s, coinciding with a surge in the establishment of agrifood processing units across the country. These units predominantly produce items derived from maize-based ingredients, such as porridge and beverages. The school feeding project has also played a role in influencing local consumption levels. Additionally, a national maize collection agency was established, which subsequently entered into an agreement with the WFP (World Food Programme) for local supply.[22]

Evolution of demand

The demand for Burundian maize has evolved over recent years, with changes occurring at the local, regional, and international levels. These changes have been influenced by a variety of factors, including population growth, dietary preferences, and economic developments.

1. Local Level

Population Growth: Burundi has experienced population growth, which has driven an increase in the local demand for staple foods, including maize. The growing population requires a consistent supply of maize for food consumption.

Urbanization: As more people move to urban areas, there has been a shift in consumption patterns. Urban consumers often prefer more processed maize products, such as maize flour and snacks.

Dietary Preferences: The demand for maize at the local level is influenced by dietary preferences. Maize is a staple food, and its consumption is deeply ingrained in Burundian culture.

[22] *Ndayikengurukiye E. (2023), Interview conducted on 27.11.23.*

2. **Regional Level**

Regional Trade: Burundi engages in maize trade with neighbouring countries in the East African region such as Uganda and Tanzania. At present, only imports are taking place from the above-mentioned countries to Burundi, as local production falls short of demand.

3. **International level**

Export Markets: Currently, Burundi does not engage in maize exports, as the domestic demand remains unmet. In the future, Burundi may export maize to international markets, particularly to countries within the East African Community (EAC).

Market trends

According to experts, currently there are no specific market trends and shifts in consumer preferences in the Burundian maize market. However, as the socioeconomic context is constantly changing some expected trends and preferences that could influence the market include:

Value-Added Maize Products: There may be a growing demand for value-added maize products such as fortified maize flour, maize-based snacks, and processed foods. These products can cater to changing consumer preferences, especially in urban areas.

Health and Nutrition Awareness: As consumer awareness of health and nutrition increases, there could be a shift towards healthier maize-based products, such as whole-grain maize options. This trend may be more pronounced in urban centres.

Convenience Foods: Busier lifestyles in urban areas may drive demand for convenient maize-based products, such as instant porridge mixes and ready-to-eat snacks.

Organic and Non-GMO Products: Some consumers may show a preference for organic and non-genetically modified (GMO) maize products. This trend may be more prominent in certain market segments.

Market constraints

In Burundi, a myriad of challenges and barriers hinder progress across various segments of the agricultural chain. However, three pivotal constraints significantly impede the sector's development. These include: (1) Insufficient cash and financial resources for farmers; (2) the absence of commercial scale; and (3) inadequate communication of market indicators and standards. Collectively, these deficiencies contribute to the prevalence of low-quality maize, compelling stakeholders to turn to the informal market. This is exacerbated by the fact that smaller-scale informal traders do not prioritize quality and offer immediate cash, while formal aggregators require higher-quality maize.[23]

Market segments

The maize market in Burundi consists of various segments, serving both business-to-business (B2B) and business-to-consumer (B2C) purposes. The most prominent market segments of the Burundian maize market are the following:

[23] Niyuhire M. C. (*2023), Interview conducted on 08.12.23.*

B2B market segments[24]

Farmers: A significant part of the produced amount of maize is consumed by the farmers themselves.

Processors and Millers: Maize processing and milling companies are a critical B2B segment. They purchase maize grains from farmers and process them into maize flour and other maize-based products. Processors and millers supply their products to various consumer-facing businesses.

Animal feed industries: Maize serves as a crucial ingredient in the production of animal feed. Animal feed industries source maize to formulate balanced diets for livestock such as poultry, cattle, and pigs. These industries typically purchase maize from farmers, cooperatives, or traders.

Alcohol manufacturing industries: Maize is used in the production of alcoholic beverages, such as beer and spirits. In the brewing and distillation processes, maize can be converted into fermentable sugars, contributing to the production of alcohol. Alcohol manufacturing industries source maize from traders, processors, or cooperatives.[25]

Wholesalers and Distributors: Wholesalers and distributors are responsible for the bulk distribution of maize products within Burundi. They purchase maize products from processors and millers and supply them to retailers, including markets and stores.

Exporters: The export market segment involves selling Burundian maize and maize products to international markets, especially in neighboring East African countries like Rwanda, Tanzania, and the Democratic Republic of Congo. However, maize export markets in Burundi are largely undeveloped.

Humanitarian organizations: Agencies such as the United Nations' World Food Programme (WFP) and other international aid organizations may contribute to humanitarian efforts by providing food aid, implementing nutrition programs, and supporting sustainable agriculture initiatives (for example the WFP which signs contracts with traders and agricultural cooperatives to supply school canteens with maize flour).

Institutional Buyers: such as prisons, the army and the police which sign contracts with traders for the supply of maize flour.

B2C market segments

Retailers: Retailers include local markets, supermarkets, small grocery stores, and convenience stores. They serve as intermediaries between wholesalers and consumers.

Foodservice and Catering: Foodservice providers, such as restaurants, hotels, and catering businesses, purchase maize products for use in preparing meals and dishes. They represent a market segment that demands consistent and high-quality maize supplies.

Households and Consumers: At the B2C level, households and individual consumers represent the primary market segment. Maize is a staple food in Burundi, and it forms a substantial part of the daily diet for many households. Maize is consumed in various forms, including as maize porridge, maize meal, and in dishes like "ugali" (a type of stiff porridge). Consumption patterns can differ between rural and urban areas. In rural regions, maize is often consumed in its whole-grain form, while urban

[24] *Ndayishimiye J. M. (2023), Interview conducted on 01.12.23.*
[25] *Ndayikengurukiye E. (2023), Interview conducted on 27.11.23.*

areas may see greater consumption of processed maize products like maize flour. Maize is generally affordable for most households in Burundi, and its price stability is a critical factor in ensuring food security. Government policies often focus on maintaining affordable maize prices for consumers. Households typically purchase maize products from local markets, stores, and vendors. Traditional markets play a crucial role in making maize accessible to consumers.

In the domestic market, maize is traded with the following packages:

- Kernels in 100kg bags (often without labeling);
- Flour in 25kg, 10kg and 5kg bags (with labeling);
- Mixed flour in 1kg bags/sachets (for porridges).[26]

There is potential for growth in demand for value-added maize products in this segment including organic or agroecological maize, such as fortified maize flour, instant maize porridge, and convenience products that cater to busy urban lifestyles. Some households may pay attention to the nutritional quality of maize products, looking for varieties that are rich in nutrients. There may be a growing awareness of the importance of a balanced diet.

Market segments for agroecological maize products

The analysis, validated by experts' opinions, showed that at this moment the maize market in Burundi is not mature enough to facilitate the marketing of agroecological maize products. Specifically, organic or agroecological maize is not officially recognized in Burundi. Maize cultivated through agroecological practices is available locally in both local and institutional markets. However, there is a potential risk of mixing this agroecologically produced maize with conventionally produced maize by collectors and traders[27].

However, as factors such as consumer preferences, environmental awareness, and the potential for value addition, evolve it is likely that in the next years Burundi will have a market for agroecological products. It is anticipated that the most promising market segments for agroecological maize in Burundi will include:

- **Urban Consumers:**
  - **Characteristics**: Urban consumers often exhibit a higher awareness of environmental and health considerations. They may seek agroecological products for their perceived sustainability and health benefits.
  - **Marketing Approach:** Emphasize the environmental-friendly farming practices, organic nature, and health benefits of agroecological maize. Utilize digital marketing and social media to reach urban consumers.
- **Health-Conscious Consumers:**
  - **Characteristics:** Consumers who prioritize health and nutrition in their food choices are likely to be interested in agroecological maize due to its perceived natural and chemical-free attributes.
  - **Marketing Approach:** Highlight the nutritional value, absence of synthetic pesticides or fertilizers, and the overall health benefits of agroecological maize. Consider partnering with health and wellness influencers.

[26] *Ndayishimiye J. M. (2023), Interview conducted on 01.12.2023.*
[27] *Ndayishimiye J. M. (2023), Interview conducted on 01.12.2023.*

- **Premium and Niche Markets:**
  - **Characteristics:** Consumers willing to pay a premium for high-quality and sustainably produced products.
  - **Marketing Approach:** Position agroecological maize as a premium, specialty product. Emphasize the environmental stewardship and ethical farming practices associated with its production.
- **Organic and Specialty Stores:**
  - **Characteristics:** Stores that focus on organic and specialty products attract consumers actively seeking agroecological options.
  - **Marketing Approach:** Emphasize the agroecological farming methods, local sourcing, and the positive impact on local communities. Highlight any certifications related to sustainable agriculture.
- **Tourism Industry:**
  - **Characteristics:** Hotels, restaurants, and tourism-related businesses catering to eco-conscious tourists.
  - **Marketing Approach:** Participate in community markets, where consumers may have a closer connection to the farmers and appreciate the agroecological story behind the product.
- **Export Markets:**
  - **Characteristics:** Targeting international markets that prioritize sustainable and environmentally friendly products.
  - **Marketing Approach:** Ensure compliance with international organic and agroecological standards. Highlight the unique qualities of Burundian agroecological maize.

In addition to the above, the input from our experts[28] [29] [30] allow us to identify the value chain actors that can serve as starting points for transitioning to organic and agroecological production of maize in Burundi:

Cooperatives: Cooperatives are crucial starting points for transitioning to organic and agroecological practices. They can facilitate collective decision-making, joint purchasing of organic inputs, and provide training and technical support to member farmers.

Processors: Processors play a significant role in influencing the practices of farmers by creating demand for organically produced maize. Engaging with processors committed to sustainable and organic sourcing can incentivize farmers to adopt organic and agroecological methods.

Input providers: Input providers offering organic and agroecological inputs such as organic seeds, natural fertilizers, and biopesticides are crucial in supporting the transition. Collaborating with input providers who specialize in organic inputs ensures farmers have access to the necessary resources for organic farming.

[28] *Nimbeshaho F.(2023), Interview conducted on 26.11.23.*
[29] *Ndayikengurukiye E. (2023), Interview conducted on 27.11.23.*
[30] *Ntidendereza S. (2023), Interview conducted on 26.11.23.*

3.2.2 The cassava market in Rwanda

Overview

Cassava is a staple food in Rwanda and plays a crucial role in the diet of the population. The cassava market in Rwanda has a mix of formal and informal trading. Cassava is available for purchase in community markets, facilitated by a network of traders engaged in the buying and selling process. Cassava is versatile, and its products include cassava flour, which is used in various dishes, as well as snacks and other processed products. Rwanda has explored opportunities to export cassava and cassava products to regional and international markets. Recently, the exports of cassava flour to Europe and USA have impacted the local market, raising prices of fresh cassava as well as processed flour for human consumption. Moreover, in the last years cassava flour is used in larger quantities in bakery due to the scarcity of wheat flour imported from Russia and Ukraine.[31]

Evolution of demand

The demand for Rwandan cassava has undergone notable changes in recent years, exhibiting shifts at the local, regional, and international levels. Various factors, including demographic trends, dietary preferences, and economic dynamics, have played a role in shaping this evolution.

1. **Local Level**

Population Growth: Rwanda's population growth has contributed to an increased local demand for staple foods like cassava. Meeting the dietary needs of a growing population requires a sustained supply of cassava.

Urbanization: Urbanization trends have influenced cassava consumption patterns, with urban consumers potentially showing preferences for processed cassava products or convenience foods.

Dietary Preferences: Cassava's role as a staple in Rwandan diets is likely to persist, with local demand reflecting cultural and dietary preference.

Substitution of other products: As wheat flour is becoming scarcer and more expensive due to the conflicts in Ukraine, cassava flour is used as a substitute in Bakery.

2. **Regional Level**

Regional Trade: Rwanda engages in regional trade, and the demand for Rwandan cassava in neighbouring countries varies based on their food security situations and economic conditions.

3. **International Level**

Exports market: Rwandan cassava is exported to Europe and USA. This drives up prices locally for both fresh and processed cassava.

Market Access and Quality Standards: Meeting international quality standards is crucial for accessing export markets. Compliance with these standards can impact international demand.

[31] *Kantengwa S. (2023), Interview conducted on 24.10.23.*

4. Economic Factors

Economic conditions in Rwanda influence consumers' purchasing power and, consequently, the demand for cassava.

Market trends

The main market trends that influence the cassava market in Rwanda are the following:

Processed Cassava Products: There is a global trend towards increased consumption of processed cassava products. In Rwanda, consumers are starting to show a growing preference for value-added cassava products such as cassava flour, snacks, and other processed items.

Health and Nutrition Awareness: Rising awareness of health and nutrition may impact consumer preferences. Cassava is gluten-free and can serve as an alternative for those with gluten sensitivities. Communicating the nutritional benefits of cassava products can influence consumer choices.

Urbanization and Convenience: Urbanization often leads to changes in consumer behaviour. In general, urban consumers tend to seek more convenient forms of cassava consumption, such as pre-processed or ready-to-cook cassava products that align with busy lifestyles.

Sustainable and Ethical Sourcing: Global trends in sustainable and ethical sourcing of food products influence consumer choices. Certifications related to sustainable cassava farming practices could become a factor in consumer decision-making.

Exports: Rwandan cassava is already exported to USA and to Europe. This creates a trend for meeting international quality standards and developing products tailored to global market preferences.

Market segments

The cassava market in Rwanda encompasses various market segments, catering to both business-to-business (B2B) and business-to-consumer (B2C) interactions. Here are insights into the primary market segments:

B2B market segments

Processing Facilities: Cassava is supplied to processing units (e.g. mills) and manufacturers to produce intermediate and finished cassava products.

Wholesalers: Wholesalers play a key role in the widespread distribution of cassava products throughout Rwanda. Their responsibility involves acquiring cassava products from processors and millers and subsequently delivering them to retailers.

Exporters: Entities involved in facilitating the export and trade of cassava products internationally.

B2C market segments

Retail and Local Markets: This segment involves the direct sale of cassava products to individual consumers through local markets, grocery stores, and small retailers.

Processed Food Industry: Processed cassava products are supplied to the food industry (e.g. bakeries) for further processing into snacks, baked goods, and other food items.

Hospitality sector: The hospitality sector, including restaurants, hotels, and catering services, is a significant consumer of cassava products for culinary purposes.

Households: Cassava is a staple in Rwandan households, consumed in various forms as a primary food source.

Market segments for agroecological cassava products

Our assessment, supported by expert opinions[32], suggests that the current state of the cassava market in Rwanda is not sufficiently developed to support the widespread marketing of agroecological cassava products. Nevertheless, with the evolution of factors such as consumer preferences, environmental consciousness, and the potential for value addition, it is anticipated that Rwanda will witness the emergence of a market for agroecological products in the coming years. The marketing of agroecological cassava in Rwanda should be strategically targeted towards market segments that align with the principles of agroecology, emphasizing sustainable and environmentally friendly agricultural practices.

The segments expected to show the most promise for agroecological cassava in Rwanda include:

- **Organic and Health-Focused Consumers:**
  - **Profile**: Consumers who prioritize organic and health-conscious choices.
  - **Characteristics**: These consumers are likely to seek cassava produced using agroecological practices due to the perceived health and environmental benefits.
- **Specialty Food and Natural Product Retailers:**
  - **Profile**: Retailers specializing in natural, organic, and eco-friendly products.
  - **Characteristics**: Specialty retailers are often interested in offering unique, sustainably produced items, making them a suitable channel for agroecological cassava products.
- **Farmers' Markets and Local Food Networks:**
  - **Profile**: Locally focused consumers who value direct relationships with producers.
  - **Characteristics**: Farmers' markets and local networks provide an opportunity to connect with consumers who appreciate the transparency and local sourcing associated with agroecological practices.
- **Eco-Tourism and Hospitality Sector:**
  - **Profile**: Businesses in the hospitality sector with a commitment to sustainability and eco-friendly practices.
  - **Characteristics**: Hotels, resorts, and restaurants emphasizing eco-tourism may prefer sourcing agroecological cassava to align with their sustainability goals.
- **Export Market for Organic Products:**
  - **Profile**: International buyers and markets emphasizing organic and sustainably produced goods.
  - **Characteristics**: Positioning agroecological cassava for export to markets with a preference for organic products can capitalize on global demand for sustainable and environmentally friendly options.

[32] *Kantengwa S. (2023), Interview conducted on 24.10.23.*

At product level, marketing organic cassava as a high-quality flour for bakery use, substituting for wheat flour, could be a promising venture. In the same vein, selling fresh, unprocessed cassava roots for immediate consumption could be a viable strategy for marketing agroecological cassava.[33]

3.2.3 The cassava market in DRC

Overview

Cassava is a staple food in the DRC, and it plays a significant role in the country's agriculture and food security. Cassava is not only a key food source but also has economic significance. In addition to being consumed locally, cassava and its products are often sold in local markets, contributing to the livelihoods of many farmers. Cassava processing activities, such as gari and cassava flour production, are common in the DRC. These processed products have a higher market value than raw cassava and can contribute to income generation for farmers and processors. Despite its importance, the cassava sector in the DRC faces challenges such as inadequate infrastructure, limited access to markets, and issues related to post-harvest losses.

Evolution of demand

The request for cassava in the Democratic Republic of the Congo (DRC) has experienced significant transformations in the recent years, manifesting changes at the levels of local, regional, and international demand. Several factors, such as demographic shifts, dietary choices, and economic dynamics, have contributed to moulding this progression.

1. **Local Level**

Cassava is a very important food in DRC, and local demand has traditionally been high. DRC has the world's record average per capita consumption of 353 kg per year[34]. The population relies on cassava as a primary source of carbohydrates, and various processed cassava products are widely consumed.

Changes in population size, dietary preferences, and urbanization influence local demand for cassava. Urbanization, for example, may lead to increased demand for processed cassava products due to changing consumer lifestyles.

According to experts in recent years there has been an average increase in demand for cassava locally.[35]

2. **Regional Level**

The regional demand for cassava in neighbouring countries is influenced by factors such as population growth, economic development, and cultural preferences.

Some countries in the Central African region rely on cassava as a key food source, and cross-border trade plays a role in meeting regional demand.

3. **International Level**

[33] *Kantengwa S. (2023), Interview conducted on 24.10.23.*
[34] *https://en.wikipedia.org/wiki/Cassava_production_in_the_Democratic_Republic_of_the_Congo*
[35] *Musale K. (2023), Interview conducted on 22.11.23.*

The international demand for DRC cassava products varies based on factors such as global market trends, trade agreements, and the competitiveness of DRC cassava products in the international market.

Cassava products like cassava flour and starch have international market potential, and demand is influenced by factors such as the quality of products, pricing, and adherence to international standards.

4. Conflict

The conflict in eastern DRC has significant implications for various sectors, including agriculture, and may impact the dynamics of the cassava market in several ways including the displacement of farmers, the damaged infrastructure such as roads and market facilities, the food insecurity and the market access challenges[36].

Market trends

As per insights from our experts, the primary market trends that could impact the cassava market in DRC include the following:

Processed Cassava Products: There has been an increasing demand for processed cassava products, such as cassava flour, starch, and snacks, driven by changing consumer lifestyles and preferences. This trend is not unique to the DRC and has been observed in various regions globally.

Health and Nutrition Awareness: Growing awareness of health and nutrition has influenced consumer preferences. Cassava, being a gluten-free and versatile crop, can cater to consumers looking for alternative and healthier food options. The promotion of cassava as a nutritious and gluten-free ingredient can impact consumer choices.

Value addition and Convenience: Consumers often seek convenience in food products. Processed cassava products that offer convenience, such as instant gari or pre-packaged cassava-based snacks, gain popularity. Value addition in the form of convenience is a significant trend.

Sustainable and Ethical Sourcing: Global trends in food consumption include an increasing emphasis on sustainability and ethical sourcing. Consumers show interest in cassava products sourced and produced in an environmentally friendly and socially responsible manner.

Certification: Certifications that ensure the quality and safety of cassava products can influence consumer trust. Certification for organic or sustainably produced cassava may attract specific consumer segments.

Urbanization: Urbanization often leads to changes in dietary preferences. As urban areas in the DRC continue to grow, there may be an increased demand for processed and convenient cassava products to fit the lifestyles of urban consumers.

[36] *Musale K. (2023), Interview conducted on 22.11.23.*

Market segments

The cassava market in the Democratic Republic of Congo (DRC) is diverse, involving various market segments, both Business-to-Business (B2B) and Business-to-Consumer (B2C). Here are some primary market segments within the cassava sector:

B2B market segments

Processing Facilities: The food processing industry is a key B2B segment. Companies in this sector use cassava as a raw material for producing various processed foods, such as cassava flour, starch, and snacks. These products may be distributed locally or internationally.

Wholesale Market: The wholesale market involves the bulk trade of cassava products. Wholesalers may purchase fresh cassava tubers or processed cassava products from farmers or processors and distribute them to retailers, food manufacturers, or other businesses.

Exporters: The export market involves the sale of cassava and cassava products to international markets. This may include exports of fresh cassava, cassava flour, or other processed products. Meeting international quality standards is crucial for success in this segment.

Industrial Use: Cassava starch, due to its properties, is used in various industrial applications, including textiles, paper, alcohol, biofuel and pharmaceuticals.[37] B2B transactions in the industrial sector involves the supply of cassava starch to manufacturers**.**

B2C market segments

Retail Markets The retail market involves the direct sale of cassava products to individual consumers. This includes fresh cassava tubers sold in local markets, roadside stands, and grocery stores.

Processed Food Industry: Processed cassava products cater to consumer preferences for convenience. This includes cassava flour, gari (fermented and roasted cassava granules), cassava chips, and other snacks. These products are often sold in retail outlets and may be targeted at both urban and rural consumers.

Street Food Vendors: Street food vendors play a significant role in the cassava market. They may sell cassava-based snacks, fried cassava, or other prepared cassava dishes.

Local Bakeries and Food Services: Cassava flour is often used by local bakeries in the production of bread and baked goods. Additionally, restaurants and food services incorporate cassava into their menus in various forms, meeting consumer demand for diverse and innovative dishes.

Households: Cassava is a staple in DRC households, consumed in various forms as a primary food source.

Market segments for agroecological cassava products

The evaluation, backed by expert perspectives, affirms that the current condition of the cassava market in DRC lacks the necessary development to facilitate the promotion of agroecological cassava products. Nonetheless, considering the evolving landscape of factors such as consumer preferences, environmental awareness, and the potential for value addition, it is projected that DRC will experience

[37] *https://www.goodwaychina.com/news/nine-uses-and-industry-applications-of-cassava-sta.html*

the emergence of a market for agroecological products in the foreseeable future. To effectively market agroecological cassava in DRC, a strategic approach is recommended, targeting specific market segments that align with the principles of agroecology, with a focus on promoting sustainable and environmentally friendly agricultural practices.

The segments that are anticipated to exhibit the most potential for agroecological cassava in DRC include:

- **Organic and Specialty Markets:**
  - Agroecological cassava, cultivated without synthetic pesticides and fertilizers, may find a niche in the organic and specialty markets. Consumers who prioritize organic and sustainably produced foods may be willing to pay a premium for agroecological cassava products.
- **Health and Wellness Products:**
  - Agroecological cassava, produced with a focus on natural and sustainable practices, may resonate with consumers seeking healthier and environmentally conscious food options. This could be marketed as a premium product in the health and wellness food sector.
- **Farmers' Markets:**
  - Selling agroecological cassava directly to consumers through farmers' markets can create a direct link between producers and environmentally conscious consumers.
- **Food Services and Restaurants:**
  - Restaurants and food services that focus on offering sustainable and locally sourced ingredients may be interested in agroecological cassava for their menus. Marketing to these businesses could include highlighting the environmental benefits of the production methods.
- **Export Market for Organic Products:**
  - The international market for organic and sustainably produced foods is growing. Marketing agroecological cassava as an organic product can open up opportunities for exports, especially to regions with a high demand for organic and environmentally friendly agricultural products.

When marketing agroecological cassava, it's essential to communicate the environmental benefits of the production methods, highlight the quality of the product, and target consumer segments that are environmentally conscious and willing to support sustainable agriculture. Additionally, building partnerships with certification bodies, NGOs, and environmental organizations can add credibility to the marketing efforts.

3.2.4 The rice market in DRC

Overview

Rice holds a pivotal role as a staple crop in the Democratic Republic of Congo (DRC), being a dietary mainstay for both rural and urban communities. Approximately 50% of the 700,000 metric tons of rice consumed in the country is cultivated by smallholder farmers, with the remaining 50% being brought in through imports. Locally produced rice is primarily utilized by the farmers themselves and is also

sold to local market consumers. Conversely, imported rice finds its consumption base in urban areas and serves various purposes, including usage by breweries.

