Alianza Bioversity & CIAT

CGIAR

The Food and Land Use Coalition

Executive Summary

Roadmap for the Transformation of the Food Systems of Valle del Cauca

folucolombia.org | alliancebioversityciat.org

Photography: Alianza de Bioversity - CIAT

Table of Contents

Presentation 2

Acknowledgments 5

Introduction 6

The Food Systems of Valle del Cauca 7

Roadmap for the transformation of the food systems in Valle del Cauca 11

- **Strategic Axis 1:** Productive and Regenerative Marine and Continental Landscapes 16
- **Strategic Axis 2:** Efficient and Equitable Supply and Markets 21
- **Strategic Axis 3:** Conscious and Healthy Consumption 27
- **Transversal Axis** 32

Next steps: Let's get to work 48

References 50

Presentation

This document presents a summarized version in English of the **Hoja de ruta para la transformación de los sistemas alimentarios del Valle del Cauca**, which has been developed by a coalition of stakeholders who have decided to join efforts to act and transform the department's food systems into powerful engines of development and equity.

The **Roadmap** was developed based on the elaboration of a **diagnostic document** that allowed for conversations in the department's subregions, where different territorial visions around food systems were gathered. Throughout the process of constructing the Roadmap, public, private, and civil society actors were involved, including producers, entrepreneurs, delegates from local municipalities, delegates from the Governance of Valle del Cauca, universities, research centers, entrepreneurs, youth, and women.

The development of the **Roadmap** has benefited from the contributions of the Mentor Group of the Alliance for the Transformation of Food Systems in Valle del Cauca. It has also received support from the Technical Secretariat of the Food and Land Use Coalition (FOLU) Colombia and the Alliance Bioversity-CIAT. These organizations are actively engaged in promoting transformative visions for food systems in different regions of the world.

The section on the costs of inaction in the food systems of Valle del Cauca, which is an integral part of the Roadmap, was developed by Theodora Ewer from FOLU with the support of Eleanor Warren-Thomas, John Chavarro Diaz, Juliana Arbelaez Gaviria, Andres Peña, David Leclere, and Aline Mosnier from the Food, Agriculture, Biodiversity, Land Use, and Energy Consortium (FABLE), along with data from GLOBIOM Colombia. The section was reviewed by Steven Lord, Professor at the University of Oxford, and Scarlett Benson and Olaf Erenstein from FOLU.

The opinions expressed and the information included in this document do not necessarily reflect the views of the institutions associated with the initiative.

Contributors

Clara Luz Roldán González,
Governor of Valle del Cauca

María Lucero Urriago Cerquera,
Advisor to the Governance of Valle del Cauca

María Cristina Lesmes Duque,
Secretary of Health of the Governance of Valle del Cauca

Maritza del Carmen Quiñones Cortes,
Secretary of Rural Development, Agriculture, and Fisheries of the Governance of Valle del Cauca

Nasly Fernanda Vidales González,
Secretary of Environment of the Governance of Valle del Cauca

Governance of Valle del Cauca

Claudia Martínez Zuleta
Patricia Falla Ramírez
Sindy Nova Pérez

FOLU Colombia

Mark Lundy
Sara Rankin Cortázar

Alianza Bioversity-CIAT

Layout
Andrés Florido Delgado

Proposed citation: FOLU Colombia and Alliance Bioversity - CIAT. 2023. *Executive Summary Roadmap for the Transformation of the Food Systems of Valle del Cauca.* 52 p. Cali, Colombia.

Acknowledgments

The development of the Roadmap involved the participation of over 300 stakeholders from different subregions and sectors of Valle del Cauca department, who attended various spaces for dialogue and participatory construction. The original or full report for the Transformation of the Food Systems of Valle del Cauca mentions each of the actors who participated in the construction process and with whom conversations, reflections, and shared dreams were held to formulate proposals that enable a transition of the department's food systems towards regeneration.

Introduction

The world needs to transform food and land use systems to feed a growing population and, at the same time, meet the Sustainable Development Goals (SDGs), the climate change targets of the Paris Agreement, and the new Global Biodiversity Framework post-2020.

Food and land use systems encompass all factors associated with how land is used, food is produced, stored, packaged, processed, marketed, distributed, consumed, and disposed of, considering the economic, political, social, and environmental systems that influence or are influenced by these processes (FOLU, 2019).

In this context, the Food and Land Use Coalition (FOLU) brings together a group of change actors seeking to transform food systems for the benefit of people, nature, and climate. It is an initiative that connects entrepreneurs, investors, government entities, the scientific community, academia, organized local communities, civil society organizations, associations, and multilateral organizations at the global, national, and territorial levels, combining actions for the necessary change in food systems.

FOLU currently has programs in several countries around the world, including China, Colombia, Ethiopia, India, Indonesia, Kenya, and soon Brazil. It also has partnerships in Australia, the United Kingdom, and the European Union. In Colombia, it was launched in 2017 to catalyze and accelerate this transformation and focus efforts at the subnational level through the formulation and implementation of roadmaps for the transformation of food systems in the departments of Quindío, Antioquia, Valle del Cauca, and Santander.

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT), created in 2019, provides scientific solutions that harness agricultural biodiversity and transform food systems in a sustainable manner to improve people's lives. The Alliance's solutions address global crises of malnutrition, climate change, biodiversity loss, and environmental degradation. Through innovative collaborations, the Alliance generates evidence and integrates innovations to transform food systems and landscapes to sustain the planet, drive prosperity, and nourish people amidst a climate crisis. The Alliance is part of the CGIAR, a global research consortium for a hunger-free future.

Photography: *Creative Commons*

Photography: Alianza de Bioversity - CIAT

The Food Systems of

Valle del Cauca

The department of Valle del Cauca is located in the southwestern region of Colombia and covers an area of 22,140 square kilometers, ranging from Malpelo Island in the Pacific Ocean, the Pacific lowlands, the humid foothills of the Western Cordillera, to the fertile valley of the Cauca River and the summits of the Central Cordillera (CVC, 2015 and Government of Valle del Cauca, 2020).

It is a territory with great racial diversity, with the presence of mestizos, whites, Afro-Colombians, and indigenous people (DANE, 2018). Along the Pacific coast, there are settlements of Afro-Colombian, indigenous, and peasant communities that maintain a close relationship with both terrestrial and marine nature. The cultural diversity and variety of ecosystems and landscapes make Valle del Cauca a unique territory.

Valle del Cauca is the third most populous department in Colombia, with a total of 4.475.886 inhabitants (DANE, 2022a). The majority of the population (85%) is concentrated in urban areas, making it a predominantly urban department. It is divided into four subregions: North, Central, South, and Pacific, each with its own environmental, social, economic, and institutional characteristics. Over the past 16 years, Valle del Cauca has remained the country's third-largest economy, contributing an average of 9.76% to the national GDP (ADR and FAO, 2021).

It is worth noting that Valle del Cauca has made significant progress in its economic recovery from the effects of Covid-19. Data indicates that in 2021, the poverty rate in the department was 29,7%, below the national average (39,3%). On the other hand, in 2022, the unemployment rate in Cali, the capital of the department, was 11,5%, slightly higher than the national average (11,2%) (DANE, 2022b).

The department has a strong institutional framework and an academic and research ecosystem with high potential for driving the transformation of food systems. The predominant sectors in the department's economy are commerce (17%) and manufacturing industry (14,7%). The agricultural sector represents 5,7% of the department's GDP and makes a significant contribution to the national agricultural GDP (8,6%) (DANE, 2022a). The department relies on food imports to cover 70% of its consumption needs, which are concentrated in a few products (García, 2021).

