

EAST AFRICA

Value Chain Mapping & Value Chain Reform
of the Coffee Industry in East Africa



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Section One



Introduction



Foreword

My introduction to the coffee industry was in Uganda where I had the opportunity, in 2010, to spend a weekend hiking on Mount Elgon, one of the country's most famous coffee growing regions. Whilst taking a coffee tour around Sipi Falls on Mount Elgon I learned from local farmers how coffee is grown and harvested high in the mountains of the coffee belt, yet typically roasted in cities in the west, resulting in little proportional revenue from this billion euro global industry returning to these farmers or their communities.

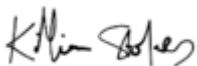
The supporting statistics were stark, that is, a coffee farmer often earned as little as thirty cent from a kilo of coffee, a kilo which might sell for between thirty and fifty euro in an Irish supermarket. Under such operating conditions, it was clear that, even the presence of an Irish Aid funded coffee project on the mountain could not help local farming families escape poverty or change a deeply flawed and unfair global business model.

After returning to Ireland and having discovered Proudly Made in Africa through its trade justice and education work, I learnt how the coffee sector was just the beginning. The challenging reality is that many of the value chains behind the everyday goods consumed and enjoyed around the globe, many of which begin their life cycle in Africa e.g. coffee, tea, cotton and cocoa, are deeply flawed, outdated and often destructive and therefore no longer fit for purpose.

With this industry report, Proudly Made in Africa's first end to end industry report on Africa, we have focused on mapping the full coffee value chain in East Africa, identifying key pain points for people and planet, and have engaged with some of the leading and innovative ways the chain might be reimaged to better serve all stakeholders in the 21st century.

During the summer of 2022 I returned to Mount Elgon, this time with Proudly Made in Africa, where meeting local partner groups we were deeply troubled to learn how little had changed for farmers on the mountain i.e. how low coffee prices and revenues continue to negatively impact local struggling farmers which has in turn contributed to massive local environmental destruction. Mount Elgon has lost 25% of its tree cover since 2000, much of it from poor coffee farmers seeking supplementary incomes by cutting trees to make and sell charcoal. Similarly, on the other side of Uganda, the Bwindi forest has also lost 25% of its trees in the past twenty years; and coincidentally Ethiopia, the birthplace of coffee, as a country has lost a quarter of its forests since the turn of the century which, like Mount Elgon, much of the loss has been due to underpaid farmers seeking to feed their families by making and selling charcoal or wood.

The findings detailed in this report make clear that unless there is systemic change, at both region and global levels, and unless the entire global coffee value chain is redesigned from end to end, coffee farmers and their communities will remain in abject poverty, and the fragile habitats where they live and grow our favourite morning brew will continue to be decimated.



Killian Stokes
CEO, Proudly Made in Africa
February 2024

Context

Irish Aid (*Cúnamh Éireann*), the Government of Ireland's international aid programme managed by the Development Co-Operation and African Division (DCAD) of the Department of Foreign Affairs (DFA), is a critical part of Ireland's foreign policy. The agency is charged with working on behalf of the Irish people to help achieve the UN's Sustainable Development Goals together with responding to global humanitarian crises. In this regard, priority areas for Irish Aid include reducing poverty, hunger and humanitarian need together with gender equality, environment and climate change, health, HIV and AIDS, governance and human rights, education, water and sanitation, and trade and economic growth.

Irish Aid engages with over eighty countries around the world with a particular focus on sub-Saharan Africa which under its 'Key Partner Countries' includes East Africa nations such as Ethiopia, Kenya, Malawi, Tanzania and Uganda. Within these jurisdictions the government agency works to support the long-term developmental goals.

Proudly Made in Africa (PMIA), founded in 2008, is a trade justice and global citizenship education social enterprise which aspires for 'a world where African communities thrive, where African entrepreneurs and their businesses capture the value of their own talent and resources through responsible, ethical and ecological sustainable trade practices creating fair incomes, equal opportunities and well-paying jobs on the continent.' As such PMIA works on multiple fronts to achieve its mission and goals including delivering global citizenship education, supporting value chain reform and creating student scholarship and internship opportunities.

