GREEN SUPPLEMENT TO THE NATIONAL AFCFTA IMPLEMENTATION STRATEGY AND ACTION PLAN FOR KENYA FOCUSING ON THE COFFEE AND TEA SECTORS

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EXECUTIVE SUMMARY

The "Green Supplement to the National AfCFTA Strategy and Action Plan for Kenya in the Coffee and Tea Sectors" focuses on advancing sustainable and climate-resilient practices within Kenya's coffee and tea sectors, pivotal to the country's economic development and environmental stewardship. This document supplements Kenya's National AfCFTA Implementation Strategy by providing targeted interventions aimed at aligning trade and environmental objectives to leverage green trade opportunities, promote climate adaptation, and enhance the competitiveness of Kenyan tea and coffee in the African and global markets.

Kenya's tea and coffee sectors are vital economic contributors, with tea accounting for 23% of the country's GDP and indirectly supporting approximately 650,000 farmers and 5 million people. Coffee, the fourth leading foreign exchange earner, is predominantly produced by small-scale farmers who make up 60-70% of the sector. However, climate change poses significant challenges, including reduced yields, increased incidence of pests and diseases, and quality degradation due to extreme weather conditions such as droughts, floods, and erratic rainfall. These impacts necessitate immediate climate adaptation and mitigation actions to safeguard the sustainability of these critical sectors.

The strategy document outlines several sustainable practices to address these challenges, emphasizing regenerative agriculture and sustainable consumption and production practices (SCPs). Regenerative agriculture focuses on topsoil regeneration, biodiversity enhancement, carbon sequestration, and water cycle improvement, all essential to building climate resilience in coffee and tea farming. In parallel, SCPs aim to optimize resource use, improve economic performance, and promote social justice across the coffee and tea value chains. The carbon sequestration potential of shaded coffee and tea plantations is highlighted as a significant opportunity for mitigating greenhouse gas emissions, contributing to Kenya's commitment to reducing emissions by 32% by 2030.

Non-tariff measures (NTMs) within the African Continental Free Trade Area (AfCFTA) present both challenges and opportunities for the coffee and tea sectors. Goods traded between African states face high non-tariff trading costs (NTTCs), averaging 292% ad valorem equivalent, with agricultural products experiencing higher costs than manufactured goods. Addressing these NTMs and enhancing transparency and regulatory alignment are crucial for improving market access and reducing trade barriers.

Women's participation in the coffee and tea sectors is critical to achieving sustainable development goals. Despite women providing up to 70% of the labor in these sectors, they face significant barriers in terms of land ownership, access to training, and decision-making roles. The strategy calls for gender-responsive policies and capacity-building programs to empower women and promote inclusive growth. Successful initiatives such as the Gender Empowerment Platform (GEP) have already led to a 28.5% reduction in gender-based violence and increased women's empowerment in the tea sector.

The policy framework for coffee and tea production in Kenya is robust, encompassing national strategies like Vision 2030 and the National Climate Change Response Strategy (NCCRS). These frameworks guide climate adaptation and mitigation efforts, aligning with international green standards to promote sustainable agricultural practices. Regulatory standards such as the KEBS Tea Industry Code of Practice (KS2128:2022) and the Coffee Industry Code of Practice (KS 2366:2021) provide guidelines for quality control, ensuring that Kenyan tea and coffee maintain high standards in global markets.

The strategy emphasizes the need for comprehensive climate action and sustainable trade policies. This involves integrating climate-smart agricultural practices, fostering stakeholder collaboration, creating economic incentives for green trade, advancing research and development, and ensuring inclusive participation of all value chain actors. Specific actions include developing incentive schemes for green certifications, promoting market access for sustainably produced tea and coffee, and supporting public-private partnerships (PPPs) for climate-resilient projects.

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LIST OF ABBREVIATIONS

AfCFTA	African Continental Free Trade Area
AfDB	African Development Bank
APRI	African Policy Research Institute
ARIAX	African Regional Integration Assessment
ASTGS	Agricultural Sector Transformation and Growth Strategy
ATPC	African Trade Policy Centre
AU	African Union
BEPs	Best Environmental Practices
CCKP	Climate Change Knowledge Portal
CGIAR	Consultative Group on International Agricultural Research
CRF	Coffee Research Foundation, Kenya
COMESA	Common Market for Eastern and Southern Africa
EAC	East African Community
ECA	Economic Commission of Africa
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
Etc.	Et Cetera
Excl.	Excluding
FGD	Focus Group Discussions
FTA	Free Trade Area
GATT	General Agreement on Tariffs and Trade
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GEP	Gender Empowerment Platform
GHG	Green House Gases
GoK	Government of Kenya
GVC	Global Value Chains
GWh	Giga Watt Hour
IMF	International Monetary Fund
IISD	International Institute for Sustainable Development

KCCWG	Kenya Climate Change Working Group
KII	Key Informant Interviews
KIHBS	Kenya Integrated Household and Budget Survey
KSh.	Kenya Shillings
MWh	Mega Watt Hour
NCE	Nairobi Coffee Exchange
NCCRS	National Climate Change Response Strategy
NEMA	National Environmental Management Authority
NGO	Non-Governmental Organisations
NTBs	Non-Tariff Barriers
NTMs	Non-Tariff Measures
NTTCs	Non-Tariff Trade Costs
OEC	Observatory of Economic Complexity
REC	Regional Economic Communities
RITD	Regional Integrated Trade Division
RTAs	Regional Trade Agreements
RVCs	Regional Value Chains
SADC	Southern African Development Community
SCPs	Sustainable Consumption and Production Practices
SDG	Sustainable Development Goals
SPS	Sanitary & phytosanitary measures
SWOT	Strengths, Weaknesses, Opportunities & Threats
TBT	Technical Barriers to Trade
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission of Africa
US$	United States Dollar
WTO	World Trade Organisation

CHAPTER 1: INTRODUCTION

1.1. Background

Trade remains a key pillar of Kenya's Vision 2030, the Country's development blueprints, as an important stimulant for Kenya's wealth and employment creation, poverty eradication, and enhanced food security.

The signing of the AfCFTA provides Kenya with a pathway in its efforts to diversify its export markets within the African continent which is expected to provide growth and expansion opportunities for her agricultural, manufacturing, and service sectors.

The AfCFTA aims to establish a single liberalized market that will promote industrialization, infrastructural development, economic diversification, regional value chain development, agricultural development, and food security across the continent, home to approximately 1.2 billion people and a combined GDP valued at USD.5 trillion.

To deliver the expected outcomes of AfCFTA for the benefit of Kenya, the National AfCFTA Implementation Strategy 2022-2027 was developed. The Strategy is anchored within Kenya's national trade and development frameworks and aspires to contribute towards national development by providing a comprehensive approach to trade and investment opportunities in Africa, Kenya's most important exporting region, which, in the past, has been approached in a fragmented way.

Environmental sustainability is a key component of Africa's Agenda 2063 'The Africa We Want', and climate change adaptation has been identified as an increasingly urgent concern in AfCFTA Member States. Trade can help to mitigate climate change and adapt to its adverse effects. The AfCFTA opens new opportunities for tackling climate change in Africa as it expected to contribute to sustainable development through mutually supportive trade and environmental initiatives[1].

According to the ATPC, implementing the AfCFTA Agreement without adopting any climate policies in Africa would increase the continent's emissions in 2045 by 0.3%, compared with not implementing the agreement (ATPC, 2024). CO2 emissions alone would increase by 0.6%, whereas non-CO2 emissions would increase by 0.1%, with methane emissions increasing by 0.2%, fluorinated gas emissions by 1.5% and nitrous oxide gas emissions unchanged.
The National Trade Policy identifies two main challenges and constraints touching on trade and its impact on the general environment. There are inadequate institutional and legal frameworks for compliance and enforcement

[1] Kenya National AfCFTA implementation strategy & plan, Pg 84

with environmental requirements; and low appreciation of environmental issues related to trade by the stakeholders.[2] This then challenges the government to ensure compliance with domestic and international trade-related environmental laws and regulations and increase stakeholder awareness.

1.2. Overview of the National AfCFTA Implementation Plan

The National AfCFTA implementation plan is cognizant of the need to contribute to sustainable development through mutually supportive trade and environment initiatives through the implementation of climate change adaptation and mitigation measures relevant to trade and Protection and conservation of the natural environment among others.[3]

This paves the way for an opportunity to develop an action plan to realize green trade opportunities and climate change adaptation in Kenya as a supplement to Kenya's National AfCFTA Implementation Strategy, i.e., 'Green supplement'. The 'Green Supplement' is expected to help Kenya realize green intra-African trade and climate adaptation opportunities in selected supply chains, specifically in the tea and coffee sectors.

While climate change has a growing impact on countries' production and trade competitiveness, it has yet to be mainstreamed in trade policy. The Green Supplement to Kenya's National AfCFTA Implementation Strategy aims to fill this gap by providing a better understanding of the linkages between trade and environment in tea and coffee sector value chains and complementing Kenya's existing National AfCFTA Strategy and Action Plan.

This Green Supplement focuses on sustainable production and value addition, sectoral climate adaptation needs, Non-Tariff Measures (NTMs) transparency and cost-effectiveness, regulatory alignment, green standards, cooperation among value chain actors, advancing the role of women in value chains, and green trade opportunities arising from the AfCFTA and regional cooperation opportunities in the field of market access and NTMs in the coffee and tea sectors.

1.3. Aims and objectives

The Green Supplement aims to guide Kenya to in harnessing opportunities for green intra-African trade and climate adaptation within the tea and coffee sectors.

Its objectives include addressing:

[2] Performance audit report of the Auditor-General on enforcement of environmental laws in Kenya, April 2016

[3] Kenya National AfCFTA implementation strategy & plan, Pg 80

a) Options for sustainable production and value addition,
b) Sectoral climate adaptation needs,
c) Non-tariff measures (NTMs) transparency and cost-effectiveness,
d) Regulatory alignment and green standards,
e) Cooperation among value chain actors,
f) Advancing the role of women and youth in value chains
g) Green trade opportunities arising from the AfCFTA and
h) Regional cooperation opportunities given market access and NTMs.

1.4. Structure of the report

This Green Supplement will serve an ANNEX to Kenya's National AfCFTA Implementation Strategy and Plan and is therefore aligned with its structure.

Chapter One outlines the rationale for developing this strategy, linking it to the inspiration, vision, and commitment of the AfCFTA Agreement, Kenya's National AfCFTA Implementation Strategy, and global climate action efforts. It clearly defines the purpose and objectives of the strategy.

Chapter Two details the process behind the development of this document. It emphasizes the methodology and techniques used, the stakeholders involved, and summarises the key findings of the study.

Chapter Three provides an overview of the priority sectors – tea and coffee. It explores production and trade in these sectors, the impacts of climate change, and the sectors' environmental footprint. The chapter also covers relevant policy and regulatory frameworks, sustainability issues such as water and energy consumption, the use of harmful chemicals and fertilizers, non-tariff measures and the role of women in the sector.

Chapter Four focuses on climate action specific to the tea and coffee sectors highlighting necessary adaptation measures such as regenerative agriculture, sustainable consumption and production practices, and best environmental practices. It also explores the sector's potential for carbon sequestration and addresses the intersectionality of climate change impacts across the tea and coffee value chains.

Chapter Five presents the plan. This chapter breaks down the required actions into strategic objectives, specific objectives, activities, outputs, and outcomes while assigning responsibilities and resources.

Chapter Six provides the risk matrix, mitigation plan, and the Monitoring and Evaluation framework for the Green Supplement.

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CHAPTER 2: APPROACH, METHODOLOGY AND FINDINGS

In the development of this Green Supplement to the National AfCFTA Implementation Strategy, desktop research was extensively conducted to understand the coffee and tea trade value chains and climate change. This involved gathering information from academic literature, government and private sector reports, and case studies. The key focus was to the review of available literature on the value chains of the tea and coffee trade in Kenya and their intersectionality in climate change.

Data was collated on inputs, processes, and outputs of the coffee and tea trade performance data such as area planted and the resultant production volumes, traded volumes, and prices as far back as 30 years. Other data to be considered were climate data (temperature, rainfall, GHG emissions, etc.) over the same period, to assess the potential nexus with the production and trade of the two sectors.

Further, the study sought to analyse production and trade data on coffee and tea, to assess the potential impact of climate change, and the adoption of green value chain initiatives, on trade patterns and competitiveness in the sectors.

Key Informant interviews were conducted using a semi-structured interview guide, allowing for an open conversation in line with the study objectives. Similarly, a 3-day stakeholder consultation workshop was held to seek further input and gather insight on specific value-chain-related questions.

The table below summarizes the stakeholders consulted as Key Informants and the consultative workshop.

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List of stakeholders involved in the study……. TO BE FILLED ACCORDINGLY

Target Population	**Select/ Accessible population**	**Representatives/ Organisation**	**KII (Name & designation)**	**Workshop (Name & designation)**
Farmer/ producer	Tea producers	Smallholders Farmers		
		Large scale Farms		
	Coffee producers	Smallholders Farmers/		
		Large scales farms		
Aggregator (collecting to supply to traders)	Cooperatives	Farmers cooperatives		
Input supplier	Agri-chemicals	Agri-vet outlets		

	Machinery	Machinery outlets		
	Energy	Fuel wood		
		Fossils fuels (petroleum)		
		Hydro-electric		
		Solar power		
		Biofuels		
Local trader	Large retailers	Super-markets		
	Smallholder Retailers	Local shops		
Exporter	Export agents			
Importer	Import agent			
Manufacturer/ fabricator/ supplier of machinery or technology	Packagers			
	Package manufacturers			
	Promoters	PR agencies		
Transportation/ logistics company	Short distance			
	Long distance			
Government agency/ official	Ministry of Investment, Trade & Industry	Department of Trade		
		State Department for Industry		
		State Department for Investment.		
	Office of the Attorney General	State Law Office		
	Ministry of Agriculture			
	Ministry of Energy and Petroleum	State Department for Energy		
	The National treasury	National treasury		
	Ministry of Transport			
		Meteorological dept		
	Ministry of Environment	NEMA		
		Climate change		
		State Department for Climate change		
	County governments	Council of Governors (CoG)		
		Trade committees Reps		
		Regional economic blocs		
CSO in green economy	Umbrella body	KCCWG		
	Specific green economy CSOs/NGOs			
	Human rights CSO	Labour		
Manufacturing & Trade	KAM			
	OWIT (women in business)			

sector associations	KNCC&I		
	KEPSA		
Other relevant population	To be guided by focal point person & ATPC team leader		

CHAPTER 3: OVERVIEW OF COFFEE & TEA PRODUCTION & TRADE

"The world over, a cup of tea and coffee, is the common denominator to bring people together". Hence Kenya strives to be a key player in the global market, particularly for its high-quality tea, which is among the best in the world, and its distinctive coffee, known for its bright acidity and full-bodied flavour". Karibu Chai na Kahawa!