The department has 786,080 hectares of agricultural frontier, which represents 38% of its territory (UPRA, 2020). In 2018, agricultural production reached 22 million tons, mainly in sugarcane (95%), followed by plantain (1%) and other products such as pineapple, corn, and horticultural products, especially citrus fruits (Minagricultura, 2018). However, the area dedicated to Family and Community Peasant Agriculture (ACFC) is comparatively low compared to agribusiness (ADR and FAO, 2021).

Valle del Cauca has consolidated an agricultural and agro-industrial sector based on the export of sugar and coffee, as well as generating income from fruit crops such as Hass avocado, plantain, cape gooseberry, passion fruit, and Tahiti lime (ADR and

Photography: Alianza Bioversity - CIAT

FAO, 2021). Additionally, it plays a fundamental role in the production of white protein at the national level through clusters promoted by the Chamber of Commerce of Cali (CCC, 2022).

However, despite these advances in the agricultural sector of Valle del Cauca, it faces significant challenges such as low coverage of agricultural extension services and access to credit, as well as the average condition of tertiary road connections (ADR & FAO, 2021).

The department has a strategic location for the logistics of food systems, with a primary road network that provides access to different regions of the country, an international airport, and Colombia's main foreign trade port, the port of Buenaventura, which handles approximately 45% of the country's international cargo (MinTransporte, 2020a).

The food supply and agri-food markets system of Valle del Cauca is composed of a variety of channels ranging from large supermarkets with their own distribution networks to medium-sized and small supermarkets, marketplaces, fairs, and neighborhood stores. Most of these channels depend on the Central Supply Market of Valle del Cauca - Cavasa. This supply system covers a large part of the food needs of the southwestern region of the country (CIAT, 2021). However, current data on food security indicates that 53,6% of the population of Valle del Cauca suffers from food insecurity, and 33 out of 100 children have a minimally acceptable diet (ICBF et al., 2015). Additionally, many vulnerable people do not have sufficient access to food due to low purchasing power and lack of knowledge about healthy eating (CIAT, 2021).

The development of the department has led to the transformation of a large part of the territory and the intensive use of natural resources, which has had impacts on soils and the loss of biodiversity (Zambrano & Bernard, 1993; Salcedo & Valencia, 1994; CVC, 2004; Gonzáles & Perafán, 2010; Arcila et al., 2012; Jaramillo et al., 2015; Alvarado & Otero, 2017). This situation alerts the department in terms of its capacity to adapt and mitigate climate change and the production of food itself.

In the following section, we present the vision and roadmap for the transformation of the food systems of Valle del Cauca, which includes axes, recommendations, and actions to enhance opportunities and overcome existing challenges. We also present an analysis of the costs and benefits of the department's food systems, hoping to provide elements and evidence for decision-makers.

Roadmap for the transformation of the food systems in Valle del Cauca

The Roadmap for the transformation of the food systems in Valle del Cauca has been developed through participatory means, taking into account the urgency of addressing the challenges and high costs associated with inaction regarding food systems.

The proposal aims to progress towards a comprehensive vision of the food system, which facilitates the integration and coordination of stakeholders involved in each step, towards a successful reconfiguration by 2032.

Figure 1.

Vision of the Roadmap for the transformation of the food systems in Valle del Cauca.

By 2032, Valle del Cauca has successfully transitioned to regenerative and equitable food systems through diversified production, the consolidation of connected and restored marine and continental landscapes, the establishment of transparent markets, and the promotion of purpose-driven enterprises, enabling more conscious, healthy, and nutritious food consumption.

Source: Own elaboration.

The development of the Roadmap for the food systems in Valle del Cauca began with a diagnostic document that delved into the analysis of three key dimensions of the department: i) biodiversity, culture, and territorial transformation, ii) agricultural production and agri-food markets, and iii) food security and nutrition, and food loss and waste. Additionally, a study on the functioning of the food systems in Cali, the capital region, was conducted.

Based on the diagnostic document, sub-regional dialogues and meetings with experts were conducted, which resulted in the collection of over 300 actions and proposed actions. You can consult the minutes here. The refinement and prioritization of all these actions led to the definition of three strategic axes and four transversal axes (see Figure 2), which combine to drive a comprehensive approach to transforming the food systems in Valle del Cauca.

The Roadmap presents, in each strategic and transversal axis, a context and strategic lines with their corresponding actions and sub-actions. It also highlights successful cases to motivate and inspire the stakeholders in the territory to progress towards achieving the proposed vision.

This Roadmap has been designed with the objective of guiding and promoting an effective and sustainable transformation of the food systems in the department of Valle del Cauca. By implementing the proposed actions in each strategic and transversal axis, and with the support and commitment of local stakeholders, significant improvements are expected to be achieved in biodiversity, agricultural production, food security and nutrition, and the reduction of food loss and waste.

Photography: Alianza Bioversity-CIAT

Figure 2.

Structure of the Roadmap for the transformation of the food systems in Valle del Cauca.

Source: Own elaboration.

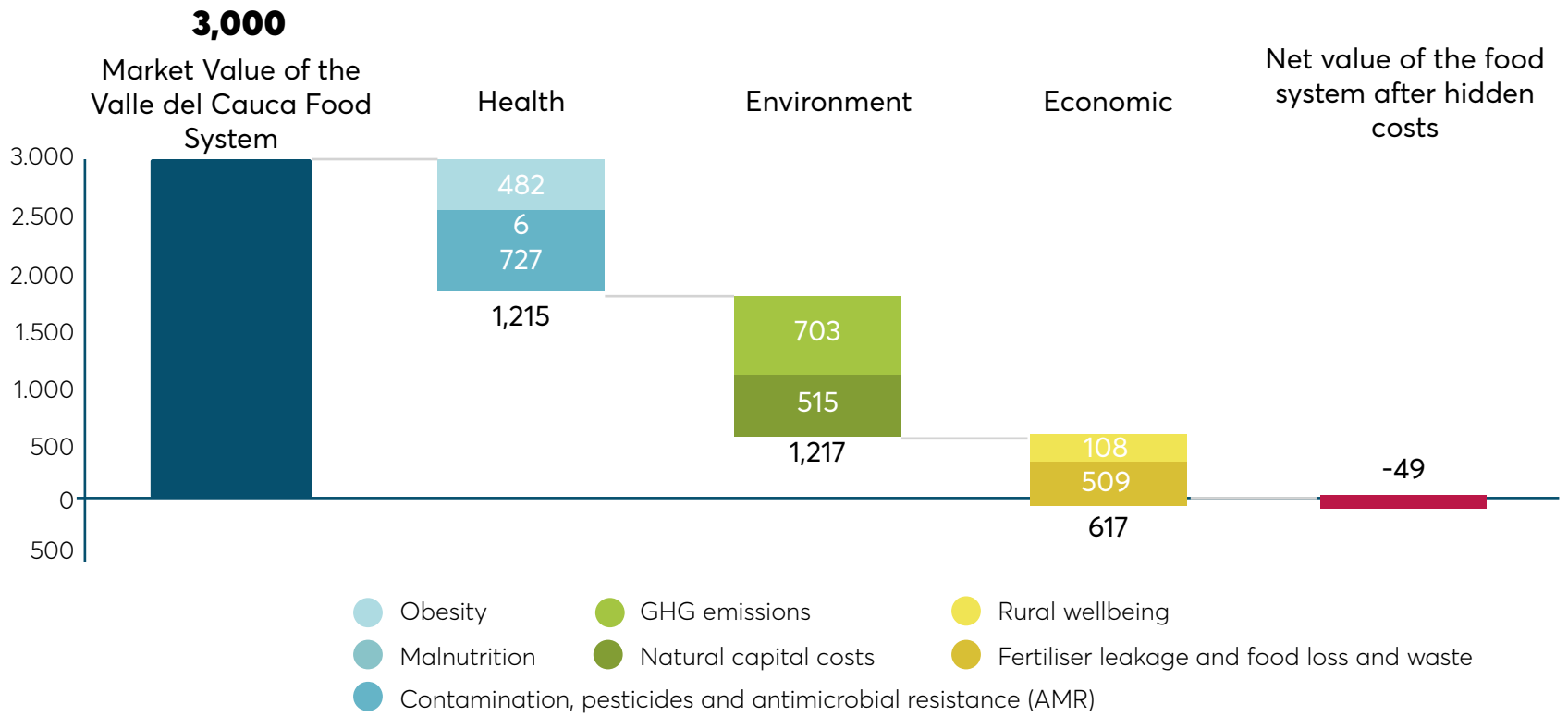
An analysis of the hidden costs associated with the current food systems and land use in the department is also presented, aiming to better understand the problem, enrich the debate, and foster future research that contributes to the formulation of public policies. The hidden costs related to health, environment, and economy of the food systems and land use in Valle del Cauca are estimated at over USD $3 billion per year (Figure 3). This value is significant and exceeds the financial value of the agricultural sector in Valle del Cauca. It is important to note that this estimation does not include the costs associated with the impacts caused by the production, processing, and transportation of imported food consumed in the department.