This report on *Value Chain Mapping & Value Chain Reform of the Coffee Industry in East Africa* has been commissioned with the support of Irish Aid and under the auspices of Proudly Made in Africa's remit to support value chain reform in Africa, that is, to see it 'reimagined, reformed and redesigned' in order to support 'more finished goods at origin, share value fairly and benefit all stakeholders' (PIMA, 2023).

Executive Summary

Coffee, one of the most consumed products in the world, drives a trans-global commodified industry which accounts for 2.5% of the world's agricultural trade value and is valued at \$31bn annually. This key industrial contributor to global economic and social development is estimated to provide incomes to over 125 million people worldwide (Hoffman, 2018). It is produced by more than 70 countries, largely across the Global South, where this prized crop is climatically suited. Farmed and processed by a network of millions of smallholders who farm, against a backdrop of escalating climate change crisis, poverty, political unrest; and the ongoing destabilizing impacts of price volatility, following the collapse of the International Coffee Agreement (ICA), to ensure the ongoing cultivation, processing and production of this vital crop for global and domestic markets (Chandrasekhar, 2023).

East Africa is amongst the most significant producer regions in the world accounting for 12% of total global production (Statista, 2023). The vast sub-region, attributed as the birthplace of coffee, encompasses many of the world's top producer countries including Ethiopia, Kenya, Uganda, Tanzania, Rwanda, Democratic Republic of Congo (DRC), Malawi and Burundi, renowned for producing some of the world's finest coffees. But, whilst a major player in the global export market, similar to other Global South producer regions its top line economic success is belied by challenges and inequalities resulting in the disproportionate impoverishment and lack of power equity of upstream coffee producers and communities in the value chain.

Against this background this report is focused on the examination and evaluation of value chain mapping and value chain reform of the coffee industry in East Africa. In order to do so the report proceeds in the following structure:

- **Chapter 2:** Explores the historical background of coffee including the rise of coffee culture and the heritage of coffee production in East Africa with particular reference to the top producing countries. The chapter also explores the quality of coffee, looks the global and Africa specific snapshot, trends and analysis, and market segmentation.
- **Chapter 3:** Overviews the end-to-end coffee supply chain with a particular focus on process and production in East Africa.
- **Chapter 4:** Examines the key economic, social and environmental challenges faced in East Africa and the implications for farmers and communities involved in coffee production.
- **Chapter 5:** Takes a closer look at coffee production in East Africa via individual country case studies in which each country's background, growing regions, coffee variety and quality; trade figures, industry players and process of selling; together with a spotlight on the farms and farmer cooperatives and/or company profile.
- **Chapter 6:** Conducts a critical evaluation of value chain reform by conducting a critical evaluation of business models and frameworks.
- **Chapter 7:** Lays out a series of opportunities and recommendations for the sector with an emphasis on those that will benefit producers in the region.
- **Chapter 8:** Includes summation and concluding remarks.

Key Findings

This report undertook mapping of the coffee value chain in order to provide a comprehensive understanding and assessment of the industry in East Africa. Central to exploring the complex journey of coffee, from seed to consumer cup, was identifying the critical stages, key players and the impact of micro and macro forces on the region and its agricultural community. As such the mapping exercise also explored the challenges and opportunities in the value chain to provide a basis for development and reform.

Below provides a summary of the report's key findings:

Convenience:

- Buyer-driven coffee value chains have driven power imbalances skewing gains towards upstream players (roasters and retailers) at the cost of downstream producers (smallholder farmers).
- Consumer demand continues to rise against depressed market supply.
- Price volatility and low farmgate prices, due to the power of the convenience market and mechanised intensive farming, continues to adversely affect producer countries contributing to income inequality, food insecurity and poverty in agricultural communities.
- Emerging markets such as Africa, Asia and the Middle East are experiencing significant growth trends and will drive future market demand. In particular coffee consumption has risen in Africa due to expanding urbanisation, rising youth populations and levels of middle-class income, and the spread of coffee shop culture.
- Demand for dietary supplements and nutraceuticals rising with sales expected to increase in EU countries such as France, Germany, UK and Italy.