Ms. Susan Ongalo, Kenya Tourism Federation

3.1. Regional Value Chains in the context of AFCFTA

Africa has a long history of initiatives aiming at supporting regional economic cooperation (Mirito, 2021). The initiative to create a single African market, for example, has existed in the pan-African political discourse for decades (APRI, 2023) culminating in the African Continental Free Trade Area (AfCFTA) Agreement, which entered into force in May 2019. AfCFTA is an African Union Member States-driven agreement to create a single liberalized market for goods and services in and within Africa with the aims of promoting and attaining sustainable development, enhancing competitiveness, and promoting industrial development, among other things. As of August 2023, 47 of the 54 signatories (87%) have deposited their instruments of AfCFTA ratification (Tralac, 2023).

The AfCFTA is the world's largest free trade area considering the number of participating countries since the formation of the World Trade Organization (Marta Bengoa, 2021) by population (1.3 billion) and with a combined GDP of US$3 trillion as of 2022 (IMF, 2023). The AfCFTA promises to increase trade between its members by developing and promoting regional value chains (RVCs) which involve a chain of intermediate products and services value addition from multiple contributing countries into a final product (Stuart, 2022).

The AfCFTA presents a significant opportunity for African countries to enhance their participation in global value chains (GVC). Global value chains are characterized by complex inter-firm governance, structuring the productive economy, and driving international trade at the global and regional levels (Jack Daly, 2016).

The AfCFTA Agreement outlines two key objectives related to regional value chains: first, to accelerate industrial development by promoting the development of regional value chains, and second, to promote industrial development through diversification, regional value chain development, agricultural development, and food security (AU, 2018).

3.2. Kenya's Trade Overview

Agriculture is a cornerstone of Kenya's economy, employing 40% of the total workforce (and 70% of the rural workforce) and about 25% of the annual workforce (International Trade Administration , 2022). The country's major agricultural exports are tea, coffee, cut flowers, and vegetables.

Commented [LR2]: What do you mean by annual workforce?

However, it is important to note that Kenya's external trade position has been declining, indicating challenges in overall export competitiveness. For instance, Kenya's volume of trade as a share of GDP declined from 46.7% in 2014 to 30.7% in 2021 (GoK, 2023). Similarly, Kenya's exports of goods and services as a share of GDP decreased from 17.5% in 2014 to 10.6% in 2021. This decline can be attributed to a range of factors, including weak export growth, declining imports, global economic disruptions due to COVID-19, structural shifts within Kenya's economy, policy changes, external shocks, and inherent trade competitiveness challenges (WorldBank, 2021) (UNCTAD, 2021).

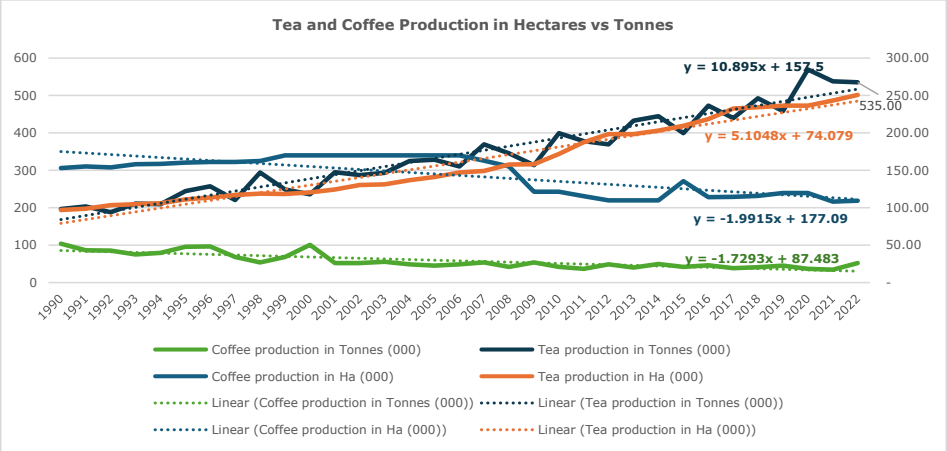
3.3. Overview of Tea and Production

Tea is a major foreign exchange earner for Kenya, contributing 23% to the GDP and providing livelihoods for 650,000 farmers. It directly and indirectly supports 5 million people, with tea-growing areas spanning 19 counties: Nakuru, Narok, Kericho, Bomet, Nyamira, Kisii, Kakamega, Bungoma, Vihiga, Nandi, Elgeyo Marakwet, Trans-Nzoia, Kiambu, Murang'a, Nyeri, Kirinyaga, Embu, Tharaka-Nithi, and Meru (Tea Directorate, 2024).

Tea production is an all-year-round activity, and the most favourable conditions for optimum tea production include a higher altitude of between 1,500 metres and 2,700 metres above sea level, tropical volcanic red soils, and 1200-1400mm well-distributed rainfall.

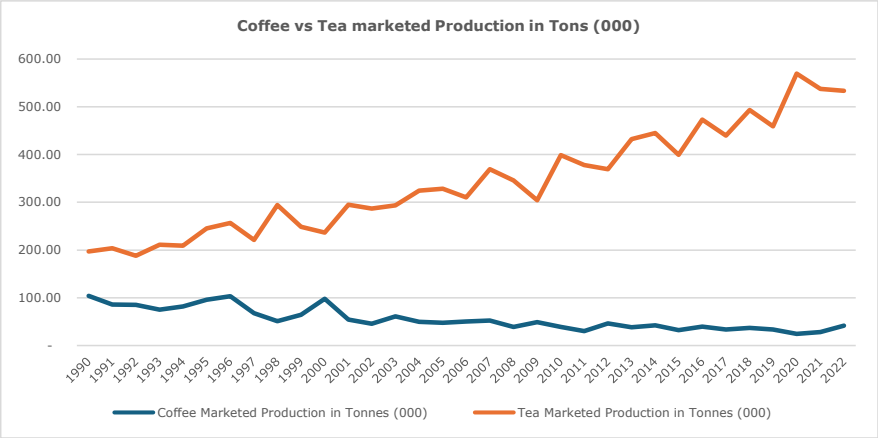
The total area under tea cultivation increased to 250.8 thousand hectares while total production in 2022 declined by 0.5 percent to 535.0 thousand tonnes against 537.8 thousand tonnes recorded in 2021. Production by smallholders decreased by 4.2 percent from 284.8 thousand tonnes in 2021 to 272.8 thousand tonnes in 2022 (GoK, 2023). This is reflective of the fluctuating nature of production over the last 30 years (GoK, 2023). The variability of the agro-climatic conditions has presented ecological stress and constraints that have affected the quantity and quality of tea yield and at the same time, directly and indirectly affecting consumer demand, prices, and consequently farmers livelihoods (Kariuki, Njaramba, & Ombuki, 2022). Findings by Magati Obebo (Obebo, 2019) confirm trends observed in Kenya, where some smallholder farmers have abandoned tea farming in favour of dairy farming, poultry, and horticulture. Others have even threatened to uproot tea bushes due to declining tea prices and reduced bonuses.

Figure 1: ***Tea and Coffee Production in Hectares vs Tonnes- 1990-2022***



In terms of market price, as of September 2023, the auction price of tea in Kenya stabilized at US$2.25 per kilogram (Cowling, 2024). Overall, the price continuously fluctuated but generally increased during the period observed. According to the 2023 Economic Survey Report, tea prices per 100 kilograms stood at KSh, 29,384.79 in 2022 (GoK, 2023). The average auction price for tea sold in 2023 was down at US$2.24 (Sh321.61 at 2023 exchange rates) from US$2.49 (Sh357.51) in 2022, which upset the reserve price of US$2.43 (Sh348.89) set for teas sold by the Kenya Tea Development Agency (KTDA) (Muiruri, 2024). According to the Tea Research Institute, during the year 2023, the total export volume increased by 16% (72.58 million Kgs) from 450.33 million kgs recorded in 2022 to 522.92 million kgs. Due to favourable weather, increased volume of exports coupled with a favourable exchange rate to the USD, and stable prices, the export earnings from tea reached a record of KSh. 180.57 billion from KSh 138.09 billion the previous year.

Figure 2: Marketed Production of Coffee and Tea -1990 to 2022



Source: Economic survey

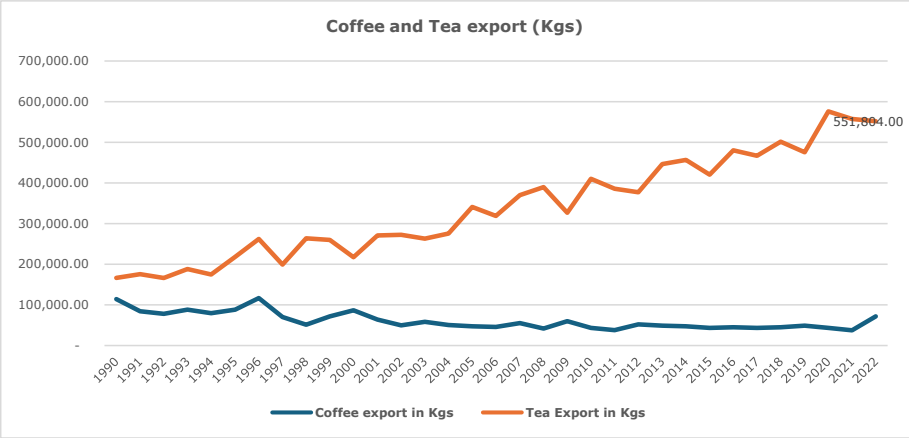
3.4. Overview of Coffee Production

As the 4th leading foreign exchange earner, coffee has been cultivated in Kenya since 1893. Initially grown in the Taita hills, it was later introduced to Kibwezi under irrigation in 1900, and to Kikuyu near Nairobi in 1904 (AFA, 2024). Today, primarily 'mild Arabica' coffee is grown in Kenya's highland plateaus, including the Mt. Kenya region, Aberdares, the Rift Valley, and parts of Nyanza. Coffee is grown on approximately 150,000 acres by over 700,000 farmers, with 60-70% of Kenya's coffee produced by small-scale farmers. This sector supports over 5 million people directly and indirectly through various forward and backward linkages.

The most favourable conditions for optimum production of coffee in Kenya include temperature ranges of 15-30°c, 1000-2000mm of rainfall annually, acidic soil of pH 5.3-6, undulating and gentle slopes topography, an altitude of 630-1830m asl, regular application of manure/fertilizer and easy access to good transportation networks post-harvesting.

The total coffee production by area between 2017/18 and 2022/23 was 115,700Ha, 119,600Ha, 119,700Ha, 108,200Ha and 109,400Ha respectively (GoK, 2023). Kenya's 2023/24 coffee production is forecast to increase 6.7 percent to 800,000 bags as coffee plantations in central and eastern growing regions recover from 2022/23 drought conditions (Snyder & Gitonga, 2024). The total production in tons from 2017/18 to 2022/23 was 41,400, 45,000, 36,900, 34,500, and 51,900 respectively (GoK, 2023).

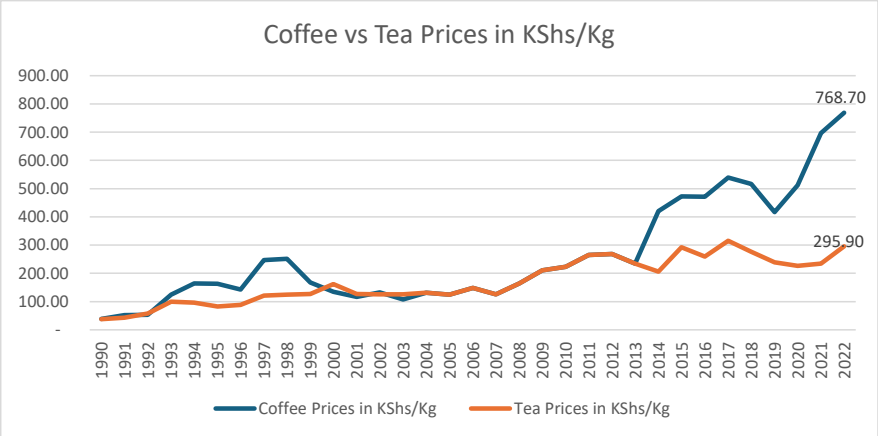
Figure 3: Coffee and Tea exports- 1990 to 20.22.



Source: Economic survey

By May 2023, Kenya exported the largest volume of coffee in 14 years sold at Ksh4.83 billion ($33.84 million) translating to Ksh750,543 ($5,257) per tonne. It is the highest value of the coffee beans since August 2022 when a tonne fetched Ksh764,990 ($5,358) (Nation Africa, 2023).

Figure 4: Coffee and Tea prices- 1990 to 2022.



Source: Economic survey

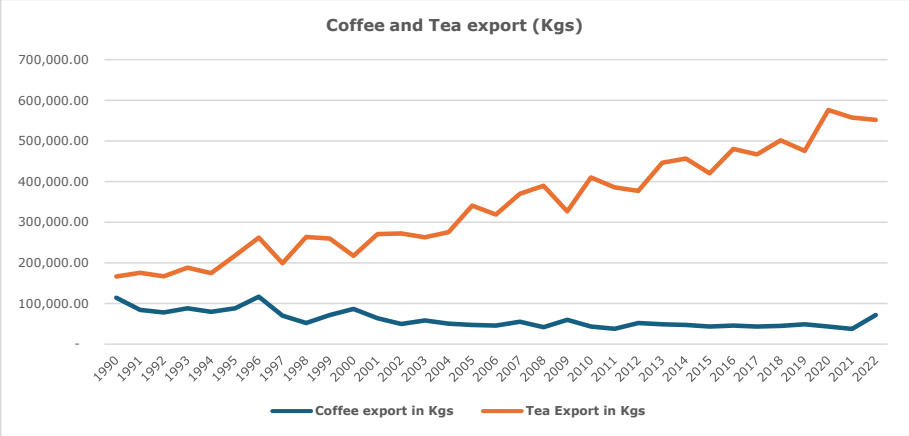
The average coffee price in Kenya shillings per 100kg from 2018 to 2022 was KSh. 40,286.41 in 2018 KSh. 30,227.22 in 2019, KSh. 44,304.00 in 2020, KSh. 65,864.93 in 2021 and KSh. 48,871.38 in 2022 (GoK, 2023). According to the US Department of Agriculture, the 2022/23 prices averaged $194 per 50 kg bag, a 34 percent drop from 2021/22 according to the Nairobi Coffee Exchange (NCE), while the 2022/23 prices have declined, they remain above the 2019/20 and 2018/19 prices which averaged $181 and $176 per bag from October to April, respectively (Snyder & Gitonga, 2024).