This analysis of hidden costs offers a broader perspective on the negative impacts generated by the food systems and land use in Valle del Cauca. It presents costs in the healthcare system, associated with both diet-related diseases and the degrading effects of the environment on human health. It also provides estimations of the economic costs associated with biodiversity loss and impacts on agricultural productivity. These hidden costs not only affect the agricultural and environmental sectors but also the well-being of society as a whole.

If current trends continue, the analysis estimates that hidden costs could increase to nearly US$5 billion by 2050. The magnitude of these hidden costs underscores the urgent need to address the challenges of food systems and land use in Valle del Cauca. The analysis provides a solid foundation for making informed decisions and developing public policies that address the negative impacts and promote sustainable practices in food production and land use. The actions presented in this Roadmap can contribute to reducing the identified hidden costs and generate benefits for the health, environment, and economy of the department. To achieve this, the participation and collaboration of multiple stakeholders in the territory are necessary.

Figure 3.

Estimated hidden costs of the food systems and land use in Valle del Cauca (USD millions, 2020 prices).



Source: Own elaboration.

The Roadmap proposes actions such as the implementation of best agricultural practices and the regulation of fishing to prevent overexploitation. If these actions are implemented, significant economic benefits could be generated, and hidden costs could be reduced by up to US$75 million by 2030. This demonstrates that there are concrete opportunities to address current challenges and achieve a positive transformation in the department's food systems.

The implementation of best agricultural practices can not only improve productivity and efficiency but also reduce negative environmental impacts associated with the use of agrochemicals and unsustainable practices. On the other hand, regulating fishing can contribute to the conservation of marine resources and ensure their long-term availability. These actions not only benefit the environment but also have a direct impact on the economy by promoting the sustainability of agricultural and fishing activities.

Achieving the desired transformations requires the collaboration of different actors, including farmers, fishermen, government authorities, civil society organizations, and consumers. It is through the combined efforts and coordination among these stakeholders that the proposed objectives in the Roadmap can be achieved and the necessary changes in the department's food systems can be implemented.

The recommendations for action presented in the Roadmap not only represent an opportunity to reduce hidden costs but also to improve the quality of life of communities, promote health and well-being, and protect the natural environment. It is crucial to seize the opportunity of having a Roadmap and work together to build a regenerative and resilient future in Valle del Cauca. For further information on the methodology used for the development of this study, please refer to the technical document at this link: **Hidden Costs of the Food Systems in Valle del Cauca.**

Photography: CVC

Strategic Axis 1

Productive and Regenerative Marine and Continental Landscapes

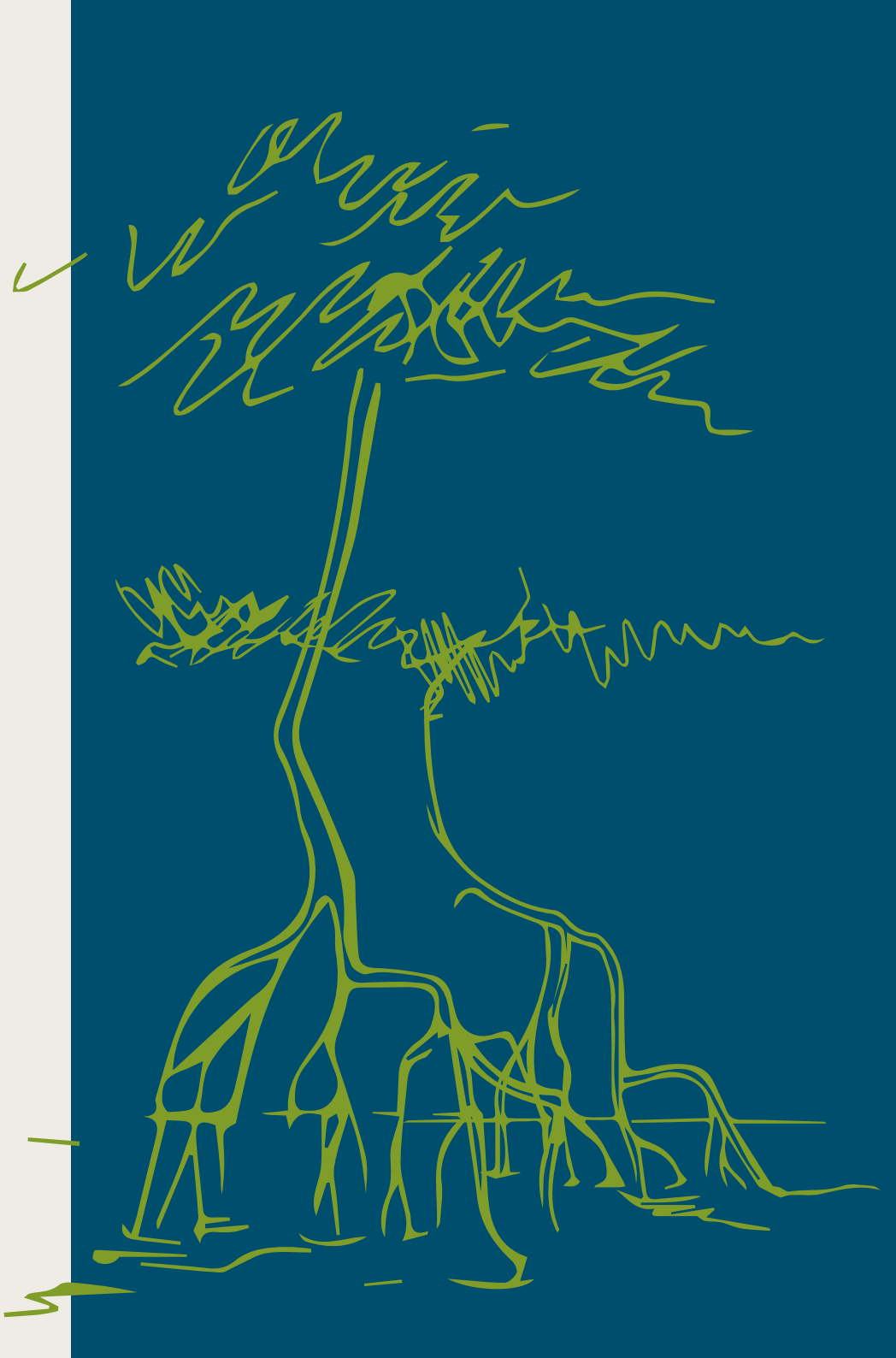
The Valle del Cauca region encompasses diverse ecosystems ranging from sea level to 4,080 meters above sea level, hosting approximately 11% of the country's flora species and between 25% and 50% of its fauna species (CVC, 2015). The department is home to 35 ecosystems, some of which are part of the Chocó Biogeographic region, considered a hotspot due to its global importance in terms of biodiversity richness and high levels of endemism. Notably, there are large areas of mangrove, which are strategic ecosystems for the country, the department, and the local communities that depend on them for their well-being and development.