Evolution of demand

The demand for DRC rice has experienced significant transformations in recent years, with changes observed at the local, regional, and international levels. Factors such as demographic trends, dietary preferences, and economic dynamics have contributed to shaping this evolution.

1. Local Level

The demand for rice at the local level in the DRC is influenced by population growth, changing dietary patterns, and economic conditions.

Smallholder farmers play a significant role in rice production for local consumption. Factors such as access to resources, agricultural practices, and local market dynamics can impact their ability to meet local demand.

2. Regional Level

Regionally, trade patterns and economic ties with neighbouring countries affect rice demand. The stability and economic conditions of neighbouring countries influence cross-border trade.

Regional conflicts or instability disrupt supply chains and impact the availability and affordability of rice in DRC.

3. International Level

On the international level, the DRC's demand for rice might be influenced by global market trends, trade policies, and international economic conditions.

4. Conflict

The conflicts in the eastern part of the DRC can have a significant impact on agriculture, including rice production. Displacement of populations, damage to infrastructure, and insecurity can disrupt farming activities, affecting both the production and distribution of rice. In times of conflict, there may be challenges in accessing markets, leading to food shortages and affecting local and regional demand for rice.

Market trends

According to the observations provided by the experts, key market trends that may influence the rice market in the Democratic Republic of the Congo encompass the following:

Urbanization and Changing Lifestyles: Urbanization brings about changes in consumer preferences. Urban consumers have different preferences and demands compared to their rural counterparts. Changing lifestyles, particularly in urban areas, influence the demand for convenience foods, including processed or pre-packaged rice products.

Health and Nutrition Awareness: Increasing awareness of health and nutrition impacts consumer preferences. There is a shift towards healthier varieties of rice or rice-based products. Consumers may show interest in rice varieties that offer specific health benefits, such as whole grain rice or rice with added nutritional value.

Product Innovation: The introduction of new rice products or innovative packaging influences consumer choices. This could include ready-to-eat rice meals, specialty rice varieties, or value-added rice products.

Economic Factors: Economic conditions and income levels affect consumer choices. During periods of economic growth, consumers are more willing to explore premium or specialty rice products. Conversely, economic challenges lead consumers to prioritize more affordable rice varieties.

Cultural and Dietary Preferences: Cultural factors and dietary preferences play a significant role in shaping consumer choices. Traditional dishes and cultural practices influence the types of rice preferred by consumers.

Market segments

The rice sector in the Democratic Republic of Congo exhibits diversity, encompassing a range of market segments, including both Business-to-Business (B2B) and Business-to-Consumer (B2C) interactions. Here are key market segments within the rice industry:

B2B market segments

Processing & Milling: Rice processing and milling businesses are responsible for transforming raw rice into market-ready products. This includes activities such as milling, packaging, and, in some cases, fortification or value addition.

Wholesale & Distribution: This segment involves the wholesale purchase and distribution of rice to retailers, supermarkets, and other businesses. Wholesalers may source rice from local producers or importers.

Import & Export: Businesses involved in the import and export of rice play a crucial role in meeting demand. Importers bring in rice from international markets, while exporters may facilitate the sale of local rice to other countries.

Food service & Hospitality: Restaurants, hotels, and catering services constitute a significant B2B segment. They purchase rice in bulk for use in their food preparations**.**

Government and Aid Organizations: Government agencies and non-governmental organizations (NGOs) may also be involved in the rice market, either as buyers for public distribution programs or through initiatives supporting local farmers.

B2C market segments

Retail: Retailers, including grocery stores, supermarkets, and local markets, cater to individual consumers. These businesses sell rice directly to households.

Processed and Packaged Rice: Businesses that focus on processing and packaging rice for direct consumption by households fall into this category. This includes various types of rice products, such as parboiled rice, instant rice, or specialty rice.

Local Producers and Farmers: Smallholder farmers and local rice producers form a B2C segment when they sell their products directly to consumers or through local markets.

Informal Markets: Informal markets, including street vendors and small local shops, contribute to the B2C segment by providing convenient access to rice for individual consumers.

Households: Rice serves as a fundamental food source in households across the Democratic Republic of the Congo, where it is consumed in diverse forms.

Market segments for agroecological cassava products

The evaluation, substantiated by the insights of experts, confirms that the rice market in the Democratic Republic of the Congo (DRC) currently lacks the necessary development for promoting agroecological rice products. However, considering the changing factors such as consumer preferences, environmental consciousness, and the potential for value addition, it is anticipated that soon the DRC will witness the emergence of a market for agroecological products. To effectively promote agroecological rice in the DRC, a recommended strategic approach involves focusing on particular market segments aligned with agroecological principles. This approach should prioritize the promotion of sustainable and environmentally friendly agricultural practices.

Anticipated segments with the most potential for agroecological rice in the DRC include:

- **Organic and Specialty Markets:**
  - Positioning agroecological rice in organic and specialty markets can attract consumers who actively seek products grown using sustainable and eco-friendly practices.
- **Health-focused Products:**
  - Marketing agroecological rice as a health-conscious choice, free from synthetic pesticides and fertilizers, can appeal to consumers looking for wholesome and nutritious food options.
- **Eco-Friendly and Sustainable Brands:**
  - Collaborating with brands and retailers that emphasize eco-friendly and sustainable practices can provide a platform for promoting agroecological rice to environmentally conscious consumers.
- **Direct-to-Consumer Sales:**
  - Establishing direct-to-consumer channels, such as farmers' markets, community-supported agriculture (CSA) programs, or online platforms, allows producers to connect directly with consumers who prioritize sustainable and locally sourced products.
- **Food Services and Hospitality:**
  - Partnering with restaurants, hotels, and catering services that emphasize sustainability and local sourcing can introduce agroecological rice into the culinary scene and attract environmentally conscious consumers.
- **Government Programs and Aid Initiatives:**
  - Aligning with government programs or aid initiatives focused on sustainable agriculture and food security can provide opportunities for marketing agroecological rice as part of broader initiatives supporting local farmers.

When marketing agroecological rice, it is crucial to clearly communicate the environmental, social, and health benefits associated with the product. Understanding consumer preferences, local food cultures, and distribution channels is essential for developing a successful marketing strategy in the DRC. Engaging with stakeholders across the value chain, including consumers, retailers, and processors, can provide valuable insights for effective market positioning.

3.3 Challenges and barriers for marketing agroecological products in domestic markets

Transitioning to marketing organic or agroecological food products (cassava, maize, rice) in the countries of interest (Burundi, Cameroon, DRC, Rwanda) presents specific challenges and barriers. Overcoming these challenges requires a multifaceted approach that involves stakeholders at various levels. According to our research and in line with the opinions expressed both by local actors (including consumers) and experts, the most serious challenges and the respective addressing strategies are the following:

1. Limited Awareness:

Challenge: Lack of awareness among consumers and other stakeholders about the benefits of organic or agroecological food products.[38]

Addressing Strategies:

- Implement educational campaigns on the health and environmental benefits of organic and agroecological food products.
- Collaborate with local media for awareness programs.
- Utilize point-of-sale materials and labelling to communicate the advantages of organic or agroecological food products.

2. Perceived High Prices:

Challenge: Consumers may perceive organic or agroecological food products as more expensive.

Addressing Strategies:

- Communicate the value proposition of agroecological products, emphasizing health benefits and sustainable practices.
- Explore subsidies or incentive programs to make agroecological food products more affordable.
- Develop pricing strategies that consider the long-term benefits of agroecological farming practices.

3. Limited Availability:

Challenge: Insufficient supply of organic or agroecological food products to meet consumer demand.

Addressing Strategies:

- Support and incentivize farmers to transition to agroecological farming practices through training and financial assistance.
- Establish partnerships with farmers, cooperatives, and agricultural organizations to increase production.
- Develop a reliable supply chain for agroecological food products, including storage and distribution facilities.

[38] *Kantengwa S. (2023), Interview conducted on 24.10.23.*

4. Certification Challenges:

Challenge: Obtaining and maintaining organic certification can be a complex process for farmers. There is a lack of established standards and certification schemes for agroecological products.

Addressing Strategies:

- Provide assistance and resources to farmers to facilitate the certification process.
- Collaborate with certification bodies to streamline the certification process.
- Establish a certification support system, including training and financial support.

5. Market Access:

Challenge: Limited access to markets that value organic or agroecological products.

Addressing Strategies:

- Build partnerships with retailers, supermarkets, and local markets that support agroecological products.
- Participate in farmers' markets and organic food fairs to increase visibility.

6. Infrastructure and Logistics:

Challenge: Inadequate infrastructure and logistics for handling and transporting agroecological products.

Addressing Strategies:

- Invest in the development of storage facilities and transportation infrastructure.
- Collaborate with government agencies to improve logistics for agroecological produce.
- Establish collection centers for agroecological food products to streamline the supply chain.

7. Farmer Training and Adoption:

Challenge: Farmers may need training to adopt organic or agroecological farming practices.

Addressing Strategies:

- Provide comprehensive training programs on organic and agroecological farming methods.
- Establish demonstration farms to showcase successful practices.
- Create a network of experienced farmers who can mentor and support others.

8. Policy and legal Support:

Challenge: Limited policy and legal support for organic or agroecological farming. National legislation does not favour the production of organic or agroecological products. Moreover, some governments promote the use of chemical fertilizers and hybrid seeds through subsidies.[39]

Addressing Strategies:

- Initiate a lobbying and advocacy program for the integration and recognition of organic or agroecological production in agricultural policies and programs.[40]

[39] *Kantengwa S. (2023), Interview conducted on 24.10.23.*
[40] *Ndayishimiye J. M. (2023), Interview conducted on 01.12.2023.*

- Engage with government agencies to integrate organic farming into agricultural policies.
- Collaborate with policymakers to develop and implement supportive regulations.

9. Community engagement

Challenge: Limited community support for the transition to organic or agroecological food products.

Addressing Strategies:

- Conduct community outreach programs to educate and involve local communities.
- Foster a sense of community ownership and pride in sustainable farming practices.
- Strengthen existing initiatives to support organizations which already promote and popularize agroecological practices through agricultural cooperatives and family farmers.

10. Lack of Organic Seeds and Fertilizers

Challenge: Limited availability of organic seeds and fertilizers.

Addressing Strategies:

- Establish and promote local seed banks that focus on collecting, preserving, and distributing traditional and locally adapted organic seeds.
- Invest in research and development to create region-specific organic varieties that are well-adapted to local agroecological conditions.
- Advocate for government incentives and subsidies to make organic seeds and fertilizers more affordable for farmers.[41]

11. Lack of financial support

Challenge: Without adequate financial support, farmers may be reluctant to adopt agroecological practices as they often require an initial investment in sustainable farming methods, organic inputs, and training.

Addressing Strategies:

- The government can play a crucial role by providing subsidies and grants to farmers who adopt agroecological practices.
- Implement financial literacy programs to educate farmers about budgeting, financial planning, and accessing credit.
- Facilitate partnerships between the government, private sector, and non-governmental organizations (NGOs) to create funding mechanisms for agroecological initiatives.
- Encourage the involvement of microfinance institutions to provide affordable loans tailored to the needs of small-scale farmers.[42]

Addressing these challenges requires collaboration among government agencies, NGOs, farmers, cooperatives, consumers, and the private sector. It's important to develop a coordinated strategy that encompasses awareness-building, supply chain development, policy advocacy, and ongoing support for farmers transitioning to organic or agroecological production.

[41] *Nimbeshaho F. (2023), Interview conducted on 26.11.23.*
[42] *Niyuhire M. C. (2023), Interview conducted on 08.12.23.*

4. International markets (coffee & cocoa)

In this chapter, we delve into the dynamic landscape of international markets for agroecological and organic coffee and cocoa originating from the Democratic Republic of Congo (DRC), Burundi, and Cameroon. As international consumers increasingly prioritize sustainable and organic choices, understanding the intricate nuances of these markets becomes imperative. Our exploration encompasses the unique qualities and production practices that distinguish agroecological and organic offerings from these African nations, providing valuable insights into consumer segments for agroecological food products. From the lush landscapes of the DRC to the rich agricultural heritage of Burundi, Cameroon, and Rwanda, we navigate through the diverse origins of coffee and cocoa, shedding light on the factors shaping consumer preferences in the international arena.

4.1 Supply side

4.1.1 Coffee production in Burundi (Giheta ALL)

Overview

Burundi, situated in East Africa, is renowned for its high-quality Arabica coffee beans, which are grown in the fertile volcanic soils of its mountainous regions. Particularly, the coffee produced in the Ngozi and Kayanza regions is considered of excellent quality.

The sector is of strategic importance to Burundi's national economy. It employs over 1 million people, predominantly smallholder producers, with one in every two households engaging in coffee production to generate cash income. Coffee exports account for 80% of foreign exchange earnings and have contributed between 4-10% of the country's GDP over the past ten years.[43]

Despite facing challenges such as fluctuating coffee prices, weather conditions, and access to resources, Burundi's coffee industry continues to thrive. The government and various organizations work towards providing support, training, and infrastructure to coffee farmers, aiming to boost both the quality and quantity of coffee production.

Burundi's commitment to sustainable and high-quality coffee production has gained recognition in the international market. The country's coffee beans are sought after by roasters and consumers who appreciate the distinct and nuanced flavors that Burundian coffee brings to the global coffee market. Overall, coffee production in Burundi remains a vital contributor to the country's economy, showcasing its potential for continued growth and success in the global coffee industry.

However, according to some experts' opinions[44], over the past few years, there has been a decline in the demand for coffee across various levels, including local, regional, and international markets. At the same time, other experts appear to believe that demand for coffee is on the rise, not so much at the local level but significantly at regional and international level.[45] [46] [47]

[43] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*
[44] *Ndayishimiye J. M. (2023), Interview conducted on 01.12.23.*
[45] *Nkengurutse M. (2023), Interview conducted on 27.11.23.*
[46] *Nzosaba J. C. (2023), Interview conducted on 27.11.23.*
[47] *Niyukuri N. (2023), Interview conducted on 27.11.23.*

Certification against industry standards (e.g., Organic, Rainforest Alliance, and Fair-trade) is in its early stages and lacks substantial significance within the coffee market in Burundi.[48]

Historical data[49]

Burundi has a long history of coffee production and is the 13th largest producer of exclusively Arabica coffee in the world.[50.] The coffee industry has undergone several re-organizations since its introduction in the 1930s. Coffee farming was introduced by the colonial administration. Subsequently, particularly in the 1950s, the coffee industry underwent significant growth. A policy aimed at enhancing quality resulted in an increase in the producers' price, enabling coffee farmers to meet income tax obligations and become consumers of manufactured goods. This era saw the coffee harvest and sale become a source of celebration for the population. The positive trend prompted numerous farmers in the northern and central regions of the country to engage in coffee cultivation, leading to a peak in coffee production at 27,279 tons of green coffee in 1959.

In 1976, the nationalization of private coffee factories (Ceduca, Indurundi) resulted in the consolidation of all export-related activities under the management of OCIBU, thereby establishing complete state control over the industry. Private operators functioned as subcontractors for the collection of washed coffee. The establishment of the Burundi Coffee Company (BCC) facilitated export operations. From the early 1980s to 1993, the state's encouragement led to a significant expansion of the total coffee cultivation area, with the number of coffee trees surging from 90 million to over 220 million.

Since the 1980s, Burundi has dedicated efforts to enhancing the quality of its coffee through the establishment of de-husking and washing stations, where fully washed coffee is produced through fermentation. This differs from "washed" coffee, where the husk is manually removed. Despite a growing proportion of "fully washed" coffee compared to "washed" coffee, the quality of green coffee has consistently declined since the 1990s due to issues related to the quality of the beans, primarily stemming from agronomic challenges.

Despite investments made since the early 1990s, there has been a decrease in the quantity of the best grades of coffee. However, some signs of improvement emerged from 2002 onward, coinciding with the alignment of manufacturing and taxation standards with those of the East African Fine Coffee Association (EAFCA). This adjustment was made in response to the competitive challenges posed by global overproduction and declining prices.

Nevertheless, constrained by demographic pressures and limited land availability, the scope for cultivating coffee in Burundi was inherently restricted. Coffee cultivation in the country involves the efforts of several hundred thousand farmers, each tasked with cultivating small plots of land (approximately 1200 square meters of coffee trees per family). Despite these widespread efforts, coffee production remains relatively low, as illustrated in the figure below.

[48] *Ndayishimiye J. M. (2023), Interview conducted on 01.12.23.*
[49] *Niyuhire M. C. (2023), Interview conducted on 01.12.23.*
[50] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*

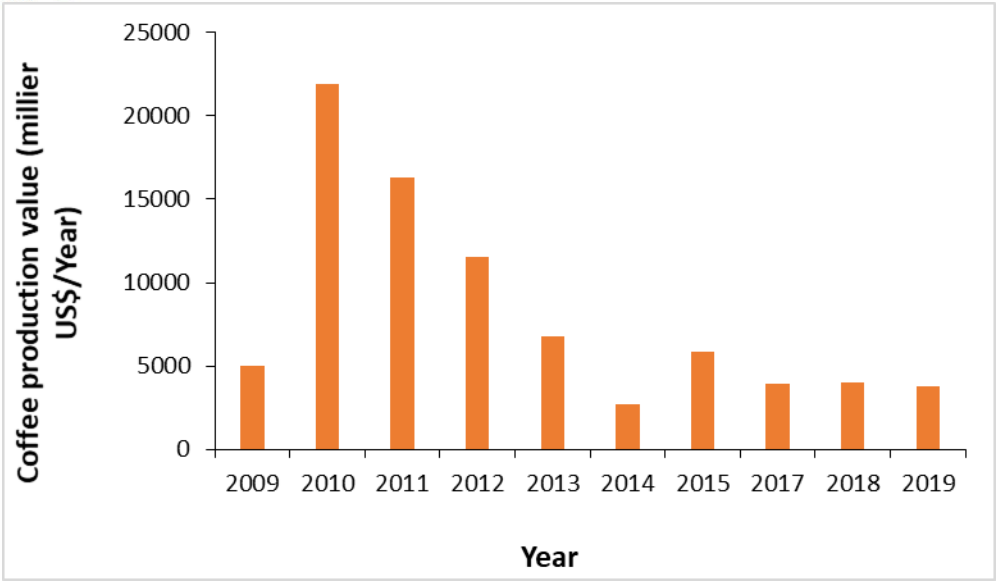


Figure 7: Coffee production value per Year in Burundi (2009-2019)

Source: International Coffee Organization (ICO)

In 2021, Burundi recorded coffee exports amounting to $41.7 million. The primary destinations for Burundi's coffee exports included Germany ($11.6 million), Sweden ($4.09 million), Kenya ($3.99 million), the United States ($3.41 million), and Uganda ($1.78 million). These figures shed light on the robust demand for Burundi coffee in the international market.

Government policies and regulations[51]

The Burundian government has reestablished control over the coffee industry monopoly, resulting in a noticeable decline in production. The private sector's involvement is insufficient, as control over coffee in Burundi has been assigned to a state agency named ODECA (L'Office pour le Développement du Café du Burundi) which replaced OCIBU. These rearrangements are part of the broader restructuring of the coffee sector in Burundi that began in 2020.

No recent regulatory modifications or subsidies have been implemented to stimulate the production and export of coffee.

In Burundi, regulatory policies are frequently uncertain and can influence producer prices, creating a disincentive for farmers to cultivate coffee in favour of other crops.[52]

According to some experts, the privatization of the coffee sector and the withdrawal of the state from coffee grower supervision has been a recurring theme. According to some experts, the private sector seems to be taking matters into its own hands, as the state is unable to take charge of all the links in the value chain[53].

On the contrary, other experts appear to believe that the liberalization has harmed the industry. According to this view, the coffee sector emerged as a focal point for privatization and deregulation reforms during a 1986 structural adjustment programme, designed to curtail the state's involvement

[51] *Ndayishimiye J. M. (2023), Interview conducted on 01.12.23.*
[52] *Niyukuri N. (2023), Interview conducted on 27.11.23.*
[53] *Niyukuri N. (2023), Interview conducted on 27.11.23.*

in the productive sector. However, this initiative led to a significant downturn in the industry for several reasons, including the inefficiency of production and marketing structures, a decline in both quality and quantity attributed to aging coffee farms and inadequate maintenance, adverse climatic conditions, the impact of parasites, and a decline in global market prices.[54]

The barriers associated with transitioning to organic or agroecological coffee production in Burundi lie in the level of regulations and policies that do not favor this transition. To overcome them, it is necessary to organize awareness-raising campaigns, disseminate agroecological practices on a large scale, and initiate a lobbying and advocacy program among political decision-makers.

Coffee value chain in Burundi[55]

The coffee value chain comprises four main phases: cultivation, processing, roasting, and consumption. Each step in the process has environmental, social, economic, and governance issues that affect the future sustainability of extracting coffee beans.[56]

The actors in the coffee value chain in Burundi, as shown in the next figure, include:

Input providers: These individuals serve as key contributors to the agricultural supply chain, providing farmers with essential inputs such as seedlings and fertilizers. Additionally, they play a crucial role in delivering private extension advice. The quality of these inputs holds significant sway over the potential markets where the coffee produced may find its place. To illustrate, adherence to organic certification standards necessitates the use of approved organic fertilizers and sprays exclusively by coffee growers.

Typically, these inputs are procured directly by smallholder farmers or estates. However, financial assistance for input procurement may also be extended by traders, non-governmental organizations (NGOs), and government entities. Beyond financial aid, growers often require technical support in the form of workforce development and agronomy services to enhance both productivity and the market value of their products. This collaborative effort involving various stakeholders underscores the multifaceted nature of supporting sustainable and high-quality coffee production.

Producers: Burundi's coffee industry is primarily driven by smallholder farmers engaged in the cultivation of Arabica coffee. The sector boasts an estimated 590,000-800,000 households involved in coffee farming, a number that varies with the seasons. These producers can be categorized into three primary groups: first, individual producers who sell their coffee to the nearest washing station, often with limited access to technical assistance or additional inputs; second, producers who have organized themselves into cooperatives, constituting approximately 30% of the total producers; and third, producers who have been assembled into farmers' groups by the owners of washing stations. This grouping aims to streamline transaction costs in the provision of extension services, creating a more efficient system for agricultural support.

Collectors: Collectors are individuals or groups who purchase coffee cherries directly from smallholder farmers. They act as intermediaries, aggregating the produce from multiple farmers.

[54] *Niyuhire M. C. (2023), Interview conducted on 08.12.23.*
[55] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*
[56] *Niyuhire M. C. (2023), Interview conducted on 08.12.23.*

Transporters: Transporters are responsible for moving coffee cherries from the farms to processing centres or washing stations.

Wholesalers: Wholesalers purchase large quantities of processed coffee beans from processing centres or cooperatives. They act as intermediaries between the primary processors and larger buyers.

The Ministry of Environment: The Ministry of Environment in Burundi plays a role in overseeing and regulating environmental practices within the coffee sector. This includes ensuring that coffee cultivation and processing adhere to environmental standards and sustainability practices.[57]

The Ministry of Agriculture: The Ministry of Agriculture is a key government body responsible for formulating and implementing policies related to agricultural development, including coffee production. The ministry provides support to farmers, cooperatives, and other stakeholders in the coffee value chain. It may offer training, extension services, and incentives to promote sustainable and efficient coffee cultivation practices.[58]

Processors: Processors play a crucial role in providing value-added services within the coffee supply chain. The coffee undergoes either full washing at one of the 185 washing stations or washed by traditional washing methods. Subsequently, the processed coffee is dry-milled into green coffee and predominantly shipped to International markets. Despite an annual production of approximately 25,000 metric tons, the local roasting for domestic consumption remains relatively low, accounting for less than 2,000 metric tons of the total crop.

Exporters: More than 80% of green coffee beans are traded internationally, and exporting companies play an important role in coffee global value chains. Exporters purchase green coffee from growers and grower associations and ship the beans to the end market. Large roasters rarely source beans directly from producers. This segment is highly concentrated with the six largest coffee traders controlling roughly half of the volume of coffee traded internationally. The official coffee price is based on the New York Stock Exchange (NYSE) and is influenced by numerous other factors; thus, the price fluctuates daily.

Retailers: Retailers are the final link in the domestic value chain, selling coffee to local consumers. This category includes coffee shops, supermarkets, and other outlets where consumers can purchase coffee for home consumption.