3.5. Cost Structure in Coffee and Tea Production

As of September 2023, the auction price of tea in Kenya stabilized at $2.25 per kilogram (Cowling, 2024)). Despite continuous fluctuations, there was a general upward trend in prices over the observed period. According to the Economic Survey Report, the prices per 100 kilograms of tea were KSh 25,896.47 in 2018, KSh 22,681.04 in 2019, KSh 21,414.38 in 2020, KSh 23,444.40 in 2021, and KSh 29,384.79 in 2022 (GoK, 2023). The average auction price for tea in 2023 was $2.24 (Sh321.61) compared to $2.49 (Sh357.51) in 2022, which was below the reserve price of $2.43 (Sh348.89) set by the Kenya Tea Development Agency (KTDA) (Muiruri, 2024). This study established that the average cost of production of ready-made tea per kilogram is currently at KSh. 104 according to KTDA.

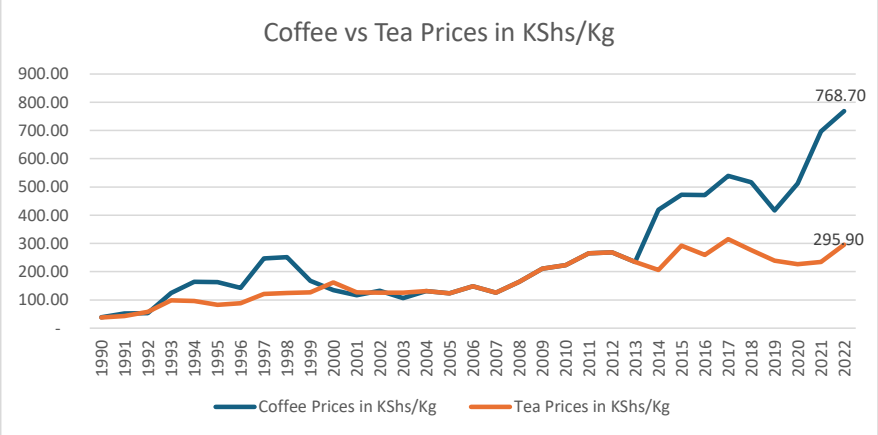
The average national payout rate for cherry during 2022/2023 was KES 71.97 per Kg excluding counties that do not report cherry payment. The average payment for Buni and Parchment was KES 192.3 and KES 354.1 respectively (AFA, 2024). Parchment was reported in three counties: Kakamega Nuru FCS KES 356, Laikipia Ngarua FCS, KES 324, Bomet, Emityot FCS KES 335. Vihiga reported on Buni only with a payout rate of KES 70 for JEBROCK FCS (AFA, 2024).

Figure 5: Coffee and Tea exports- 1990 to 2022.



Source: Economic survey

Figure 6: Coffee and Tea prices- 1990 to 2022



Source: Economic survey

3.6. Key Actors in the Coffee and Tea Trade Value Chain

The key actors in the coffee and tea sectors fall within the following categories:

Table 1: Key actors in the coffee and tea sector

Category	Actors
Farmers/ producers	Large scale/Estates Smallholders
Aggregators (collect to supply to traders)	Small holder Cooperatives
Input suppliers	Agri-chemicals Machinery Energy
Local traders	Large retailers Smallholder Retailers
Exporter/Importers	Export agents Import agent
Manufacturers/ fabricators/ suppliers of machinery or technology	Packagers Package manufacturers Promoters
Transportation/ logistics company	Short distance Long distance
Government Agencies/ officials	Relevant MDAs County governments
CSOs in the climate change	Umbrella body Specific CSOs in climate change space. Human rights CSO
Manufacturing & Trade sector associations	Kenya Association of Manufacturers, Kenya Private Sector Alliance, etc

Each of these actors in the coffee and tea value chain interacts with climate change impacts in different and diverse ways, for instances farmers suffer reduced yields due to erratic rainfall and droughts as well as increased pest and disease incidence (IPCC, 2019): Processors have to contend with Quality degradation of coffee beans due to climatic stress and increased post-harvest losses (Mwita, 2024). Traders must deal with fluctuations in supply affecting market stability and increased transportation costs due to climate-related disruptions (International Coffee organisation, 2018). Exporters must suffer variability in export quality and quantity and Increased certification costs for climate resilience, while consumers face increased prices due to reduced supply and higher production costs (International Trade centre, 2021).

Therefore, understanding the intensity of the impacts to each actor is the basis of crafting specific strategies for climate action towards building resilience.

3.7. Policy Frameworks for Coffee and Tea Production

Kenya has ratified all the international climate change treaties and has established comprehensive policy, legal, and institutional frameworks to address climate change. Vision 2030 aimed to enhance drought resilience and climate change adaptation as a flagship project (GoK, 2008). This initiative led to the creation of the National Climate Change Response Strategy in 2010, integrating climate change adaptation and mitigation across all government operations (GoK, 2010). This strategy was operationalized through the National Climate Change Action Plan (NCCAP) for 2013-2017, succeeded by a subsequent plan for 2018-2022, which further developed mechanisms to comply with the Climate Change Act (2016) and support Kenya's commitments under the Paris Agreement (GoK, 2013; GoK, 2018). Monitoring of these plans included Mitigation and Adaptation Technical Analysis Reports for 2018-2022. Additionally, the National Adaptation Plan 2015-2030 was established to align with the Paris Agreement goals and the Sustainable Development Goals, promoting climate resilience in a low-carbon approach (GoK, 2016). Supporting these efforts, a UNDP project on Reducing Emissions from Deforestation and forest Degradation (REDD+) helped Kenya increase its forest cover, develop a National REDD+ Strategy, and implement supporting instruments such as a Forest Reference Level, a Safeguards Information System, and a National Forest Monitoring System, with a REDD+ Investment Plan developed for strategy implementation (UNDP, 2024). These set the foundation for mainstreaming climate action in all sectors.

At the same time, several policies, legislative, and regulatory provisions have been put in place to guide agricultural production specifically for both tea and coffee in Kenya. The Constitution of Kenya (2010) establishes a comprehensive Bill of Rights, which includes the right to food of adequate quality and quantity at all times for everyone under Article 43, and protections for producers and consumers under Articles 36 and 40. As part of its Vision 2030, agriculture is recognized as a critical sector for achieving the envisaged 10% annual economic growth rate. The overarching agricultural policies are laid out in the Agriculture Act (Chapter 318) and further refined in the Agricultural Policy 2021, which guides the sector's development. The Agricultural Sector Transformation and Growth Strategy (ASTGS) 2019-2029 aims to increase small-scale farmer incomes, agricultural output and value-add, and boost household food resilience. The Agricultural Marketing Strategy 2023-2032 seeks to improve market access and competitiveness for Kenyan agricultural products.

The Agriculture and Food Authority's Strategic Plan 2017-2022 focuses on enhancing its mandate to develop and promote scheduled crops value chains through effective regulation, aiming to boost agricultural growth and productivity, upgrade value chains for job and income creation, and improve market access. This aligns with several Sustainable Development Goals, including No Poverty, Zero Hunger, Gender Equality, Reduced Inequality, and Climate Action.

Various policies and reports support these goals, such as the Coffee Task Force Report 2016 which advocates for a national strategy for coffee, and the National Trade Policy 2017 which targets market expansion. Legislative measures like the Standards Act (Cap 496), the National Industrialization Policy Framework for Kenya 2012-2030, the Competition Act (2010), the Industrial Property Act (2001), and the Anti-Counterfeit Act (2008) aim to standardize practices, promote industrial growth, protect consumer welfare, and secure intellectual property.

Environmental and resource management is also a focus, with the Forest Conservation and Management Act (Chapter 385) and Water Act (2016) regulating the sustainable use of natural resources. The Environmental Management and Coordination Act (1999) and the Public Health Act (1986) provide environmental and public health management frameworks, respectively. Additionally, the Pest Control Products (Registration) Regulations (2022) support innovative and environmentally conscious approaches to pest control.

Industry-specific standards and practices are outlined in documents like the KEBS Tea Industry Code of Practice (KS2128:2022) and Coffee Industry Code of Practice (KS 2366:2021), which provide guidelines for cultivation, processing, and quality control in the tea and coffee industries. The Tea Act (2020) and the Tea Cultivation Manual for Good Agricultural Practices further regulate tea cultivation, ensuring fair prices and sustainable practices, while the Kenya Tea Development Authority (Tea Cultivation) Order controls tea cultivation licensing. However, the absence of the National Tea Policy, sound Tea legislation and Tea Regulations as well as some provisions of the Tea Legislation and Regulations conflict with the Constitution of Kenya. There is also lack of clarity on the role of government (both National and County) and the role of private sector in the industry.

3.8. Sustainability in the Coffee and Tea Sectors

Sustainability in the coffee and tea sector hinges on commercial exchanges that generate social, economic, and environmental benefits in line with sustainable development principles: creating economic value, reducing poverty and inequality, and preserving environmental resources. The national AfCFTA implementation facilitates the integration of trade, environment, and social cohesion. For instance, the strategy is alive to the fact, that there is a low uptake of opportunities within AfCFTA. This could be counterproductive to regional integration and/or trade liberalization benefits. Also, the expansion of trade and economic activity, if not adequately regulated can hurt the environment. At the same time, it notes that women make a significant contribution to trade in their roles as wage workers, producers, and entrepreneurs (both formal and informal women-owned businesses)[4]. However, achieving sustainability requires addressing inherent challenges such as climate change adaptation and mitigation, environmental concerns in 1.2.2, and socio-economic issues like gender disparities and non-tariff measures. Understanding the intersectionality of these challenges is crucial for progress.

3.8.1. Climate change Impacts on Coffee and Tea Production

Tea production is an all-year-round activity. As a perennial plant, the most favourable conditions for optimum tea production include higher altitude of between 1,500 metres and 2,700 metres asl, tropical volcanic red soils, 1140-1400mm well-distributed rainfall, and a range of temperature between 14-30^{o}c). On the other hand, coffee does well in temperatures ranging from 15 to 24 degrees and average rainfall ranging from 900–1200mm (Wilkinson, 2022). Temperatures above that affect photosynthesis and, in some cases, the coffee trees dry up. Coffee also needs at least 3 months of dry weather followed by showers to flower (Wangui, 2012).

Climate change risks pose a threat to agricultural production and by extension to the economy of Kenya and the livelihood of farmers and those employed in these sectors (Karuri, 2021) and coffee and tea production have been affected in Kenya to varying extents.

The key climate change risks for Kenya include extreme weather events, commonly characterized by, extreme precipitation such as droughts and floods (IFPRI, 2023), extreme temperatures, and hailstorms.

Abnormally high temperatures during the daytime and extended dry seasons on one hand and abnormally cold temperatures at night and extended cold seasons on the other hand, cause an increase in occurrences of pest attacks

[4] KENYA'S NATIONAL AfCFTA IMPLEMENTATION STRATEGY 2022 – 2027-pg 73-75

and diseases that were less active in the past. Regular and prolonged droughts, reduce the quality and quantity of tea produced. Heavy rains and landslides, cause soil erosion and reduce farmers' accessibility to local markets and soil quality. Frosts and hail in areas not previously affected, kill bushes, reducing the quality of tea, and the overall unpredictability due to the changing seasons create challenges in farming management by affecting overall planning (Ethical Tea Partnership, 2021). The study finds that frost has a greater negative impact on tea than drought. Whereas tea can recover relatively faster, within one month after a drought occurs, it takes longer up to three months to recover, if at all, after frost occurrence.

The impacts of climate change on the coffee sector include; the loss of suitable areas for coffee production subsequently leading to shifting to higher altitudes; increased water stress; poor flowering and cherry development; more outbreaks of pests and diseases; and greater vulnerability of smallholder and women farmers (International Trade centre, 2021). The report by Kenya Coffee Research Foundation (CRF) indicates that prolonged droughts and unpredictable rainfall are causing sub-optimal flowering of coffee trees and drying of cherries due to high temperatures (AFA, 2024). This study finds that intermittent rains and extended drought periods lead to late maturity of berries that find wet mills closed forcing the farmers to sell it 'mbuni' which fetches low prices.

The effects are particularly pronounced in key tea-producing regions such as Kericho, Nandi, and Nyeri, as well as coffee-growing areas such as Kiambu, Murang'a, and Kirinyaga.

In Kericho and Nandi, tea farmers are facing reduced yields and increased incidences of pests and diseases due to erratic rainfall and rising temperatures. Similarly, in Nyeri, the tea sector is grappling with prolonged droughts and unpredictable weather patterns, which have led to suboptimal growing conditions and decreased productivity. The study finds that farmers who use improved cultivars such as *Batian* and *Ruiru* varieties suffer less from pests and diseases due to their tolerance and resistance nature.

For coffee production, regions like Kiambu and Murang'a are experiencing significant challenges. The shift in suitable growing areas to higher altitudes, due to temperature increases, is causing deforestation and placing additional pressure on these ecosystems. Farmers in Kirinyaga are also dealing with increased water stress and poor flowering and cherry development, which severely affect their output and income. A CRI report shows that productivity was at 2kgs/tree/year in the coffee year 2019/2020 which is a decline from 4kg/tree/year in 1987/88 (GoK, 2024). A study published in the PLOS ONE Journal in 2015 confirms a prediction of a 50% reduction in land area suitable

for Arabica coffee production by 2050, however, it also provides good news for the specialty coffee industry, which relies on the areas around the equator with cooler and seasonally constant temperatures for its highest quality coffees, by projecting that it will be least affected by climate change by 2050 (Bunn, Läderach, Jimenez, Montagnon, & Schilling, 2015). But even those areas are expected to suffer a one-third slump in suitability by then.

The impact extends beyond just farmers to include processors, traders, and exporters. Processors in these regions, such as those in Kiambu, are facing quality degradation of coffee beans and increased post-harvest losses due to climatic stress. Traders in rural areas like Nandi and Murang'a encounter fluctuations in supply that affect market stability and increase transportation costs due to climate-related disruptions. Exporters across these regions are dealing with variability in export quality and quantity and higher certification costs for climate resilience (Ethical Tea Partnership, 2021) (International Trade centre, 2021) (Karuri, 2021).

A 2011 study by the International Center for Tropical Agriculture (CIAT) in 2050, *Future Climate Scenarios for Kenya's Tea Growing Areas* shows that the suitability of tea growing decreases quite seriously in the western parts. The average suitability of these areas decreases between 25 and 40%, whereas today they have a suitability of 60 - 70% (CIAT, 2011). Areas around Mount Kenya remain highly suitable for the climate in 2050. While there is a general shift to higher altitudes, those gaining areas increase suitability by around 15 to 20%. The most significant loss of suitability (up to -40%) can be observed in Nandi district. (CIAT, 2011).