Within this mosaic of ecosystems, 42.8% of the department's territory is allocated to agricultural production, despite only 12% being suitable for this activity, leading to significant conflicts in land use. Both overuse (30.2%) and underutilization (5%) are observed within the delineated agricultural frontier (ADR and FAO, 2021).

Key environmental indicators include soil erosion, which affects 32% of the territory, and the water scarcity index, which affects 58% of the department's watersheds (CVC, 2017).

In 2021, the agricultural sector ranked sixth in terms of its contribution to the department's Gross Domestic Product (GDP), representing 7.3%, behind sectors such as commerce (17.7%), manufacturing industries (15.7%), public administration and defense (13.0%), real estate activities (11.5%), and professional, scientific, and technical activities, and administrative and support services (8.8%) (DANE, 2023a).

In the agricultural sector in 2020, sugarcane accounted for 31.4% of the department's agricultural GDP. Plantain, coffee, and fruits also make a significant contribution to national production, representing 7.4%, 6.1%, and 9.1%, respectively. Furthermore, 70% of this production comes from small and medium-sized farmers (ADR and FAO, 2021). The same study highlights that Peasant, Family, Communal, and Small-Scale Agriculture (ACFC-PP) accounts for 30% of agriculture in the department and has experienced sustained growth in the last 20 years.



Valle del Cauca is one of the country's main producers of white protein, contributing 20% of the eggs and 15% of the chicken consumed nationally, according to the National Association of Industrialists (ANDI) (El Espectador, 2023). However, the levels of technological advancement in these productive chains are very low (ICA, 2021).

The fishing sector in the Pacific region of Valle del Cauca is considered one of the most productive in the country, accounting for 62% (15,032 tons) of the national fishing fleet (WWF and CIC, 2019). However, some studies indicate that 81% of the exploited fish species in the region are above the sustainable yield limit (IRS) (Barreto and Borda, 2008; FAO and MinAgricultura, 2015).

It is worth noting that Valle del Cauca was the first department in Colombia to have a Departmental Territorial Planning (POTD) and its corresponding Occupation Model. The 2017-2037 POTD identifies productivity and connectivity gaps in the agricultural sector and prioritizes fifteen productive areas, including fruits, vegetables, cereals, tubers, legumes, coffee, nuts, livestock and its derivatives, marine and freshwater fishing, Pacific fruits, mariculture, and fish farming.

Given the opportunities and challenges in terms of agricultural production and ecosystem conservation in the department, it is essential for different public and private actors to lead processes that contribute to reversing current trends based on a regenerative and comprehensive vision. Regeneration is understood as the ability to create conditions for life to return to places where it has disappeared and restore its capacity to thrive continuously (Colombia Regenerativa, n.d.).

Valle del Cauca has a significant opportunity to transition towards regeneration through three strategic lines, which include the planning and diversification of agricultural and fishing production, as well as nature-based solutions (NBS), as presented in the following table.

Table 1. Summary of Strategic Axis 1: Productive and Regenerative Marine and Continental Landscapes

Strategic Lines	Actions
1. Territorial planning and management with a regenerative approach	✓ Promote the regenerative approach in agricultural supply areas connected to consumption centers as a strategy to contribute to the food security of the department. ✓ Drive the consolidation of sustainable and regenerative food landscapes in terrestrial and aquatic systems. ✓ Promote the development of ecological connectivity corridors and the restoration of strategic ecosystems in areas of high agricultural and agro-industrial productivity to regenerate ecosystem services and enhance resilience. ✓ Improve the coordination processes between government entities and the business sector for productive land management with a regenerative focus
2. Diversification of the production of healthy and sustainable food with a regenerative approach	✓ Implement planning instruments for agricultural production and extension with a regenerative approach, guiding decision-makers towards production diversification in subregions based on competitive and comparative advantages. ✓ Foster agri-food value chains that prioritize the diversification of healthy and nutritious foods, considering the diversity of ecosystems present in subregions and the local knowledge, cultures, and traditions. ✓ Strengthen Peasant, Family, and Community Agriculture and Small-Scale Production (ACFC-PP), particularly through incentives for rural women and youth.

Strategic Lines	Actions
	Strengthen the fisheries and aquaculture sector for its transformation into a competitive, fair, and sustainable production chain.
	Support agro-industry in transitioning from conventional to regenerative production, through crop diversification and the integration of regenerative practices at the landscape scale.
	Improve agricultural extension and technology transfer processes to small, medium, and large-scale producers, incorporating a comprehensive vision of food systems.
	Promote regenerative productive alternatives in territories as alternatives to illegal economies.
	Position Valle del Cauca as a territory of regenerative production.
	Strengthen the Agricultural and Fisheries Observatory of Valle del Cauca.
3. Promoting nature-based solutions for the promotion of regenerative agricultural and fisheries production and ecosystem conservation	Protect and restore natural and transformed ecosystems to ensure the provision of ecosystem services on which economic sectors and society depend for their well-being.
	Promote regenerative fishing, aquaculture, and mariculture in the Pacific.
	Strengthen the bioeconomy based on the richness of terrestrial, aquatic, and coastal-marine ecosystems, as well as their cultural diversity and scientific and entrepreneurial strength.

Strategic Axis 2

Efficient and Equitable Supply and Markets

The Valle del Cauca imports 70% of the food it consumes, primarily from the departments of Antioquia, Cauca, Nariño, Tolima, Meta, and Huila (García Sierra, 2021). Despite this dependency, the majority of exporting companies in the department belong to sectors such as food, beverages, metal-mechanics, and services. In the agricultural sector, the department accounted for 9.8% of the country's total exports in 2022 (Mincit, 2022).

The department has a diverse business environment and stands out in industrial production, with over 40% corresponding to the food sector. Cali has emerged as a center of attraction for ventures with high growth potential, especially in food technology, also known as FoodTech, and has developed nine cluster initiatives related to food, making it one of the most attractive cities in Latin America in this field (CCC, 2022; CCC, 2021).

The food supply system in the Valle del Cauca is characterized by the involvement of multiple actors operating in a dispersed environment with a high presence of intermediaries that do not add value (CIAT, 2021). These operational and logistical weaknesses result in inefficiencies and additional costs passed on to the final consumer. Furthermore, there are illegal dynamics that affect markets, access, and the cost of food.

The Valle del Cauca plays a fundamental role as a logistics corridor in Colombia, with outstanding development of primary roads, free trade zones, and industrial parks. It is considered the most cost-efficient department for serving the domestic market in the country (Mintransporte, 2020a). Additionally, approximately 68% of the rural areas in the department are within a three-hour distance from Cali (UPRA, 2020). However, there are deficiencies in secondary and tertiary roads, as well as in collection centers and cold chains (ADR and FAO, 2021).

Cavasa, the largest food supply center in the southwestern region of Colombia, trades around 30,000 tons of food per month, mainly fruits and vegetables (Cavasa Directorate, personal communication, November 2022). The commercialization associated with small-scale production is carried out through various links in the food distribution

system, with the main actors moving the food trade being the marketplaces (51%), direct marketers (23%), Cavasa (18%), and other commercial links (8%) (ADR and FAO, 2021).