Regulators: Regulators, such as ARFIC and INTERCAFE Burundi, in the coffee market of Burundi, play a pivotal role in overseeing and managing various aspects of the industry to ensure its orderly functioning and adherence to established standards. These regulatory bodies are responsible for implementing and enforcing policies that govern the production, processing, and trade of coffee. Key aspects of their role include regulating product quality, providing information to actors in the coffee sector, arbitrating conflicts between coffee sector actors, contributing to policy formulation, monitoring national and international production and market tendencies, authorising professional licenses, and supporting marketing and promotional activities.

[57] *Niyukuri N. (2023), Interview conducted on 27.11.23.*
[58] *Niyukuri N. (2023), Interview conducted on 27.11.23.*

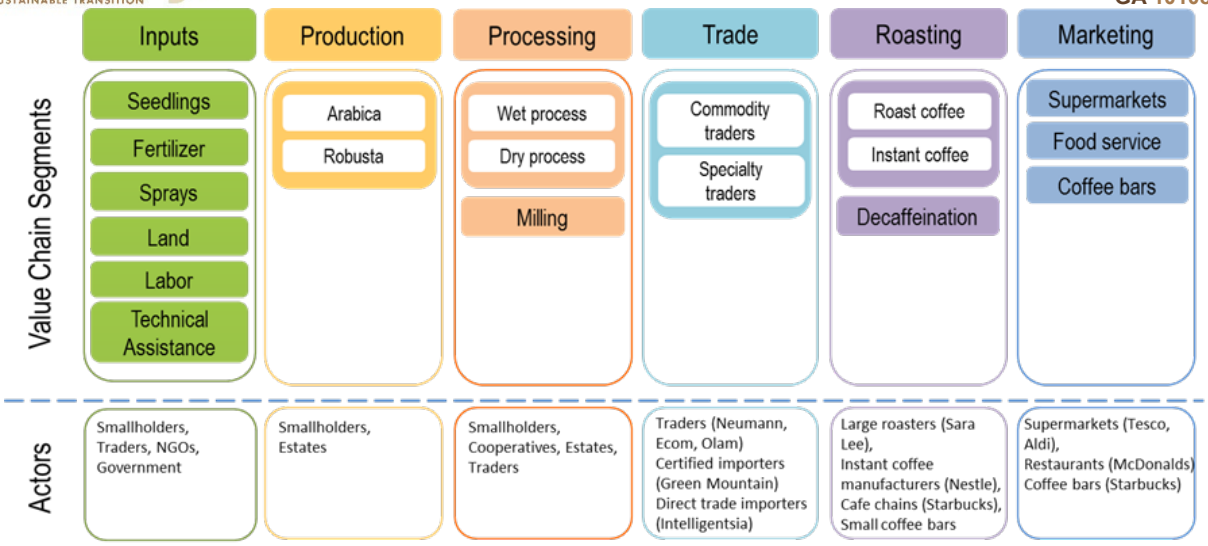


Figure 8: The coffee value chain in Burundi

Other actors include Banks and Microfinance Institutions, private companies, and the coffee shipping office (ODECA).[59]

Burundi coffee market

Burundi lacks a well-organized market structure. Private individuals appear to independently negotiate with major markets, with a notable preference for Burundian coffee among Americans. Certain entrepreneurs in the sector seem to play a prominent role. Additionally, some individuals sell coffee informally, channelling it through Rwanda and labelling it as Rwandan coffee, despite it being of Burundian origin.[60]

Coffee from Burundi is exported to the international market, either through direct transactions with importing countries or via auctions in Mombasa. While some finished coffee products are sold domestically, there is a growing trend of consumption among high-income individuals. Notably, coffee is savoured in restaurants, hotels, affluent neighbourhoods, and urban centres.[61]

Organic and agroecological coffee from Burundi holds immense potential in the market, particularly for exports to developed countries. This is attributed to the heightened emphasis on the quality of coffee in these nations, coupled with their strict adherence to standards, and regulations, and the promotion of farming practices that align with organic and agroecological conditions. Positioning Burundian coffee in these markets not only caters to consumer preferences for high-quality, sustainably produced coffee but also aligns with the stringent standards and values upheld by developed nations in the coffee industry.[62]

[59] *Ndayishimiye J. M. (2023), Interview conducted on 01.12.23.*
[60] *Niyukuri N. (2023), Interview conducted on 27.11.23.*
[61] *Nkengurutse M. (2023), Interview conducted on 27.11.23.*
[62] *Nkengurutse M. (2023), Interview conducted on 27.11.23.*

4.1.2 Cocoa production in Cameroon (Ntui ALL)

Overview

Cocoa is one of the main cash crops and exports of Cameroon. Cocoa from Cameroon is one of the most sought-after cocoa brands in the international market. Cocoa occupies about 450.000 ha (37%) of the total cultivated area in Cameroon with an average farm size of about 5 hectares. The Southwest province is the highest cocoa-producing region in the country. Cocoa production in Cameroon is on the rise, growing from 220,000 tons in 2014 to 270,000 tons in the 2019/2020 cocoa season. Cocoa makes up a great share of the Country's agricultural export accounting for approximately 90% of the income of rural communities involved in cocoa production.[63]

The international cocoa market has experienced a notable upswing, primarily driven by high production volumes from Cote d'Ivoire and Ghana. Regionally, however, the production landscape in central Africa reveals a significant concentration. Cameroon and the Democratic Republic of the Congo (DRC) collectively contribute up to 90% of cocoa production within central Africa. This regional distribution underscores the pivotal role played by these countries in shaping the overall cocoa industry dynamics in the central African region.[64]

Cocoa production in Cameroon is still largely dominated by exports of raw beans. There is a growing demand for premium cocoa following the PGI (Protected Geographical Indication) certification of Cameroon cocoa. The brick-red colour of Cameroonian cocoa has led to increased demand for premium cocoa in production areas such as Ngomedjap and Zoétélé.[65]

The local cocoa market is currently underdeveloped, primarily characterized by the predominant sale of cocoa beans for the international market. This situation complicates discussions about consumer preferences on a local level, as cocoa is not extensively consumed domestically. As much as 95% of cocoa beans are exported, highlighting the limited domestic utilization of this key agricultural product.[66]

Local consumers in Cameroon do not exhibit specific preferences for cocoa; they generally consume a mix of hybrid and regular cocoa, with the selection often based on factors such as fermentation and drying methods.[67]

Certification against industry standards (e.g., Rainforest Alliance and Fair-trade) is gaining importance in the Cameroon cocoa market. Certifications are usually coordinated and funded by NGOs, producers' organizations, and cooperatives.[68]

Cocoa certification is starting to become a tangible reality in Cameroon, beginning at the farm level. The certification process includes specific criteria, with a particular emphasis on achieving grade 1 cocoa with low residues. Farmers dealing with certified cocoa receive a specific bonus. Cameroon adheres to cocoa standards, notably through the Cocoa Zero Deforestation platform, aligning with European Union standards for cocoa marketing and quality. The Ministry of Agriculture and Rural

[63] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*
[64] *Gerardine S. T. (2023), Interview conducted on 27.11.23.*
[65] *Ondobo Onana F. B. (2023), Interview conducted on 06.11.23.*
[66] *Gerardine S. T. (2023), Interview conducted on 27.11.23.*
[67] *Tata epse Ngome P. I. (2023), Interview conducted on 01.12.23.*
[68] *Ondobo Onana F. B. (2023), Interview conducted on 06.11.23.*

Development (MINADER) oversees the Department of Certification and Quality Control to ensure adherence to these standards.[69]

Government policies and regulations (Historical Overview)[70]

Despite undergoing liberalization, the cocoa industry continues to receive special attention from the government. In 2002, an initial stimulus plan was implemented to fortify the sector, leading to a gradual but consistent increase in production. This growth was further fuelled by a substantial uptick in cocoa prices starting from 2006. By the end of the 2000s, the cocoa and coffee sectors contributed approximately 3% to the national GDP and 15% to the GDP of the primary sector in Cameroon.

In 2009, the government refocused its priorities on the productive sector through the Growth and Employment Strategy Paper, prompting the formulation of a new plan for the recovery and development of the cocoa and coffee sectors in Cameroon until 2020.

However, the projections outlined in this plan faced challenges due to the decline in international cocoa prices starting in 2017 and political unrest in the South-West region, which was the primary production basin at that time. The current state of the sector in Cameroon is attributed to the deregulation of the industry over the past twenty-five years, intense competition from other cocoa-producing countries on the global market, specific regional characteristics of cocoa production, and the significance of cocoa plantations in the cultural imagination of many Cameroonians and in agricultural areas.

In a recent development, Cameroonian authorities have issued a permanent suspension of cocoa exports to Nigeria as a measure to curb deceptive sales practices. In the realm of subsidies, the government has allocated a sum of 6.5 billion FCFA to support producers in the cocoa coffee industry.

Government policies and regulations (Current State)

Government policies and regulations in Cameroon play a crucial role in overseeing and enforcing quality standards within the cocoa industry, with observable impacts at different levels:

1. **Pesticides Regulation and Cocoa Production**: Policies related to pesticides have a direct impact on cocoa production practices. Regulations governing the use of pesticides influence farming methods and ensure compliance with safety and environmental standards.
2. **Challenges in Transformation due to Cost of Equipment**: Despite efforts to promote transformation in the cocoa sector, the development of processing capabilities faces challenges. The high cost of acquiring equipment and machinery serves as a hindrance, even with discounts provided through customer services.

Regulations: The Ministry of Trade in Cameroon plays a crucial role in regulating the marketing of cocoa to enhance farmers' prices. This regulatory oversight ensures a fair and competitive environment in the cocoa market.

Incentives: The government employs incentives such as bonuses and subsidies to motivate farmers. The overarching goal is to position Cameroon among the top three global cocoa-producing countries. These incentives are designed to recognize and reward excellence in cocoa production.[71]

[69] *Gerardine S. T. (2023), Interview conducted on 27.11.23.*
[70] *Ondobo Onana F. B. (2023), Interview conducted on 06.11.23.*
[71] *Gerardine S. T. (2023), Interview conducted on 27.11.23.*

Cocoa value chain in Cameroon[72]

A typical cocoa beans value chain system involves the operation of six major segments: cocoa bean production, sourcing and trading, marketing, processing, distribution, and retailing to the final consumers as shown in the next figure.

Producers/ farmers: The first link in the cocoa value chain in Cameroon is, mainly small-scale, farmers. 600,000 cocoa farmers across Cameroon run their plantations, harvest cocoa pods, and carry out the first processing steps, fermentation, and drying, of the beans. Farmers are divided into the following groups based on the size of their farms:

- Small cocoa farms under shade and without external support
- Small cocoa farms under shade and with external support
- Small cocoa farms without shade and with external support
- Medium cocoa farms (5 ha - 20 ha)
- Large cocoa farms (from 20 ha up to 500 ha)[73]

The Mbam et Kim Division, located in Ntui in the Central Region, and the MeMe Division, situated in Kumba and Bafia in the South-West Region, serve as the primary production basins. These areas play a pivotal role in the cultivation and production of agricultural goods, contributing significantly to the overall output and economic activities in their respective regions.[74]

The transition to organic and agroecological cocoa production should commence with farmers, following a model similar to the successful experience undertaken by GIZ Procisa through the establishment of COCOA Organic Farming in the two major cocoa production zones of Cameroon. By prioritizing farmers in this transition, we acknowledge their crucial role in adopting sustainable and eco-friendly agricultural practices.

Furthermore, efforts are underway to advance organic cocoa production in Ntui through the establishment of a Centre of Excellence, and a similar initiative is taking shape in Ebolowa to organize the organic cocoa value chain. At CONAPROCAM, all farmers have been successfully organized into OHADA cooperative societies, and the focus is now on aligning with global initiatives that promote the judicious use of inputs in the cocoa sector. As part of the Cocoa Zero Deforestation platform in Cameroon, these endeavors collectively contribute to sustainable and responsible cocoa production practices on a global scale.[75]

Intermediaries: Intermediaries in the Cameroon value chain include commercial intermediaries and cooperatives who buy cocoa beans from producers and sell them to processors and bean exporters. Commercial intermediaries serve as dynamic facilitators in the cocoa trade, engaging directly with cocoa producers to purchase their beans. Cooperatives form another integral part of the cocoa value chain in Cameroon. These farmer-driven organizations bring producers together, fostering a sense of collective strength and bargaining power. Cooperatives often provide essential support to farmers, including access to training, resources, and fair market representation.

[72] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*
[73] *Ondobo Onana F. B. (2023), Interview conducted on 06.11.23.*
[74] *Gerardine S. T. (2023), Interview conducted on 27.11.23.*
[75] *Gerardine S. T. (2023), Interview conducted on 27.11.23.*

Coaxers/ middlemen: Coaxers constitute a special type of intermediaries that operate at various stages of the value chain, connecting different participants and facilitating the flow of cocoa beans from farmers to end-users. They play a crucial role in sourcing cocoa beans from multiple smallholder farmers, aggregating the produce to create larger volumes for sale. Coaxers negotiate with cocoa farmers to purchase their beans. They are involved in setting prices, often based on prevailing market conditions, the quality of the cocoa, and negotiations with both farmers and buyers. In some cases, coaxers may provide credit or agricultural inputs to farmers, helping them manage upfront costs and improve their productivity.[76]

Processors: Processors play a pivotal role in the cocoa value chain in Cameroon, acting as key contributors to the transformation of raw cocoa beans into various intermediate (cocoa liquor, cocoa butter, and cocoa powder) and final products. These processing entities are essential components of the industry, engaging in activities that add significant value to the cocoa supply chain. Cocoa processing activities at local level include:

- **Chocolate production**: While high-quality cocoa and chocolate are often associated with countries like Switzerland, it is worth noting that local producers can also contribute excellent products. In this context, SIC Cacao, Chococam, NoHI Chocolate, and Broli are notable local players in the cocoa and chocolate industry.
- **Extraction of cocoa butter**: Numerous small-scale enterprises are engaged in the extraction of cocoa butter, utilizing traditional equipment and methods.
- **Production of cocoa powder**: Cocoa powder production involves SIC Cacao and various cooperative societies situated in the cocoa production regions.
- **Production of cocoa wine**: Cocoa wine is locally produced by young entrepreneurs, often organized into common initiative groups and cooperative societies.
- **Cosmetics**: Biopharma, SOACAM, and several other cosmetic companies in Cameroon incorporate cocoa butter into their body milk and cosmetic products. This widespread usage of cocoa butter in the cosmetic industry is a key factor contributing to the growing cocoa butter market in Cameroon.[77]

Input Providers: Input providers are essential actors in the cacao value chain in Cameroon, contributing to the agricultural practices of cocoa farmers by supplying necessary materials and resources. Typically, they offer a range of agricultural inputs to cacao farmers including seeds, fertilizers, pesticides, and other agrochemicals needed for efficient and productive cocoa cultivation. Furthermore, they often offer technical assistance and training to farmers on the proper use of inputs.

Jaco, Agripoint Services, Yara Mila, and OCP Afrique are prominent players in the chemical and pesticides market, exerting considerable influence. Notably, Agripoint Services stands out by offering biofertilizers specifically designed for cocoa farming. This includes products akin to Di Grow from Dynafarm, which is utilized by certain farmers. The availability of biofertilizers in the market signals a growing interest and adoption of sustainable and environmentally friendly agricultural practices within the cocoa farming sector.[78]

[76] *Tata epse Ngome P. I. (2023), Interview conducted on 01.12.23.*
[77] *Gerardine S. T. (2023), Interview conducted on 27.11.23.*
[78] *Gerardine S. T. (2023), Interview conducted on 27.11.23.*

Regulatory Agencies: Regulatory Agencies are instrumental in the development of the cacao value chain in Cameroon, ensuring adherence to standards, promoting fair practices, and overseeing the overall governance of the industry. Regulatory bodies are involved in regulating cacao prices, market practices, and fair trade. They ensure that market transactions are conducted fairly and that farmers receive equitable compensation for their produce. Authorities regulate the import and export of cacao and cacao products. This involves overseeing trade agreements, implementing tariffs, and ensuring compliance with international trade regulations.[79]

Public institutions responsible for regulation and support in the cocoa sector include the Ministry of Agriculture, Ministry of Trade, CICC (Interprofessional Cocoa and Coffee Council), SODECAO (Cameroon Development Corporation), and the Cocoa Academy.[80]

Bean exporters: Bean exporters play a crucial role in the cocoa value chain in Cameroon, serving as key intermediaries that bridge the gap between local processors and international markets. Their role involves facilitating the trade of processed cocoa products, mainly cocoa beans but also derived commodities. They manage the logistics of transporting cocoa products, comply with trade regulations, and facilitate the export of cocoa beans and processed commodities to meet global demand.

Export companies, predominantly located in Douala, such as TELCAR Cocoa, Barry Callebaut, Ndongo Essomba, Neo Industry, PRODUCAM, OLOACAM, and SIC Cacao, play pivotal roles in the distribution and export of products related to cocoa.

Research Institutes: IRAD (Institute of Agricultural Research for Development), IITA (International Institute of Tropical Agriculture), and CIFOR - ICRAF (Center for International Forestry Research and World Agroforestry) play significant roles in advancing the cocoa industry. They are actively involved in developing high-quality cocoa variety seeds and promoting agroforestry practices for cocoa farming. These efforts contribute to enhancing the sustainability, productivity, and resilience of cocoa cultivation in Cameroon.[81]

Other influential actors such as GIZ (German Society for International Cooperation), IDHTrade, and the World Cocoa Foundation are also making significant contributions to the cocoa market in Cameroon.

[79] *Tata epse Ngome P. I. (2023), Interview conducted on 01.12.23.*
[80] *Gerardine S. T. (2023), Interview conducted on 27.11.23.*
[81] *Gerardine S. T. (2023), Interview conducted on 27.11.23.*

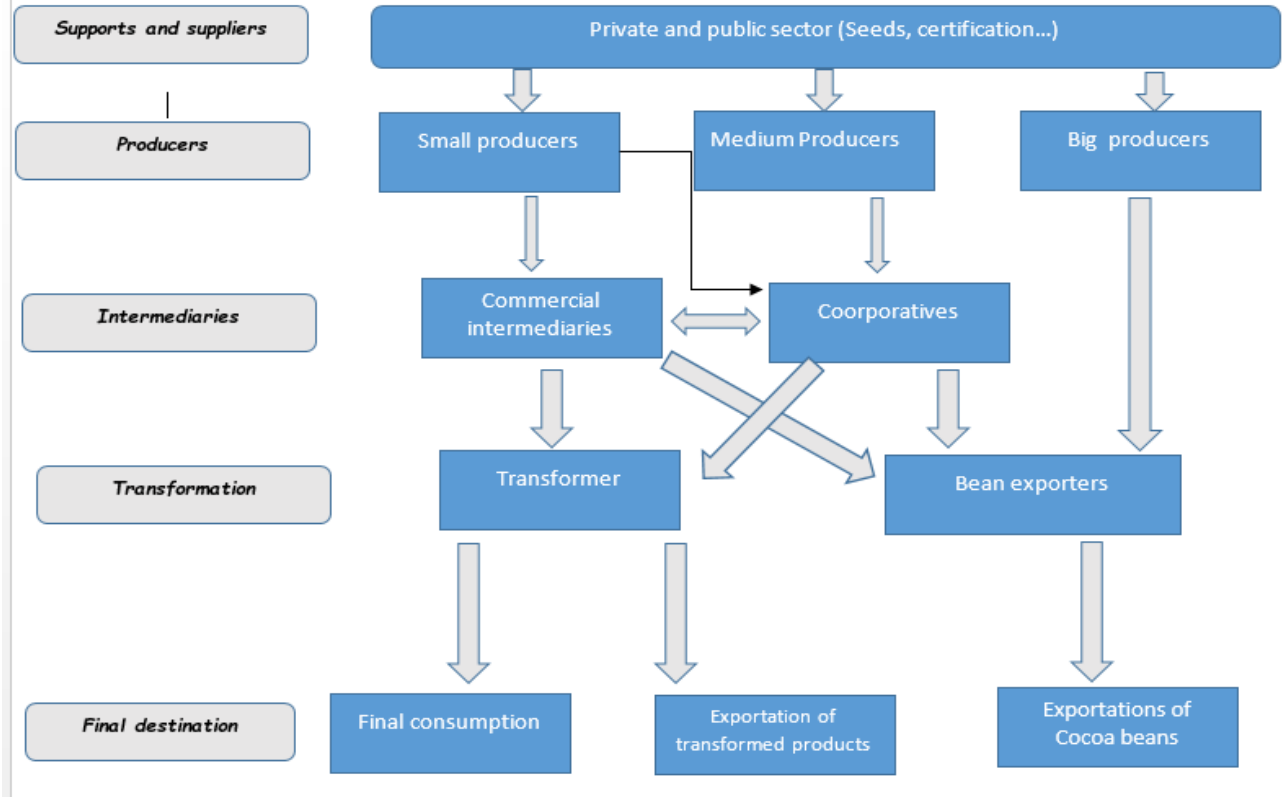


Figure 9: The cocoa value chain in Cameroon

Cameroon cocoa market

The cocoa market in Cameroon is currently undergoing organizational development. While the local market is gradually evolving, witnessing advancements in the transformation of cocoa into powder, butter, and wine, the export market primarily deals with cocoa beans. The Interprofessional Cocoa and Coffee Council (CICC) actively promotes the attainment of cocoa premium first grade by farmers. Special bonuses are allocated to those who successfully achieve this premium grade, incentivizing and recognizing excellence in cocoa production. This approach encourages farmers to maintain and enhance the quality of their cocoa output.

The government and various stakeholders are actively promoting the "MADE In Cameroon" label, extending its application across various value chains beyond just cocoa. This initiative underscores a broader commitment to supporting and showcasing locally produced goods, emphasizing the importance of domestic industries and contributing to the growth of Cameroon's economy. [82]

In Cameroon, cocoa finds its way into export markets facilitated by entities like SIC Cacao, TELCAR, and others. The domestic market for cocoa primarily involves sales to the private sector, with buyers dealing in smaller quantities compared with exports. Niche cocoa markets are served through Centers of Excellence, which actively purchase cocoa for specialized markets.

The primary characteristics of the cocoa export market in Cameroon involve the participation of registered companies that comply with current regulations for exporting to international markets.

[82] *Gerardine S. T. (2023), Interview conducted on 27.11.23.*

Small-scale producers generally do not engage in the cocoa export market. On the domestic front, the internal cocoa market is facilitated by middlemen or brokers who actively source cocoa, with some producers being aggregated through cocoa markets.

From the above segments, the niche market is considered to be the most suitable for marketing of organic and agroecological cocoa due to the alignment of production practices with the values and preferences of consumers in this specialized segment. The emphasis on quality, sustainability, unique flavours, and ethical production methods enhances the market appeal and economic viability of organic and agroecological cocoa in niche markets. Moreover, products in niche markets, especially those with organic certifications, often command premium prices that support sustainable and ethical farming practices.[83]

4.1.3 Cocoa production in DRC (Bunia ALL)

Overview

In the last years, the DRC has been gradually increasing its cocoa production advancing its exports from 600t in 2006 to 48.000t in 2022[84]. The country is recognized for its potential to become a significant player in the global cocoa market due to its favorable climate and soil conditions for cocoa cultivation. Cocoa represents 57% of the total value of DRC's exports and it contributes significantly to the agricultural GDP (17%) of the country. Production, processing, and export actors favor job creation at all levels of the value chain.

In recent years cocoa has been promoted as an alternative to Robusta coffee in DRC. In parallel, Congo is increasingly recognized as a new frontier for unique, quality cocoa export. As a result, significant buyers of cocoa have recently been established in the country, especially in the Eastern promises such as Barry Callebaut, ICAM, Tachibana, Theo Chocolate, Tropicore, Lush Cosmetics, and Walter Matter.[85]

Cocoa production in the DRC is largely carried out by smallholder farmers, with many cultivating cocoa on small family-owned plots.

Despite its potential, the cocoa sector in the DRC faces challenges, including issues related to infrastructure, price fluctuations at international level, post-harvest processing, and access to markets.

On the other hand, there are important opportunities for DRC cocoa at the international level, especially for certified cocoa such as organic and fair trade.

Certain producers pursue certifications, such as organic or fair trade, aiming to tap into niche markets that prioritize sustainability and ethical practices.[86]

[83] *Tata epse Ngome P. I. (2023), Interview conducted on 01.12.23.*
[84] *Mumbere L. (2023), Interview conducted on 10.11.23.*
[85] *Mumbere L. (2023), Interview conducted on 10.11.23.*
[86] *Sivirihauma C. (2023), Interview conducted on 14.11.23.*

Government policies and regulations

The lack of a formal framework to bolster cocoa production at the national level diminishes the influence of government policies and regulations on the industry. Currently, there are no recent developments in regulations, subsidies, or incentives pertaining to cocoa production and exports.