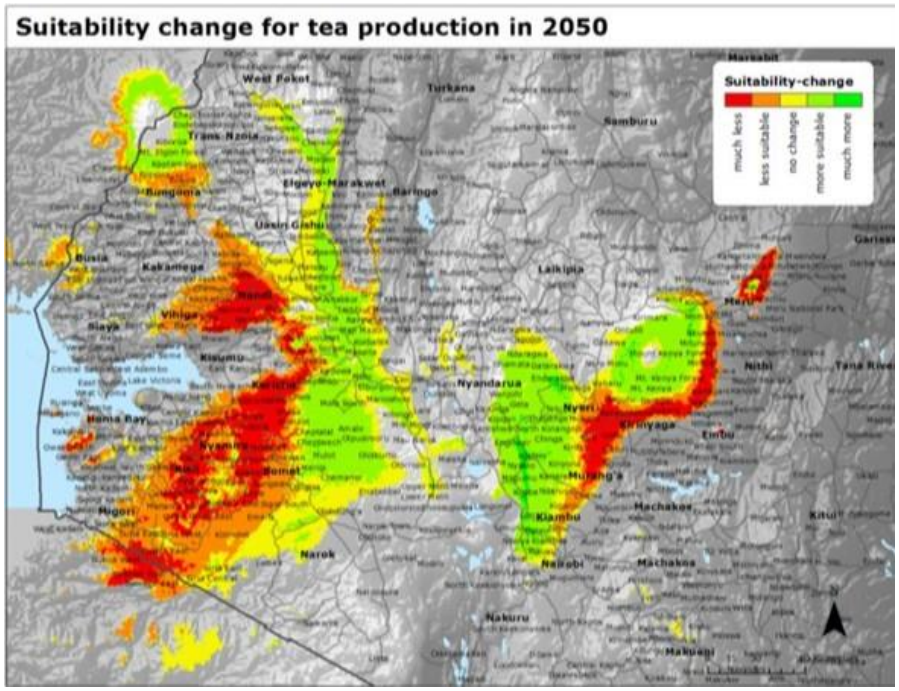


Figure 7: Projected suitability of tea-growing areas by 2050.

Source: (CIAT, 2011)

The optimum tea-producing zone is currently at an altitude between 1500 and 2100 masl and will by 2050 increase to an altitude between 2000 and 2300 masl (CIAT, 2011).

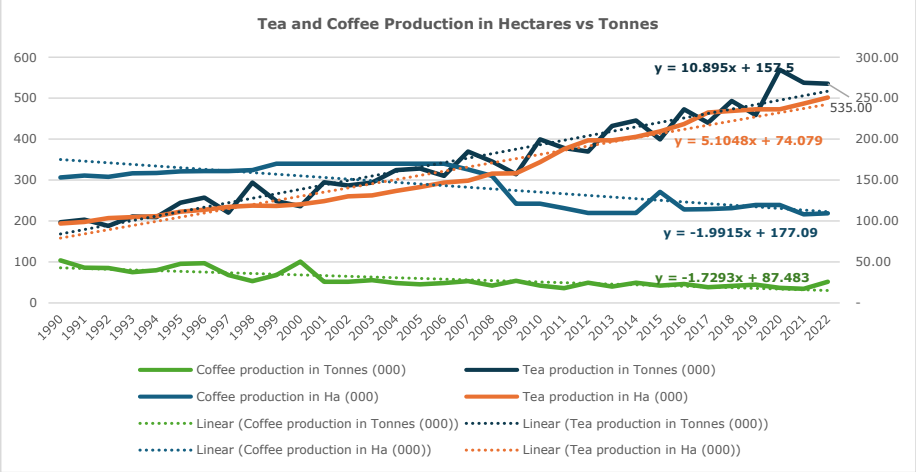
3.8.2. Impacts of Tea and Coffee Production on the Environment

Kenyan coffee production emits approximately 4kg of CO_2 equivalent per kilogram of coffee, with synthetic fertilizer application contributing one-third of this emission (J.J. Maina, 2015). Coffee roasting accounts for 15% of the carbon footprint (Pallardy, 2022). Tea production, from 'cradle to grave,' has a carbon footprint of about 12 kg CO2 equivalent per kilogram of dry tea, with tea preparation by consumers accounting for 75% of the impact, cultivation, and production 20%, and transport 4% (FAO-GoK, 2013). Fertilizer use is a major contributor to tea's emissions, accounting for 73% of emissions before export, followed by energy use in processing (11%) and farming operations (8%) (Ethical Tea Partnership, 2021).

Deforestation is a significant issue in both coffee and tea production. Coffee cultivation leads to deforestation, with every cup of coffee consumed destroying about one square inch of rainforest, totalling an estimated 52,084 hectares annually due to global consumption (The World Count, 2024). Similarly, tea production contributes to deforestation due to heavy reliance on fuelwood for energy in processing, particularly during the withering and drying stages (Ethical Tea Partnership, 2023). Tea production was estimated to have caused the conversion of over 7,000 ha between 2005 and 2018, and is also linked to deforestation due to the need for firewood and charcoal to fuel the manufacturing process, on the other hand, coffee was linked to 50 ha/year of deforestation from 2015-2018 (Fenton, 2023).

Urgent measures are needed to mitigate the environmental impact of coffee and tea production. Reducing synthetic fertilizer use and improving its application efficiency can lower carbon emissions significantly (FAO, 2013). Transitioning to renewable energy sources for processing can reduce reliance on fuelwood, thereby reducing deforestation (Ecorand, 2023). Sustainable farming practices must be promoted to preserve forests and biodiversity (Maigua, 2022). Consumers should also be encouraged to adopt eco-friendly preparation methods to lessen the carbon footprint associated with tea consumption (UNEP, 2012). Collaborative efforts from governments, industry stakeholders, and consumers are essential to achieve sustainable coffee and tea production and mitigate their environmental impacts (Potts, 2004).

Figure 8: Coffee and Tea production Hectares vs Tonnes- 1990 to 2022

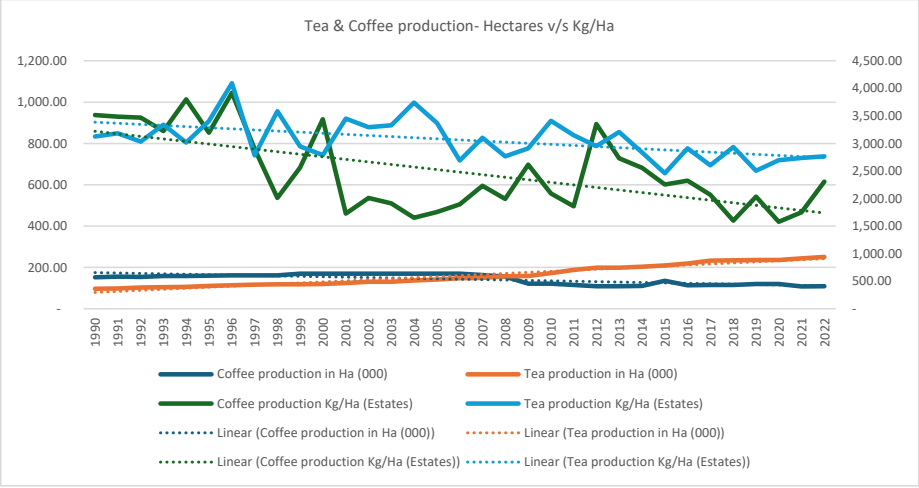


Source: Economic survey

Both the Economic Survey (GoK, 2023) and International Tea Committee data show that while the land under tea farming has increased in size, mainly through deforestation, there has not been a corresponding increase in production in the last 30 years. At the same time, as temperatures continue to rise due to climate change, some areas that used to be suitable for coffee production are tending to become less suitable causing coffee farming to move slowly from medium to higher altitudes in search of more suitable production areas creating further deforestation (KCP, 2023). However, there has been a continuous decrease in land under cultivation with a similar corresponding reduction in production per hectare over the same period (GoK, 2023).

The graph below depicts this scenario:

Figure 9: Coffee and Tea production in hectares vs Kg/ha



Source: Economic survey.

Water consumption in the coffee processing value chain is extremely high, with up to 140 litres needed to make one cup of coffee (Project Waterfall, 2016). Coffee wet processing is water-intensive, straining the country's water resources (GoK, 2024). While the coffee development strategy 2022-2027 aims to increase the coffee acreage under irrigation by 10,000 hectares, there is a lack of data on current water usage for coffee irrigation.

Chemicals and waste present significant challenges in coffee and tea production. The use of pesticides, fertilizers, and herbicides harms the environment and poses health risks to farmers. Between 2015 and 2018, the

importation of chemical pesticides in Kenya increased by 144%, with many pesticides classified as harmful (Public Petition, 2019). In 2020, farmers in Kenya used 310 pesticide products containing 151 active ingredients, spending $72.7 million on these products (Bollmohr, 2022). Coffee production utilizes high volumes of hazardous chemicals, with chlorpyrifos identified as particularly problematic. Japan and South Korea banned Kenyan coffee imports due to high chlorpyrifos levels (Food Safety Africa, 2022). Glyphosate, a commonly used herbicide in tea growing, is classified as probably carcinogenic by the WHO, leading to recommendations for its removal (Kelland, 2017; Bollmohr, 2022).

Tea and coffee production and consumption also generate significant waste, including packaging and processing by-products, contributing to plastic pollution and environmental contamination (Office, 2023; GoK, 2024). Mismanaged coffee processing wastes, such as husks and pulp, can cause serious environmental problems due to their chemical composition. However, this waste can be effectively repurposed for various uses. For instance, tea waste can be converted into biomass fuel, biochar, and bio-oil through processes like fluidized bed pyrolysis, while Coffee waste can also be used in bioenergy production, further supporting a circular economy approach where waste products are transformed into valuable resources (Seth, Dibyakanta, et al., 2023).

3.9. Non-Tariff Measures

The African Continental Free Trade Area (AfCFTA) aims to eliminate tariffs and reduce Non-tariff Barriers (NTBs) to achieve trade liberalization (Daniel, 2021). The Protocol for trade in goods aims to boost Intra-African trade through the progressive elimination of non-tariff barriers, enhanced efficiency of customs procedures, trade facilitation and transit, enhanced cooperation in the areas of technical barriers to trade and sanitary and phytosanitary measures, development and promotion of regional and continental value chains, and enhanced socio-economic development, diversification, and industrialization across Africa (Marie, 2022).

Non-tariff measures (NTMs) in the coffee and tea trade, arising from policies and regulations, indirectly increase trade costs. Non-tariff barriers (NTBs) can be both obstructive and protective (Marie, 2022). The EATTA reports that the sector is levied a cumulative 42 taxes and levies across the value chain that has resulted to increased production cost, reduced profitability and business unsustainability. The World Bank reports that goods traded between African states accrue 292% ad valorem equivalent (AVE) in Non-Tariff Trading Costs (NTTCs), with agricultural products having higher NTTCs than manufacturing

products (Fundira, 2023). Ignorance of sanitary and phytosanitary (SPS) measures leads to contamination and market rejection, causing significant losses, as seen with Kenyan coffee's ochratoxin contamination leading to a three-year embargo by Japan and South Korea (Deca, 2020; Wisevoter, 2024). The ongoing coffee sector reforms restrict activities to single licenses and allow farmers to withdraw their coffee from the market when prices are unfavourable, but the extensive administrative procedures create inefficiencies (Ekuwam & Silayo, 2024; Nderitu, 2021). Previously entitles held multiple roles and the reforms seek to eliminate this consolidation in the value chain, requiring different entities to specialize in specific roles (Gakuo, 2023).

Government agencies like KEPHIS, KRA, and KEBS regulate trade, imposing technical measures that add fixed entry costs (Kamal & Zaki, 2018) (ITA, 2022). According to EATTA Multiple taxation and certificates (KEPHIS, Port Health, Radiation Certificates, Certificate of Conformity, Certificate of Origin) and High levies on imported packaging materials. (Current taxes 35% import duty, 25% excise duty, 3.5% IDF, 2% Railway levy, Intercounty levies and 16% VAT) thereby hampering the growth of value addition and export due to competitiveness in terms of product pricing. In addition, VAT imposition on locally consumed teas makes value-added tea expensive and therefore accessible only to a small market segment.

While standards improve product quality and market prices, as shown in small-scale coffee farmers' certification impacts (Ríos, 2017), regulatory barriers[5], have caused some foreign companies to exit, like NKG Coffee Mills Kenya (Mburu, 2024). Licenses and permits increase consumer costs (Okute, 2017), and rules of origin within COMESA and certificates of origin regulations further complicate the trade process (Ecolex, 1979).

3.10. The Participation of Women and Youth in the Coffee and Tea Trade Sectors

Women play a crucial role in the global coffee sector, operating between 20% and 30% of coffee farms and providing up to 70% of labour, depending on the region (International Coffee Organization, 2018). In Kenya, however, the formal trade sector does not offer equal opportunities for men and women. Women predominantly work in the informal sector, accounting for 70 to 80 percent of individuals in petty and informal trading (GoK, 2017). Despite women and youth providing most of the labour on coffee farms, the sector is traditionally male dominated. This exclusion of women also extends to training

[5] Capital Markets (Coffee Exchange) regulations 2020

in that most of the trainings are attended by men while women tender the coffee bushes (KCP, 2018). Historically, land rights and ownership have been concentrated with men, leading to male-dominated decision-making in households (Mbataru, 2007); (KCP, 2018)). Without women's full participation in the formal trade sector, effective trade and investment programs for economic and social development are impractical (GoK, 2017).

The general objective clause (e) of Article 3 of the AfCFTA Agreement is to promote and attain sustainable and inclusive socio-economic development, gender equality, and structural transformation of the State Parties (AU, 2018).

Building resilience in agriculture involves not only adapting farming practices and using new technologies but also addressing broader economic and gender issues, such as empowering women in decision-making and diversifying crops and livelihoods (Ethical Tea Partnership, 2021). Fairtrade Africa has been essential to the success of Women in Coffee and has pushed for greater equality in the cooperatives they work with in Kenya (Rivera, 2019). 'An initiative that saw wives and daughters gifted a minimum number of 50 bushes by their husbands/fathers who owned between 300-400 bushes has turned out to be a phenomenal success including an improved quality of coffee, out of which a premium brand 'Zawadi Coffee was born'' according to Bernard Njoroge of Fairtrade Africa.

Evidence of practice shows that since the establishment of the Gender Empowerment Platform (GEP) in 2017 to tackle gender discrimination and violence in the tea sector, there has been a 28.5% reduction in Gender-Based Violence (GBV) as well as increased women's empowerment, with 85% of tea companies in Kenya leading in gender equality and GBV agenda-setting.

The Youth form a crucial segment in the value chain and sustainable coffee-business and farming can be a lifeline for young women and men throughout Kenya, Uganda, and Tanzania (Soliadaridad, 2023). The participation of youth has traditionally been limited to the supply of unpaid labour or low wages often limiting effective participation in decision-making on coffee production and contributing to a decline in coffee production (Solidaridad, 2021). This study shows that young men and women's participation at the primary farming level, their involvement in seasonal labour, and tertiary activities such as product development and packaging as well as digital marketing, sales, and merchandising cannot be underestimated. The study notes that the coffee industry is extremely rigid in terms of regulations for entry and innovation. Therefore, to jump-start economic growth and increase coffee production, organizations such as, Solidaridad Network is working in Kenya, Tanzania & Uganda to help women and young farmers succeed in business and on the farm (Soliadaridad, 2023).