In the department's agri-food market, traditional channels such as neighborhood stores, marketplaces, and mobile markets have been losing market share. However, agroecological farmers' markets have experienced significant growth. Currently, there are twenty-three farmers' markets linked to the Agroecological Markets Network of the Valle del Cauca (Redmac), a community organization that brings together over sixty associations of small-scale and family farmers (El Tiempo, 2022).

Despite having a solid logistics infrastructure, the department faces challenges in accessing markets in remote regions (Gobernación del Valle del Cauca, 2020). Furthermore, the lack of information systems, monitoring, and price control limits efficiency and transparency in food marketing and commercialization processes.

Deficiencies in the management of food loss and waste (FLW) have been identified throughout the entire food chain in the Pacific region, to which Valle del Cauca belongs. This region ranks third nationally in food losses (17.1%), along with the Coffee Axis region (DNP, 2016).

To address these challenges, it is necessary to improve logistical conditions, transportation, and infrastructure in the department. This will ensure efficient and equitable food supply, distribution, and marketing, as well as promoting food security and reducing FLW. The Roadmap proposes five strategic axes to achieve these objectives, which are detailed in the following table.

Photography: Banco de Alimentos de Cali

Table 2. Summary of strategic Axis 2: Efficient and Equitable Supply and Markets

Strategic Lines	Actions
1. Development and strengthening of operational and logistical capacities to access more and better markets	✓ Identify the marketing and logistics needs of production areas, improving their access to existing markets. ✓ Improve secondary and tertiary roads and river routes that connect the department's production to food demand. ✓ Create, improve, and maintain food storage and cold logistics centers. ✓ Facilitate conditions for the involvement of local and sub-regional producers from ACFC-PP in public procurement markets.
2. Strengthening of markets to ensure the supply of diverse, nutritious, and safe food	✓ Strengthen traditional market systems to enhance the availability of fresh, safe, and nutritious food. ✓ Promote farm-to-table strategies that contribute to closer connections between producers and consumers. ✓ Encourage the use of digital platforms for the marketing of fresh and processed food, especially from alternative local product ventures. ✓ Design and implement a regional food supply plan.

Strategic Lines	Actions
3. Reducing food loss and waste	Foster the measurement of food losses to guide actions towards their reduction. Strengthen the role of food banks to decrease food loss and waste.
4. Promotion of sustainable and regenerative businesses and ventures that generate specialized markets	Consolidate spaces to inspire, connect, and showcase purpose-driven ventures. Enhance the capacities of ventures to transform food systems. Strengthen the participation of the agro-industry in sustainable and regenerative markets.

5. Consolidation of formal, equitable, and secure markets

- Promote control systems to reduce illegal dynamics related to food production and marketing.
- Support the formalization of ventures for entry into formal markets.
- Drive direct purchases from vulnerable communities to ensure fair prices and trade
- Strengthen information systems, monitoring, and price fluctuation in food production and marketing.

Photography: CVC

Strategic Axis 3.

Conscious and Healthy Consumption

The Department of Valle del Cauca is currently involved in updating its Departmental Plan for Food and Nutritional Sovereignty and Security (PSSAN) 2018-2032, incorporating a Human Right to Adequate Food and Nutrition approach. However, the data from the latest National Nutritional Situation Survey of Colombia - ENSIN (2015) presents alarming figures for the department: 53.6% of the population experiences food insecurity, and 33 out of every 100 children have a minimally acceptable diet. In contrast, 61% of adults are overweight, surpassing the national average by 4.8 percentage points (ICBF et al., 2015).

Regarding children, excess weight affects 30% of children aged 5 to 12, while for Cali and its metropolitan area, this figure rises to 35% of schoolchildren. These high rates of obesity and overweight are associated with unhealthy eating habits and represent risk factors for non-communicable diseases (NCDs). In 2019, NCDs were the main cause of medical consultations across all age groups in Valle del Cauca, accounting for 70% of total consultations, and reaching 82% among older adults (Gobernación del Valle del Cauca, 2020a). Additionally, acute myocardial infarction is the leading cause of death in the department, with a 59% increase since 2014, resulting in 5,684 deaths (DANE, 2021).

Regarding the diet of Valle del Cauca's inhabitants, low-nutritional-value foods, especially processed and ultra-processed foods, predominate (CIAT, 2021). Furthermore, only 28.1% of the population consumes vegetables daily, according to the 2010 ENSIN (ICBF et al., 2010), but it is likely that this figure has decreased due to the inflationary crisis, particularly affecting food prices. Despite the abundance of fruits in Valle del Cauca, only 68.9% of people consume at least one portion of fruit per day, below the national average of 88.3% (MinSalud, 2013).

It is probable that some of these indicators have worsened in recent years due to the effects of the Covid-19 pandemic, the social unrest in 2021, the inflationary crisis particularly affecting the basic food basket (DANE, 2023b), high international fertilizer prices combined with currency devaluation, and the overall internal displacement crisis impacting the country's major cities (IDMC, 2022).

In this context, the Roadmap highlights the costs associated with inaction in the food system, reflecting the need to make changes in the system, especially in terms of health.

Another factor contributing to the inefficiency of food systems in Valle del Cauca is related to the management of Food Loss and Waste (FLW), as mentioned in Strategic Axis 2. In this regard, it is necessary to raise awareness about efficient FLW management, where food banks play an important role in raising awareness and management. Valle del Cauca has three food banks belonging to the Association of Food Banks of Colombia (Abaco), located in Buenaventura, Cartago, and Cali. The Cali Food Bank collects between 10 and 12 tons of food per day, amounting to 320 tons monthly (Banco de alimentos de Cali, 2022).

Given this significant paradox in the department's food systems, it is crucial to advance policies, plans, programs, and projects that address the challenges of malnutrition, undernutrition, and food loss and waste. All actors along the food chain, from producers to consumers, must actively participate in promoting healthy eating.

The Roadmap proposes three strategic axes to focus on capacities in terms of conscious and healthy consumption: i) update and implement public policies regarding food sovereignty and security, ii) promote behavior change strategies in different sectors and domains, and iii) define actions to reduce food waste.

Photography: Ana Darly Jaramillo

Table 3. Summary of Strategic Axis 3. Conscious and Healthy Consumption

Strategic Lines	Actions
1. Ensuring healthy and nutritious food for every family in the department	✓ Implement the Plan for Food Sovereignty and Security in Valle del Cauca. ✓ Consolidate participation, oversight, and monitoring processes at the departmental, subregional, and municipal levels. ✓ Ensure the existence of minimum enabling conditions in the environment for the enjoyment of a healthy and nutritious diet. ✓ Strengthen food banks to increase their capacity to support vulnerable communities.
2. Promoting behavior changes in food consumption	✓ Develop education and communication strategies that promote healthy and nutritious eating habits, considering cultural differences and territorial opportunities. ✓ Establish strategic partnerships with the hotel, restaurant, and catering (Horeca) sector to promote the availability of healthy and wholesome food. ✓ Foster strategies to influence education and consumption habits within the school community and workplace as key spaces for changing dietary habits.

3. Development of strategies that contribute to reducing food waste

- Promote measurement and incentives to reduce food waste.
- Propose differentiated solutions for reducing waste in the food preparation and consumption stages.

Photography: Katherine Quintero

Transversal Axis

Transversal Axis 1. Governance

Governance, understood as the set of processes and practices to solve social problems and create opportunities through the interaction between public, private, and civil society actors (Kooiman et al., 2008), plays a crucial role in achieving the proposed vision of change in this Roadmap for the food systems of Valle del Cauca. Good governance will facilitate the design of equitable, coherent, and transparent mechanisms, as well as the coordinated implementation of policies, legislation, planning, monitoring, and financing (Trevenen-Jones, 2023).