Cocoa value chain in DRC[87]

The cocoa supply chain in DRC is quite concentrated with firms in the Beni/Butembo region dominating the market. This concentration affords cocoa exporters greater oversight and decreases the prevalence and influence of middlemen, granting them better control of aggregation and consolidation costs. As a result, cocoa exporters enjoy an enhanced ability to influence quality, transformation, and export processes over their coffee supply chain counterparts. Some notable export companies include INDEED and ESCO KIVU Society.[88]

The following are the major cocoa value chain actors in DRC:

Smallholder Farmers: Smallholder farmers are at the beginning of the cocoa value chain, cultivating cocoa on family-owned plots. They are responsible for planting, nurturing, and harvesting cocoa pods.

Cooperatives: Many smallholder farmers organize themselves into cooperatives. Cooperatives provide a platform for farmers to collectively access resources, training, and support. They can enhance farmers' bargaining power in the market.

Local Traders: Local traders often act as intermediaries between smallholder farmers and larger buyers. They may purchase cocoa beans from farmers and sell them to larger exporters or processors.

Processors: Cocoa processors are involved in the transformation of raw cocoa beans into intermediate or final products. They operate processing facilities where beans are cleaned, fermented, dried, roasted, and ground to produce cocoa mass, cocoa butter, and cocoa powder.

Exporters: Bean exporters are key players in the value chain, facilitating the export of cocoa beans and processed cocoa products to international markets. They manage logistics, negotiate with international buyers, and ensure compliance with trade regulations.

Certification Bodies: Organizations responsible for certifications, such as organic or fair-trade certifications, play a role in ensuring that cocoa production meets specific standards related to environmental and social sustainability.

NGOs and Development Organizations: Non-governmental organizations (NGOs) and development organizations may be involved in projects that support sustainable cocoa farming practices, farmer education, and community development within cocoa-producing regions.

DRC cocoa market

The cocoa industry in DRC involves various market segments, each serving specific purposes within export, domestic, and premium markets.

[87] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*
[88] *Sivirihauma C. (2023), Interview conducted on 14.11.23.*

The **export market** is directly linked to the international cocoa trade and involves exporting raw cocoa beans to international markets.

The **domestic market** is based on local consumption and includes the sale of cocoa beans, processed cocoa products, and chocolate to local consumers.

The **premium market** involves products that are distinguished by their quality, unique characteristics, ethical sourcing, or specific certifications. An important subsegment of the premium market is the specialty cocoa market which constitutes a niche market characterized by unique flavour profiles, high-quality standards, and often, a focus on sustainability and ethical sourcing. In the case of cocoa produced in the Ituri Province by the Okapi and UPCCO (Union des Producteurs de Cacao du Congo) cooperatives, several key elements contribute to the specialty nature of this cocoa including the flavours of Ituri cacao, the impeccable clean and homogeneous beans, its fair and sustainable production, and the traceability of the cacao up to farm level.[89]

The specialty subsegment is particularly well-suited for the marketing of organic and agroecological cocoa due to consumer preferences, distinctive terroir, certifications, sustainable practices, direct trade relationships, storytelling, and the economic viability of premium pricing. The organic certified cocoa produced in the Ituri Province by the Okapi and UPCCO cooperatives further underscores the compatibility of specialty cocoa with organic and agroecological practices.

4.1.4 Coffee production in DRC (Biega & Kabare ALLs)

Overview

In recent years, DRC has been steadily increasing its coffee production as demand for DRC coffee is on the rise, at the international level, due to the quality of the Congolese coffee[90]. At the same time, demand is considered low at local level and medium at the regional level.[91]

There is an ascendant trend of coffee export from DRC going from 6.000mt to 13.000mt of green coffee during the last years.[92]

Arabica coffee is the dominant variety produced in the DRC. Around 55% of the total production is directed to the international market, 25% to the regional market, while the rest 20% is consumed locally. The country has favourable agroecological conditions for coffee cultivation, including high-altitude regions, volcanic soils, and a suitable climate. Coffee grown in the fertile volcanic lands bordering Virunga National Park is considered exceptional for several reasons, including the altitude, the climate, and the rich soil of the Virunga region.[93]

As a result, Congo is gaining recognition as an emerging frontier for the export of distinctive and high-quality coffee. Consequently, notable purchasers of coffee have recently established a presence in the country, including African Coffee Roasters, Atlas Coffee, Importers, Colruyt Group, Counterculture, Equal Exchange, Falcon Coffees, Higher Grounds Trading Co., Kivu Coffee, Let

[89] *Sivirihauma C. (2023), Interview conducted on 14.11.23.*
[90] *Karhagomba Innocent B. (2023), Interview conducted on 22.11.23.*
[91] *Bagula N. (2023), Interview conducted on 10.11.23.*
[92] *Mumbere L. (2023), Interview conducted on 10.11.23.*
[93] *Karhagomba Innocent B. (2023), Interview conducted on 22.11.23.*

Sequoia, Olam Specialty Coffee, Peet's Coffee, Starbucks, Strauss Coffee, Trabocca, Tropicore and Twin Trading.

Some producers seek certifications such as organic or fair trade to access niche markets that value sustainability and ethical practices. The annual rise in coffee certification rates contributes to the growth in membership and production within cooperative structures.

Biega is one of the most prominent producing regions in DRC while exporters are mainly located at Goma.[94]

Government policies and regulations[95]

The absence of a formal framework for enhancing coffee production at the national level diminishes the impact of government policies and regulations on the industry. There are no recent developments in regulations, subsidies, or incentives related to coffee production and exports.

Coffee value chain in DRC[96]

As illustrated in the following figure, the coffee value chain in the Democratic Republic of Congo (DRC) involves various actors, each contributing to the production, processing, and trade of coffee. Here are the key coffee value chain actors in the DRC.

Smallholder Farmers/ Producers: Smallholder farmers are the foundation of the coffee value chain in the DRC. These farmers cultivate coffee on family-owned plots, contributing to the bulk of the country's coffee production.

Coffee cooperatives: Coffee cooperatives play a significant role in the Democratic Republic of the Congo (DRC) by bringing together coffee farmers, facilitating collective activities, and improving the overall coffee value chain. Cooperatives aim to enhance the livelihoods of smallholder farmers, promote sustainable farming practices, and strengthen the position of coffee producers in the market. Typically, coffee cooperatives are regarded as the most fitting entities for marketing organic and agroecological coffee due to direct contact with the international market where there is significant demand for organic coffee.[97]

Inputs Providers: The production of coffee requires several inputs, including physical inputs (seedlings, fertilisers, and sprays), land, and labour. The qualities of the various inputs can determine the types of end-markets in which the coffee may ultimately be sold. For example, for coffee production to be certified as organic, growers may only use approved organic fertilizers and pesticides. These inputs are typically sourced directly by smallholders or estates; however, traders, non-governmental organisations (NGOs) and government actors may aid finance the purchase of inputs.

Collectors from farm gate: Collectors operate at the farm gate level, purchasing coffee cherries directly from farmers. They aggregate coffee from multiple smallholder farmers before selling it to the next stage in the value chain.

[94] *Karhagomba Innocent B. (2023), Interview conducted on 22.11.23.*
[95] *Karhagomba Innocent B. (2023), Interview conducted on 22.11.23.*
[96] *Karhagomba Innocent B. (2023), Interview conducted on 22.11.23.*
[97] *Karhagomba Innocent B. (2023), Interview conducted on 22.11.23.*

Processors: Coffee processors are involved in the transformation of raw coffee cherries into green coffee beans. They operate processing facilities where beans are cleaned, sorted, and dried, preparing them for export or further processing.

Local Traders: Traders frequently serve as intermediaries connecting smallholder farmers with larger purchasers. They might acquire coffee beans directly from farmers and then distribute or sell them to larger exporters, processors, or cooperatives.

Exporters: Bean exporters facilitate the export of coffee beans from the DRC to international markets. They play a key role in managing logistics, negotiating with international buyers, and ensuring compliance with trade regulations.

Roasters: Roasters are crucial actors who transform green coffee beans into roasted coffee. They play a pivotal role in determining the flavour profile and characteristics of the final coffee product.

Retailers: Retailers distribute coffee to local markets, cafes, and stores, making the final product accessible to consumers.

Government Agencies/ Authorities: Various authorities and institutions play crucial roles in overseeing and regulating different aspects of the coffee value chain. These entities are responsible for ensuring compliance with regulations, promoting sustainable practices, and facilitating the smooth functioning of the coffee industry. Some examples include: the Ministry of Agriculture, the Coffee Regulatory Board, local and regional agricultural extension services, customs and trade authorities.

Certification Bodies: Entities in charge of certifications, such as those for organic or fair trade, contribute to ensuring that coffee production adheres to criteria concerning environmental and social sustainability.

Non-profit organizations: Non-profit organizations play a significant role in the coffee value chain in the Democratic Republic of the Congo (DRC) by engaging in various initiatives aimed at improving the livelihoods of coffee farmers, promoting sustainability, and addressing social and economic challenges. These organizations often collaborate with local communities, government agencies, and other stakeholders. The Eastern Congo Initiative[98] is an example of this type of stakeholders. While ECI, founded by Ben Affleck, has a broader focus on development in the eastern Congo, it has been involved in initiatives related to coffee farming. ECI has supported local cooperatives and organizations working on sustainable agriculture and economic development.

Actors involved in processing can vary. In some cases, smallholders process the cherries themselves, especially with dry processing. Small farmers frequently participate in cooperatives or associations to achieve efficiency gains at the processing stage. The annual growth in coffee certification rates positively impacts both membership and production within cooperative structures.

DRC coffee market

The local coffee market in DRC consists of three main segments: a formal market that operates under the supervision of the Government, an informal market that operates without supervision, and cooperative market that operates under supervision and values the quality of the coffee.[99]

[98] *https://www.easterncongo.org/*
[99] *Bagula N. (2023), Interview conducted on 10.11.23.*

Primary markets rely on cooperatives, such as RAEK and TCC, which serve as the foundation for exchange among coffee producers. These cooperatives embody wholesale characteristics. Notably, they are exclusive to export markets and are situated in Goma.

Private organization characterizes domestic markets, where producers have close connections with intermediate buyers. These intermediaries, in turn, establish links with unidentified markets in Rwanda through the lake and Idjwi Island.[100]

Large estates usually process their beans on-site. In some cases, trading companies are integrated into the processing stage to ensure a steady supply of coffee with the desired characteristics.

Traders purchase green coffee from growers and grower associations and ship the beans to the end market. Large roasters rarely source beans directly from producers.

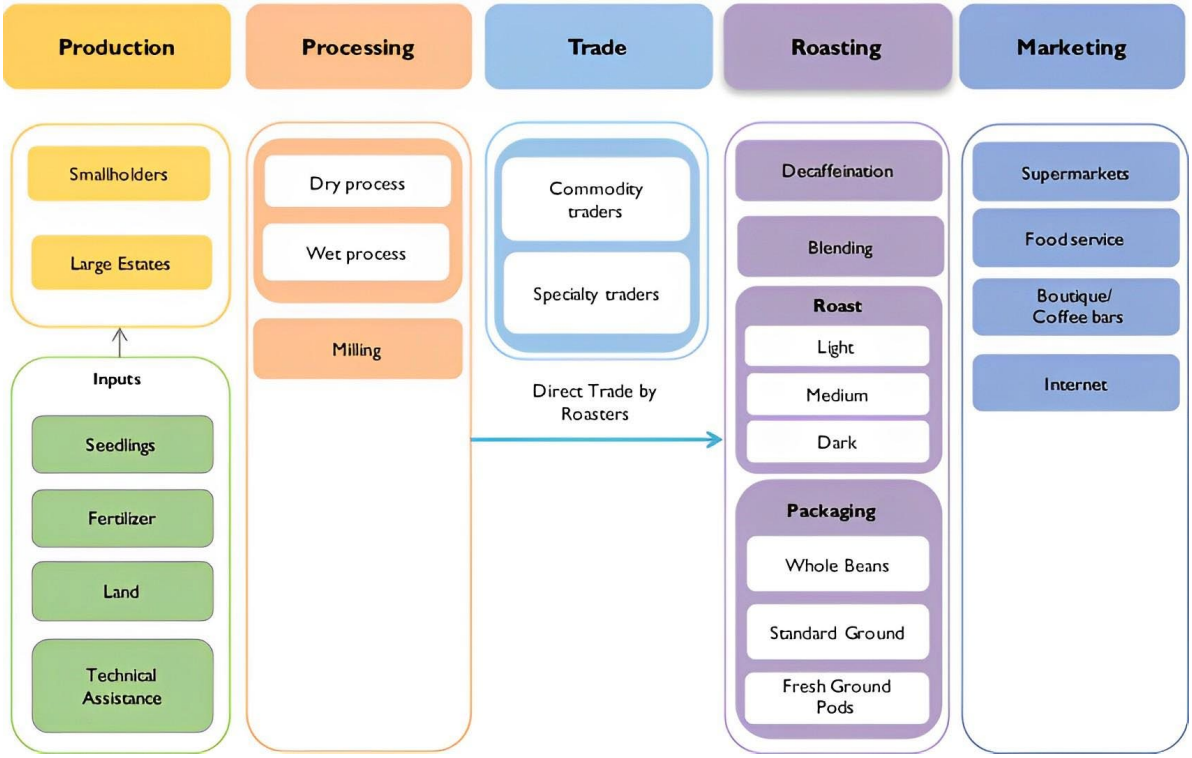


Figure 10: The coffee value chain in DRC[101]

[100] *Karhagomba Innocent B. (2023), Interview conducted on 22.11.23.*

[101] *Ngouhouo Poufoun J., Sedi M., (2023), Agroecological Practices for Sustainable Transition (CANALLS) - D1.1: Agroecological contexts and needs of rural communities in the Agroecological Living Labs*

4.2 Demand side

4.2.1 The international coffee market

Overview

The international coffee market is a complex and dynamic global industry that involves the cultivation, processing, trading, and consumption of coffee beans. Coffee is one of the most widely traded commodities in the world, and the market is influenced by various factors, including economic conditions, climate, geopolitical events, and consumer trends.

Here are some key aspects of the international coffee market:

Value: The global coffee market size was valued at USD 120.59 billion in 2021. It is projected to reach USD 182.63 billion by 2030, growing at a CAGR of 4.72% during the forecast period (2022-2030).[102]

Arabica vs. Robusta: The two main types of coffee beans traded internationally are Arabica and Robusta. Arabica is generally considered to have a milder flavour and is often associated with higher quality, while Robusta has a stronger, more bitter taste. The relative proportions of Arabica and Robusta in the market can affect prices and trading dynamics.

Price Volatility: Coffee prices can be highly volatile due to factors such as weather conditions (frost, drought, etc.), political instability in coffee-producing regions, and fluctuations in currency exchange rates. The volatility can impact both coffee producers and consumers.

Supply Chain: The coffee supply chain involves several stages, including cultivation, harvesting, processing, exporting, importing, roasting, and retailing. Each stage contributes to the final cost of coffee, and disruptions at any point in the supply chain can affect prices.

Certifications and Sustainability: There is an increasing emphasis on sustainable and ethically sourced coffee. Certifications like Fair Trade, Rainforest Alliance, and organic certifications play a role in promoting environmentally friendly and socially responsible practices in the coffee industry.

Market Players: The coffee market includes a range of players, from small-scale farmers and cooperatives to large multinational corporations. Major trading companies and coffee roasters play a crucial role in the global distribution of coffee.

Consumption Trends: Consumer preferences for specialty coffee, single-origin beans, and diverse brewing methods have been on the rise. This has led to a more nuanced and diverse coffee market, with a focus on quality and unique flavours.

Coffee-producing countries: For years, Brazil has maintained its position as the world's leading coffee producer, a standing it continues to uphold. However, noteworthy shifts have occurred in the rankings, with Vietnam surpassing Colombia to become the second-largest global coffee producer. Among the top 10 producers, including Brazil, Vietnam, Colombia, Indonesia, Ethiopia, Peru, Honduras, India, Uganda, and Guatemala, among others, there have been no significant changes in recent times.[103]

[102] *https://straitsresearch.com/report/coffee-market*
[103] *Pfeuffer M. (2023), Interview conducted on 08.12.23.*

Coffee-consuming countries: In the global landscape of coffee consumption, the European Union (EU) takes the lead, boasting around 43 million 60kg bags. Following closely are the USA with over 27 million bags and Brazil with more than 22 million bags.[104]

Coffee Futures: Coffee is actively traded on commodities exchanges, and futures contracts are used as a way to manage price risk for both producers and buyers. The New York Mercantile Exchange (NYMEX) and the Intercontinental Exchange (ICE) are major platforms for trading coffee futures.

Challenges: The coffee industry faces challenges such as the impact of climate change on coffee-growing regions, concerns about fair compensation for farmers, and the need for sustainable farming practices to ensure the long-term viability of coffee production.

Market dynamics

The international coffee market operates within a multifaceted framework influenced by many factors. These dynamics encompass driving forces that propel the market forward, such as increasing global exposure, the pervasive influence of Western culture, the penetration of established coffee brands, and supportive government policies. Simultaneously, restraining factors, including economic challenges, geopolitical instability in key coffee-producing regions, and environmental concerns, contribute to the intricate balance that characterizes the ever-evolving landscape of the global coffee industry.

Driving forces

Globalization and increased connectivity have exposed consumers worldwide to different cultures and products, including coffee. As people become more aware of various coffee varieties and brewing methods from different regions, there is a growing demand for diverse and specialty coffee options. This exposure has contributed to a more dynamic and sophisticated international coffee market.

The **influence of Western culture**, particularly the coffee culture in Europe and North America, has had a profound impact on global coffee consumption. The popularity of coffee shops, such as Starbucks, has spread the Western-style coffee experience to various parts of the world. This influence has led to a shift in consumer preferences towards specialty coffee, and espresso-based drinks, and a focus on the overall coffee experience.

Established coffee brands, particularly those from Western countries, have expanded their presence globally. These brands bring standardized quality, branding, and marketing strategies to new markets. The presence of well-known coffee chains has not only increased coffee consumption but has also influenced local coffee cultures, leading to a demand for higher-quality and more diverse coffee offerings.

Government policies can significantly impact the international coffee market. Favourable policies, such as trade agreements, subsidies, and support for sustainable and ethical coffee production, can stimulate the growth of the coffee industry. Governments may also play a role in promoting coffee as a key export product, contributing to the economic development of coffee-producing regions.

[104] *Pfeuffer M. (2023), Interview conducted on 08.12.23.*

Restraining factors

Economic downturns and fluctuations in currency exchange rates can significantly impact the purchasing power of consumers and the profitability of coffee producers. When faced with economic uncertainties, consumers may cut down on discretionary spending, affecting the demand for premium or specialty coffee.

Coffee is primarily grown in regions that may be susceptible **to geopolitical instability**, conflicts, or adverse political conditions. Such instability can disrupt the supply chain, leading to production declines, export challenges, and price volatility. Producers and traders may face uncertainties related to transportation, trade routes, and political risks.

Climate change poses a significant threat to coffee production. Alterations in temperature, precipitation patterns, and the increased incidence of pests and diseases can impact the quality and quantity of coffee yields. Sustainable and climate-resilient farming practices become crucial to mitigate these environmental challenges.

The global consumption of coffee experienced a substantial impact over the past years due to the **coronavirus pandemic**. There was a significant reduction in demand worldwide, particularly in segments associated with direct coffee consumption, such as restaurants, cafeterias, conferences, and other events where coffee is served. These markets operated at restricted rates during the pandemic. However, over time, the situation has been gradually overcome, and coffee consumption has now returned to pre-pandemic levels.[105]

Market trends

Consumers' concerns about poverty, social injustice, and environmental issues (e.g. reduction of carbon emissions) have driven a growing market for 'certified' and 'sustainability' brands and labels in the international coffee market. The social conditions of small coffee producers are becoming more prominent in the justifications presented to support consumer choices. The paradox of high-quality coffee produced by economically disadvantaged farmers has led to a rise in traders emphasizing the Fair-Trade version. Heightened awareness of the above issues is further bolstered by civil society movements like Friday for Future and non-governmental organizations dedicated to environmental protection.

All the above appear to strengthen the demand for **sustainable coffee** which refers to various coffees that meet social, environmental, and economic criteria and are certified by an impartial third party. Certified coffee is also an assurance to the consumer about the product's reliability, as coffee is becoming an increasingly common target for food counterfeiters. Several coffee certification organizations are checking coffee's production procedures and supply chain. Some of them include UTZ Certification, Fair Trade Certification, Rainforest Alliance Certification, USDA Organic Certification, Naturland Fair[106] and many more. Apart from the above schemes, some big value chain actors are promoting their in-house voluntary standards (C.A.F.E. Practices from Starbucks[107]).

[105] *Pfeuffer M. (2023), Interview conducted on 08.12.23.*
[106] *Naturland Fair considers not only the way in which the coffee is produced but also the socio-economic conditions of the producer and all those involved in the process.*
[107] *https://stories.starbucks.com/press/2020/cafe-practices-starbucks-approach-to-ethically-sourcing-coffee/*

Moreover, the Global coffee platform[108] has launched the Coffee Sustainability Reference code which the industry is committed to comply with[109].

Consumers increasingly seek unique and high-quality coffee experiences. **Specialty coffee**, characterized by distinct flavours, single-origin beans, and precise brewing methods, continues to gain popularity.[110]

The **"third wave" coffee movement** focuses on treating coffee as an artisanal product, similar to wine or craft beer. This trend emphasizes the appreciation of coffee as an experience, highlighting the nuances of flavour, origin, and processing methods.

Coffee is being marketed as a beverage with **potential health benefits**, such as antioxidant properties. Functional coffee varieties, including those with added vitamins or adaptogens, are gaining attention as consumers seek products that align with their health and wellness goals.

The market has seen a trend toward **premiumization,** with consumers willing to pay more for higher-quality and unique coffee experiences. Coffee producers and brands differentiate themselves through storytelling, highlighting the journey from bean to cup and the unique characteristics of their products.

Global Coffee Value Chain

The next figure illustrates the global coffee value chain. As seen in the figure the main actors include:

Farmers: Smallholder farmers and large-scale plantations are primary producers of coffee beans. These farmers cultivate coffee plants, harvest the cherries, and process the beans through drying and initial sorting.

Cooperatives and associations: Many coffee farmers, especially smallholders, join cooperatives and associations to collectively manage aspects of production, processing, and marketing. Cooperatives can provide farmers with better bargaining power and access to resources, including financing and training.

Exporters: Exporters facilitate the movement of coffee beans from coffee-producing countries to international markets. They are involved in logistics, quality control, and compliance with export regulations. Exporters often work closely with both producers and importers.

Intermediaries: Intermediaries are traders and middlemen operating at the local level. They provide services to farmers and assistance in reaching the market.

Importers: Importers source green coffee beans from coffee-producing regions and distribute them to roasters and retailers. They play a crucial role in connecting coffee-producing countries with consumer markets, managing logistics, and ensuring quality standards.

Roasters: Roasters are responsible for transforming green coffee beans into the roasted coffee that consumers are familiar with. Roasting influences the flavour, aroma, and colour of the coffee. Roasters may also blend beans from different origins to create unique profiles.

[108] *https://www.globalcoffeeplatform.org/*
[109] *Mumbere L. (2023), Interview conducted on 10.11.23.*
[110] *Mumbere L. (2023), Interview conducted on 10.11.23.*

Retailers: Retailers include cafes, coffee shops, grocery stores, and online platforms that sell coffee to consumers. They play a vital role in marketing and providing access to a wide range of coffee products, including whole beans, ground coffee, and ready-to-drink options.

Big chains of coffee houses: Big chains of coffeehouses, such as Starbucks, play a significant role as actors in the global coffee value chain. As major retailers and coffee processors, these companies are integral components of the value chain, influencing various stages from sourcing and production to distribution and consumption. These chains typically engage in direct sourcing relationships with coffee producers, contribute to shaping market trends, and impact consumer preferences. Through their purchasing decisions, marketing strategies, and sustainability initiatives, coffeehouse chains like Starbucks exert considerable influence on the dynamics of the global coffee value chain.[111]

Coffee giants: Coffee giants such as Nestlé, JDE (Jacobs Douwe Egberts), and Lavazza Group are pivotal players in the global coffee value chain, wielding significant influence across sourcing, processing, marketing, and distribution. With vast supply chain networks and direct relationships with coffee producers, these companies ensure a stable and high-quality coffee supply. Renowned for their strong branding and marketing, they shape consumer preferences and drive market trends. Coffee giants lead in innovation, introducing new products and contributing to the diversification of the coffee market. Through extensive retail networks, sustainability initiatives, and global partnerships, these industry leaders impact both the economic dynamics of coffee-producing regions and the overall landscape of the global coffee industry.[112]

Consumers: Consumers are a crucial part of the coffee value chain. Their preferences, purchasing habits, and awareness of sustainability issues influence market trends and drive demand for different types of coffee products.