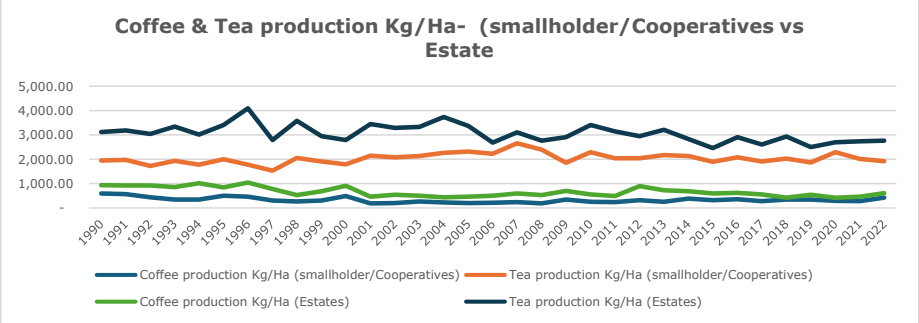
KIHBS 2015/16 indicates that the age cohort 29-34 years accounted for only 2.24 percent of the total tea farmers whereas those aged 35 years and above accounted for 76.65 percent (KIPPRA, 2020). This means that most of the youth are not engaged in tea-growing activities. The Kenya Youth Agribusiness Strategy (2017-2021) notes that there is high employment potential for the youth in agro-processing and value addition as it is expected that the youth will be attracted to the processing level of the tea value chain (GoK, 2018).

CHAPTER 4: CLIMATE CHANGE ACTION IN THE TEA AND COFFEE SECTOR

4.1. Overview

In the coffee sector, climate change mitigation often refers to measures to reduce greenhouse gases to help protect the climate and generate carbon credits, targeting all value chain actors, from producer to consumer. Climate change adaptation typically consists of technical solutions to adapt coffee production and processing to climate changes (International Trade centre, 2021). The recently launched coffee development and marketing strategy (GoK, 2024) observes that the increasing impacts of climate change and environmental degradation pose enormous risks to the coffee subsector, which is a key strategic issue with a consequent strategic objective of increasing the resilience and adaptability of the subsector.

Another study shows that, as of 2021, small-scale farmers controlled 70% of the clean coffee produced in Kenya (Soridaridad, 2022). However, their profitability and adaptive capacity are negatively impacted by their lack of access to knowledge and skills on good agricultural practices and access to, for instance, technology, improved variety seedlings, agro-inputs, and finance. This makes it extremely difficult to mitigate or adapt to climate change, invest in good practices, access markets, and attract competitive prices.



The Nairobi declaration (African Union, 2023) identifies and commits to three key climate change actions: 1) the expansion of just energy transitions and renewable energy generation for industrial activity, 2) climate-smart and restorative agricultural practices, and essential protection and enhancement of nature and biodiversity, 3) providing the political foundation tackling climate change effects in both coffee and tea production.

The National Climate Change Response Strategy (NCCRS) has provided a broad framework for climate change adaptation and mitigation, while the

Agricultural Sector Transformation and Growth Strategy (ASTGS) takes an evidence-based approach, with a sharp focus on implementation and delivery with the counties at the centre (GoK, 2019). Long-term and sector strategies are needed to improve conditions to adapt to future climate risks and build capacities as required, including the development of financing mechanisms (International Trade centre, 2021) that emphasizes the inherent intersectionality of climate change issues.

On 18 November 2022, a national tea sector stakeholder workshop held through a partnership between Ethical Tea Partnership (ETP), Trust Africa, Solidaridad Eastand Central Africa, and East African Tea Trade Association (EATTA), attempted to identify national tea policy gaps on gender equality and the environment and came up with the following recommendations to improve the policy (ETP, 2022) amongst others.

- Supporting the reduction of greenhouse gas emissions by incentivizing the adoption of mitigation techniques from farm to factory gate, including installing modern fans for withering and drying and using alternative biomass fuel (briquettes) in tea processing.
- Setting out plans for a life cycle assessment of Kenyan tea to determine greenhouse gas emissions hotspots. This can help inform investments in tea production and contribute to product development by enabling progress towards a net zero tea value chain.
- Entrenching climate change mitigation activities in the policy's implementation framework, such as sustainable mechanization to reduce emissions, sustainable energy management and correct fertiliser use.

4.2. Regenerative Agriculture

Issues related to food and agriculture are comprehensively integrated among the SDGs (FAO, 2024) with Sustainable Agriculture being mentioned in 10 out of the 17 goals and thus taking a central role at the intersection of economic, social, and environmental concerns (Sustainable Agriculture Network, 2024).

Regenerative Agriculture has been identified as one of the actions in SDG 2 goal of Zero hunger (Sustainable Agriculture Network, 2024), which extends beyond sustaining soil and natural resources, to actively restoring and reviving agricultural land. Regenerative agriculture focuses on topsoil regeneration, increasing biodiversity, improving the water cycle, supporting carbon sequestration, increasing resilience to climate change, and strengthening soil health (Ndambiri, Jebet, Rahn, & Waswa, 2024). In coffee, Regenerative Agriculture represents a holistic land management approach

that closes the nutrient cycle, promotes system diversity, and builds better soil health (CGIAR, 2023). This benefits the entire coffee farming system, including the soil, coffee and associated plants, people who cultivate it, and the surroundings. Common practices include using suitable shade trees, mulching material, and adjusting spraying programs to cope with changing trends in the manifestation of coffee pests and diseases (ICC & AFA, 2019).

4.3. Sustainable Consumption and Production Practices (SCPs)

Mainstreaming Sustainable Consumption and Production Practices (SCPs) in the coffee value chain is an emerging inclusive solution that tackles all social, economic, and environmental issues (Kwamboka, Takama, Ogeya, Nyambane, & Diaz-Chavez, 2022). This is in line with SDG 12, which is to "ensure sustainable consumption and production patterns" (UNEP, 2024).

The Stockholm Environment Institute has adopted the 21 SCP indicators[6] for sustainable production within the categories of energy and material use, natural environment, economic performance, community development, and social justice and workers according to their scalability at tackling both short- and long-term problems in the coffee value chain from farm level, processing/factory level, milling level, marketing (both international & local markets), consumption and potential cross-cutting practices (Kwamboka, Takama, Ogeya, Nyambane, & Diaz-Chavez, 2022).

The study finds that there is a low consumption of tea and coffee among Kenyans. This can be attributed to several factors which include, a declining appetite for tea amongst the increasingly youthful population and increasing competition from other beverages. However, according to KTDA and the Tea Research Institute, with increasing awareness of healthy living, there is an opportunity to increase its local consumption by marketing and promoting it as a healthy drink, as it is abundant with antioxidants. Black tea provides several health benefits as it contains powerful groups of polyphenols including epigallocatechin gallate, theaflavins, thearubigins, an amino acid L-theanine, and several other catechins or flavonoids which protect against the onset of several chronic disorders (Rasheed, 2019).

[6] See the tabular representation of 17 SCPs in the Appendices.

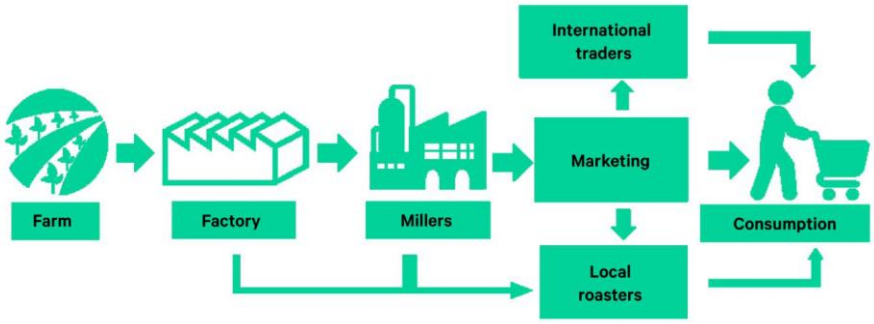


Figure 10: Coffee Value Chain (Kwamboka, Takama, Ogeya, Nyambane, & Diaz-Chavez, 2022)

4.4. Recommended & Best Environment Practices

Recommended and best environmental practices are critical for ensuring sustainable development, preserving biodiversity, and mitigating the adverse impacts of industrial activities on the natural environment. Environmental best practices refer to the most effective and advanced actions and strategies that are recognized by regulatory bodies and industry leaders alike as optimal methods for minimizing environmental footprints (EPA, 2022). The adoption of these practices is not merely about compliance with legal standards but is increasingly seen as a pivotal component of corporate responsibility and ethical governance (UNEP, 2021).

Environmental best practices encompass many strategies, including efficient use of resources, pollution prevention, waste minimization, eco-friendly design, and adopting renewable energy sources. Moreover, these practices involve continuous improvement processes that include setting measurable targets, monitoring progress, and adjusting strategies to improve environmental performance (ISO, 1400:2015). In sectors such as agriculture, best practices might involve the implementation of precision farming techniques that optimize input use and reduce environmental impacts (FAO, 2019). A study on integrating sustainable consumption and production practices has identified some recommended practices listed below.

Some of the recommended practices in tea and coffee production

- *Integrated coffee and livestock farming,*
- *Composting,*
- *Shade trees,*
- *Single-stem farming,*
- *Block and labelling,*
- *Pest management,*
- *Precision farming,*
- *Eco-pulping,*
- *Natural processed specialty coffee,*
- *Solid waste management,*
- *Coffee labelling and recording,*
- *Solar photovoltaic, Wind pumps, Biomass (briquettes, pellets, and husks), Biogas,*
- *Coffee Roasting and Packaging and*
- *Certification among others*

(Kwamboka, Takama, Ogeya, Nyambane, & Diaz-Chavez, 2022).

Another key recommendation is based on a tea stakeholders meeting hosted by the International Institute For Sustainable Development (IISD) in 2019 that, National and County governments need to work with producers, marketers, and other value chain actors to ensure product traceability across

the value chain and establish sustainable markets for Kenyan tea (IISD, 2019).

A good example, where private companies have made progress in this area is, Finlays Tea Extract, a local tea processing company, which has established sourcing initiatives.

Finlays Tea Extract (K) limited sourcing initiatives

- *Increased focus on living wage and in-work poverty - identifying the gap between current wages and living wage benchmarks with continuous improvements to close the gap.*
- *Greater transparency allowing extra scrutiny into their practices.*
- *Increasing engagement and collaboration with suppliers to achieve their carbon reduction targets.*
- *Greater focus on sustainable sourcing as value addition and aiming for higher targets in sustainability beyond traceability, transparency, and assurance.*

(Finlays, 2023)

Figure 11: Finlays sourcing initiatives.

Best environmental practices (BEPs) in tea production include adopting forestry and wood-fuel sustainability practices, preserving Indigenous forests, and collaborating on large-scale solar power installations (Irungu, 2024). KTDA-managed factories are now working towards establishing wood fuel plantations that will provide a sustainable source of firewood for boilers (KTDA, 2024) and the Agency is also exploring solar energy viability in running factory operations.

Promoting the use of natural fertilizers is an important way to mitigate the environmental impact of tea (Ethical Tea Partnership, 2021)**.** Non-chemical-based fertilizers have been found to improve yields by up to 25 percent and offer up to 50 percent reduction in chemical fertilizer application while conditioning the soil, improving soil structure and texture (KNA, 2024). It is also non-toxic in addition to being eco-friendly, non-hazardous, and controls pathogenic organisms.

4.5. Carbon Sequestration Potential of Coffee and Tea

In a letter dated 24th December 2020, the Kenya Government committed to the update Nationally Determining Contributions (NDC) of among others, abating GHG emission by 32% by 2030 relative to business as usual (BAU) scenario of 143MtCO_2eq. in line with the national sustainable development agenda and national circumstances (GoK, 2020). This satisfies the target for scenario 2 of the adoption of climate policies for African countries. Several initiatives have kicked off, amongst them tree planting in an endeavour to achieve a 30% tree cover by 2032 (KIPPRA, 2023).

Trees (and other plants) sequester carbon by removing it from the atmosphere through photosynthesis and incorporating it into their tissues. Despite the difficulty in measuring carbon storage due to multiple variables, recent research has brought out some encouraging results in Latin America, Sumatra, El Salvador, and Costa Rica on the potential of shade coffee trees in carbon sequestration (Craves, 2008).

Tea plants can store 50.8 to 10.5% of the atmospheric CO_2 that has been ingested in their biomass (Chettri & Ghosh, 2023). Estimates show tea plants can exude up to 44–48 kg of organic carbon (cha[7]) per plant into the soil. As a result, tea plantations function as an efficient biological system to convert atmospheric CO2 to plant biomass and soil.

Further exploration of this can provide an opportunity to justify this offsetting potential with a possibility of net zero against the current emissions and set a basis for carbon credit schemes. For instance, integrating trees with crops and livestock can enhance carbon sequestration and reduce overall emissions from agricultural activities (FAO, 2013). A 2013 study shows that shaded coffee systems in Ethiopia could store up to 100 tons of carbon per hectare in biomass and soil, depending on the density and diversity of shade trees used (De Beenhouwer & Honnay, 2013). Utilizing organic fertilizers and precision farming techniques can reduce the reliance on synthetic fertilizers, which are major sources of nitrous oxide emissions, a potent greenhouse gas (Smith , et al., 2014). Renewable energy adoption in agriculture can reduce dependence on fossil fuels and lower carbon emissions (IRENA, 2016), Implementing energy-efficient technologies and practices in processing facilities can further reduce energy consumption and emissions (UNEP, 2012). Incorporating composting as a farming practice can reduce methane emissions and enhance carbon sequestration in soils (EPA, 2015). Recycling and reusing agricultural by-products can contribute to a circular economy, reducing waste and emissions (UNEP, 2011) Establishing carbon credit schemes can provide financial incentives for farmers and companies to adopt sustainable practices (WorldBank, 2020) and Implementing robust monitoring, reporting, and verification (MRV) systems is essential for ensuring the integrity and transparency of carbon credit schemes (Gold Standard, 2019).

4.6. Climate-Resilience Research and Innovation

Investment in research and innovation is crucial in enhancing climate resilience in the coffee and tea sector. This study confirms that farmers who

[7] *carbon heterotrophic activity*

use improved coffee and tea cultivars suffer fewer losses due to climatological variations, pests, and diseases, as these cultivars are more tolerant and resistant than traditional varieties. Continuous research to create new and diversified varieties is then recommended.

Further research and innovation into greener and smarter machinery for tea and coffee production, processing, and value-addition segments.