At the national level, Colombia has the Intersectoral Commission for Food and Nutrition Security (CISAN), responsible for coordinating the national policy on food and nutrition security and serving as a coordination body among different actors. At the departmental level, the governorships must lead their policies and plans in this area.

Valle del Cauca has formulated the Departmental Plan for Food and Nutrition Sovereignty and Security (2018-2032), which faces the challenge of being implemented and having proper monitoring and follow-up. Therefore, it is essential to strengthen existing multi-stakeholder spaces for decision-making, with the active participation of all stakeholders involved, such as local governments, ethnic groups, citizens, entrepreneurs, and producers.

It is also important that new policy developments, plans, and programs adopt a comprehensive vision of food systems, with the necessary participation and monitoring. These approaches should be carried out at the subregional and regional levels, through spaces such as the Pacific Administrative Planning Region (RAP).

A strategic element for the governance of food systems in Valle del Cauca is related to territorial governance, understanding it as the capacity of actors to make informed decisions freely and safely around the territory they occupy and the management of natural resources and goods and services available for the development of their economies and the well-being of all their inhabitants. In this sense, different sectors of the department express the need for greater support from the State to achieve effective and innovative solutions in the face of illegal groups and illegal economies. Given this context, innovative and effective solutions involving local actors, communities, businesses, and entities responsible for territorial control are urgently needed.

In this context, the Roadmap proposes to focus efforts on two strategic lines, one of them focused on strengthening multi-stakeholder spaces for decision-making, which will have direct impacts on territorial governance, and the other oriented towards areas with illegal economies that promote rural and business development. The proposed actions for each of these lines are as follows:

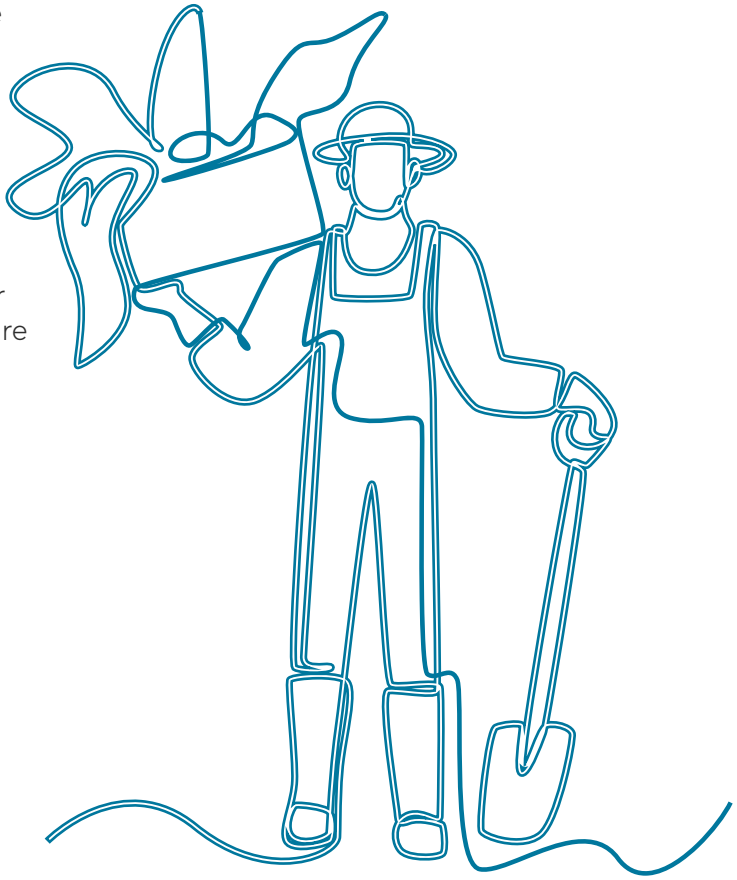


Table 4. Summary of Transversal Axis 1: Governance

Strategic Lines	Actions
1. Strengthening multi-stakeholder spaces for decision-making in food systems	✓ Strengthen the capacities of the actors responsible for public policy and those who can influence its formulation and implementation from a comprehensive perspective of food systems. ✓ Contribute to the design, implementation, and monitoring of public policies related to food systems with principles of comprehensiveness, equity, and social inclusion. ✓ Strengthen public-private coalitions for the implementation of the Roadmap for the transformation of food systems in Valle del Cauca.
2. Enhancing governance in areas with illegal economies to ensure rural and business development	✓ Enhance governance in territories affected by the presence of illegal armed groups. ✓ Promote compliance with policies and programs related to access, use, and right to rural land ownership.

Photography: DPS

Transversal Axis 2. Education, knowledge management, science, technology, and innovation

According to the Departmental Competitiveness Index (IDC) 2022, Valle del Cauca ranks 24th in basic education and 8th in higher education and technical vocational education and training (CPC and Universidad del Rosario, 2022). This index also reveals that the department has a low level of education compared to the rest of the country (CPC and Universidad del Rosario, 2022).

Furthermore, the Departmental Innovation Index for Colombia (IDIC) identifies the main deficiencies in education in the department, such as the quality and net coverage of secondary education (ranked 16th) and higher education (ranked 11th) (DNP, 2022). This situation is even more concerning in rural areas of the department, where only 43.7% of the population completes primary education, while only 15.70% completes secondary education (ADR and FAO, 2021).

Regarding higher education, only 27% of high school graduates in Valle del Cauca have immediate access to higher education (Pro-Pacífico, 2018 cited by ADR and FAO, 2021). Although there are more than fifty programs related to food systems in various higher education institutions in the department, only 2% of students pursued careers in agronomy, veterinary sciences, and related fields in 2020.

In the field of science, technology, and innovation (STI), Valle del Cauca has 472 research groups recognized by Minciencias through Colciencias, including 21 in agricultural sciences, 80 in natural sciences, and 83 in medical and health sciences. However, only 6 of the A1 category research groups are related to STI in agricultural sciences (MinTIC, 2022). Additionally, the department has 8 research and technological development centers recognized by Colciencias, including two in the agro-environmental sector, one in biotechnology, and one in health (MinTIC, 2022).

Valle del Cauca has made progress in promoting STI through the National Agricultural Innovation System (SNIA) and the Departmental Council of Science, Technology, and Innovation (CODECTI). The latter has led initiatives and has multi-stakeholder platforms, such as those for supply, food security and nutrition, and value chains for fresh fruits and specialty coffees, to improve the conditions of the agricultural sector in the department (CODECTI, 2020).

Despite these advances, there are still educational gaps between rural and urban areas, and illiteracy persists as a threat to progress. On the other hand, Valle del Cauca has great potential in the field of high-value-added bioproducts due to its biodiversity, but better patent management and increased investment in research and development are needed.

In summary, Valle del Cauca faces significant challenges in achieving more equitable, sustainable, and regenerative food systems. To address these challenges, it is important to develop comprehensive educational proposals and STI programs that promote knowledge and innovation in ecosystem conservation, regenerative production, food transformation, fair trade, and conscious consumption. The following are the main proposed strategic lines and their actions in the roadmap.

Table 5. Summary of Transversal Axis 2. Education, knowledge management, science, technology, and innovation

Strategic Lines	Actions
1. Strengthening education for the transformation of food systems	✓ Design and implement educational programs that integrate diverse disciplines associated with food systems across all levels of formal education. ✓ Promote job-oriented and entrepreneurial training to transform food systems.
2. Promoting knowledge management in the context of food systems and regeneration	✓ Foster traditional knowledge and scientific understanding of food systems. ✓ Develop knowledge and practices in regenerative approaches for businesses. ✓ Promote citizen science as a tool for driving change and transforming behaviors.