Sustainability:

- Rising costs of production, price volatility and climate change realities (rising temperatures, droughts, unpredictable rainfall and the spread of pests and disease) continues to hamper coffee farmers resilience by diminishing profits.
- Implementation of more sustainable and ethical sourcing practices are required to ensure producers receive fair compensation and work appropriate conditions.
- Falling farm productivity due to higher labour migration and aging agricultural populations, is a key contributor to social and economic destabilisation in the region.
- The phenomenon of land degradation has been expedited through intensive monocropping which is a common place practice in Africa. Extended regulation, such as the EU Regulation on Deforestation free products which came in to effect in June 2023, is required on a global level to tackle the challenge.
- Additional investment in education, healthcare and infrastructure is critical to ensuring greater ethical and sustainable coffee production.
- Governance challenges continue to dominate the region with the coffee trade impacted by ongoing regulatory changes and onerous bureaucracy.

Key Findings

Quality:

- Widespread adoption of practices that enhance the quality of coffee beans through improved cultivation techniques, selective harvesting, and better processing methods are important for developing the regions exports.
- Consumers are willing to pay for premium coffee products mark a demand shift towards integrated bean to cup traceability.
- East Africa is renowned for its specialty bean varieties and high cupping scores, providing it a unique opportunity to capture market share through marketing and branding opportunities specific to premium brand promotion and centered on EAC origin stories.
- Extended investment in research and development required to identify and cultivate high-quality coffee varieties.
- Implementation of traceability systems, using blockchain and other technologies, to provide consumers with information about the origin of the coffee beans, ensuring transparency and authenticity

Business Models:

Emerging business models call for more transparent and equitable trade relationships between upstream farmers, local communities and downstream traders, roasters and retailers. In a complex and often predatory operating environment, value chain reform is increasingly required across support activities as well as primary activities.

- Increasing demand for certified products as consumers become more focused and aware of where purchases come from and manufacturing processes.
- As niche markets continue to grow direct trade, subscription models, roasted at origin and next generation certification are expected to disrupt business as usual models.
- Emergence of direct trade relationships between coffee producers and buyers identified as an opportunity to give producer's a higher share of the final product's value.
- Smallholder coffee farmers face ongoing production costs yet access to finance and credit is a significant challenge for producers as is adequate access to financial literacy training.

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Section Two

Overview of the Global Coffee Industry

Historical Overview of Coffee

The history of coffee production has a long heritage since seeding from the *Coffea genus* plant indigenous to the mountainous slopes of Ethiopia. It was here, in the country's high altitude ancient forests the consumptive benefits of the caffeine yielding bean were discovered. Legend has it that the discovery of enjoyment from the coffee bean can be variously attributed to either a 9th century goat herder (Kaldi) who observed the energised impact on his goats or to an exiled starving Sheikh who came across the cherries and was revitalised and sustained after boiling and drinking their caffeinated juice (Weinberg & Bealer, 2001; p.xvi).

Travelling from this inauspicious East African birthplace, the magical richness and medicinal value of coffee migrated across borders into Yemen, up through the Middle East and on to North Africa where it was roasted and brewed for drinking not dissimilarly to how it is prepared today. Coffee drinking continued to spread to Constantinople, and later (from the 17th century onward) to Europe, Indonesia and the Americas (Hoffman, 2018). It is across these lands, and particularly their early bustling metropolitan centres, that coffee found a home amongst the political, literary, and upwardly mobile merchant classes who readily adopted the libation, along with tea, both as means of social interaction and enjoyment as well as a marker of social distinction.

The epicentre of consumption during this period was the 'coffee house', in Europe the first of which opened its doors in Venice circa 1647 (Hoffman, 2018). As an early consumer outlet, the coffee house marks an important evolution for both the preparation, consumption and proliferation of coffee as a product and a cultural signifier. In this regard, as the marriage of coffee, culture and politics continued solidify so to its export spread rapidly further afield. Unlike 18th century London, where coffee drinking dropped in favour for tea as the most popular of the day, a defining political upheaval had a surprising impact on driving the popularity and proliferation of coffee in the New World. In 1773, The Boston Tea Party, a mercantile political revolt against the British Empire, centered on the dumping of British East India Company tea chests into the harbour. The resulting resistance to the Tea Act of 1773 and the acceleration into the American Revolution also led to the nation's widespread adoption of coffee as a 'patriotic drink' which together with a rising population ensured an ever expanding market (Hoffman, 2018, p. 50; Weinberg & Bealer, 2001).