[111] *Mumbere L. (2023), Interview conducted on 10.11.23.*
[112] *Mumbere L. (2023), Interview conducted on 10.11.23.*

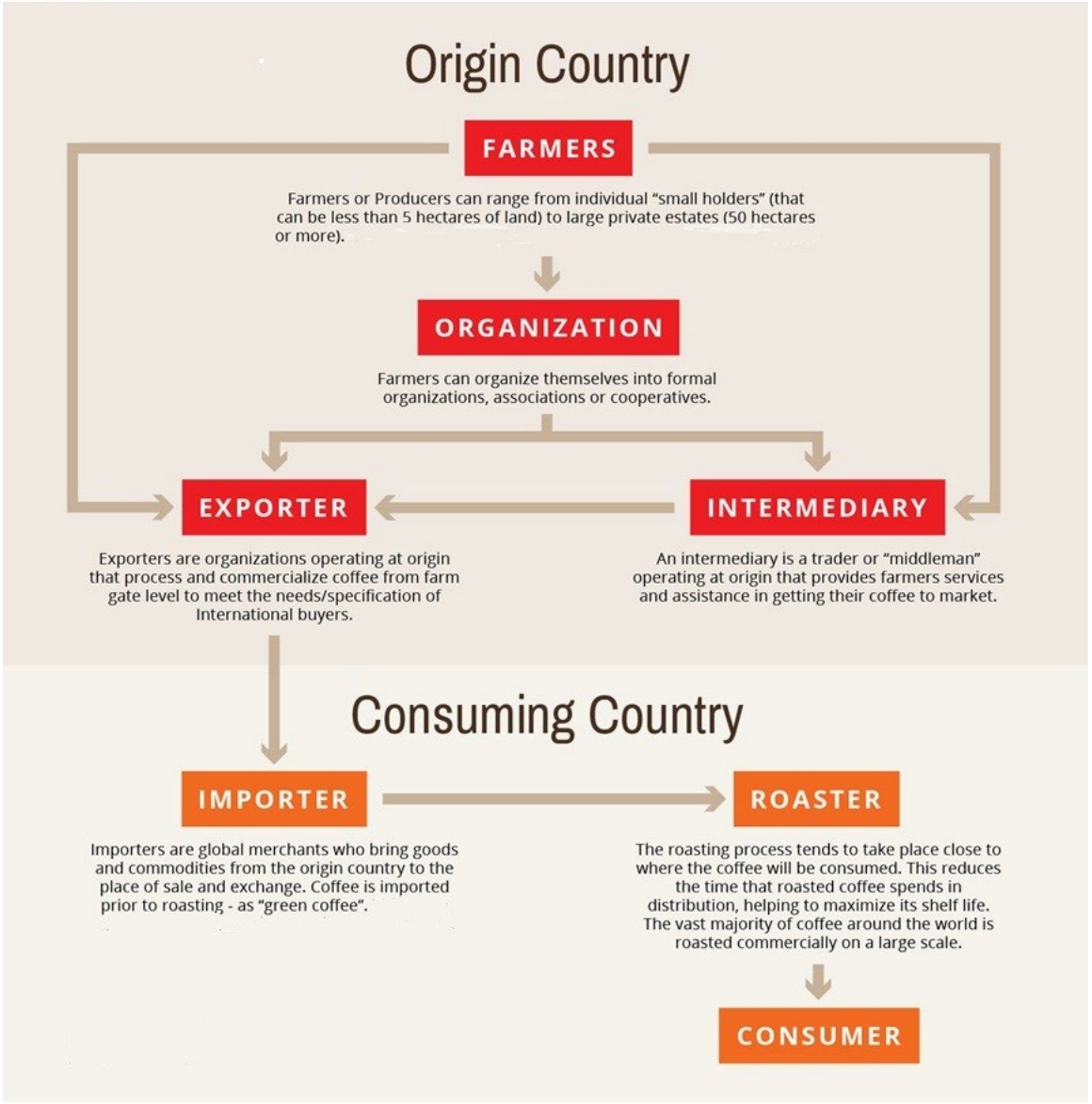


Figure 11: The global coffee value chain

Source: Coffee Association of Canada

Market segments of coffee

The global coffee market can be segmented based on various factors that reflect the diverse preferences, characteristics, and behaviours of consumers.

One of the most used segmentations is **by coffee type**:

Whole Bean Coffee: Coffee beans sold as whole beans, allowing consumers to grind them fresh for brewing, preserving the flavour and aroma.

Ground coffee: Pre-ground coffee is suitable for various brewing methods, providing convenience for consumers who may not have a coffee grinder. Ground coffee suppliers cater to businesses in the retail, food service, and hospitality sectors. B2B transactions involve providing bulk quantities of pre-ground coffee in different packaging formats, meeting the demands of businesses seeking ready-to-use coffee products for their customers.

Instant coffee: Soluble coffee crystals or powder that quickly dissolve in hot water, offering convenience and a rapid brewing process. Instant coffee manufacturers focus on supplying businesses in the food and beverage industry, including supermarkets, cafes, restaurants, hotels, and convenience stores. B2B transactions involve providing bulk quantities of instant coffee products suitable for various applications, from beverage service to the incorporation of coffee flavour in food products.

Coffee Capsules: Sealed containers, typically made of plastic or aluminium, holding pre-measured coffee for use in capsule-compatible brewing machines.

Flavoured Coffee: Coffee infused with various flavours, such as vanilla, caramel, hazelnut, or seasonal flavours, appealing to those seeking diverse taste experiences.

It is also possible to segment the international coffee market based on the **quality** of the coffee. First, the market can be segmented between bulk and premium coffee.

Commodity or bulk coffee: This segment is characterized by mass production, often involving standardized coffee beans that may not carry the distinct characteristics or specialty attributes found in higher quality counterparts. It represents a large portion of the global coffee market, where beans are produced on a large scale, often with an emphasis on high yields and cost efficiency.

Premium coffee: The premium coffee segment represents a category that goes beyond standard commodity or bulk coffee, offering higher quality, distinctive flavours, and often a focus on specialty or single-origin beans. Within the premium segment, two sub-categories can be identified:

- **Specialty coffee:** Specialty coffee represents a high-quality and premium segment of the market. It emphasizes unique flavor profiles, distinct bean origins, and meticulous brewing methods. This category caters to discerning consumers who appreciate the complexities and nuances of coffee, often seeking a more sophisticated and personalized coffee experience. It often involves beans grown in specific regions under ideal conditions, with an emphasis on precise farming methods. Specialty coffee is of particular interest to coffee roasters and retailers catering to consumers who prioritize quality, transparency of origin, and a personalized approach to coffee consumption. B2B transactions involve sourcing specialty green coffee beans, roasting them to perfection, and delivering a premium end product to retailers and cafes.
- **Single-Origin Coffee:** Single-origin coffee comes from a specific geographical location, allowing consumers to experience the unique flavor profile associated with that particular region's climate, soil, and altitude.

Second, a more detailed breakdown **based on quality** includes:

Upper end: Excellent quality, 85+ cupping score, single origin and fully traceable to a cooperative, washing station or farm. Small but growing market.

High end: High quality, 80-85 cupping score. Mainly fully washed Arabica. Sold through specialty channels. Often single country origin. Growing market.

Mid-range: Good quality. Usually a blend of Robusta and Arabica, mainly sold in supermarkets. Stable and large market.

Low end: Blended coffee of lower quality. Mainly robusta. Sold in supermarkets. Market is in decline, but still large share.

Third, segmentation can be based on the **two main species of coffee beans: Arabica and Robusta**. These two species differ in terms of flavour, growing conditions, and other characteristics, leading to distinct market segments.

Arabica Coffee: Arabica beans are known for their smooth and mild flavour, often characterized by a more complex taste profile. They can have floral, fruity, and sometimes acidic notes. Arabica plants thrive at higher elevations with cooler temperatures. They are often grown at altitudes between 2,000 and 6,000 feet. Major Arabica coffee-producing countries include Colombia, Ethiopia, Brazil, and others. Arabica coffee typically commands a higher market share in the specialty and premium coffee segments due to its desirable flavour characteristics and higher-quality reputation. Specialty and gourmet coffees, including single-origin and blends, often feature Arabica beans.

Robusta coffee: Robusta beans have a stronger, more robust flavour compared to Arabica, often described as earthy, woody, or nutty. They can also have a slightly bitter taste. Robusta plants are hardier and can thrive in lower altitudes with warmer temperatures. They are often grown in regions with less delicate growing conditions. Major Robusta coffee-producing countries include Vietnam, Brazil, Indonesia, and others. Robusta coffee is often used in mass-market products, where its bold flavour and higher caffeine content may be preferred. Robusta beans are commonly found in instant coffee, espresso blends, and some commercial coffee blends.

The coffee market can be segmented based on various **certification types** that indicate certain attributes or practices associated with the production of coffee such as environmental sustainability, fair labour practices, organic farming methods, and more:

Organic Certified Coffee: Organic certified coffee adheres to specific standards that promote environmentally friendly and sustainable farming practices. Organic coffee is grown without the use of synthetic pesticides, herbicides, or fertilizers, emphasizing environmentally friendly and sustainable farming practices. Several organic coffee certification schemes exist globally, including:

- **USDA Organic:** Coffee bearing the USDA Organic seal indicates that it has been produced according to strict organic standards, which include the avoidance of synthetic pesticides and fertilizers.
- **EU Organic:** The European Union's organic certification, represented by the EU Organic logo, certifies that coffee has been produced in accordance with organic farming regulations in the European Union,
- **Naturland Organic Certification:** Naturland is an international association based in Germany that provides organic certification for various agricultural products, including coffee. Naturland's standards emphasize ecological sustainability, social responsibility, and biodiversity.[113]

Organic certification is not obligatory, but it ensures a better price for farmers. With certification, producers receive a premium. Some producers' associations have utilized this approach to enhance

[113] *https://www.naturland.de/en/producers/service-and-expertise/certification.html*

their production or for social initiatives. For consumers, it provides a sense of satisfaction in contributing positively to both the producers and the environment.[114]

B2B transactions involve the supply of organic green coffee beans or roasted coffee that meets certification standards, appealing to businesses and consumers with a strong emphasis on eco-friendly practices.

Fair Trade Coffee: Fair trade coffee ensures that farmers receive fair compensation for their efforts, promoting social and economic sustainability within coffee-producing communities. Suppliers of fair-trade coffee target businesses committed to sustainability, socially responsible consumers, and those seeking ethically sourced products.[115]

Rainforest Alliance Certified Coffee: Coffee with the Rainforest Alliance certification signifies adherence to environmental and social sustainability standards, promoting responsible farming practices.[116]

UTZ Certified: UTZ certification emphasizes responsible and sustainable coffee production, encompassing environmental and social aspects. It aims to promote better farming practices and living conditions for coffee farmers.[117]

Direct Trade: Direct trade is not a formal certification but a business model where coffee roasters establish direct relationships with coffee producers. This allows for more transparent and mutually beneficial transactions.

Another informative segmentation of the international coffee market is based on **distribution channels**:

- On-trade
- Off-trade

On-trade

On-trade refers to the distribution channel where coffee products are served and consumed on the premises where they are purchased. This includes establishments such as cafes, restaurants, hotels, and other foodservice outlets where customers enjoy coffee as part of their in-house experience. As the coffee shop is spreading worldwide, this market segment is expanding rapidly. Specialty and organic coffee appear to benefit more from this development as they are attractive to people who frequent coffee shops.

Off-trade

Off-Trade refers to the distribution channel where coffee products are sold for consumption outside the premises where they are purchased. This includes retail outlets such as supermarkets, specialty stores, online platforms, and other points of sale where consumers buy coffee products to prepare and consume at home or on the go. This market segment is directly linked to retail stores, thus

[114] *Pfeuffer M. (2023), Interview conducted on 08.12.23.*
[115] https://www.fairtrade.net/product/coffee
[116] https://www.rainforest-alliance.org/
[117] https://www.rainforest-alliance.org/utz/

following their recent upward trajectory. Bulk and instant coffee seems to fit better this market segment, however, specialized retailers and e-shops often promote specialty and organic coffee.

Finally, we can analyse and segment the coffee market based on the **consumers characteristics** to identify distinct groups with similar needs, behaviours, and preferences.

Demographic Segmentation

- **Age:** Different age groups may have varying preferences. Younger consumers might be more interested in specialty coffee and are eager to try different flavors, while older consumers may prefer traditional options.
- **Income:** High-income individuals might be willing to pay more for premium or artisanal coffee, whereas budget-conscious consumers may prefer more affordable options.

Psychographic segmentation

- **Lifestyle:** Health-conscious individuals might be interested in organic or low-acid coffee, while busy professionals may prioritize convenience.
- **Personality:** Some consumers may be adventurous and open to trying new coffee blends, while others may be more conservative in their choices.

Behavioural segmentation

- **Occasions:** Segmenting consumers according to when they typically enjoy their coffee. For example, morning coffee drinkers may prefer a strong brew, while evening consumers might opt for decaffeinated options.
- **Usage Rate:** Individuals who regularly consume coffee may exhibit a heightened interest in subscription services or loyalty programs tailored to frequent coffee drinkers.

Geographic segmentation

- **Region:** Preferences can vary by region. For instance, consumers in coffee-producing regions may have a different appreciation for coffee than those in non-producing regions. In less developed countries, instant coffee tends to be a preferred choice among consumers.
- **Urban vs. Rural**: Urban consumers may have easier access to specialty coffee shops, impacting their preferences.

Cultural and Social Factors

- **Cultural background:** Preferences can be influenced by cultural factors. For example, consumers from coffee-centric cultures may have a strong preference for specific types of coffee.
- **Social trends:** The emergence of social trends, particularly the increasing emphasis on ethical and sustainable practices, significantly influences coffee consumption patterns. Consumers are now more inclined to choose coffee options that align with their values, leading to a growing demand for products that adhere to ethical sourcing, fair trade, and sustainable production methods.

The analysis mentioned above has enabled us to identify specific consumer segments that align with our objectives:

Coffee enthusiasts:

- Characteristics: Passionate about coffee, coffee enthusiasts seek high-quality, specialty beans, and are interested in diverse brewing methods. They appreciate the nuances of flavor profiles and often engage in home brewing as a hobby.
- Preferences: Specialty coffee, single-origin beans, artisanal blends, and unique brewing equipment.

Health-Conscious Consumers:

- Characteristics: Individuals who prioritize health and wellness. They may choose coffee for its antioxidant properties and seek options like organic, low-acid, or functional coffee products.
- Preferences: Organic coffee, low-acid beans, specialty health-focused blends, and coffee alternatives like herbal infusions.

Active young people:

- Characteristics: Young, urban consumers with a busy lifestyle. They value convenience, quick service, and often choose coffee as a fuel for productivity.
- Preferences: Ready-to-drink coffee, cold brew, grab-and-go options, and specialty coffee beverages from quick-service establishments.

Environmentally Conscious Consumers:

- Characteristics: Consumers who prioritize sustainability and ethical sourcing. They are concerned about the environmental impact of coffee production and seek products with eco-friendly certifications.
- Preferences: Fair Trade coffee, Rainforest Alliance certified coffee, and brands with transparent sustainability practices

Budget-Conscious Shoppers:

- Characteristics: Consumers who are mindful of their budget and seek affordable coffee options without compromising too much on quality.
- Preferences: Value-packaged coffee, store brands, and promotions or discounts

Traditionalists:

- Characteristics: Consumers who prefer classic, traditional coffee experiences. They may have a strong attachment to familiar coffee brands and brewing methods.
- Preferences: Classic coffee blends, familiar brands, and traditional brewing methods.

Market segments for organic and agroecological coffee

In the B2C coffee market, several segments are particularly suitable for organic and agroecological coffee products due to the preferences and values of consumers within these segments. Here are key B2C segments where organic coffee products are likely to find strong appeal:

- **Eco-Conscious Consumers**: Consumers who prioritize environmentally friendly and sustainable products. They are likely to seek organic coffee as it aligns with their commitment to minimizing the environmental impact of their purchases.

- **Health and Wellness Enthusiasts:** Individuals who are health-conscious and seek products free from synthetic pesticides and chemicals. Organic coffee, being grown without synthetic inputs, appeals to this segment.
- **Ethical Consumers:** Consumers who prioritize fair trade and ethical treatment of farmers. Organic coffee, often produced with fair labor practices, aligns well with the values of ethical consumers.
- **Premium Segment Seekers:** Consumers willing to pay a premium for high-quality products with added benefits. Organic coffee, associated with quality and sustainable practices, fits well into the premium segment.
- **Urban Millennials and Generation Z:** Younger consumers who are often more conscious about sustainability, health, and ethical considerations. They may be drawn to organic and agroecological coffee due to its alignment with their values and preferences for sustainable and responsibly sourced products.
- **Consumers in Western countries** (North America, Europe, and Oceania): Western consumers tend to be conscious of sustainability and environmental impact. They may prefer coffee products that are certified organic and adhere to environmentally friendly practices.

Several segments within the B2B coffee market are well-suited for organic and agroecological coffee products, especially considering the increasing demand for sustainable and ethically sourced options. Here are prominent B2B sectors where organic and agroecological coffee products are poised to garner significant interest:

- **Conscious Restaurants, Coffee Shops and Cafés:** Restaurants and coffee establishments emphasizing sustainability and ethical sourcing. Offering organic and agroecological coffee aligns with the commitment of conscious coffee shops to environmentally friendly and socially responsible practices.
- **Specialty Coffee Suppliers:** Suppliers focusing on the specialty coffee market, serving cafes and high-end retail establishments. The specialty coffee segment often emphasizes quality, unique flavor profiles, and ethical sourcing. Organic and agroecological coffee fits well within this niche, meeting the criteria of quality and sustainability valued by specialty coffee enthusiasts.
- **Coffee Brands with Sustainability Initiatives:** Brands with a strong focus on sustainability and corporate social responsibility. Companies with established sustainability initiatives can enhance their brand image by incorporating organic coffee into their offerings. This aligns with their commitment to ethical and environmentally friendly practices. This segment includes private labels developed by retailers such as supermarkets.
- **Specialized retailers:** Retailers specializing in offering a curated selection of premium and specialty coffee products. Specialized retailers often cater to a discerning clientele seeking unique and high-quality coffee experiences. Incorporating organic coffee products into their offerings allows them to tap into the growing demand for sustainable and ethically sourced options among consumers who frequent specialty coffee shops or boutiques.
- **Organic food retail shops:** Retailers specializing in organic and natural food products, including coffee. Organic food retail shops cater specifically to consumers seeking organic, sustainable, and ethically sourced products. By offering organic and agroecological coffee products, these retailers can meet the preferences of their environmentally conscious customer base and provide a comprehensive range of organic options.

- **Specialty roasters:** Roasters specializing in crafting high-quality, unique, and specialty coffee offerings. Specialty roasters focus on the art and science of coffee roasting, emphasizing distinctive flavor profiles and premium quality. Incorporating organic coffee into their product lineup aligns with the preferences of consumers who seek both specialty coffee experiences and products produced with environmentally friendly and ethical practices.

4.2.2 The international cocoa market

Overview

The international cocoa market operates within an intricate and ever-evolving framework, influenced by a multitude of factors that shape its supply, demand, and pricing dynamics. As a crucial participant in the world economy, cocoa holds considerable importance as an agricultural commodity, and its impact is evident through the substantial influence wielded by major producing nations. The market is marked by inherent volatility, driven by variables such as weather conditions, geopolitical events, and fluctuations in currency exchange rates. Furthermore, the industry is in a state of transformation, with a growing emphasis on sustainability, ethical practices, and shifting consumer preferences towards premium and specialty chocolate products. From the intricacies of supply chains and trading on commodity exchanges to the challenges posed by issues like climate change and deforestation, the international cocoa market manifests as a nuanced interplay of economic, social, and environmental factors.

Here are some key aspects of the international cocoa market:

Supply and Demand: Cocoa is a major agricultural commodity, and its market is influenced by global supply and demand dynamics. The main cocoa-producing countries include Ivory Coast, Ghana, Indonesia, Nigeria, and Ecuador. Weather conditions, diseases affecting cocoa plants, and government policies in these countries impact supply.

Price Volatility: Cocoa prices are volatile due to factors such as weather events (e.g., droughts, storms), geopolitical issues, and fluctuations in currency exchange rates. Speculation and trading activities on commodity exchanges also contribute to price volatility.

Quality and Grading: Cocoa is graded based on quality, and different grades fetch different prices in the market. Fine flavour and aromatic cocoa varieties command higher prices.

Global Trade and Processing: The international cocoa market involves a complex supply chain that includes farmers, traders, processors, and manufacturers. Cocoa is traded on commodity exchanges such as the Intercontinental Exchange (ICE)[118] and NYSE Liffe. These exchanges provide a platform for price discovery and risk management.

Sustainability and Ethical Practices: There is an increasing focus on sustainability and ethical practices in the cocoa industry. Issues like child labour, deforestation, and fair-trade practices have gained attention, leading to initiatives and certifications aimed at addressing these concerns.[119]

[118] *https://www.ice.com/products/7/Cocoa-Futures*
[119] *Mumbere L. (2023), Interview conducted on 10.11.23.*

The **Cocoa Barometer**[120] is a biennial report that provides an overview of the current sustainability efforts and challenges within the global cocoa sector. It is a collaborative effort by various civil society organizations involved in issues related to cocoa production, labour conditions, and environmental sustainability. The Cocoa Barometer examines key issues such as child labour, farmer income, and deforestation in cocoa-producing regions. The report aims to shed light on the complexities of the cocoa supply chain and encourages stakeholders, including governments, companies, and consumers, to take action to address the identified challenges and promote more sustainable practices in the cocoa industry.[121]

Consumer Trends: Changing consumer preferences, including a growing demand for premium and specialty chocolate products, impact the cocoa market. Consumers are increasingly interested in the origin and production practices of cocoa.

Regulatory Environment: Regulations related to quality standards, labelling, and environmental sustainability affect the cocoa market. Compliance with these regulations is crucial for market participants.

Processing and Value Addition: Processing of cocoa beans into intermediate products like cocoa butter and cocoa powder is a significant aspect of the cocoa market. The prices of these products also influence the overall market.

Industry Consolidation: The cocoa industry has seen consolidation, with larger companies acquiring smaller ones. This consolidation can affect market dynamics and competition.

Market dynamics

The dynamics of the international cocoa market are shaped by a combination of driving factors that propel its growth and restraining factors that pose challenges to its stability. Understanding these dynamics is essential for stakeholders in the cocoa industry.

Driving forces

The ever-increasing **global demand** for chocolate and cocoa-based products is a primary driving force. Emerging markets, changing consumer preferences, and the popularity of premium and specialty chocolates contribute to sustained demand growth.

Ongoing **advancements in agricultural technologies** and practices enhance cocoa cultivation and processing efficiency. Improved farming techniques, disease-resistant plant varieties, and sustainable farming practices contribute to increased yields and quality.

Growing awareness among consumers about **ethical and sustainable sourcing practices** has led to an increased demand for certified cocoa. This trend encourages industry players to adopt environmentally friendly and socially responsible practices.[122]

Supportive policies and initiatives from cocoa-producing governments can positively influence the market. Subsidies, incentives, and programs promoting sustainable farming practices can boost production and quality.

[120] *https://cocoabarometer.org/en/*
[121] *Mumbere L. (2023), Interview conducted on 10.11.23.*
[122] *Mumbere L. (2023), Interview conducted on 10.11.23.*

Restraining factors

Cocoa **prices are inherently volatile**, influenced by factors such as weather conditions, geopolitical events, and market speculation. The unpredictability of prices can pose challenges for both producers and buyers, affecting planning and decision-making.

Cocoa plants are susceptible to various **diseases**. Outbreaks of these diseases can significantly impact cocoa yields, leading to supply shortages and affecting market stability.

Political instability in major cocoa-producing regions can disrupt supply chains and impact market dynamics. Civil unrest, changes in government policies, and geopolitical tensions can lead to uncertainties and hinder smooth market operations.