Strategic Lines	Actions
3. Supporting science, technology, and innovation to transform food systems	✓ Promote bridging the digital divide to drive rural development. ✓ Support and strengthen applied research and technological development schemes for innovation in food systems.
4. Enhancing information and technology for monitoring and tracking the transition to sustainable and regenerative food systems	✓ Define change indicators to measure the processes of food system transformation. ✓ Establish a Food Systems Transformation Observatory for Valle del Cauca.

Photography: MinEducación

Transversal Axis 3. Communication and Behavior Change

Social and Behavior Change Communication (SBCC) is a key tool for improving behaviors and practices related to food systems. Its objective is to make individuals and communities recognize the need for change and lead a transformation that is appropriate to their context.

Despite having a great biological and cultural diversity that could provide a varied, healthy, and nutritious pantry, the Valle del Cauca still faces issues of malnutrition and poor nutrition. Therefore, strategies are required that contribute to behavior change regarding food systems, given their complexity as they encompass various dimensions and actors.

In this regard, assertive communication is needed, starting with a deep analysis of the context, and clearly identifying the target audience for the messages. Production, marketing, and consumption practices must be considered, and people's decisions are influenced by affective aspects related to their territory, family, memories, and tastes, among others (Kahneman, 2011).

Once the context is understood and the target audiences have been defined, it is necessary to design communication strategies. It is essential to have clarity on what needs to be conveyed and how to do it. Additionally, indicators should be established to evaluate the results of the campaigns and recognize the specific actions that promote behavior change. It is also crucial to define communication channels, considering the needs of the target audience and the media they have access to. There are various channel options, such as digital platforms, television, radio, print media, outreach activities, and events. In Colombia, conventional media channels like television and radio are still widely used, so it is important to consider them in the communication strategy.

In this context, Social and Behavior Change Communication can play a fundamental role in the transformation of food systems. The following are the main strategic lines and actions to leverage the processes of transforming food systems in communication for behavior change:

Table 6. Summary of Transversal Axis 3. Communication and Behavior Change

Strategic Lines	Actions
1. Implementation of interventions that contribute to transforming food systems towards regeneration through behavior change	✓ Create and strengthen organizational entities for the design of programs and public policies that contribute to behavior change. ✓ Design and promote communication strategies and campaigns that encourage behavior change.
2. Develop differential and creative communication campaigns on regenerative food systems	✓ Design cost-effective and creative communication campaigns that integrate art, culture, and science to influence actors along the food systems chain. ✓ Develop communication tools and platforms for children, youth, and their families or caregivers on healthy and nutritious eating. ✓ Design strategies for exchanging experiences and knowledge between rural and urban areas that contribute to the transformation of non-regenerative production and consumption patterns.

Photography: Joel Gon... - Prosperidad Social

Transversal Axis 4. Innovative Financing

According to the FOLU Growing Better report (2019), current food systems generate more costs than benefits for the planet, with estimated hidden costs of $12 trillion globally against a market value of $10 trillion. These costs impact health, the environment, and the economy. However, transforming this situation requires a modest investment compared to the potential gains, with a social return ratio of over 15:1. It is estimated globally that additional annual investments of $300 billion to $350 billion are needed, which could generate an annual economic gain of $5.7 trillion and an additional business opportunity of $4.5 trillion by 2030 through the implementation of ten critical transitions proposed by FOLU (2019).

To finance the transformation of food systems, contributions from both public and private resources are required. Public resources should be allocated to education and technology transfer systems, road infrastructure, irrigation and water management systems, food collection and distribution logistics, as well as improvements in multipurpose land registry, planning, and territorial organization.

In the new Development Plan 2022-2026, the budget allocated to the agricultural sector for 2023 has been increased by 62.4% compared to the 2022 budget, reaching a total of 4.2 trillion Colombian pesos (Ministry of Agriculture, 2022). However, private sector financing is crucial, focusing on innovation, productivity improvement, and a regenerative perspective.

It is necessary to develop more productive agricultural models that use fewer resources and generate benefits for both nature and society. New financial innovation schemes are also needed to facilitate access, relevance, and risk assessment associated with climate change through agricultural insurance. Furthermore, there is a need to improve the investment environment and the availability of better financing instruments, especially for small farmers and enterprises in the ecological restoration sector, through a combination of technical assistance, credit lines, guarantees, and new mechanisms for social inclusion, including digital financial services.

The country already has economic and financial instruments that can be used to incentivize better food systems. Additionally, blended financing structures are required that utilize capital from public or philanthropic sources willing to take higher risks or accept returns below the market, to increase private sector investment in the transformation of food systems. In this regard, the challenge lies in reducing the perception of risk in investments related to food systems.

The following are the key strategic lines and actions, to ensure financing in areas that support the transformation of food systems.

Table 7. Summary of Transversal Axis 4. Innovative Financing

Strategic Lines	Actions
1. Expand and promote credit options for the agricultural, livestock, fishing, and environmental sectors	✓ Develop credit lines accompanied by technical assistance. ✓ Promote banking and rural microcredit schemes, integrating technology transfer programs.
2. Develop 'blended financing' and public-private schemes to attract private sector involvement	✓ Foster blended financing schemes for food systems. ✓ Encourage the use of funds that contribute to transforming food systems. ✓ Develop value and financing schemes within the food system value chains.

Strategic Lines	Actions
3. Support science, technology, and innovation to transform food systems	✓ Promote closing the digital divide to drive rural development. ✓ Support and strengthen applied research and technological development schemes for innovation in food systems.
4. Utilize economic and financial instruments for food systems	✓ Analyze and utilize financial and economic instruments that serve the transformation of food systems. ✓ Scale up payment for environmental services schemes towards regeneration. ✓ Develop schemes to attract voluntary carbon markets that enable actions in food systems in Valle del Cauca.

Next steps:
Let's get to work

Achieving a food system that nourishes both people and the planet is possible. This involves recognizing the opportunities of territories and their people, ensuring access to healthy food for all. This change is necessary to address the challenges of environmental degradation, climate change, human health, and economic and social disparities. To achieve this regenerative, resilient, and inclusive food system, significant changes are needed in the production, supply, and distribution systems of food, as well as in the business models of the agri-food sector.

In addition, it is necessary to consider the impacts that food systems have on nature and the well-being of the population, which entail economic, environmental, and social costs. The Valle del Cauca has various elements in its favor, such as areas suitable for agricultural production and research and innovation capacities. However, to achieve successful change, it is necessary to strengthen the complementary roles and functions of the public, private, and community sectors, coordinating collective efforts to reach a common objective. The current document summarized the associated roadmap.

The next decade is critical to achieve the required transformations, as inaction would incur higher costs than the current ones. Consolidating a regenerative, resilient, and inclusive food system will bring greater prosperity and well-being to the department and its inhabitants.

References

Agencia de Desarrollo Rural – ADR y Organización de las Naciones Unidas para la Alimentación y la Agricultura – FAO. 2021. Plan Integral de Desarrollo Agropecuario y Rural con Enfoque Territorial departamento del Valle del Cauca: Tomo I. https://bit.ly/3IEQg8E

Alvarado, D. y Otero, J. 2017. Áreas naturales de bosque seco tropical en el Valle del Cauca, Colombia: una oportunidad para la restauración. Biota Colombiana 18 (1): 9-34 pp.

Arcila, A., Valderrama, C. y Chacón de Ulloa, P. 2012. Estado de fragmentación del bosque seco de la cuenca alta del río Cauca, Colombia. Biota Colombiana 13 (2): 86–101pp.