However, the seismic influence of the United States on the development and expansion of coffee as industry does not come into its full fruition until the 20th century, however pre-dating that, coffee farming had found its way to the tropical latitudes of Southern and Central Americas. Here, in climatically favourable countries, such as Brazil, Colombia, Peru, Guatemala, and Venezuela, cultivation took seed at an unprecedented rate. These regions would later accelerate the era of mass production seen today which has largely been facilitated by the introduction of large scale coffee plantations and commercial production methods but mass yields were achieved at great ecological expense (Bilen et al., 2022; Bullock et al., 2021; Davis et al., 2018; Sach's et al., 2019).

Timeline Overview

Year	To	Description
500-1500	Yemen	Coffee beans from Ethiopia
1600s	India	Coffee beans from Yemen by Baba Budan
1690s	Sri Lanka	Cultivation started in Ceylon by the Dutch
1699	Indonesia	Seedlings imported from Malabar (India) to Java by Muslim traders
1706	The Netherlands	Reports of arrival of coffee seeds in Amsterdam
1715	Reunion	Seeds from Yemen brought by the French
1727	Brazil	Plant from French Guiana transported by Francisco de Melo Palheta and planted in the state of Pará
1730	Jamaica	Began to grow coffee
1740	Philippines	Plants introduced in Lipa by the Spanish
1750	Indonesia	First plants in Celebes
1779	Costa Rica	Plants brought by Cuba
1783	Indonesia	Imports of seedlings into Sumatra from India by Muslim traders
1784	Venezuela	Plants imported from Martinique
1822	Angola	Exports of Robusta
1880s	Australia	First coffee plantation established
1893	Kenya	Introduction of bourbon type plants by French missionaries
1898	Tanganyika	First plants brought to Kilimanjaro by Catholic missionaries
1920	Africa	Expansion of Robusta

Table 1: Source UNCTAD, 2018 p.7

Rise of Coffee Culture

Today coffee is processed, traded, and consumed at a scale and rate unimaginable to the early forefathers of the industry. Ubiquitous in every country, city and household across the globe the product sits at a cultural apex as a central part of daily life both as a food staple and as a distinct reflection of contemporary lifestyle.

The meteoric rise of modern coffee culture to this level of prominence can be delineated by three distinct phases or waves, each signifying a revolution marked by big shifts, innovations and trends that progress how coffee is processed, marketed, sold, prepared and consumed. Details of each coffee culture phase are outlined and explained next section.



Rise of Coffee Culture

First Wave

Started in the 19th century and continued up to the early 20th century, this phase was distinguished by great industrial revolution of good which saw the mass production development of coffee. Characterized as the era of home consumption where the innovation of pre-ground/instant coffee distributed in mass market cans and jars found its way onto supermarket shelves and readily available to consumers.

- Flavors and blends were considered basic with quality and supply chain traceability rejected in favour of accessibility, convenience, storage and the simply requirement for caffeine.
- Key players in the market included brands like Maxwell House, Nescafé, Nestlé Folgers, Hill Bros Coffee et al.
- On a trade level the introduction of the International Coffee Agreement (ICA) in the 1960s fostered commodity cooperation between producer and consumer countries. It enforced export quotas and price regulation which provided economic stabilizing benefits to low-income producer regions such as Africa, Central and South America.

Second Wave

- Began in 1970s with the introduction of the espresso machine. It was distinguished by the 'third place' concept of consumption i.e. home, coffee shops and work. The emergence of coffee chains such as Starbucks, founded by America entrepreneur Howard Shultz who inspired by the coffeehouses of Italy brought coffee as experience to modern life, changed how coffee was to be perceived and enjoyed. Urbanized centers, particularly in the Western world, quickly adopted the combination of fresh ground brews and lifestyle in a cup experience. The beginnings of selling origin coffee and specialty coffees grew.
- Flavour profiles and blends took center stage with heavy focus on country origins and the development of flavoured coffees and coffee base drinks.
- Key players include Starbucks, Costa Coffee, Peets Coffee & Tea, Specialty Coffee Association (SCA).
- On a trade level third waves coffee was higher priced than supermarket or traditional at-home coffees but with bulk bean purchasing kept it affordable and accessible to consumers. This was possible in part because of the collapse of the International Coffee Agreement (ICA) in 1989. However, the subsequent long-term effects of a transglobal buyer driven supply chain continues to negatively impact producer countries. It has resulted in dramatic declines in farmgate prices and government revenues which has led to rising income insecurity and poverty particularly for smallholder farmers.