Another area is research in greener energy and water management technologies, these include technologies that enhance energy and water efficiency among other conservation objectives.

The above therefore calls for consistent investment through sufficient funding. This requires collaborative efforts amongst the various stakeholders across the value chains and greater support from global partners.

4.7. Intersectionality of Climate Change Impacts on Actors in the Coffee and Tea Sectors

The intersectionality of climate change impacts in the coffee and tea sectors in Kenya illustrates how varying socio-economic and demographic factors exacerbate vulnerabilities. Smallholder farmers, particularly women, are disproportionately affected due to limited access to resources, information, and decision-making power (Acemoglu & Robinson, 2012). Climatic stressors such as increased temperature and erratic rainfall patterns lead to reduced yields and heightened pest and disease prevalence (IPCC, 2019). The economic resilience of these farmers is further strained by their dependence on cash crops, which are sensitive to climate variability (FAO, 2017). Adaptation strategies, including the introduction of climate-resilient crop varieties and sustainable agricultural practices, are critical but must be tailored to address the specific vulnerabilities of different groups within the community (WorldBank, 2019). This approach not only enhances the resilience of the coffee and tea sectors but also supports sustainable livelihoods across the value chain.

Given the above, a summary analysis of the intersectionality of climate change impacts and the actors in the coffee and tea value chain can be represented as below.

Table 2: Intersectionality of climate change impacts on actors in the coffee and tea sectors

Value chain Actor	**Climate Change Impact**	**Intersectional Factors**

Farmers	- Reduced yields due to erratic rainfall and droughts. - Increased pest and disease incidence.	- **Gender**: Women farmers may have less access to resources and extension services. - **Socioeconomic Status**: Smallholder farmers with limited financial resources are more vulnerable.
Processors	- Quality degradation of coffee beans due to climatic stress. – Increased post -harvest losses.	- **Technological Access**: Smaller processors may lack advanced technology for adaptation. - **Economic Capital**: Larger firms can invest more in adaptive technologies.
Traders	- Fluctuations in supply affecting market stability. - Increased transportation costs due to climate-related disruptions.	- **Market Access**: Smaller traders may struggle more with supply chain disruptions. **Location**: Rural traders may face more significant infrastructure challenges.
Exporters	- Variability in export quality and quantity. - Increased certification costs for climate resilience.	- **Export Market Access**: Smaller exporters may face higher barriers to enter premium markets. - **Regulatory Environment**: Navigating international climate-related regulations.
Consumers	- Increased prices due to reduced supply and higher production costs. - Variable quality of coffee products.	- **Income Levels**: Low-income consumers are more affected by price increases. - **Consumer Awareness**: Higher awareness may drive demand for sustainably produced coffee.

Source: Author

4.8. National AfCFTA Strategies for Environmental Sustainability and Climate Change

The National AfCFTA strategy does not explicitly dissect climate adaptation from the coffee and tea trade point of view, however, promoting sustainable development through mutually supportive trade and environment initiatives is one of the strategic objectives. Activities aligned with this objective include developing green industries, promoting renewable energy, and implementing climate-resilient agricultural practices.

The strategy recommends that based on a collective continental approach, AfCFTA provides trade incentives to encourage the production and availability of clean technologies and climate-resistant infrastructure, among others.

It also recommends supporting green industrialization and Kenya's transition to a green economy by providing trade incentives to encourage the production and availability of clean technologies and climate-resistant infrastructure, among others.

In addition, the strategy recommends partnerships with CSOs in the climate change space to conduct massive awareness on the impacts of climate change and environmental degradation.

Given the above, an intersectionality-oriented approach to addressing climate change action in the coffee and tea sector becomes even more relevant and timely through this Green Supplement.

CHAPTER 5: SUMMARY AND DISCUSSION OF SITUATIONAL ANALYSIS

The review of the literature, Key Informant Interviews, and Stakeholder consultations reveals the need to focus on integrating environmental sustainability and climate change action into Kenya's trade policies, particularly in the coffee and tea sectors. The available data highlights significant impacts of climate change on the coffee and tea sectors, including reduced yields, increased pest and disease incidences, and quality degradation due to climatic stress. Additionally, the environmental footprint of coffee and tea production is considerable, with high carbon emissions, deforestation, and substantial water consumption raising major concerns.

To mitigate these impacts, there is a need to emphasize the adoption of sustainable practices such as regenerative agriculture and sustainable consumption and production practices (SCPs). For instance, regenerative agriculture is a recommended measure that aims to enhance soil health, increase biodiversity, and improve water cycles while supporting carbon sequestration. SCPs focus on optimizing energy and material use, enhancing economic performance, and promoting social justice across the coffee value chain, addressing both short-term and long-term sustainability challenges.

Policy and regulatory frameworks are crucial for promoting sustainable agricultural practices. Aligning national policies such as the Climate Change Act and the Agricultural Policies, with international green standards, provides the foundation for a sustainable transition. Policies in place do not seem to support green energy acquisition, production, and consumption therefore hindering the transition to mass green energy transition in the coffee and tea value chains. Favourable alignment of taxation and incentives policies is therefore paramount to support this objective.

Implementing gender-inclusive policies is also essential, given the significant role women play in the coffee and tea sectors. Enhancing their participation through targeted support programs is vital for achieving inclusive and sustainable growth. Existing piloted initiatives by Farmers Co-operative societies at Kabng’etuny in Fort Tenan, Kericho County and Kapkeai in Nandi County, have registered tremendous success, and therefore replicating and upscaling them is vital for the sustainability of the sector.

Economic and social factors emerged as crucial, particularly the barriers faced by women in the coffee and tea sectors. Addressing these barriers and enhancing women's participation is crucial for inclusive development. For instance, policies that mitigate against unethical practices such as sexual harassment, discrimination in remuneration, unequal capacity-building

opportunities, and general human rights violations among others are key in enhancing women's participation in the sector. The "Protect, Respect, and Remedy" framework is a fundamental concept in the field of business and human rights and becomes a fall to guiding principles for the sector.[8]

The importation of value-adding machinery and smart-technologies is still subject to numerous taxes, making it costly for young entrepreneurs to enter the coffee and tea value addition sector, despite the substantial opportunities available in this segment of the value chain.

The literature also highlights the challenges posed by non-tariff measures (NTMs), which increase trade costs and complicate market access. For instance, current regulations in the coffee and tea sector, create situations that widen the space between the producer and the market consequently consolidating the position of brokers in the value chain. Again, the disintegration of large co-operatives has created smaller unviable units that replicate the operational structures leading to increased operational costs, further reducing the returns to the producers.

The introduction of the protectionism reserve price in tea has led to hoarding, as producers hold off on selling until the desired target price has been achieved. This practice, combined with ongoing production results in oversupply and consequently lower prices. Hoarding extends shipping times from 5 to 60 days, increases storage costs, and diminishes leaf quality, leading to a loss of buyers and negatively impacting competitiveness. Additionally, the increased warehousing charges cannot be passed on to buyers, further reducing producers' earnings. To enhance competitiveness and market access for Kenya's coffee and tea products, harmonizing these measures and improving transparency is crucial. Implementing a Warehousing Receipts System (WRS) is recommended as a means of mitigating financial risks.

From the above, it becomes apparent that to achieve sustainable and climate-resilient coffee and tea sectors it would require integrating climate action into trade policies, promoting sustainable agricultural practices, fostering stakeholder collaboration, creating economic incentives for sustainability, advancing research and development, increasing awareness and education, and ensuring inclusive participation among others.

[8] The UN Framework and Guiding Principles on Business and Human Rights

5.1. Analysis of Strengths, Weaknesses, Opportunities and Threats

STRENGTHS	WEAKNESSES
- Tea contributes 23% to Kenya's GDP, and coffee is the fourth leading foreign exchange earner. - High-quality tea and coffee production with global recognition for Kenyan varieties. - Established policy frameworks such as Vision 2030, Climate Change Response Strategy, and sector-specific codes of practice.	- Significant impact of climate change: reduced yields, increased pest/disease incidences, and quality degradation. - Low productivity levels among small-scale farmers due to lack of access to resources and training. - High non-tariff trade costs and regulatory complexities hinder market competitiveness.
OPPORTUNITIES	**THREATS**
- Adopt regenerative agriculture and sustainable consumption and production practices (SCPs) to enhance environmental resilience. - Potential for increased carbon sequestration through shaded tea and coffee plantations, contributing to Kenya's climate commitments. - Growth in intra-African trade through AfCFTA, opening new markets for sustainable tea and coffee.	- Increasing extreme weather events (droughts, floods, erratic rainfall) affecting production cycles. - Dependence on small-scale farmers, many of whom lack the resources to invest in climate resilience strategies. - Growing competition from other beverage sectors and declining local consumption, particularly among younger populations.

5.2. PESTEL Analysis for the Tea and Coffee Sector (Kenya)

FACTOR	ANALYSIS
POLITICAL	- Strong governmental support through national strategies like Vision 2030, National Climate Change Response Strategy (NCCRS), and Agricultural Policies. - Regulatory frameworks like the KEBS Tea and Coffee Industry Codes guide quality standards. - AfCFTA provides opportunities for regional market access and trade policy alignment.

ECONOMIC	- Tea accounts for 23% of Kenya's GDP, while coffee is a significant foreign exchange earner. - Declining export competitiveness and challenges in trade costs due to non-tariff measures (NTMs). - High dependency on small-scale farmers, making the sector vulnerable to economic shocks.
SOCIAL	- Women contribute up to 70% of the labor but face significant barriers to land ownership and leadership. - Low local consumption of tea and coffee, especially among the younger population. - Gender-responsive initiatives like the Gender Empowerment Platform have shown success in reducing gender-based violence and increasing women's empowerment.
TECHNOLOGICAL	- Limited access to technology and innovation among smallholder farmers hinders productivity. - Need for adoption of climate-resilient technologies and sustainable farming methods such as eco-pulping and precision farming. - Potential for using digital platforms to engage youth and modernize value chains.
ENVIRONMENTAL	- Severe impacts from climate change, including reduced yields, quality degradation, and increased pest incidences. - Large carbon footprint and deforestation concerns in tea and coffee production. - Significant water consumption in coffee processing and reliance on synthetic fertilizers contributing to greenhouse gas emissions.
LEGAL	- Compliance with international trade agreements (WTO, AfCFTA) and national regulations (Climate Change Act, Agricultural Policy). - Complexity in navigating non-tariff barriers and the high cost of certifications for climate resilience. - Regulations around pesticide use and the environmental impact of agrochemicals.

…… To Be Updated After Stakeholder Workshop ……..

CHAPTER 6: STRATEGIC OBJECTIVES AND ACTION PLANS

6.1. Draft Vision

To achieve sustainable and climate-resilient coffee and tea sectors that contribute to Kenya's economic development while protecting the environment and improving livelihoods.

6.2. Draft Aims and Objectives

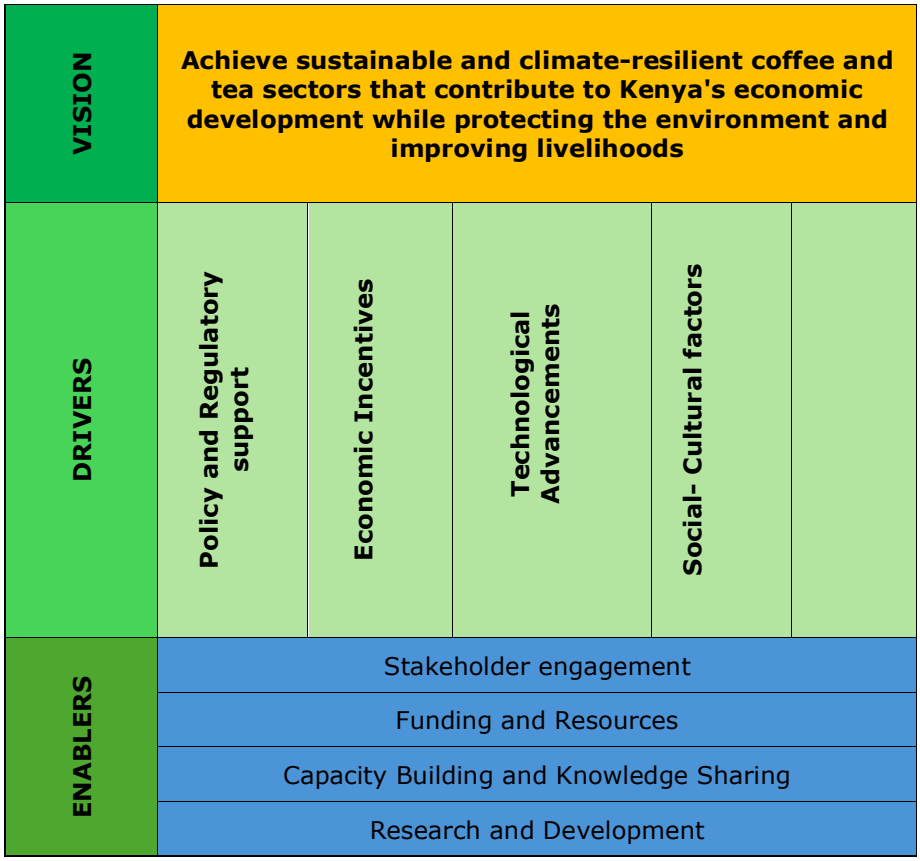
1. Integrate Climate Action into Trade Policies-
2. Promote Sustainable Agricultural Practices
3. Foster Stakeholder Collaboration and Engagement
    a. Increase Awareness and Education-
4. Create Economic Incentives for Sustainability-
    a. Research and Development-
    b. Secure Adequate Funding and Resources –
5. Ensure Inclusive Participation- Gender

6.3. Guiding Principles

- Sustainability
- Inclusivity
- Collaboration
- Innovation
- Transparency
- Resilience
- Economic Viability
- Local Context
- Continuous Improvement

6.4. Strategic Direction

To realize the Vision of greening the Kenya National AfCFTA implementation, it will be necessary to focus on key priority intervention areas essential to guarantee competitiveness and which would serve as key frameworks for sustainable and long-term tourism growth. In this context, the Strategy and action plan will focus on the following DRIVERS and ENABLERS as provided in the Strategic Map below.



6.5. DRIVERS

6.5.1. Policy and Regulatory Support:

Policy and regulatory support are a critical component of the strategy, emphasizing the government's commitment to integrating climate action into trade policies. This includes ensuring that these policies are aligned with both national and international green standards and regulations. By doing so, the government aims to create a cohesive framework that promotes sustainable trade practices and environmental stewardship within the coffee and tea sectors. This alignment not only facilitates compliance with global

environmental standards but also enhances the competitiveness and marketability of Kenyan products on the international stage.

6.5.2. Economic Incentives:

Economic incentives play a vital role in the strategy, driven by the increasing market demand for sustainably produced coffee and tea. By focusing on local value addition, the strategy aims to not only boost economic benefits but also reduce carbon footprints. This approach not only enhances the appeal of Kenyan coffee and tea in the global market but also supports sustainable development by encouraging practices that are environmentally friendly and economically viable.