Issues related to deforestation, climate change, and environmental degradation are increasingly becoming concerns in the cocoa industry. Sustainable farming practices are essential, and failure to address **environmental issues** can lead to reputational damage and regulatory challenges.

Market trends

Consumers and industry players are increasingly prioritizing **sustainable and ethical sourcing** of cacao. Certifications with sustainability standards such as Fair Trade and Rainforest Alliance are gaining prominence as consumers seek products with traceable and responsible supply chains.

Similar to trends in the broader food industry, there is an increasing demand for organic products, including **organic cocoa**. Organic cocoa is often positioned as a premium product, appealing to consumers looking for high-quality and environmentally friendly options. Certifications are crucial for establishing the credibility of organic cocoa products. Transparency in labelling and supply chain traceability has become important as consumers seek assurance about the authenticity of organic claims. Organic cocoa production often involves smallholder farmers adopting sustainable and organic farming practices. Initiatives aimed at empowering these farmers and improving their livelihoods are gaining traction.

There is a growing consumer demand for **premium and high-quality chocolate products**. This trend has been driven by factors such as increased disposable income, changing consumer preferences, and a desire for unique and artisanal chocolate experiences.

The cacao market is witnessing a shift towards products positioned as **healthier alternatives**. Dark chocolate, in particular, is gaining popularity due to its perceived health benefits, including antioxidant properties.

Beyond traditional chocolate bars, there was a trend towards the development of **new cacao-based products**. This included cacao-infused beverages, snacks, and even beauty and skincare products, leveraging the perceived health benefits of cacao.

Consumers are becoming more conscious of the **origin** of their food products. Brands are responding by providing transparent labelling and detailed information about the cacao's origin, emphasizing the story behind the product.

Governments and regulatory bodies are placing increased emphasis on sustainable practices in the cacao industry. This includes guidelines and **regulations** to address issues such as deforestation, child labour, and environmental sustainability.

Climate change concerns are impacting the cacao industry, with a focus on building resilience. This involves research into cacao varieties that are more resilient to changing climatic conditions and initiatives to promote sustainable farming practices.

Global Cocoa Value Chain

The following figure depicts the global cocoa value chain. As indicated in the diagram, key participants in this chain comprise:

Cocoa Farmers: Smallholder farmers in cocoa-producing regions are key players in the value chain. They cultivate and harvest cocoa beans, often on family-owned farms. Cocoa farming is a critical source of livelihood for many in West Africa, South America, and Southeast Asia.

Cocoa Cooperatives: Many cocoa farmers belong to cooperatives, which are collective organizations that aim to improve the bargaining power of smallholder farmers. Cooperatives may provide support, resources, and training to farmers.

Traders and Brokers: Traders and brokers facilitate the purchase and sale of cocoa beans. They play a crucial role in connecting farmers with downstream actors in the value chain, managing logistics, and negotiating prices.

Processors: Cocoa processors transform raw cocoa beans into intermediate products like cocoa butter, cocoa powder, and cocoa liquor. Processing involves fermentation, drying, roasting, and grinding of cocoa beans. Major processing companies operate globally.

Chocolate Manufacturers: Chocolate manufacturers use processed cocoa products to create a variety of chocolate products. These companies range from large multinational corporations to smaller artisanal chocolatiers.

Cosmetics and pharmaceutical companies: Cosmetics and pharmaceutical companies have become integral actors in the global cocoa value chain, using cocoa-derived ingredients in their products. Cocoa's versatility extends beyond the food industry to applications in cosmetics and pharmaceuticals.

Retailers: Retailers, including supermarkets, grocery stores, and specialty shops, play a crucial role in distributing chocolate products to consumers and influencing purchasing decisions.

Consumers: Consumers are the final link in the cocoa value chain, driving demand and influencing industry trends. Increasingly, consumers seek sustainably and ethically produced chocolate.

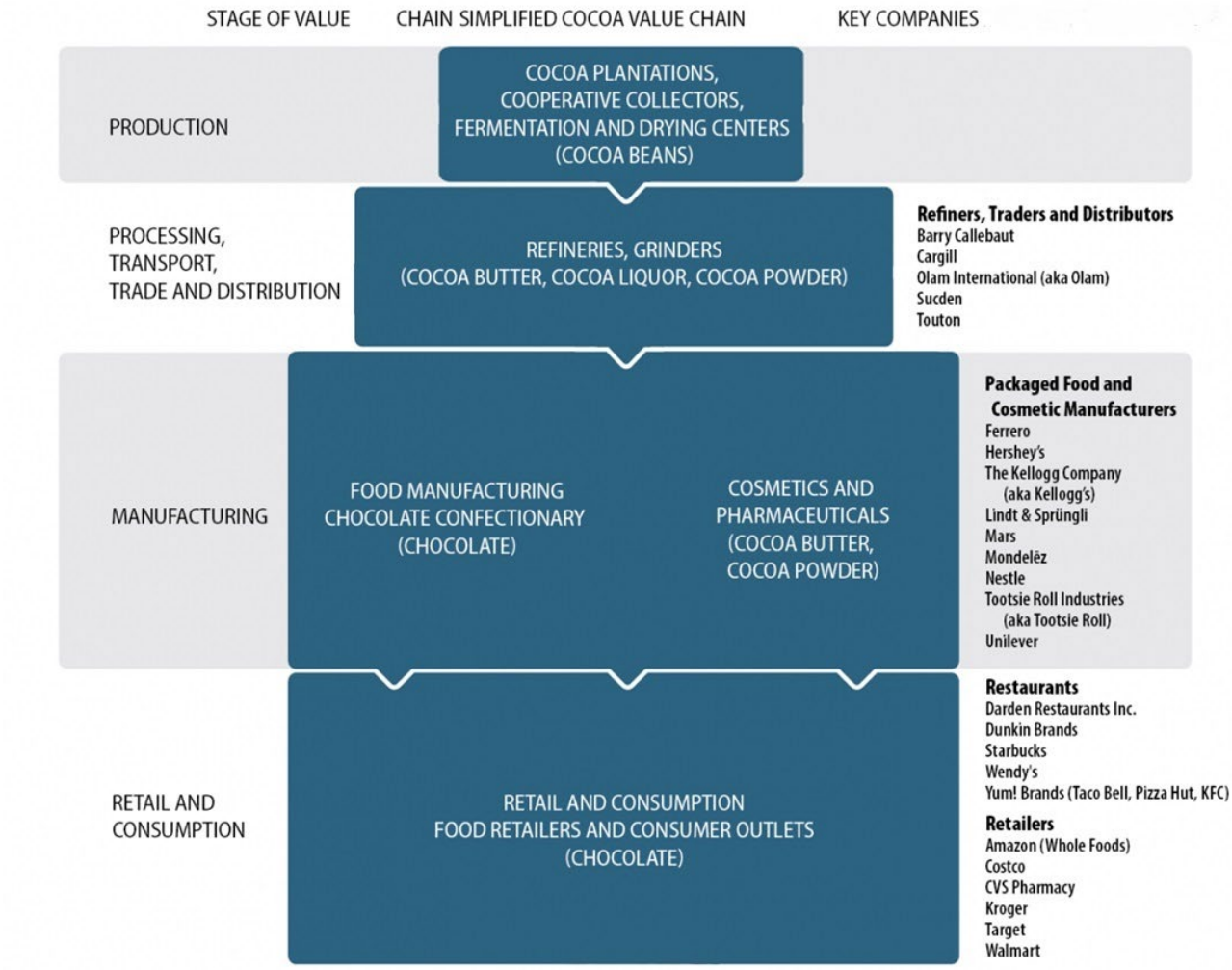


Figure 12: The global cocoa value chain

Source : https://engagethechain.org/cocoa

Market segments

The global cocoa market can be segmented based on various factors that distinguish different aspects of the industry. The key segmentation criteria for the global cocoa market include:

1. **Cocoa Quality**[123]:
   - **Commodity, bulk, or mainstream segment**: This market segment refers to products of high volumes and standard quality. Bulk cocoa is highly price-oriented and follows international market prices. Bulk cocoa is usually used for manufacturing cocoa butter and high-volume mainstream or bulk chocolate products.
   - **Bulk certified segment**: This market segment refers to cocoa or derivatives that have met the standards of a certification scheme, related to environmental, social, and/or economic aspects, and have been certified by a certification body. It follows international market price and the premium is not always guaranteed but usually negotiated.

[123] *Gaia Cacao B.V. (15.11.2021), Global Cocoa Market Study,*

- **Premium segment**: This market segment is used to denote superior quality and/or value. It refers to cocoa that contains special attributes that set it apart from the bulk market. These attributes are recognized and rewarded by the market through a system of price premiums above bulk market prices. These special attributes are related to characteristics of the product itself, such as low defect quantification, high quality and flavor profiles, its terroir and unique origin, the story behind its production and producing communities as well as transparent trade and non-tangible aspects such as certification.

Within the premium segment, three sub-categories can be identified:

- **Premium Certified:** This segment refers to cocoa that has met the standards of a certification scheme but is better in quality than bulk certified beans. Also sometimes referred to as "improved", the defects would be much lower than those admitted according to FCC-standards but might not need to have prize-winning flavour characteristics nor excellent marketing highlighting the story behind the cocoa beans. Prices for this cocoa would follow the world market price, plus a premium for the certification and for the extra work to get the quality to its 'premium' status.
- **Specialty segment**: Specialty cocoa production is based on a notion of quality that is linked to a lack of defects and the presence of fine flavour and aroma(s). In addition, the story behind the cocoa's uniqueness and availability are important. Typically, for this specialty segment certification is less important, as brand owners will elaborately communicate social and ecological stories on the bar and social media.
- **Ultra-Premium segment**: refers to cocoa beans with extremely high quality and absolute absence of defects and impurities. The market value for this product segment is disconnected from world market prices and mainly depends on availability, uniqueness, and market positioning of the product. Within the (ultra) specialty segment, the status of Fine Flavour cocoa can be considered. The market for fine cocoa[124] is small (only 5 to 6% of total world production), highly specialized, globalized, and selective with its own supply and demand characteristics.

2. **Product Type:**
   - **Cocoa beans:** The seed of the cocoa tree; commercially, and for international standards (ISO), the term refers to the whole seed, which has been fermented and dried.
   - **Cocoa nibs:** Product obtained by removing the shell from cleaned, dried, and cracked cocoa beans (roasted or unroasted). The nibs can be used to make chocolate or sold separately as healthy food products.
   - **Cocoa Butter:** Fat obtained from cocoa beans by means of a press**.** Extracted from cocoa beans, used in chocolate and cosmetics.
   - **Cocoa Powder:** Product obtained by converting into powder cocoa beans that have been cleaned, winnowed, and roasted**.** Used in baking, confectionery, and beverage industries.
   - **Cocoa Liquor (Paste):** When cocoa beans are finely ground, they produce a thick liquid called cocoa liquor (also known as unsweetened chocolate, or cocoa mass). The grinding process generates heat, and the dry granular consistency of the cocoa turns into a liquid as the large

[124] *Mumbere L. (2023), Interview conducted on 10.11.23.*

amount of fat contained in the cocoa bean melts. Cocoa liquor is mainly used in the production of chocolate and semi-finished chocolate ingredients.

- **Chocolate:** The product obtained from cocoa products and sugars that contain not less than 35% total dry cocoa solids, including not less than 18% cocoa butter and not less than 14% of dry non-fat cocoa solids.
- **Confectionery Products**: Food industry category which includes chocolate and chocolate products, biscuits and other baked goods, cakes and pastries, sweets and candies.
- **Specialty Chocolate:** Chocolate produced by small chocolate makers who usually purchase the beans directly or via an importer. Artisan chocolate must be made under the care and supervision of a knowledgeable chocolate maker who could be defined as an artisan. However, there is still a smaller number of consumers for premium chocolate compared to those who prefer regular chocolate.[125]

3. **End-Use Industry:**
   - **Chocolate and Confectionery Industry:** The largest consumer of cocoa products.
   - **Food and Beverage Industry:** Utilizes cocoa in various products, including baked goods and beverages.
   - **Cosmetics Industry:** Uses cocoa butter and cocoa-derived ingredients in skincare and beauty products.
   - **Pharmaceutical Industry:** Incorporates cocoa extracts into medicines and supplements.
   - **HORECA[126]:** HORECA businesses are significant end-users of cocoa products, incorporating them into a variety of menu items and offerings such as beverages, desserts, confections and chocolates, ice creams, and baked goods. HORECA establishments often prioritize the use of high-quality cocoa products to enhance the overall dining or hospitality experience for their customers.[127]

4. **Certification Type:**
   - **Certified Organic Cocoa:** Produced without synthetic pesticides or fertilizers. There is a growing demand for organically certified cocoa.[128]
   - **Fair Trade Certified Cocoa:** Ensures fair prices and ethical labor practices**.**
   - **Rainforest Alliance Certified Cocoa:** Focuses on environmental sustainability and social responsibility.

The **B2C international cocoa market** can be segmented based on **consumer characteristics and preferences** to identify and elaborate fitting marketing strategies for specific target audiences:

Premium Chocolate Enthusiasts: Consumers who prioritize high-quality and premium chocolate products, often seeking unique flavour profiles, specialty ingredients, and artisanal brands. They often value small-batch production and unique flavour combinations.

[125] *Mumbere L. (2023), Interview conducted on 10.11.23.*
[126] *Hotel, Restaurant, and Catering*
[127] *Mumbere L. (2023), Interview conducted on 10.11.23.*
[128] *Mumbere L. (2023), Interview conducted on 10.11.23.*

Health-Conscious Consumers: Individuals focused on health and wellness, seeking cocoa products with perceived health benefits, such as dark chocolate with high cocoa content for its antioxidant properties.

Ethical and Sustainable Shoppers: Consumers who prioritize ethically sourced and sustainably produced cocoa products, often looking for certifications like Fair Trade, Rainforest Alliance, or organic labels.

Conventional Chocolate Consumers: Individuals with traditional preferences for mainstream chocolate brands and products, often driven by affordability and familiarity.

Adventurous Flavour Seekers: Consumers who enjoy trying new and exotic cocoa flavours, such as chocolates infused with spices, fruits, or unique ingredients.

Market segments for organic and agroecological cocoa

Market segments for organic and agroecological cocoa are defined by the preferences and values of **consumers** who prioritize environmentally sustainable and socially responsible practices in cocoa production. At the moment these consumers are mainly located at North America and Europe, although Asian consumers are following the trend.[129]

The following market segments are specifically tailored for organic and agroecological cocoa:

- **Organic Chocolate Enthusiasts**: Consumers who seek chocolate made from organic cocoa beans, valuing products produced without synthetic pesticides, herbicides, or genetically modified organisms (GMOs).
- **Eco-Conscious Consumers:** Individuals committed to environmentally friendly choices, including organic and agroecological cocoa, which aligns with sustainable farming practices, biodiversity preservation, and reduced environmental impact.
- **Fair Trade and Ethical Consumption:** Consumers who actively choose organic and agroecological cocoa with Fair Trade certification, ensuring that farmers receive fair compensation and work in humane conditions.
- **Health and Wellness Seekers:** Individuals who associate organic and agroecological cocoa with healthier choices, appreciating products free from synthetic chemicals and pesticides, and often seeking high cocoa content for potential health benefits.
- **Premium Organic Chocolate Market:** Enthusiasts willing to pay a premium for high-quality, artisanal, and organic chocolate products, appreciating the craftsmanship and sustainable practices involved in production.

Various segments within the **B2B cocoa market** are particularly suitable for organic and agroecological cocoa products, reflecting the preferences and priorities of businesses aiming to incorporate sustainable and environmentally friendly practices. The following are key B2B market segments for organic and agroecological cocoa products:

- **Specialty Food and Gourmet Retailers:** Retailers specializing in specialty foods and gourmet products can buy and promote organic and agroecological cocoa, attracting consumers who appreciate unique, high-quality offerings with an emphasis on sustainability.

[129] *Mumbere L. (2023), Interview conducted on 10.11.23.*

- **Organic and Natural Food Manufacturers:** Businesses in the organic and natural food sector can integrate organic and agroecological cocoa into their product lines, appealing to consumers seeking environmentally conscious choices.
- **Health and Wellness Brands:** Brands in the health and wellness sector, including those producing energy bars, protein snacks, and supplements, can use organic and agroecological cocoa to align with the preferences of health-conscious consumers.
- **Fair Trade and Ethical Brands:** Brands committed to fair trade and ethical sourcing can leverage organic and agroecological cocoa to align with their values, meeting the preferences of consumers who prioritize ethical and sustainable business practices.
- **Premium and Artisanal Chocolate Producers:** Artisanal chocolatiers and premium chocolate producers can differentiate themselves by using organic and agroecological cocoa, catering to consumers seeking unique, high-quality, and responsibly sourced chocolate experiences.
- **Cosmetics and Personal Care Manufacturers:** Manufacturers in the cosmetics and personal care industry can use organic cocoa butter and cocoa-derived ingredients, appealing to consumers seeking natural and environmentally friendly beauty products.

4.2.3 The impact of the EU deforestation regulation on the coffee & cocoa industry

Recently the EU proposed a new regulation, known as the EU deforestation regulation, aimed at curbing deforestation and forest degradation. This regulation is part of the EU's broader efforts to address environmental and sustainability issues, including those related to the global supply chains of commodities like coffee and cocoa.

The potential impact of the EU deforestation regulation on the coffee and cocoa industry could be significant and may include the following aspects:

Supply Chain Transparency: The regulation may require companies in the coffee and cocoa industry to enhance transparency in their supply chains. Businesses may need to trace the origin of their coffee and cocoa beans to ensure they are not associated with deforestation or illegal logging.

Due Diligence Requirements: Companies might be obligated to conduct thorough due diligence to identify and mitigate the risk of deforestation in their supply chains. This could involve risk assessments and the implementation of measures to prevent deforestation.

Certification and Verification: The regulation may encourage or require companies to use certified and verified sustainable sourcing practices. This could lead to an increased demand for certified organic or sustainable coffee and cocoa, promoting environmentally friendly and socially responsible production.

Market Access: Coffee and cocoa producers and exporters complying with sustainable and deforestation-free practices may have easier access to the EU market. Conversely, those unable to demonstrate compliance might face challenges in market access.

Impact on Small Producers: Small-scale coffee and cocoa producers, who might face challenges in meeting the regulatory requirements, will need support and capacity-building initiatives to adapt to sustainable practices.

Consumer Awareness: The regulation may lead to increased awareness among consumers regarding the environmental and social impact of their coffee and chocolate choices. This, in turn, could drive consumer preferences toward sustainably sourced and deforestation-free coffee and chocolate products.

In conclusion, the EU deforestation regulation is expected to bring major changes to the coffee and cocoa supply chains, however it may present a great opportunity for products produced under agroecological practices.

4.2.4 Low carbon coffee and chocolate

In recent years, the concepts of "**low carbon coffee**" and "**low carbon chocolate**" have been gaining attention as part of broader sustainability trends in the coffee and cocoa market. "Low carbon coffee" and "low carbon chocolate" refer to coffee and cocoa production practices and supply chain efforts that aim to minimize the carbon footprint associated with the cultivation, processing, and distribution of coffee and cocoa. "Low carbon coffee" and "low carbon chocolate" involve all stages of coffee and cocoa production and marketing, from the field to the final consumer:

Sustainable Farming Practices:

- **Agroforestry:** Implementing agroforestry practices by integrating coffee and cocoa cultivation with shade trees and other crops. This helps sequester carbon, enhances biodiversity, and promotes soil health.
- **Organic Farming:** Embracing organic farming methods, which often involve the use of natural inputs and the avoidance of synthetic chemicals, reducing emissions associated with conventional agriculture.

Carbon-Neutral Processing:

- **Energy Efficiency:** Adopting energy-efficient processing methods to reduce the carbon footprint of coffee and cocoa processing facilities.
- **Renewable Energy:** Incorporating renewable energy sources, such as solar or wind power, into coffee and cocoa processing operations to minimize reliance on fossil fuels.
- **Carbon-Neutral or Offset Initiatives**: Some companies commit to offsetting the carbon emissions generated during the production process. This may involve investing in projects that reduce or capture an equivalent amount of carbon elsewhere, such as reforestation or renewable energy projects.

Transportation and Distribution:

- **Carbon-Efficient Transportation:** Utilizing low-emission transportation methods, such as electric vehicles or vehicles running on biofuels, for transporting coffee and cocoa beans from farms to processing facilities and, ultimately, to consumers.

- **Local Sourcing:** Prioritizing local sourcing to minimize the environmental impact of long-distance transportation.

Certifications and Standards:

- **Carbon Certification:** Seeking certifications that verify the carbon footprint of coffee and chocolate products. Some certification programs assess, and label products based on their overall carbon impact.
- **Sustainability Standards:** Adhering to broader sustainability standards that encompass environmental considerations, including carbon emissions.

Waste Reduction and Recycling:

- **Waste Management:** Implementing effective waste management practices to reduce the generation of organic and non-organic waste during coffee and chocolate production.
- **Recyclable Packaging:** Using recyclable or compostable packaging materials to minimize the environmental impact of packaging.

The concepts of low carbon coffee and low carbon chocolate present a significant opportunity for agroecological coffee and cocoa products. Agroecology focuses on sustainable and regenerative farming practices that prioritize the health of ecosystems, biodiversity, and the well-being of local communities. When integrated with the low carbon coffee and chocolate movement, agroecological coffee and cocoa products can contribute to a more environmentally friendly and socially responsible coffee and chocolate industry. By positioning agroecological coffee and chocolate products within the low carbon framework, producers can tap into the growing market demand for sustainable, environmentally friendly, and socially responsible coffee and chocolate. This convergence offers a unique value proposition that resonates with consumers seeking products that not only taste good but also align with their values for a healthier planet and communities.

4.3 Challenges and barriers for transitioning to organic and agroecological coffee and cocoa production

There are several challenges and barriers associated with transitioning to organic and agroecological coffee and cocoa production in the Democratic Republic of Congo (DRC), Burundi, and Cameroon. Based on our research and consistent with the viewpoints shared by local stakeholders, including consumers and experts, we have identified the most critical challenges as follows:

Lack of Knowledge and Training

- Farmers may lack the necessary knowledge and training in organic and agroecological practices.
- Limited awareness about the benefits of organic farming methods could hinder adoption.

Lack of entrepreneurship competence among farmers

- Without entrepreneurship competence, farmers may struggle to create viable business models and strategies.
- Lack of competence in marketing and market research can hinder successful market entry, especially in niche markets.
- Entrepreneurs must have financial management skills to secure funding, manage resources efficiently, and navigate financial challenges associated with the transition to organic and agroecological production.[130]

Financial Constraints

- The cost of transitioning to organic and agroecological practices, including certification fees, can be prohibitive for small-scale farmers.
- Limited access to credit and financial resources impedes the adoption of sustainable practices.

Imposition of Prices by Buyers

- Buyers exert control over prices, leading to challenges for farmers practicing organic and agroecological methods.
- Unfair pricing practices can undermine the economic viability of sustainable farming, discouraging producers from transitioning to these methods.

Infrastructure Challenges

- Inadequate infrastructure, such as poor transportation and processing facilities, affects the viability of organic and agroecological supply chains.

Market Access and Certification

- Meeting organic certification requirements is often a complex and time-consuming process.

[130] *Tata epse Ngome P. I. (2023), Interview conducted on 01.12.23.*

- Limited access to markets for organic and agroecological products may discourage farmers from making the transition.

Pest and Disease Management

- Organic and agroecological farming relies on natural pest and disease control methods, which may be less effective in certain environments.
- Farmers may face challenges in managing pests and diseases without synthetic inputs, especially in large plantations.

Climate Change Risks

- Climate variability and change can pose additional risks to organic and agroecological production systems.
- Unpredictable weather patterns may affect crop yields and quality.

Policy and Institutional Support

- The absence of supportive policies and institutions can impede the development and promotion of organic and agroecological farming.

Traceability Issues

- Establishing and maintaining traceability in the production chain can be challenging, especially in regions with limited infrastructure and technological resources.
- Inadequate traceability systems may hinder the ability to verify and certify the organic and agroecological status of products, impacting market access.

Land Scarcity

- Limited availability of arable land poses a significant challenge for transitioning to organic and agroecological practices. The competition for land may restrict the expansion of organic cultivation areas.

Soil Infertility

- Soil degradation and infertility are common issues in many regions of Africa. Transitioning to organic and agroecological practices often requires substantial efforts to restore soil health and fertility, which may take time and investment.

Technological Shortcomings

- Limited access to advanced agricultural technologies and insufficient knowledge about organic farming practices can hinder the adoption of organic and agroecological methods. Farmers may face challenges in implementing and maintaining these practices without adequate technological support.