Rise of Coffee Culture

Third Wave

- Emerged in the 1980s and is defined by an evolution from coffee culture to coffee specialty. Coffee connoisseurship centered on nuanced taste and professional crafting of bean varieties, roasting and brewing to meet changing consumer expectations. In parallel this period also saw the widespread manufacturing of affordable brewing technology and instruments for the at-home specialty market e.g. espresso machines, coffee grinders, Aeropress etc.
- The period marks an important shift in consumer consciousness around origin traceability and transparency. Product certification bodies like Fairtrade, Rainforest Alliance/UTZ and Certified Organic together with the work of organizations such as Specialty Coffee Association (SCA) did a lot to ensure greater consumer awareness on sustainability and traceability issues. As a result, greater importance was focused on each player along the supply chain from producer, importer and roaster to retailer and consumer. In addition, origin stories become central to marketing brands and social media campaigns.
- Flavor and roast profiles of quality beans e.g. nutty, citrus, honey, artfully prepared by local craft roasters and baristas and with the addition of inventive brews.
- Key players include Specialty Coffee Association (SCA), Trish Rothgeb, Blue Bottle Coffee, Union Roasters, Coffee Angel.
- On a trade level the market has seen the growth of direct trade and increased price volatility due to seismic climate change and cost of production impacts.

Fourth Wave

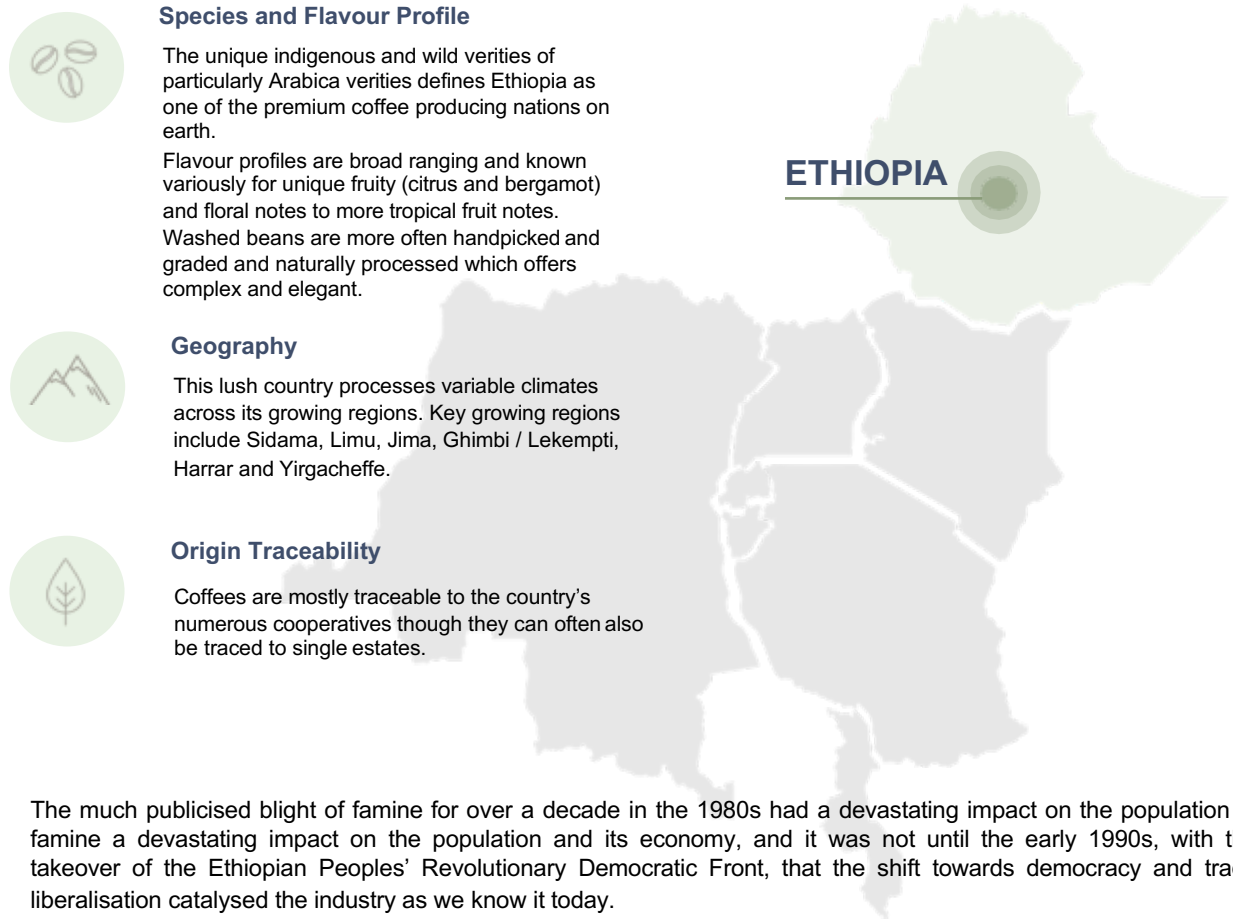
- On the cusp of a possible fourth wave early trend indicators point towards a shift from quality to equality i.e. the growing mainstream influence of sustainability awareness together with escalating climate change impacts, post-pandemic conscious consumerism and the widespread adoption of political and commercial ESG policies. This will possibly translate into more transparent and equitable trade relationships between upstream farmers, local communities and downstream traders, roasters and retailers, as well as, increasing D2C sales.
- Social media content creators and influencers are key trend makers influencing the coffee culture with premium at-home brewing techniques, recipes and blends. The culture continues a focus on craft and quality but this wave likely to be differentiated by authenticity values thus steering away from over branding or overly crafted drinks.
- Flavour and roast profiles of quality beans are enhanced by precision brewing methods and technical innovation e.g. cold brews, flashed brews and ready-to- drink (RTD) products.
- On a trade level the buoyant speciality market will continue to grow as will roasted coffee revenue continue to climb. Direct trade, subscription models, roasted at origin, next generation certification and other business model innovations expected to disrupt BAU models.