Possible economic incentives include:

- Relaxed taxation on green value addition technology, green energy generation technology;

6.5.3. Technological Advancements:

Technological advancements are a cornerstone of the strategy, focusing on the development and adoption of climate-resilient crop varieties. Additionally, the strategy emphasizes the implementation of efficient water management and irrigation systems. These innovations are designed to enhance the resilience of coffee and tea production against climate variability, ensuring sustainable agricultural practices that can withstand environmental challenges while optimizing resource use.

6.5.4. Social and Cultural Factors:

Social and cultural factors are integral to the strategy, emphasizing the need for increased awareness and education on the impacts of climate change. Additionally, the strategy focuses on the empowerment of women and marginalized groups within the coffee and tea value chains. By fostering greater understanding and inclusivity, the strategy aims to build a more resilient and equitable agricultural sector that benefits all stakeholders.

6.6. ENABLERS:

6.6.1. Stakeholder Engagement:

Stakeholder engagement is a crucial element of the strategy, highlighting the importance of active participation and collaboration among farmers, industry experts, government, and NGOs. The strategy also advocates for the

establishment of public-private partnerships to facilitate resource sharing and joint initiatives. This collaborative approach aims to harness the strengths and resources of all stakeholders to drive sustainable practices and achieve the common goal of a resilient and thriving agricultural sector.

6.6.2. Capacity Building:

Capacity building is essential to the strategy, focusing on providing training and support programs for farmers to adopt sustainable practices and climate adaptation techniques. Additionally, the strategy includes offering technical assistance to facilitate the adoption of green technologies and practices. These efforts aim to equip farmers with the knowledge and tools they need to implement environmentally friendly methods, enhancing their resilience and productivity in the face of climate change.

6.6.3. Research and Development:

Research and development are key components of the strategy, emphasizing the need for ongoing research into sustainable agricultural practices and climate adaptation strategies. This includes developing innovative solutions to mitigate the impacts of climate change. By fostering a culture of continuous improvement and innovation, the strategy aims to advance knowledge and technologies that will support the long-term sustainability and resilience of the coffee and tea sectors.

6.6.4. Funding and Resources:

Funding and resources are critical to the strategy's success, relying on financial support from the government, international donors, and private sector partners. The strategy calls for the strategic allocation of these resources to prioritize actions and initiatives that promote sustainability and climate resilience. This targeted investment ensures that the most impactful projects receive the necessary funding to achieve their goals, driving progress in the coffee and tea sectors.

6.7. THEORY OF CHANGE FRAMEWORK

SITUATION	A critical need for mainstreaming climate action into Kenya's trade policies and practices, particularly within the coffee and tea sectors.	**AIM**	Achieve sustainable and climate-resilient coffee and tea sectors that contribute to Kenya's economic development while protecting the environment and improving livelihoods.

INPUTS AND ACTIVITIES	**OUTPUTS**	**CHANGE MECHANISM**	**OUTCOMES**	**IMPACTS**
INPUTS **Resources:** Financial support from government, international donors, and private sector partners. Technical expertise from climate change and trade experts. Research and data on climate impacts and sustainable practices. **Stakeholders:** • Government officials • Industry experts • Farmers and processors • NGOs and trade associations • Women's groups and community organizations	**Educational and Training Programs:** Workshops, seminars, and training sessions for farmers on sustainable practices and climate adaptation. Awareness campaigns on the importance of green trade and sustainability. **Policy and Regulatory Frameworks:** Development and enforcement of policies aligning trade regulations with international green standards. Implementation of gender-inclusive policies to empower women in the sectors. **Collaborative Initiatives:** Formation of partnerships and alliances among stakeholders in the value chains. Establishment of public-private partnerships for resource sharing and joint initiatives. **Research and Development:** Research on climate-resilient coffee and tea varieties. Development of efficient water management and irrigation systems	**Policy and Regulatory Reforms:** Align national trade policies with international green standards. Implement gender-inclusive and climate-resilient policies in the coffee and tea sectors. **Capacity Building:** Conduct training programs for farmers on sustainable practices and climate adaptation. Enhance technical support for the adoption of green technologies and climate-resilient crop varieties. **Stakeholder Engagement and Collaboration:** Foster active participation and collaboration among farmers, industry experts, government, and NGOs. Establish public-private partnerships for resource sharing and joint initiatives. **Economic Incentives:** Create market incentives for sustainably produced coffee and tea. Promote local value addition to enhance marketability and economic benefits. **Research and Development:** Invest in research on sustainable agricultural practices and climate adaptation strategies. Develop innovative solutions to mitigate climate change impact on coffee and tea production. **Awareness and Education:** Increase awareness and understanding of climate change impacts on trade. Educate stakeholders on the benefits of sustainable practices and green trade opportunities.	**Short term (1-3 years)** Increased awareness and understanding of climate change impacts on trade among stakeholders. Adoption of sustainable agricultural practices by farmers. Enhanced cooperation among value chain actors. Implementation of gender-inclusive policies in the coffee and tea sectors. Initial integration of green standards into national trade regulations. **Medium-Term (4-6 yrs) Outcomes:** Improved resilience of coffee and tea farms to climate change. Increased local value addition and marketability of sustainably produced coffee and tea. Streamlined and harmonized non-tariff measures (NTMs) across the region. Greater participation of women in the value chains. Enhanced regional cooperation for green trade opportunities within AfCFTA. **Long term (7-10 yrs) outcomes** A fully climate-compliant national AfCFTA strategy and plan. A significant reduction in the carbon footprint of the coffee and tea sectors. Increased export volumes of sustainably produced coffee and tea. Long-term sustainability and profitability of the coffee and tea sectors.	**Short-Term Impacts:** Increased awareness and understanding of climate change impacts among stakeholders. Adoption of sustainable agricultural practices by farmers. Initial integration of green standards into national trade regulations. **Medium-Term Impacts:** Improved resilience of coffee and tea farms to climate change. Increased local value addition and marketability of sustainably produced coffee and tea. Enhanced cooperation among value chain actors and greater participation of women in the sectors. **Long-Term (7-10 yrs) Impacts:** Fully climate-compliant national AfCFTA strategy and plan. Significant reduction in the carbon footprint of the coffee and tea sectors. Increased export volumes of sustainably produced coffee and tea. Long-term sustainability and profitability of the coffee and tea sectors.

ACTIVITIES

Capacity Building:
- Conduct training programs for farmers on agroforestry, organic farming, and other sustainable practices.
- Provide technical support for the adoption of climate-resilient crop varieties and efficient irrigation systems.

Policy Development:
- Align national regulations with international green standards.
- Develop policies that integrate trade and environmental goals.

Stakeholder Engagement:
- Facilitate consultations, workshops, and feedback mechanisms with stakeholders.
- Promote inclusive participation from smallholder farmers, women, and other marginalized groups.

Market Access:
- Leverage AfCFTA to promote green trade and enhance regional cooperation.
- Identify and utilize market opportunities for sustainably produced coffee and tea within AfCFTA.

EVIDENCE ASSESSMENT

Baseline Data Collection: • Collect baseline data on current agricultural practices, climate resilience, and trade volumes. • Conduct surveys and interviews with stakeholders to assess awareness and understanding of climate change impacts. **Monitoring and Evaluation (M&E) Framework:** • Develop a robust M&E framework to track the progress and impact of the implemented strategies. • Use key performance indicators (KPIs) to measure the adoption of sustainable practices, market access, and economic outcomes. **Regular Reviews and Adjustments:** • Conduct regular reviews of the strategy and action plans to assess effectiveness and make necessary adjustments. • Engage stakeholders in feedback mechanisms to ensure continuous improvement. **Impact Studies:** • Conduct impact studies to assess the long-term effects of the strategy on climate resilience, sustainability, and economic growth. • Use case studies and success stories to demonstrate the benefits and effectiveness of the strategy.		
ASSUMPTIONS Commitment from all stakeholders to sustainable practices and climate action. Availability of funding and technical implementation support. Effective coordination and collaboration among stakeholders. Supportive policy and regulatory environment.	**Possible unintended consequences/Risks** **Resistance to Change:** Some stakeholders may resist adopting new sustainable practices due to perceived risks or lack of understanding. **Economic Disparities:** Smallholder farmers may face challenges in accessing resources and technologies needed for sustainable practices. **Market Disruption:** Transitioning to green trade practices may cause temporary disruptions in market access and trade flows. **Environmental Degradation:** Increased focus on certain sustainable practices may inadvertently lead to other forms of environmental degradation (e.g., overuse of certain organic inputs). **Gender Inequality:** Efforts to empower women in the value chains may face cultural and social barriers.	**Risk Mitigation** Continuous engagement, education, and demonstration of the benefits of sustainable practices. Provide targeted support and subsidies to smallholder farmers to ensure inclusive participation. Develop phased implementation plans and provide market support during the transition period. Promote holistic and balanced approaches to sustainability, considering all environmental aspects. Develop and enforce strong gender-inclusive policies and provide targeted support for women.

6.8. DRAFT- Action plan

Strategic Focus Area	Specific Objective	Outcome	Activities	Output	Output Indicator (KPI)	Possible Timelines
Integrate Climate Action into Trade Policies	Align national trade regulations with international green standards	Climate-resilient trade policy framework established.	1. Policy review and alignment 2. Develop and enforce climate-smart trade policies. 3. Establish a monitoring and evaluation framework	Revised trade policy documents. New regulations enforced.	The number of policies revised. The compliance rate with new policies.	1-2 years
Promote Sustainable Agricultural Practices	Increase adoption of climate-resilient and sustainable farming techniques among farmers.	Improved productivity and reduced environmental footprint.	1. Conduct training programs on regenerative agriculture and SCPs. 2. Develop guidelines on sustainable practices. 3. Provide technical support and subsidies for sustainable inputs.	Training materials. Guidelines for sustainable practices. Subsidy disbursement reports.	Percentage of farmers trained. Increase in sustainable input use.	1-3 years
Foster Stakeholder Collaboration and Engagement	Enhance cooperation among value chain actors to support green trade initiatives	Strengthened partnerships and joint initiatives for green trade.	1. Facilitate multi-stakeholder workshops and forums. 2. Develop public-private partnerships (PPPs) for sustainable value chain projects. 3. Create platforms for continuous dialogue and feedback.	Workshop reports. Signed MoUs for PPPs. Online collaboration platform launched.	Number of partnerships formed. Frequency of stakeholder meetings	1-2 years
	Enhance awareness and education on climate change impacts and	Increased adoption of climate-smart practices and policies.	1. Launch awareness campaigns targeting farmers, traders, and policymakers. 2. Develop educational	Awareness campaign reports. Educational materials.	Number of awareness campaigns conducted. Percentage of	1-3 years

	sustainable practices among stakeholders.		content on climate-smart agriculture and green trade. 3. Integrate climate education into school curricula.	Revised school curricula	stakeholders reached.	
Ensure Inclusive Participation	Promote gender equality and social inclusion within the coffee and tea sectors.	Increased participation of women and marginalized groups in decision-making processes.	1. Implement gender-responsive policies. 2. Conduct capacity-building programs for women and youth. 3. Establish women-led cooperatives and groups.	Gender policy documents. Training reports. List of established cooperatives	Percentage of women and youth in leadership roles. Number of women-led cooperatives	1-4 years
Create Economic Incentives for Sustainability	Establish economic incentives to promote green trade and value addition.	Increased marketability and competitiveness of sustainably produced tea and coffee.	1. Develop incentive schemes such as green certifications. 2. Facilitate market access for certified products within AfCFTA. 3. Conduct awareness campaigns on green trade benefits.	Incentive scheme guidelines. Market access agreements. Awareness materials.	Increase in certified product volumes. Increase in market access within AfCFTA	2-4 years
	Promote innovation in climate adaptation and sustainable agricultural practices	Improved climate adaptation solutions and sustainable technologies.	1. Research climate-resilient crop varieties. 2. Develop efficient water management and irrigation systems. 3. Collaborate with research institutions for innovative solutions.	Research publications. New irrigation technology prototypes. Collaboration agreements.	Number of research studies conducted. Number of new technologies developed.	1-5 years
	Ensure sustainable financing for climate resilience and green trade initiatives.	Adequate funding secured for long-term sustainability projects.	1. Develop funding proposals for government and international donors. 2. Establish climate finance partnerships. 3. Create a fund management framework.	Funding proposals submitted. Partnership agreements signed. Fund management guidelines.	Amount of funding secured. Number of funding partnerships	1-5 years

6.9. *Draft* Results Based Monitoring & Evaluation (RBME) Framework

Monitoring and Evaluation (M&E) and Measuring, Reporting, and Verification (MRV) for climate change adaptation are areas of increasing interest and attention at both the political and operational levels (UNEP-DTU, 2016). Designing a robust results-based monitoring and evaluation framework will be important as part of the implementation and monitoring of this Green Supplement.

With no generic M&E framework for climate action projects, large adaptation donor funds, have designed standard results frameworks to guide project and program proponents and improve their ability to capture portfolio-level impacts in comparable metrics.

Therefore, the RBME framework is recommended, with the definition of a baseline scenario against which each Key Performance indicator (KPI) measured results as a critical factor in the success of any M&E system (UNEP-DTU, 2016).

This strategy proposes the following basic RBME framework for the KPI against each KPI identified under the Strategic objectives of the action plan.

6.9.1. Strategic Objective: Enhance climate resilience in the tea and coffee sectors through sustainable agricultural practices.

Key Performance Indicator (KPI)	Baseline	Target	Means of Verification	Responsible Entity	Time frame	Assumptions
% of smallholder farmers adopting climate-smart practices (e.g., regenerative agriculture)	30%	70%	Survey Reports; Agricultural Audits	Ministry of Agriculture, Cooperatives	2024–2030	Farmers receive adequate training and financial support
Increase in carbon sequestration through shaded plantations (tons CO2e)	0	5% increase by 2030	Carbon audit reports	NEMA, Ministry of Environment	2025–2030	Consistent adoption of tree-planting practices
Reduction in synthetic fertilizer use (tons/year)	500 tons/year	50% reduction	Input Supply Records; Farmer Reports	Agriculture and Food Authority (AFA)	2024–2027	Availability of affordable organic alternatives

6.9.2. Strategic Objective: Promote sustainable trade and green certification to increase market access.

KPI	Baseline	Target	Means of Verification	Responsible Entity	Timeframe	Assumptions
% of tea and coffee exports certified as sustainable	10%	50% by 2028	Export and certification reports	Kenya Bureau of Standards (KEBS), Exporters Associations	2024–2028	Markets demand green-certified products

Reduction in non-tariff barriers (NTMs) affecting exports	High (292% Ad valorem)	20% reduction	Trade Reports	Ministry of Trade, EAC Secretariat	2025	Regulatory alignment within AfCFTA improves
Increase in value-added exports (tea, coffee)	20% of exports	40% by 2030	Export Data; AfCFTA Reports	Ministry of Trade	2024–2030	Value addition infrastructure improves

6.9.3. Strategic Objective: Empower women and youth in the tea and coffee value chains.

KPI	Baseline	Target	Means of Verification	Responsible Entity	Timeframe	Assumptions
% of women in leadership roles in cooperatives	15%	40% by 2030	Cooperative Governance Reports	Gender Empowerment Platform (GEP)	2024–2030	Women receive capacity-building support
% of youth participating in value addition (e.g., packaging, marketing)	10%	25% by 2027	Employment Reports; Training Data	Ministry of Youth, Private Sector	2024–2027	Youth receive business/technical training
Reduction in gender-based violence (GBV) cases in the sector	100 cases/year	50% reduction by 2027	Gender Audits; Labor Reports	GEP, Ministry of Labor	2024–2027	Enforcement of gender-sensitive policies

6.9.4. Strategic Objective: Strengthen stakeholder collaboration for research, development, and innovation in climate resilience.