Dependency on Chemical Inputs

- Many farmers in Africa are accustomed to conventional farming practices that rely heavily on chemical inputs. Breaking away from this dependency and adopting organic alternatives can

be challenging due to concerns about pest and disease control and the need for alternative fertilization methods.

Limited administrative support

- Insufficient administrative support and infrastructure can impede the implementation of policies promoting organic and agroecological practices.
- Lack of clear guidelines, regulatory frameworks, and administrative structures may hinder the adoption of sustainable practices.

Poor extensions services

- Extension services are critical for disseminating knowledge, providing technical assistance, and supporting farmers in adopting sustainable and organic farming practices. When these services are inadequate or poorly implemented, farmers may struggle to navigate the complexities of transitioning to agroecological methods.

5. Conclusions, next steps and recommendations

5.1 Conclusions and next steps

The analysis and segmentation of both local markets for agroecological and organic products such as cassava, rice, and maize, and international markets for agroecological and organic coffee and cocoa produced in the Democratic Republic of Congo (DRC), Burundi, Cameroon, and Rwanda have yielded profound insights into the multifaceted dynamics of sustainable agriculture. At the local level, the analysis has illuminated the diverse preferences and demands within these regions, highlighting the potential for tailored value propositions to meet the unique needs of distinct market segments. Simultaneously, the examination of international markets for coffee and cocoa underscores the global appetite for ethically sourced and sustainably produced goods. Recognizing the nuances between local and international markets is imperative for the successful development of value propositions that resonate with consumers and stakeholders across these diverse landscapes.

In the local markets of DRC, Burundi, Cameroon, and Rwanda, the findings:

- show that these markets are still in the process of development, marked by unique challenges and opportunities;
- underscore the importance of understanding the socio-cultural contexts that influence consumer choices.

The value propositions for agroecological products must align with the local preferences, emphasizing factors such as nutritional benefits, support for local farmers, and environmental sustainability. The identified market segments call for targeted approaches, recognizing the variations in income levels, cultural practices, and accessibility to information. Moving forward, the next steps involve refining value propositions based on these insights, implementing localized marketing strategies, and fostering community engagement to enhance awareness and acceptance of sustainable agricultural practices.

In contrast, the international markets for agroecological and organic coffee and cocoa from the same countries present a unique set of challenges and opportunities. Consumer preferences in these markets are often driven by ethical considerations, environmental concerns, and a desire for high-quality, traceable products. Developing value propositions that emphasize the distinct origin, organic cultivation methods, and fair-trade practices becomes crucial. The next steps for international market penetration involve building and strengthening partnerships with international certification bodies, promoting transparency in the supply chain, and leveraging the unique narratives of each country's agricultural practices to differentiate products in a crowded global marketplace.

The distinctions between local and international markets are noteworthy. Local markets are intricately linked to cultural nuances, immediate community needs, and affordability, necessitating value propositions that resonate on a personal and communal level. In contrast, international markets are influenced by broader global trends, consumer activism, and perceptions of sustainability and quality. The challenge lies in bridging these gaps, ensuring that while local markets benefit from culturally sensitive approaches, international markets capitalize on the global appeal of agroecological and

organic practices. Striking a balance between these two realms involves aligning with local values while meeting the rigorous standards and expectations of an international audiences.

Further research and analysis

Key aspects to consider for further research may include:

Consumer Behaviour and Preferences: Explore deeper into consumer attitudes and behaviours towards organic and agroecological products. Understanding the factors influencing purchasing decisions can provide valuable insights for market strategies.

Supply Chain and Distribution Channels: Investigate the efficiency and sustainability of current supply chains for organic and agroecological products. Assessing distribution channels and identifying potential bottlenecks can inform improvements and enhance accessibility.

Policy Impact and Regulatory Frameworks: Analyse the impact of existing policies and regulatory frameworks on the organic and agroecological market. Identify areas for policy improvement or development to support the growth of these sectors.

Market Trends and Innovations: Stay updated on emerging trends and innovations in the organic and agroecological markets. This could include technological advancements, product innovations, or shifts in consumer preferences that may influence market dynamics.

Competitive Landscape: Conduct a comprehensive analysis of the competitive landscape, including both local and international players. Identify potential collaborations, partnerships, or areas for market differentiation.

Economic Viability: Assess the economic viability of organic and agroecological farming practices. This includes evaluating the cost-effectiveness, return on investment, and potential economic benefits for farmers and stakeholders**.**

5.2 Recommendations

In the pursuit of fostering sustainable and environmentally conscious agricultural practices, the transition to organic and agroecological production emerges as a pivotal imperative. This section delineates a series of recommendations meticulously crafted to guide and empower diverse stakeholders within the various products value chains. Recognizing the multifaceted nature of this transformation, the recommendations are strategically classified to address the unique roles and contributions of various stakeholders. From smallholder farmers to cooperatives, governmental bodies, and international actors, each recommendation is tailored to harness the collective strengths of these stakeholders, ultimately propelling the adoption of organic and agroecological practices.

Farmers

1. **Training and Capacity Building:** Participate in training programs to enhance understanding and skills in agroecological and organic farming practices.
2. **Support Networks:** Become member of farmer cooperatives and support networks to share knowledge, resources, and experiences.
3. **Development of entrepreneurship competence:** Develop the required entrepreneurial skills by participating in targeted training and mentoring programs.

Cooperatives

1. **Facilitate Training Programs:** Collaborate with agricultural experts and NGOs to organize tailored training sessions, ensuring that cooperative members are well-equipped with the necessary skills and knowledge.
2. **Market Access Strategies:** Establish partnerships with exporters, processors, and NGOs to create market linkages, and explore participation in trade fairs and events to showcase cooperative products.
3. **Quality Assurance:** Invest in quality assurance measures to ensure that cooperative products meet the standards required for organic certifications.
4. **Effective labelling schemes**[131]: Implement labelling schemes to provide several benefits for producers, consumers, and the overall sustainability of the agricultural sector. Labeling may include:
    a. certification marks (e.g. USDA Organic, EU Organic, Fair Trade, Rainforest Alliance);
    b. local and regional information that highlights the specific characteristics of food products produced through organic and agroecological practices;
    c. information that enhances traceability along the supply chain such as QR codes and barcodes.[132]

Processors

1. **Source from Agroecological Suppliers:** Source products from agroecological and organic suppliers to meet the growing demand for sustainable products.
2. **Invest in Sustainable Practices:** Adopt sustainable and eco-friendly processing practices to align with agroecological and organic principles.
3. **Market Differentiation:** Leverage the quality features of agroecological products to differentiate them in the market and attract environmentally conscious consumers.

Exporters

1. **Develop Market-Specific Strategies:** Develop market-specific strategies for international markets, considering consumer preferences and certification requirements.
2. **Transparent Supply Chains:** Implement traceability systems, collaborate with Certification Bodies and Cooperatives, and use technology to provide consumers with insights into the journey of products from farm to market.

Governmental Agencies:

1. **Policy support**: Engage with stakeholders, conduct policy research, and propose regulatory frameworks that encourage sustainable agriculture, including tax incentives and subsidies for farmers that adhere to agroecological practices.
2. **Infrastructure Development:** Invest in rural infrastructure to facilitate the transportation and storage of agroecological and organic products.
3. **Research and Development:** Allocate funds for research and development in agroecological practices, aiming to improve productivity and sustainable farming methods.

[131] This recommendation is addressed to cooperatives although concerns the entire value chain with varying severity. Nevertheless, cooperatives are regarded as the most fitting and integral value chain actor for effectively implementing labeling schemes, owing to their pivotal position in the value chain.
[132] *Mumbere L. (2023), Interview conducted on 10.11.23.*

4. **Institutionalization**: Integrate Agroecology in design, planning and implementation of agricultural policies.

Certification Bodies

1. **Streamlined Certification Processes:** Streamline certification processes to make them more accessible and efficient for farmers and cooperatives.
2. **Educational Initiatives:** Launch educational initiatives to raise awareness among farmers and cooperatives about the importance and benefits of certification.

Non-Governmental Organizations (NGOs):

1. **Community Engagement and Education:** Engage in community-based initiatives to raise awareness about sustainable farming practices and the benefits of agroecological transitions.
2. **Financial Support:** Provide financial support to farmers and cooperatives for the initial costs associated with transitioning to agroecological and organic practices.
3. **Monitoring and Evaluation:** Implement monitoring and evaluation programs to assess the impact of agroecological transitions on local communities and the environment.
4. **Improve the entrepreneurial skills of farmers:** Provide targeted training programs, mentorship, and access to resources that empower farmers and producers to become effective entrepreneurs in the realm of sustainable agriculture.

Extension and advisory services

1. **Training and Capacity Building for Extension Workers:** Invest in training programs for extension workers to enhance their knowledge and skills in organic and agroecological farming practices.
2. **Increased Outreach and Farmer Engagement:** Improve outreach efforts to connect with a larger number of farmers. This can involve community workshops, training sessions, and on-farm demonstrations to engage farmers directly and provide practical guidance on the adoption of organic and agroecological practices.
3. **Digital Extension Services:** Leverage technology to provide digital extension services, such as mobile apps, SMS alerts, and online resources. These platforms can disseminate information rapidly, reaching a wider audience and providing farmers with timely advice on sustainable farming practices.

In conclusion, the path toward sustainable agriculture demands a holistic approach that integrates tailored value propositions, strategic partnerships, and innovative business models. By following these recommendations and taking proactive next steps, stakeholders can actively contribute to the development of thriving markets for agroecological products, fostering economic growth, environmental sustainability, and improved livelihoods in the regions under consideration.

Annex I: Bibliography

AFSA, AGROECOLOGY AND MARKETS – STORIES FROM THE FIELD

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Annex II: Survey of local actors

Farmers' Questionnaire

Project Title: Driving agroecological transitions in the humid tropics of Central and Eastern Africa through traNsdisciplinary Agroecology Living LabS

Interview with Producers of products based on agroecological practices

T5.1 – Q-PLAN

Name of the ALL: ……..
Target Audience: Producers of products based on agroecological practices e.g. individual farmers, representatives of cooperatives

Time: 30 minutes

Instructions to the team
General information to be completed by the research team
What is the focal crop for this ALL?

Introduction: Please introduce yourselves by stating your name, then, explain the purpose of the research and obtain consent from the respondents, using the preamble below.

Preamble
The CANALLS project aims to drive agroecological transitions in the humid tropics of Central and Eastern Africa via 8 multi-actor transdisciplinary agroecology living labs. …….. is one of the 8 locations for the implementation of the project. The questions we want to ask you today is for the purpose of collecting information on producers' point of view regarding the production and marketing of **products based on agroecological practices** in the region. The information we are going to gather will be used specifically to identify market segments for food products based on agroecological practices and personal information will be kept confidential. We seek your consent to gather this information. If yes, we continue with the interview and we will have your name on the list of participants.

Definition of products based on agroecological practices:
Products based on agroecological practices are agricultural and food items cultivated and processed with a strong emphasis on sustainable and nature-friendly practices. These methods prioritize the health of the environment, ecosystems, and communities involved in the production process. Key aspects include:

- **Biodiversity**: Promoting a rich variety of crops and animals to enhance agricultural production.
- **Soil Health**: Maintaining fertile and nutrient-rich soils without the heavy use of chemicals.
- **Appropriate Chemical Use**: Efficient and conservative use of synthetic pesticides and fertilizers.
- **Water Conservation**: Using water efficiently and preventing pollution of water bodies.
- **Local Communities**: Engaging with and benefiting local communities.
- **Resilience**: Building farms that can withstand environmental challenges like climate change.
- **Reducing Waste**: Minimizing food and resource waste through efficient production, distribution, and recycling.
- **Health and Nutrition**: Prioritizing the nutritional quality and safety of the products for consumers.

State: *I'd like to start our interview by asking you some questions about the production and marketing of agroecological products.*
1.Name …… 2. Age……3. Gender(M/F/NA) …… 4. Contact……
5. Focal crop …… 6. Type of farming operation (smallholder, cooperative, big farm, other)
……

SECTION 1 UNDERSTANDING OF AGROECOLOGICAL PRACTICES
1.1. How well-acquainted are you with the agroecological concept and practices? • Not familiar at all • Somewhat familiar • Moderately familiar • Very familiar • Expert
1.2. Are you currently engaged in agroecological practices? • Yes • No
1.3. If you are not currently involved in agroecological practices, could you briefly explain the reasons?
1.4. What factors influenced your decision to venture into agroecological practices? (Rank from the most to the least important) • Diversification of productions • Environmental sustainability • Soil health improvement • Reduced chemical inputs • Biological management of pests and diseases • Enhanced biodiversity • Healthier products • Market demand • Economic benefits
SECTION 2: AGROECOLOGICAL PRACTICES
2.1. Do you participate in any organic or similar certification programs for your products (focal crop)? • Yes • No *If yes, kindly name the type of certification obtained.*
SECTION 3: MARKET REACH AND DISTRIBUTION
3.1. Where do you primarily sell your products based on agroecological practices? (If more than one, have the percentages per market) • Traders • Cooperatives • Local farmers' market • Wholesalers • Food processing companies • Exporters • Other (please specify)
3.2. What challenges, if any, do you face in distributing your products obtained from agroecological practices to customers/ consumers? • At local market

- At regional market
- At international market

SECTION 4: PRICING AND CONSUMER PERCEPTION

4.1. How do you determine the pricing of your products based on agroecological practices?

- Cost based pricing.
- Market pricing
- Third party pricing
- Other (Please state)

4.2. Are you finding consumers/ customers willing to pay a premium for products based on agroecological practices (focal crop)?

- Yes, significantly
- Yes, slightly
- No, prices are comparable to conventional products
- No, customers expect lower prices

4.3. In your opinion, which markets, local, regional or international, exhibit the strongest demand for products based on agroecological practices (focal crop)? What factors contribute to this demand?

SECTION 5: FUTURE OUTLOOK & ADDITIONAL INSIGHTS

5.1. How do you envision the growth and adoption of agroecological practices evolving in the next 5 years?

5.2. Please share any additional insights, suggestions, or comments you have regarding agroecological products or products from agroecological practices?

We appreciate your participation in this survey. Your insights will contribute significantly to our market analysis and segmentation report.

Processors' Questionnaire

Project Title: Driving agroecological transitions in the humid tropics of Central and Eastern Africa through traNsdisciplinary Agroecology Living LabS

Interview with processors of products based on agroecological practices

T5.1 – Q-PLAN

Name of the ALL: ……..

Target Audience: processors of products based on agroecological practices e.g., mills, grinders, packaging, storage facilities, etc.

Time: 30 minutes

Instructions to the team

General information to be completed by the research team

What is the focal crop for this ALL?

Introduction: Please introduce yourselves by stating your name, then, explain the purpose of the research and obtain consent from the respondents, using the preamble below.

Preamble The CANALLS project aims to drive agroecological transitions in the humid tropics of Central and Eastern Africa via 8 multi-actor transdisciplinary agroecology living labs. …….. is one of the 8 locations for the implementation of the project. The questions we want to ask you today is for the purpose of collecting information on processors' point of view regarding the distribution and marketing of **products based on agroecological practices** in the region. The information we are going to gather will be used specifically to identify market segments for food products **based on** agroecological practices and personal information will be kept confidential. We sick you consent to gather this information. If yes, we continue with the interview and we will have your name on the list of participants.

Definition of products based on agroecological practices:

Products based on agroecological practices are agricultural and food items cultivated and processed with a strong emphasis on sustainable and nature-friendly practices. These methods prioritize the health of the environment, ecosystems, and communities involved in the production process. Key aspects include:

- **Biodiversity**: Promoting a rich variety of crops and animals to enhance agricultural production.
- **Soil Health**: Maintaining fertile and nutrient-rich soils without the heavy use of chemicals.
- **Appropriate Chemical Use**: Efficient and conservative use of synthetic pesticides and fertilizers.
- **Water Conservation**: Using water efficiently and preventing pollution of water bodies.
- **Local Communities**: Engaging with and benefiting local communities.
- **Resilience**: Building farms that can withstand environmental challenges like climate change.
- **Reducing Waste**: Minimizing food and resource waste through efficient production, distribution, and recycling.
- **Health and Nutrition**: Prioritizing the nutritional quality and safety of the products for consumers.

State: *I'd like to start our interview by asking you some questions about the distribution and marketing of agroecological products.*

1.Name …… 2. Age……3. Gender(M/F/NA) …… 4. Contact……

5. Region of operation ……

SECTION 1 UNDERSTANDING OF AGROECOLOGY
1.1. How well-acquainted are you with the concept and attributes of products based on agroecological practices? • Not familiar at all • Somewhat familiar • Moderately familiar • Very familiar • Expert *1.2. This questionnaire will draw on three aspects:* 1) Processing techniques using agroecological practices 2) Processed products that are from agroecological products (focal products) and 3) Both. *Please describe your activity based on these three aspects:*
SECTION 2A: PROCESSING AND PACKAGING
2.1. Are you currently processing products from agroecological practices? • *Yes* • *No*
2.2. If no, please briefly explain why? *2.3. If yes, please state the agroecological product you are processing or working with*
2.4. Which processed products do you produce? *2.5. For each processed product you produce please state the processing technique based on the following list:* • Mill • Grinder • Packaging • Storage facility • Other (please specify)

2.6. Are there any specific challenges you encounter when processing and marketing these products? (Please rank them in order of importance and per processed product)?
2.7. What technologies or methods do you employ to ensure the quality and integrity of products based on agroecological practices during processing?
SECTION 2B: ROLE & INVOLVEMENT
2.8. Are you currently processing your products based on agroecological practices? • *Yes* • *No*
2.9. If you are not currently involved in processing of products based on agroecological practices, please briefly explain why?
2.10 Please select the option that best describes your role or involvement in processing products based on agroecological practices? (Select all that apply) • Mill • Grinder • Packaging • Storage facility • Other (please specify)
SECTION 3: MARKET DEMAND & DISTRIBUTION
3.1. From your perspective, what is the current level of demand for processed products based on agroecological practices in the market you operate in?
3.2. From your perspective, what is the current level of demand for agroecological raw materials (products) in the market you operate in?

3.3. How do you identify and reach your target customers and markets for products based on agroecological practices? List per processed product

3.4. Where and through which channels do you distribute processed products based on agroecological practices (focal crop)? (Please select all that apply by percentages)

- Local retailers
- Supermarkets
- Restaurants and hotels
- Export markets
- Online platforms
- Other (please specify)

3.5. Who regulates the market sector? Name them and indicate role/certification they provide.

SECTION 4: PRODUCT SOURCING

4.1. How do you source raw products based on agroecological practices (focal crop)? (If more than one, please quote the percentages)

- Directly from agroecological farms
- Through cooperatives
- Other intermediaries
- Wholesale markets
- Other (please specify)

4.2. Are there any challenges you face in consistently sourcing raw products based on agroecological practices (focal crop)?

SECTION 5: PRICING & PRICE SENSITIVITY

5.1. How do you determine the pricing of products based on agroecological practices for your target market? (Please tick one)

- Cost based pricing (Cost-plus pricing is a pricing strategy in which the selling price of a product is determined by adding a specific fixed percentage to the product's unit cost)
- Value-based pricing (Value-based price is a market-driven pricing strategy which sets the price of a good or service according to its perceived or estimated value)

- Competition-based pricing (a pricing strategy used by businesses to establish a market value for their products similar to their competitors' offerings).
- Dynamic pricing (revenue management pricing strategy in which businesses set flexible prices for products or services based on current market demands)

5.2. Have you observed a willingness among consumers/ customers to pay a premium for products based on agroecological practices/and or processed products based on agroecological products?

- Yes, significantly.
- Yes, slightly.
- No, prices are expected to be similar to conventional products.
- No, customers/ consumers expect lower prices.

If yes, what percentages from normal price are they willing to pay?

SECTION 6: INFORMATION & PRODUCT KNOWLEDGE

6.1. Where do you usually acquire information about products based on agroecological practices?

- Direct communication with producers
- Industry events and expos
- Online resources
- Trade publications
- Government agencies
- Other (please specify)
- No information at all

SECTION 7: FUTURE EXPECTATIONS & ADDITIONAL INSIGHTS

7.1. How do you foresee the demand for products based on agroecological practices evolving in the next 5 years?

7.2 Are there any emerging market trends or innovations related to the processing of products based on agroecological practices that you find noteworthy?

7.3. Please provide any additional insights, suggestions, or comments you have about the processing of products based on agroecological practices in your region.

We appreciate your valuable insights and participation in this survey, which will contribute to our comprehensive market analysis and segmentation report.

Traders' Questionnaire

Project Title: Driving agroecological transitions in the humid tropics of Central and Eastern Africa through traNsdisciplinary Agroecology Living LabS

Interview with traders of products based on agroecological practices

T5.1 – Q-PLAN

Name of the ALL: ……..
Target Audience: traders of products based on agroecological practices e.g., wholesalers, retailers, etc.

Time: 30 minutes

Instructions to the team
General information to be completed by the research team
What is the focal crop for this ALL?

Introduction: Please introduce yourselves by stating your name, then, explain the purpose of the research and obtain consent from the respondents, using the preamble below.

Preamble The CANALLS project aims to drive agroecological transitions in the humid tropics of Central and Eastern Africa via 8 multi-actor transdisciplinary agroecology living labs. …….. is one of the 8 locations for the implementation of the project. The questions we want to ask you today is for the purpose of collecting information on traders' point of view regarding the distribution and marketing of **products based on agroecological practices** in the region. The information we are going to gather will be used specifically to identify market segments for food products **based on** agroecological practices and personal information will be kept confidential. We sick you consent to gather this information. If yes, we continue with the interview and we will have your name on the list of participants.

Definition of products based on agroecological practices:
Products based on agroecological practices are agricultural and food items cultivated and processed with a strong emphasis on sustainable and nature-friendly practices. These methods prioritize the health of the environment, ecosystems, and communities involved in the production process. Key aspects include:

- **Biodiversity**: Promoting a rich variety of crops and animals to enhance agricultural production.
- **Soil Health**: Maintaining fertile and nutrient-rich soils without the heavy use of chemicals.
- **Appropriate Chemical Use**: Efficient and conservative use of synthetic pesticides and fertilizers.
- **Water Conservation**: Using water efficiently and preventing pollution of water bodies.
- **Local Communities**: Engaging with and benefiting local communities.
- **Resilience**: Building farms that can withstand environmental challenges like climate change.
- **Reducing Waste**: Minimizing food and resource waste through efficient production, distribution, and recycling.
- **Health and Nutrition**: Prioritizing the nutritional quality and safety of the products for consumers.

State: *I'd like to start our interview by asking you some questions about the distribution and marketing of agroecological products.*
1.Name …… 2. Age……3. Gender(M/F/NA) …… 4. Contact……
5. Region of operation ……

SECTION 1 FAMILIRIATY WITH AGROECOLOGY
1.1 How familiar are you with the concept and practices of trading products obtained from agroecological practices? • Not familiar at all • Somewhat familiar • Moderately familiar • Very familiar • Expert
SECTION 2: ROLE & INVOLVEMENT
2.1. Are you currently involved in trading of products based on agroecological practices? • *Yes* • *No*
2.2. If you are not currently involved in trading products based on agroecological practices, please briefly explain why?
2.3. Please select the option that best describes your role or involvement in trading products based on agroecological practices? (Select all that apply) • Wholesaler • Retailer • Distributor • Importer/ Exporter • Other (please specify)
SECTION 3: MARKET DEMAND & DISTRIBUTION
3.1. From your perspective, what is the current level of demand for products based on agroecological practices in the market you operate in?
3.2 How do you identify and reach your target customers and markets for products based on agroecological practices?
3.3 Could you describe the primary routes and destinations for the distribution of agroecological products that your company facilitates?

3.4. Where and through which channels do you distribute products based on agroecological practices (focal crop)? (Please select all that apply by percentages)

- Local markets
- Supermarkets
- Restaurants and hotels
- Export markets
- Online platforms
- Other (please specify)

3.5. Are there any specific marketing challenges you encounter when trading and distributing products based on agroecological practices (focal crop)? (Please rank them in order of importance)

3.6. Who regulates the market sector? Name them and indicate role/certification they provide.

SECTION 4: PRODUCT SOURCING

4.1 How do you source and select suppliers or producers for products based on agroecological practices to ensure quality and sustainability?