Banco de Alimentos de Cali. 2022. Nuestro trabajo. https://bit.ly/3CaI6n1

Barreto Reyes, C. G. y Borda Rodríguez, C. A. 2008. Evaluación de Recursos Pesqueros Colombianos. Bogotá, D.C. ISBN: 9789588214696

Cámara de Comercio de Cali - CCC. 2022. Ritmo exportador: Informe # 76. https://bit.ly/3QaMVmg

Cámara de Comercio de Cali - CCC. 2021. Cali: uno de los mejores ecosistemas de emprendimiento de América Latina. https://bit.ly/3IaDb9z

Centro Internacional de Agricultura Tropical - CIAT. 2021. Perfil del Sistema Alimentario de Cali. https://acortar.link/stys0c

Coalición para la Alimentación y Uso del Suelo - FOLU. 2019. Crecer mejor: Diez transiciones Críticas para Transformar la Alimentación y el Uso del Suelo. Londres. https://bit.ly/3jI0Jsp

Colombia Regenerativa. s.f. La red para la Re-generación: Personas, bioregiones y organizaciones co-creando condiciones para regenerar la vida. https://bit.ly/3GwNNhS

Consejo Departamental de Ciencia, Tecnología e Innovación - CODECTI Valle del Cauca. 2020. Informe de gestión 2020. https://bit.ly/3Msdtxsm

Consejo Privado de Competitividad – CPC y Universidad del Rosario. 2022. Informe departamental de competitividad 2022. https://bit.ly/3DlMmzS

Corporación Autónoma Regional del Valle del Cauca - CVC. 2015. Guía: Categorización de especies. Grupo de trabajo biodiversidad.

Corporación Autónoma Regional del Valle del Cauca - CVC 2004. CVC 50 Años. Cap.1 De Paso por la Historia. Cali. 23–48 pp.

Departamento Nacional de Estadística - DANE. 2023a. Boletín Técnico: Índice de Precios al Consumidor (IPC) Diciembre 2022. https://n9.cl/qcj6m

Departamento Nacional de Estadística - DANE. 2023b. Cuentas nacionales departamentales: Producto Interno Bruto - PIB del Valle del Cauca a precios corrientes. https://bit.ly/3o03cAu

Departamento Administrativo Nacional de Estadística - DANE. 2022a. La información del DANE en la toma de decisiones regionales. bit.ly/3GrGliq

Departamento Administrativo Nacional de Estadística - DANE. 2022b. Empleo y desempleo. https://bit.ly/3KqYkLS

Departamento Administrativo Nacional de Estadística - DANE. 2021. Encuesta Nacional de Calidad de Vida. Fecha de publicación: 2 de septiembre de 2021.

Departamento Administrativo Nacional de Estadística - DANE. 2018. Boletín Técnico: Cuentas departamentales. https://bit.ly/3vOWXkQ

Departamento Nacional de Planeación – DNP. 2022. Índice Departamental de Innovación para Colombia 2021. Observatorio Colombia de Ciencia y Tecnología. Bit.ly/3CF7TEr

Dirección de Cavasa, comunicación personal, noviembre de 2022. Sobre el abastecimiento del Valle del Cauca.

DNP. 2016. Pérdida y desperdicio de alimentos en Colombia. https://bit.ly/3iaJUpA

El Espectador. (13 de abril de 2023). Valle del Cauca: la economía más expuesta por la caída del puente en río La Vieja. 2023. https://bit.ly/41G1Olq

El Tiempo. (25 de julio de 2022). Los tesoros verdes, riquezas ambientales cuidadas con tesón. 2022. https://bit.ly/3pvnHCt

Fondo Mundial para la Naturaleza – WWF y Conservación Internacional Colombia. 2019. La pesca en Colombia: del agua a la mesa. https://bit.ly/3631Uf8

García Sierra, A. (16 de mayo de 2021). ¿De dónde llegan los alimentos que se consumen en el Valle? https://bit.ly/3mqfQ8e

Gobernación del Valle del Cauca. 2020. Documento técnico bases del Plan de Desarrollo. Cali.

González, N y Perafán, A. 2010. Historia ambiental del Valle del Cauca Geoespacialidad, cultura y género. Editorial Universidad del Valle. 200pp.

Internal Displacement Monitoring Centre. IDMC. 2022. Global Report on Internal Displacement. https://acortar.link/zFoHBJ

Instituto Colombiano Agropecuario – ICA. 2021. Censo Agropecuario Nacional 2018. https://bit.ly/3tLbTxN

Instituto Colombiano de Bienestar Familiar-ICBF; Instituto Nacional de Salud - INS; Ministerio de Salud; y Universidad Nacional de Colombia. 2015. Encuesta Nacional de la Situación Nutricional - ENSIN. Bogotá D.C. https://bit.ly/31un03S

Jaramillo, J.; Londoño, N.; Sánchez, G. 2015. Agroindustria azucarera y finca tradicional. Universidad Javeriana. https://bit.ly/30AacJ1

Kahneman, D. 2011. Thinking, Fast and Slow. Nueva York: Farrar, Straus and Giroux.

Kooiman, J.; Bavinck, M.; Chuenpagdee, R.; Mahon, R. and Pullin, R. 2008. Interactive governance and governability: an introduction. Journal of Transdisciplinary Environmental Studies.

Ministerio de Agricultura y Desarrollo Rural - Minagricultura. 2022. Minagricultura obtuvo dos billones de pesos adicionales para presupuesto de 2023. https://bit.ly/3XsH2DB

Ministerio de Agricultura y Desarrollo Rural - Minagricultura. 2018. Evaluaciones Agropecuarias Municipales. https://n9.cl/jf8on

Ministerio de Ciencia, Tecnología e Innovación – MinTIC. 2022. La ciencia en cifras: ficha departamental Valle del Cauca. https://bit.ly/3FqSjOw

Ministerio de Comercio, Industria y Turismo - Mincit. 2022. Perfil económico del Valle del Cauca. https://bit.ly/3CnhY8C

Ministerio de Salud – MinSalud. 2013. Perfil nacional de consumo de frutas y verduras. Proyecto UTF/COL/039. Bogotá D.C. bit.ly/3ieO0wT

Ministerio de Transporte - MinTransporte. 2020a. Competitividad en el puerto de Buenaventura. https://www.mintransporte.gov.co/publicaciones/8761/competitividad-en-el-puerto-de-buenaventura/

Ministerio de Transporte - Mintransporte. 2020b. Encuesta Nacional Logística. https://bit.ly/3ZaTsBq

Organización de las Naciones Unidas para la Alimentación y la Agricultura –FAO y Ministerio de Agricultura y Desarrollo Rural – MinAgricultura. 2015. Política integral para el desarrollo de la pesca sostenible en Colombia. bit.ly/3Qdqlt5

Salcedo, J & Valencia, A. 1994. Historia del Gran Cauca. Historia regional del Suroccidente colombiano, Gobernación del Valle del Cauca. Santiago de Cali. 74 pp.

Unidad de Planeación Rural Agropecuaria – UPRA. 2020. Planificación de ordenamiento productivo y social de la propiedad: Valle del Cauca. https://n9.cl/8ltu6

Trevenen-Jones, A. 2023. Food systems governance. GAIN. https://bit.ly/3k0CN3y

Zambrano, F.; Bernard, O. 1993. Ciudad y Territorio: el proceso de poblamiento en Colombia. Academia de Historia de Bogotá e Instituto Francés de Estudios Andinos. Bogotá, D.C. 280 pp.

Alianza Bioversity & CIAT

CGIAR

The Food and Land Use Coalition

Executive summary.

Roadmap for the Transformation of the Food Systems of Valle del Cauca

2023

folucolombia.org | alliancebioversityciat.org