KPI	Baseline	Target	Means of Verification	Responsible Entity	Timeframe	Assumptions
Number of research partnerships on climate resilience	2 partnerships	10 by 2026	Partnership Agreements; Research Outputs	Research Institutions, Private Sector	2024–2026	Adequate research funding and expertise available
Increase in climate-resilient varieties (tea/coffee) released	2 varieties	5 new varieties by 2030	Seed Certification Data	Agriculture Research Institutes	2025–2030	Continued investment in R&D
% of tea and coffee producers using drought-resistant varieties	10%	50% by 2028	Farm Surveys; Extension Service Reports	AFA, Ministry of Agriculture	2025–2028	Access to improved seedlings is sustained

6.9.5. Strategic Objective: Improve the environmental sustainability of tea and coffee production.

KPI	Baseline	Target	Means of Verification	Responsible Entity	Timeframe	Assumptions
% reduction in deforestation linked to tea and coffee production	10%	25% by 2028	Deforestation Reports	Kenya Forestry Service, NEMA	2025–2028	Strong enforcement of environmental laws
Increase in use of renewable energy in processing factories	5%	30% by 2027	Factory Audits; Energy Usage Reports	KTDA, Private Sector	2024–2027	Cost-effective renewable solutions are available
% reduction in water usage in coffee wet processing	150 liters per kg	30% reduction by 2030	Water Audit Reports	AFA, Ministry of Water	2024–2030	Adoption of water-efficient technologies

6.10. Draft Risk Analysis Matrix

Climate risk and ways to assess it have attracted increasing attention in recent years, particularly following the Paris Agreement in 2015. Firms, banks, investors, governments, and public institutions are demanding more information to gradually prepare for the possible consequences of climate change and the transition to a low-carbon economy (EIB, 2021).

Using this risk management approach, identifying and analysing risks and opportunities can help plan responses to climate variability and climate change and enable organizations to be proactive and more effective in adapting to future uncertainty (Longpaddock, 2024).

Here below is a simplified matrix for potential risks and vulnerabilities associated with the implementation of this strategy and action plan, highlighting the uncertainty, its description, impact intensity, likelihood of occurrence, level of the risk mitigation inaction, possible mitigation measures, organization to be held responsible, and frequency of monitoring.

Risk	Description	Impact	Likelihood	Risk Level	Mitigation Measures	Responsible Entity	Monitoring Frequency
1. Climate Change	Increasing climate variability (droughts, floods, erratic rainfall) impacting tea and coffee yields.	High	High	Critical	- Promote regenerative agriculture and climate-smart practices. - Introduce drought-resistant tea and coffee varieties. - Develop early warning systems for farmers.	Ministry of Agriculture, NEMA, Research Institutes	Quarterly

2. Regulatory Barriers (NTMs)	Non-tariff barriers such as complex export certification processes and multiple taxes hindering market access.	High	Medium	High	- Align national regulations with AfCFTA guidelines. - Streamline certification processes for green products. - Advocate for regional policy reforms to reduce trade costs.	Ministry of Trade, AfCFTA Secretariat	Semi-annually
3. Limited Access to Finance	Smallholder farmers unable to invest in climate resilience and value addition due to lack of capital.	Medium	High	High	- Facilitate access to green financing through government and development bank schemes. - Promote microfinance solutions for small-scale farmers. - Engage private investors for public-private partnerships (PPPs).	Ministry of Finance, Banks, Cooperatives	Annually
4. Low Adoption of Sustainable Practices	Resistance to or slow adoption of regenerative agriculture, SCPs, and green certification by farmers.	Medium	Medium	Medium	- Increase capacity-building programs and extension services for farmers. - Provide financial incentives for adopting sustainable practices. - Conduct awareness campaigns on the benefits of green certification.	Agriculture and Food Authority (AFA), NGOs, Cooperatives	Bi-annually
5. Market Volatility	Fluctuations in global tea and coffee prices affecting income stability and profitability.	High	Medium	High	- Encourage farmers to diversify crops and products. - Promote value addition to buffer against price volatility. - Develop	Ministry of Trade, Exporters Associations	Quarterly

					strategic market access programs.		
6. Gender and Social Inequality	Limited participation of women and youth in decision-making and value addition activities.	Medium	High	High	- Expand gender-responsive training programs. - Promote women and youth leadership in cooperatives. - Ensure equitable land ownership policies for women.	Gender Empowerment Platform (GEP), Cooperatives	Annually
7. Environmental Degradation	Deforestation, overuse of fertilizers, and water resource depletion from tea and coffee production.	High	Medium	High	- Enforce environmental laws regarding deforestation and water use. - Incentivize the adoption of renewable energy in processing. - Reduce synthetic fertilizer usage through precision farming.	NEMA, Ministry of Environment	Quarterly
8. Technological Limitations	Lack of access to modern farming technologies and innovations by small-scale farmers.	Medium	Medium	Medium	- Improve access to affordable and sustainable technologies. - Increase partnerships with technology providers and research institutions. - Provide training in digital tools and precision farming.	Ministry of Agriculture, Private Sector, Tech Innovators	Annually
9. Political and Policy Instability	Policy changes, political instability, or lack of political may disrupt strategy implementation.	High	Low	Medium	- Engage stakeholders in policymaking to ensure consistent support. - Strengthen governance structures around the	National Government, AfCFTA Secretariat	As needed

					strategy. - Develop contingency plans for political disruptions.		
10. Supply Chain Disruptions	Supply chain disruptions due to infrastructure challenges or external shocks (e.g., diseases/pests).	High	Medium	High	- Strengthen local value chains and develop contingency logistics plans. - Invest in infrastructure improvements (roads, storage, ports). - Diversify export markets to reduce reliance on one region.	Ministry of Transport, Exporters Associations	Semi-annually

CHAPTER 7: INTEGRATED COMMUNICATION AND MARKETING PLAN FOR THE GREEN SUPPLEMENT

Audiences in Kenya, just like any developing country generally do not need to be convinced that climate change is happening (CDKN, 2019). They see the evidence before their eyes: in searing heatwaves and increasing numbers of heat-related illnesses and deaths; in failing and flooded food crops and inundated coastal zones. What these audiences need is to 'make sense' of what they are seeing: to understand their lived experience in a scientific context, to know what the future climate might hold, and to decide what they should do about it.

This is true to the target actors in the implementation of the Green Supplement, and therefore a robust communication and marketing strategy framework is required in an integrated manner.

This strategy recommends an Integrated Communication and Marketing framework strategy that aims to support the implementation of the Green Supplement by raising awareness, building partnerships, and promoting Kenya's sustainable tea and coffee production within both African and global markets.

It should be designed to align with the goals of advancing green trade, promoting climate-resilient agriculture, and enhancing market access under the AfCFTA framework.

The key aims and objectives of the integrated communication and marketing framework strategy should be:

i. Raising awareness among stakeholders (farmers, policymakers, exporters, consumers) about the benefits of sustainable practices in tea and coffee production.
ii. Promoting Kenya's green tea and coffee to international and regional markets as climate-friendly and sustainable products.
iii. Engaging stakeholders in the value chain (farmers, cooperatives, private sector, government bodies) to ensure collaboration on climate resilience and green certification.
iv. Enhancing market access for certified green products under AfCFTA and other international trade frameworks.

KEY REFERENCE RESOURCES

The following constitute the key reference materials for this study:

1. ECA-UNCTAD: Inclusion of green initiatives in National AfCFTA Implementation Strategies in 20 African Countries: Analysis of trade and climate data for identification of regional green value chains in East Africa.

2. ECA-UNCTAD Greening AfCFTA Strategies Project- Minutes of the 1st Regional Meeting of Project Focal Points East Africa- 14.2.2023.
3. Economic survey 2023- Government of Kenya
4. African Union- Agreement Establishing the African Continental Free Trade Area
5. Assessing Regional Integration in Africa | Aria X: Africa's Services Trade Liberalization & Integration Under the AfCFTA.
6. Environmental effects of the African Continental Free Trade Agreement: A computable general equilibrium model approach.
7. Policy Brief- Kenya's National AfCFTA Implementation Strategy 2022 – 2027- Government of Kenya.
8. Unleashing the potential of the private sector to drive green growth and job creation in Kenya- Revised Draft Report - Belinda Kaimuri- July 2, 2020
9. Greening the AfCFTA: It is not too late- Africa Growth Initiative

10. African Economic Outlook 2023- Mobilizing Private Sector Financing for Climate and Green Growth in Africa

11. Africa's Development Dynamics- Regional Value Chains for a Sustainable Recovery
12. Current Status of the AfCFTA Implementation
13. The Road to Africa's Single Market: Progress so far and challenges for the future- African Policy Research Institute (APRI).
14. United Nations Conference on Trade and Development (UNCTAD)- Trade and Environment Review 2023: Building a sustainable and resilient ocean economy beyond 2030, Sustainable Recovery.
15. Terminal evaluation of the UNEP GEF project Greening the tea industry in East Africa (GTIEA).
16. Analysis of Existing National Policies, Strategies and Practices on Agroforestry and Forest Protection in Kenyan Coffee Production.

REFERENCES

ANNEXES

Table 3: Policy framework for Coffee and Tea sectors

S/No.	Policy document	Implication
1.	Constitution of Kenya, 2010	The CoK 2010 includes a Comprehensive Bill of Rights; "*right to food of adequate quality and quantity always for all* "under Article 43, (ii) Article 36 and 40 provides for Protection of producers and consumers right
2.	Kenya Vision 2030	In Vision 2030, agriculture is identified as a key sector in achieving the envisaged annual economic growth rate of 10%.
3.	Agriculture Act	The general agricultural policies are spelled out in the Laws of Kenya
4.	Chapter 318	
5.	Agricultural Policy 2021	The policy guides the overall development of the agriculture sector
6.	Agricultural Sector Transformation and Growth Strategy (ASTGS) 2019-2029;	Is based on three anchors: Increasing small-scale farmer incomes, Increasing agricultural output and value-add, and iii. boosting household food resilience
7.	Agricultural Marketing Strategy 2023-2032 AFA Strategic Plan 2017-2022	This Strategy aims to improve competitiveness and market access for Kenyan agricultural produce and products in both domestic and export markets. AFA Strategic plan was to enhance the AFA mandate to sustainably develop and promote scheduled crops value chains through effective regulation for economic growth and transformation. The key goals: • Boost agricultural growth and productivity. • Upgrading Kenya's agricultural value chains for job and income creation. • Market access and integration into global value chains;
8.	Sustainable Development Goals (SDG)	Goal 1: No Poverty Goal 2: Zero Hunger Goal 5: Gender Equality Goal 10: reduced inequality Goal 13: Climate Action

9.	Coffee Task Force Report 2016.	The report recommended for the development of coffee specific national strategy
10.	National Trade Policy 2017	Seeks to unleash Kenya's potential targeting domestic, regional and global market.
11.	The Standards Act, Cap 496	This Act makes provision for the promotion of standards in Kenya.
12.	National Industrialization Policy Framework for Kenya, 2012 – 2030	This policy framework focuses on value addition for both primary and high valued goods; and linkages between industrial sub-sectors and other productive sectors to drive the industrialization process and aims at providing strategic direction for the sector growth and development.
13.	Competition Act, No. 12 of 2010	Aims to promote and safeguard competition in the economy, protect consumer welfare,
14.	Industrial Property Act, No. 3 of 2001	It provides for the protection of inventions through patents, utility models, and industrial designs
15.	Anti-Counterfeit Act, No. 13 of 2008	It provides for the protection of intellectual property rights and the prevention of trade in counterfeit goods
16.	KEBS Tea Industry Code of Practice KS2128 2022 Fourth Edition 18 May 2022	This code provides guidelines and standards for various aspects of the tea industry in Kenya, including cultivation, processing, packaging, and quality control.
17.	KEBS Coffee industry-Code of practice ***KS 2366:2021***	It provides guidelines for coffee cultivation, harvesting, processing, storage, transportation, and packaging. Additionally, it includes requirements for the labelling and traceability of coffee products
18.	The Tea Act 2020	This act aims to promote the cultivation of tea, ensure fair prices for both producers and consumers, and regulate the tea trade.
19.	Tea Cultivation Manual for Good Agricultural Practices	Presents a collection of principles for application in the on-farm production of tea that will result in safe and healthy tea products while considering economic, social, and environmental sustainability.
20.	Kenya Tea Development Authority (Tea Cultivation) Order	This Order lays down rules for the cultivation of tea and provides for the control of the growing of tea and tea planting material. No person shall establish, operate, or extend a tea seed garden

		or nursery in any area unless in possession of a permit
21.	The Forest Conservation and Management Act Chapter 385	Provides for regulating the use and occupation of national and county forests for the purposes of residence, cultivation, and grazing;
22.	Climate change act 2016 and County Climate Change Acts	Enacted by National and County Governments to address the challenges posed by climate change. Such acts typically include provisions for reducing greenhouse gas emissions, adapting to the impacts of climate change, promoting renewable energy and energy efficiency, and enhancing climate resilience.
23.	Water Act 2016, No. 43	Provides for regulatory framework of management of water resources in Kenya.
24.	Environmental Management and Coordination Act (EMCA) 1999	It is a comprehensive environmental law that provides a framework for the management of the environment and natural resources in Kenya
25.	The Public Health Act (Cap. 242), 1986	The Act addresses matter of sanitation, hygiene, and general environmental health and safety
26.	National Climate Change Action Plan 2018–2022	This is a five-year plan that helps Kenya reduce greenhouse gas emissions and adapt to climate change.
27.	Pest Control Products (Registration) Regulations, 2022	Provides the legal basis for comprehensive action against the negative effects of pesticides and provide the legal basis for mainstreaming innovative and environmentally conscious approaches to pest control, such as agroecology.

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