4.2. How do you source products based on agroecological practices (focal crop)? (If more than one, please quote the percentages)

- Directly from agroecological farms
- Through cooperatives
- Processors
- Other traders
- Other (please specify)

4.3. Are there any challenges you face in consistently sourcing products based on agroecological practices (focal crop)?

SECTION 5: PRICING & PRICE SENSITIVITY

5.1. How do you determine the pricing of products based on agroecological practices for your target market? (Please tick one)

- Cost based pricing (Cost-plus pricing is a pricing strategy in which the selling price of a product is determined by adding a specific fixed percentage to the product's unit cost)
- Value-based pricing (Value-based price is a market-driven pricing strategy which sets the price of a good or service according to its perceived or estimated value)
- Competition-based pricing (a pricing strategy used by businesses to establish a market value for their products similar to their competitors' offerings).
- Dynamic pricing (revenue management pricing strategy in which businesses set flexible prices for products or services based on current market demands)

5.2. Do you find that consumers are willing to pay a premium for products based on agroecological practices compared to conventionally produced ones?

- Yes, significantly.
- Yes, slightly.
- No, prices are expected to be similar to conventional products.
- No, customers/ consumers expect lower prices.

If yes, what percentages from normal price are they willing to pay?

SECTION 6: INFORMATION & PRODUCT KNOWLEDGE

6.1. Where do you usually acquire information about products based on agroecological practices?

- Direct communication with producers
- Industry events and expos
- Online resources
- Trade publications
- Government agencies
- Other (please specify)
- No information at all

SECTION 7: FUTURE EXPECTATIONS & ADDITIONAL INSIGHTS

7.1. How do you foresee the demand for products based on agroecological practices evolving in the next 5 years?

7.2 Are there any emerging market trends or innovations related to the trading of products based on agroecological practices that you find noteworthy?

7.3. Please provide any additional insights, suggestions, or comments you have about the trading of products based on agroecological practices in your region.

We appreciate your valuable insights and participation in this survey, which will contribute to our comprehensive market analysis and segmentation report.

Transporters' Questionnaire

Project Title: Driving agroecological transitions in the humid tropics of Central and Eastern Africa through traNsdisciplinary Agroecology Living LabS

Interview with transporters of products based on agroecological practices

T5.1 – Q-PLAN

Name of the ALL: ……..
Target Audience: transporters of products based on agroecological practices.

Time: 30 minutes

Instructions to the team
General information to be completed by the research team
What is the focal crop for this ALL?

Introduction: Please introduce yourselves by stating your name, then, explain the purpose of the research and obtain consent from the respondents, using the preamble below.

Preamble The CANALLS project aims to drive agroecological transitions in the humid tropics of Central and Eastern Africa via 8 multi-actor transdisciplinary agroecology living labs. …….. is one of the 8 locations for the implementation of the project. The questions we want to ask you today is for the purpose of collecting information on transporters' point of view regarding the distribution and marketing of **products based on agroecological practices** in the region. The information we are going to gather will be used specifically to identify market segments for food products **based on** agroecological practices and personal information will be kept confidential. We sick you consent to gather this information. If yes, we continue with the interview and we will have your name on the list of participants.

Definition of products based on agroecological practices:
Products based on agroecological practices are agricultural and food items cultivated and processed with a strong emphasis on sustainable and nature-friendly practices. These methods prioritize the health of the environment, ecosystems, and communities involved in the production process. Key aspects include:

- **Biodiversity**: Promoting a rich variety of crops and animals to enhance agricultural production.
- **Soil Health**: Maintaining fertile and nutrient-rich soils without the heavy use of chemicals.
- **Appropriate Chemical Use**: Efficient and conservative use of synthetic pesticides and fertilizers.
- **Water Conservation**: Using water efficiently and preventing pollution of water bodies.
- **Local Communities**: Engaging with and benefiting local communities.
- **Resilience**: Building farms that can withstand environmental challenges like climate change.
- **Reducing Waste**: Minimizing food and resource waste through efficient production, distribution, and recycling.
- **Health and Nutrition**: Prioritizing the nutritional quality and safety of the products for consumers.

State: *I'd like to start our interview by asking you some questions about the distribution and marketing of agroecological products.*
1.Name …… 2. Age……3. Gender(M/F/NA) …… 4. Contact……
5. Region of operation ……

SECTION 1 FAMILIRIATY WITH AGROECOLOGY
1.1 How familiar are you with products based on agroecological practices? • Not familiar at all • Somewhat familiar • Moderately familiar • Very familiar • Expert
SECTION 2: ROLE & INVOLVEMENT
2.1. Are you currently involved in transporting products based on agroecological practices? • *Yes* • *No*
2.2. If you are not currently involved in transporting products based on agroecological practices, please briefly explain why?
2.3. Please select the option that best describes your role or involvement in transporting products based on agroecological practices? (Select all that apply) • Logistics Provider • Freight Forwarder • Transport Company • Importer/ Exporter • Other (please specify)
2.4. Are there any specific challenges or requirements associated with handling products based on agroecological practices compared to conventional goods? If yes, please mention these requirements.
2.5. How do you ensure the safety and integrity of products based on agroecological practices during transit, particularly in terms of maintaining their organic or eco-friendly status?
SECTION 3: MARKET DEMAND & DISTRIBUTION
3.1. From your perspective, what is the current demand for transportation services for products based on agroecological practices in the markets you operate in?
3.2. Could you describe the primary routes and destinations you serve for the transportation of products based on agroecological practices in the markets you operate in?

3.3. Are there any specific challenges you encounter when providing transportation services for products based on agroecological practices (focal crop)? (Please rank them in order of importance)
3.4. What are the main distribution channels or end-markets for the agroecological products you transport?
SECTION 4: FUTURE EXPECTATIONS & ADDITIONAL INSIGHTS
4.1. How do you foresee the demand for transportation services related to products based on agroecological practices evolving in the next 5 years?
4.2. Please provide any additional insights, suggestions, or comments you have about the transportation of products based on agroecological practices in your region.

We appreciate your valuable insights and participation in this survey, which will contribute to our comprehensive market analysis and segmentation report.

Consumers' Questionnaire

Project Title: Driving agroecological transitions in the humid tropics of Central and Eastern Africa through traNsdisciplinary Agroecology Living LabS

Interview with consumers of products based on agroecological practices

T5.1 – Q-PLAN

Name of the ALL: ……..
Target Audience: consumers of products based on agroecological practices

Time: 1 hour

Instructions to the team
General information to be completed by the research team
What is the focal crop for this ALL?

Introduction: Please introduce yourselves by stating your name, then, explain the purpose of the research and obtain consent from the respondents, using the preamble below.

Preamble The CANALLS project aims to drive agroecological transitions in the humid tropics of Central and Eastern Africa via 8 multi-actor transdisciplinary agroecology living labs. …….. is one of the 8 locations for the implementation of the project. The questions we want to ask you today is for the purpose of collecting information on consumers' attitudes towards products based on agroecological practices in Central and Eastern Africa. The information we are going to gather will be used specifically to identify market segments for food products based on agroecological practices and personal information will be kept confidential. We sick you consent to gather this information. If yes, we continue with the interview and we will have your name on the list of participants.

Definition of products based on agroecological practices:
Products based on agroecological practices are agricultural and food items cultivated and processed with a strong emphasis on sustainable and nature-friendly practices. These methods prioritize the health of the environment, ecosystems, and communities involved in the production process. Key aspects include:

- **Biodiversity**: Promoting a rich variety of crops and animals to enhance agricultural production.
- **Soil Health**: Maintaining fertile and nutrient-rich soils without the heavy use of chemicals.
- **Appropriate Chemical Use**: Efficient and conservative use of synthetic pesticides and fertilizers.
- **Water Conservation**: Using water efficiently and preventing pollution of water bodies.
- **Local Communities**: Engaging with and benefiting local communities.
- **Resilience**: Building farms that can withstand environmental challenges like climate change.
- **Reducing Waste**: Minimizing food and resource waste through efficient production, distribution, and recycling.
- **Health and Nutrition**: Prioritizing the nutritional quality and safety of the products for consumers.

State: *I'd like to start our interview by asking you some questions about the consumption of agroecological products.*
1.Name (optional)…… 2. Age……3. Gender(M/F/NA) …… 4. City/ town/ village…… 5. Occupation…… 6. Educational level……

SECTION 1 FAMILIARITY WITH AGROECOLOGY

1.1. How familiar are you with the concept of products based on agroecological practices?

- Not familiar at all
- Heard of it but not well-informed
- Moderately familiar
- Very familiar
- Extremely familiar

SECTION 2: CONSUMPTION PATTERNS

2.1. Have you ever consumed products based on agroecological practices?

- Yes
- No

2.2. If you haven't consumed products based on agroecological practices, what factors have influenced your decision not to?

SECTION 3: FACTORS INFLUENCING PURCHASE

3.1 Do you have preference for products based on agroecological practices if yes at what level?

1. *Products cultivated using agroecological practices*
2. *Products processed using agroecological practices*
3. *Products cultivated and processed using agroecological practices*

3.2 How do you identify such products?

- *Through a niche market*
- *I buy from the garden/farm or company myself*
- *Advertisement*
- *Advice from friends*

3.3. What factors influence your decision to choose products based on agroecological practices over conventionally produced ones? (Select all that apply)?

- Environmental sustainability
- Health and nutritional benefits
- Supporting local farmers and communities
- Ethical and social considerations
- Taste and quality
- Price
- Availability
- Other (please state)

SECTION 4: PURCHASING BEHAVIOR

4.1. How often do you purchase products based on agroecological practices / focal crop?

- Daily
- Weekly
- Monthly
- Rarely
- Never

4.2. Which places do you primarily use to purchase products based on agroecological practices / focal crop? (If more than one, please give the percentage - %)

- Local markets
- Organic food stores
- Supermarkets
- Online platforms
- Directly from farmers
- Other (please specify)

4.3 What challenges, if any, do you face when trying to access products based on agroecological practices / focal crop?

SECTION 5: PRICE SENSITIVITY

5.1. Are you willing to pay a higher price for products based on agroecological practices compared to conventionally produced ones?

- Yes, significantly
- Yes, slightly
- No, expect them to be priced similarly
- No, I would only consider if they were cheaper

5.2. What price difference would make you hesitant to purchase products based on agroecological practices? (e.g., 10%, 20%, 50%)?

SECTION 6: INFORMATION SOURCES

6.1. Where do you typically gather information about products based on agroecological practices? (If more than one, please give the percentage - %/ most important)

- Social media
- Word of mouth
- Food and agriculture events
- Other consumers
- Other (please specify)

6.2. What factors are most important to you when determining the credibility of information about products based on agroecological practices / focal crop?

SECTION 7: FUTURE TRENDS & FINAL COMMENTS
7.1. How do you envision the demand for products based on agroecological practices changing in the next 5 years?
7.2. Please share any additional thoughts, suggestions, or comments you have regarding products based on agroecological practices in your region.

Thank you for participating in this survey. Your insights will significantly contribute to our market analysis and segmentation report.

Decision Makers/ Government Officials Questionnaire

Project Title: Driving agroecological transitions in the humid tropics of Central and Eastern Africa through traNsdisciplinary Agroecology Living LabS

Interview with Market Decision Makers/ Government Officials

T5.1 – Q-PLAN

Name of the ALL: ……..
Target Audience: Decision Makers/ Government officials

Time: 1 hour

Instructions to the team
General information to be completed by the research team
What is the focal crop for this ALL?

Introduction: Please introduce yourselves by stating your name, then, explain the purpose of the research and obtain consent from the respondents, using the preamble below.

Preamble The CANALLS project aims to drive agroecological transitions in the humid tropics of Central and Eastern Africa via 8 multi-actor transdisciplinary agroecology living labs. …….. is one of the 8 locations for the implementation of the project. The questions we want to ask you today is for the purpose of gaining a better understanding of the policies, strategies and considerations that play a pivotal role in fostering sustainable agricultural practices in your Country. The information we are going to gather will be used specifically to identify market segments for food products based on agroecological practices and personal information will be kept confidential. We sick you consent to gather this information. If yes, we continue with the interview and we will have your name on the list of participants.

Definition of products based on agroecological practices:
Products based on agroecological practices are agricultural and food items cultivated and processed with a strong emphasis on sustainable and nature-friendly practices. These methods prioritize the health of the environment, ecosystems, and communities involved in the production process. Key aspects include:

- **Biodiversity**: Promoting a rich variety of crops and animals to enhance agricultural production.
- **Soil Health**: Maintaining fertile and nutrient-rich soils without the heavy use of chemicals.
- **Appropriate Chemical Use**: Efficient and conservative use of synthetic pesticides and fertilizers.
- **Water Conservation**: Using water efficiently and preventing pollution of water bodies.
- **Local Communities**: Engaging with and benefiting local communities.
- **Resilience**: Building farms that can withstand environmental challenges like climate change.
- **Reducing Waste**: Minimizing food and resource waste through efficient production, distribution, and recycling.
- **Health and Nutrition**: Prioritizing the nutritional quality and safety of the products for consumers.

State: *I'd like to start our interview by asking you some questions about the consumption of agroecological products.*
1.Name …… ……*2. Title/ Position*……
3. Government Department/ Agency …… …… …… *4. City/ town* …… ……
5. Contact Information (email/ phone) …… ……

SECTION 1 AGRICULTURAL POLICIES AND PRODUCTS OF AGROECOLOGICAL PRACTICES
1.1. To what extent are agroecological practices integrated into your current agricultural policies and strategies? • Not integrated at all • Partial integration • Moderately integrated • Highly integrated • Central focus
SECTION 2: POLICY IMPLEMENTATION & SUPPORT
2.1. What measures or incentives have been taken in the recent years to promote agroecological practices within your jurisdiction?
2.2. What measures or incentives are you planning to take in the next years to promote agroecological practices within your jurisdiction?
SECTION 3: CHALLENGES AND BARRIERS
3.1. What challenges or barriers do you perceive in the adoption and expansion of agroecological production of the focal crop in your region?
3.2 Are there any policy-related obstacles hindering the growth of agroecological practices, and if so, name them and state how you plan to address them?
SECTION 4: REGIONAL COLLABORATION
4.1. How do you view the potential for regional collaboration and knowledge sharing in agroecological practices across neighbouring countries?
4.2. Are there regional initiatives or partnerships that your government is part of, or plans to become part of, to advance agroecological practices?

SECTION 5: FUTURE TRENDS & FINAL COMMENTS
5.1. How do you envision the role of agroecological practices evolving in Africa's agricultural landscape over the next decade?
5.2. Please provide any additional insights, suggestions, or comments about policy considerations for agroecological practices.

Thank you for participating in this survey. Your insights will significantly contribute to our market analysis and segmentation report.

Annex III: Relationships to be verified with statistical analysis

CONSUMERS QUESTIONNAIRE

Question 1.1: "To what extent does familiarity with the concept of agroecological products correlate with age and educational level".

Question 3.2: "What is the correlation between consumers' methods of sourcing agroecological products and their residence in rural or urban areas".

Question 4.1: "What is the correlation between the frequency of purchasing agroecological products and factors from question 3.3 (Environmental sustainability, Health and nutritional benefits, Supporting local farmers and communities, Ethical and social considerations, Taste and quality, Price, Availability).

Question 4.2: "How are consumers' choices of purchasing locations for products based on agroecological practices correlated with factors from question 6.1 about information sources (Social media, Word of mouth, Food and agriculture events, Other consumers)"

Question 5.1: "To what extent does the willingness to pay a higher price for agroecological products correlate with age, gender, urban/ rural area, education level".

PRODUCERS/ FARMERS QUESTIONNAIRE

Question 1.1: "To what extent does familiarity with the concept of agroecological products correlate with age and type of farming operation".

Question 3.1: "How do farmers' choices of primary sales outlets for products based on agroecological practices correlate with factors such as focal crop and type of farming operation".

Question 4.2: "How does farmers' perception of consumers' willingness to pay a premium for products based on agroecological practices correlate with pricing strategies (see question 4.1) and focal crop.

Question 4.3: "What is the correlation between farmers' opinions on the strength of demand for agroecological products in local, regional, and international markets and the focal crop.

PROCESSORS QUESTIONNAIRE

Question 1.1: "To what extent does familiarity with the concept of agroecological products correlate with age, region of operation, raw products (question 2.3), finished products (question 2.4) and processing technique (question 2.5.)".

Question 2.8: "How do processors' involvement in processing products based on agroecological practices correlate with product, region of operation and type of processing (question 2.10)".

Question 3.1: "To what extent is there a correlation between processors' perspectives on the current level of demand for processed agroecological products in their markets and factors such as product, region of operation and type of processing (question 2.10)".

Question 3.4: "How do the distribution channels of processed agroecological products correlate with product, region of operation and type of processing (question 2.10)".

Question 4.1: "What is the correlation between the sources or raw agroecological products and factors such as product, region of operation and type of processing (question 2.10)".

Question 5.2: How does processors' perception of consumers' willingness to pay a premium for products based on agroecological practices correlate with pricing strategies (see question 5.1) and product".

TRADERS QUESTIONNAIRE

Question 1.1: "To what extent does familiarity with the concept of agroecological products correlate with age, region of operation and type of activity (question 2.3)".

Question 2.1: "How do traders' involvement in trading products based on agroecological practices correlate with product, region of operation and type of activity (question 2.3)".

Question 3.1: "To what extent is there a correlation between traders' perspectives on the current level of demand for agroecological products in their markets and factors such as product, region of operation and type of activity (question 2.3)."

Question 3.4: "How do the distribution channels of agroecological products correlate with product, region of operation and type of activity (question 2.3)".

Question 4.2: "What is the correlation between the sources or agroecological products and factors such as product, region of operation and type of activity (question 2.3)".

Question 5.2: How does traders' perception of consumers' willingness to pay a premium for products based on agroecological practices correlate with pricing strategies (see question 5.1) and product".

TRANSPORTERS QUESTIONNAIRE

Question 1.1: "To what extent does familiarity with the concept of agroecological products correlate with age, region of operation and type of activity (question 2.3)".

Question 2.1: "How do transporters' involvement in transporting products based on agroecological practices correlate with product, region of operation and type of activity (question 2.3)".

Question 3.1: "To what extent is there a correlation between transporters' perspectives on the current level of demand for transportation services for agroecological products in their markets and factors such as product, region of operation and type of activity (question 2.3)."

Annex IV: Experts' opinions

Interview Guide 1: Domestic markets

GA 101083653

Task 5.1: Analysis and segmentation of markets for food products of agroecological practices

Interview Guide 1 - (October 2023): domestic markets

Contact Person	Papadionisiou Petros		
Partner	Q-PLAN INTERNATIONAL	Email	papadionisiou@qplan-intl.gr

GA 101083653

Interview guide – Interview with external experts			
Interviewer:		Date:	[dd/mm/yyyy]

0. Interviewee's profile			
Salutation	☐ Prof / ☐ Dr / ☐ Ms / ☐ Mr		
First name		Last name	
Date of birth		Country	
Organisation			
Title/Position			
Enterprise/organisation type			
Expertise			
Phone number			
Mobile number			
email			
Comments			

0. Focal crops		
Ref.	Question	
0.1	Please indicate your living lab and the respective focal crop by highlighting the respective row	
#	Living Lab	Focal crop
1	Bunia	Cocoa
2	Biega	Coffee
3	Kabare	Coffee
4	Uvira	Cassava, rice

1. Market Trends	
Ref.	Question
1.1	How has the demand for DRC's focal crop evolved in recent years (at local level, at regional level, at international level)?

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1.2	Are there any specific market trends or shifts in consumer preferences impacting the focal crop market in DRC?

2. Focal crop Value Chain	
Ref.	Question
2.1	Can you outline the major players in the focal crop value chain in DRC?
2.2	Are there any specific certifications or standards (e.g., Fair Trade, organic) that are gaining prominence in DRC's focal crop market?

3. Government Policies and Regulations	
Ref.	Question
3.1	How do government policies and regulations impact the focal crop industry in DRC?
3.2	Are there any recent changes in regulations, subsidies, or incentives related to focal crop production and exports?

4. Market segmentation	
Ref.	Question
4.1	Can you provide insights into the primary market segments (both B2B & B2C) within the focal crop industry in DRC? (e.g., export markets, domestic markets, premium markets, etc.) Note: We are interested to know more about potential consumer segments (e.g. consumers with specific preferences or characteristics, living in specific areas, etc.) as well as business segments (wholesale or retail)
4.2	What are the key characteristics or attributes that differentiate these market segments from each other?
4.3	Are there specific marketing strategies (pricing, promotion, labelling, sales channels, packaging, etc.) employed for each market segment? If so, could you describe them briefly?

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4. Market segmentation	
Ref.	Question
4.4.A	In your opinion, which market segments within the focal crop industry in DRC are most suitable for marketing of organic focal crop?
4.4.B	In your opinion, which market segments within the focal crop industry in DRC are most suitable for marketing of agroecological focal crop?
4.5	What are the key factors or criteria that make these market segments conducive to organic or agroecological focal crop?
4.6	What are the challenges or barriers associated with transitioning to organic or agroecological focal crop production in DRC, and how should they be addressed?

5. Additional Comments	
Ref.	Question
5.1	Is there any additional information or insights you would like to share about the focal crop market in DRC and especially regarding organic or agroecological focal crop products?

We appreciate your valuable insights. Thank you for participating in this survey. Your expertise is invaluable for our research.

Interview Guide 2: International markets

GA 101083653

Task 5.1: Analysis and segmentation of markets for food products of agroecological practices

Interview Guide 2 - (October 2023): international markets

Contact Person	Papadionisiou Petros		
Partner	Q-PLAN INTERNATIONAL	Email	papadionisiou@qplan-intl.gr

GA 101083653

Interview guide – Interview with external experts			
Interviewer:		Date:	[dd/mm/yyyy]

0. Interviewee's profile			
Salutation	☐ Prof / ☐ Dr / ☐ Ms / ☐ Mr		
First name		Last name	
Date of birth		Country	
Organisation			
Title/Position			
Enterprise/organisation type			
Expertise			
Phone number			
Mobile number			
email			
Comments			

1. Global Cocoa Production and Supply	
Ref.	Question
1.1	Are there any significant shifts in cocoa production regions or trends that have emerged in recent years?
1.2	What factors influence global cocoa production and supply, and how do they impact market dynamics?

2. Consumer preferences	
Ref.	Question
2.1	What factors are driving changes in consumer preferences and demands for cocoa products?
2.2	What are the current sustainability and ethics trends in the international cocoa market?

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3. Cocoa Value Chain	
Ref.	Question
3.1	Can you outline the major players in the global cocoa value chain, from cocoa farmers to end consumers?
3.2	Are there any specific certifications, standards (e.g., Fair Trade, organic), or initiatives that are gaining prominence in the international cocoa market?

4. Market segmentation (B2B)	
Ref.	Question
4.1	Can you describe the primary market segments within the international B2B cocoa market? (e.g., bulk cocoa, cocoa powder, cocoa butter, gourmet chocolate, etc.)
4.2	What are the key factors that differentiate these market segments from each other in terms of demand and supply?
4.3	Are there emerging or niche market segments that have gained prominence in recent years? What drives the demand in these segments?

5. Market segmentation (B2C)	
Ref.	Question
5.1	Within the B2C cocoa market, how is the consumer base segmented? Are there specific consumer demographics that stand out in terms of cocoa product preferences?
5.2	What factors or characteristics differentiate the B2C market segments? For example, are there distinctions between premium chocolate consumers, everyday chocolate consumers, or consumers with specific dietary preferences?
5.3	In terms of B2C cocoa products, do certifications like organic, fair trade, or vegan play a significant role in segmenting the market?
5.4.1	In your expert opinion, which segments within the B2C cocoa market are most suitable for organic cocoa products?

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5. Market segmentation (B2C)	
Ref.	Question
5.4.2	In your expert opinion, which segments within the B2C cocoa market are most suitable for agroecological cocoa products?
5.5	What are the key factors or criteria that make these market segments conducive to organic or agroecological cocoa? Do these factors differ between organic and agroecological cocoa and how?
5.6.1	How do pricing and consumer acceptance of organic cocoa products compare to conventional products?
5.6.2	How do pricing and consumer acceptance of agroecological cocoa products compare to conventional products?
5.7	Are there any emerging trends or opportunities for organic or agroecological cocoa within the B2C cocoa market?

6. Additional Comments	
Ref.	Question
6.1	Is there any additional information or insights you would like to share about the international cocoa market and especially regarding organic or agroecological cocoa products?
6.2	Which market segments of the cocoa market would be most interesting to address with cocoa products from our Living Labs? (e.g. a specific consumer group or a target geographic market)
6.3	What kind of support or other prerequisites would our Living Labs need in order to address these segments? (e.g. specific commercial partners to open up sales channels, labelling schemes, certifications, etc.)

We appreciate your valuable insights. Thank you for participating in this survey. Your expertise is invaluable for our research.