History of Production in East Africa

Ethiopia

The largest producer in Africa and attributed as the birthplace of coffee Ethiopia's coffee heritage can be traced back to the 9th century. Coffee was likely first exported during the 16th century where it made its way to the middle east to Constantinople, Europe, the Americas, and Asia. From the 19th century common grades of *Coffea arabica*, that is, Harari and Abyssinia made their way onto the market.

But it was not until the 20th century that export commercialisation began earnest with the establishment of the National Coffee Board of Ethiopia in 1957. Similar to its producer neighbours in East Africa the founding of a coffee board was an important watershed development for both the coordination and regulation of the industry and the introduction of a grading system.



The much publicised blight of famine for over a decade in the 1980s had a devastating impact on the population of famine a devastating impact on the population and its economy, and it was not until the early 1990s, with the takeover of the Ethiopian Peoples' Revolutionary Democratic Front, that the shift towards democracy and trade liberalisation catalysed the industry as we know it today.

The recent effects of price volatility and the introduction of Ethiopian Commodity Exchange (ECX) in 2008 meant systemic restrictions effected the traceability of specialist coffees. However, the exchange has positively benefited the industry with going some way to stabilising prices and regulate export contracts with the international market.

Fig 1: Coffee production in Ethiopia. Source- *The World Atlas of Coffee: From beans to brew*

History of Production in East Africa

Uganda

The second largest coffee producer in Africa the country is distinct in having a heritage of indigenous species in the 1900s *Coffea arabica* was introduced mostly likely brought in from Ethiopia. By 1926 the Coffee Industry Board was founded which catalysed production and saw the beginning of cooperative farming.

The industry grew continued to flourish following independence and the enforcement of the Coffee Act (1969) which gave the Coffee Industry Board control over pricing. Cross border smuggling was common-place to get around government centralised pricing and later the collapse of the International Coffee Agreement in 1989 caused significant price drops and economic instability that lasted into the 1990s which also saw the catastrophic impacts of drought.

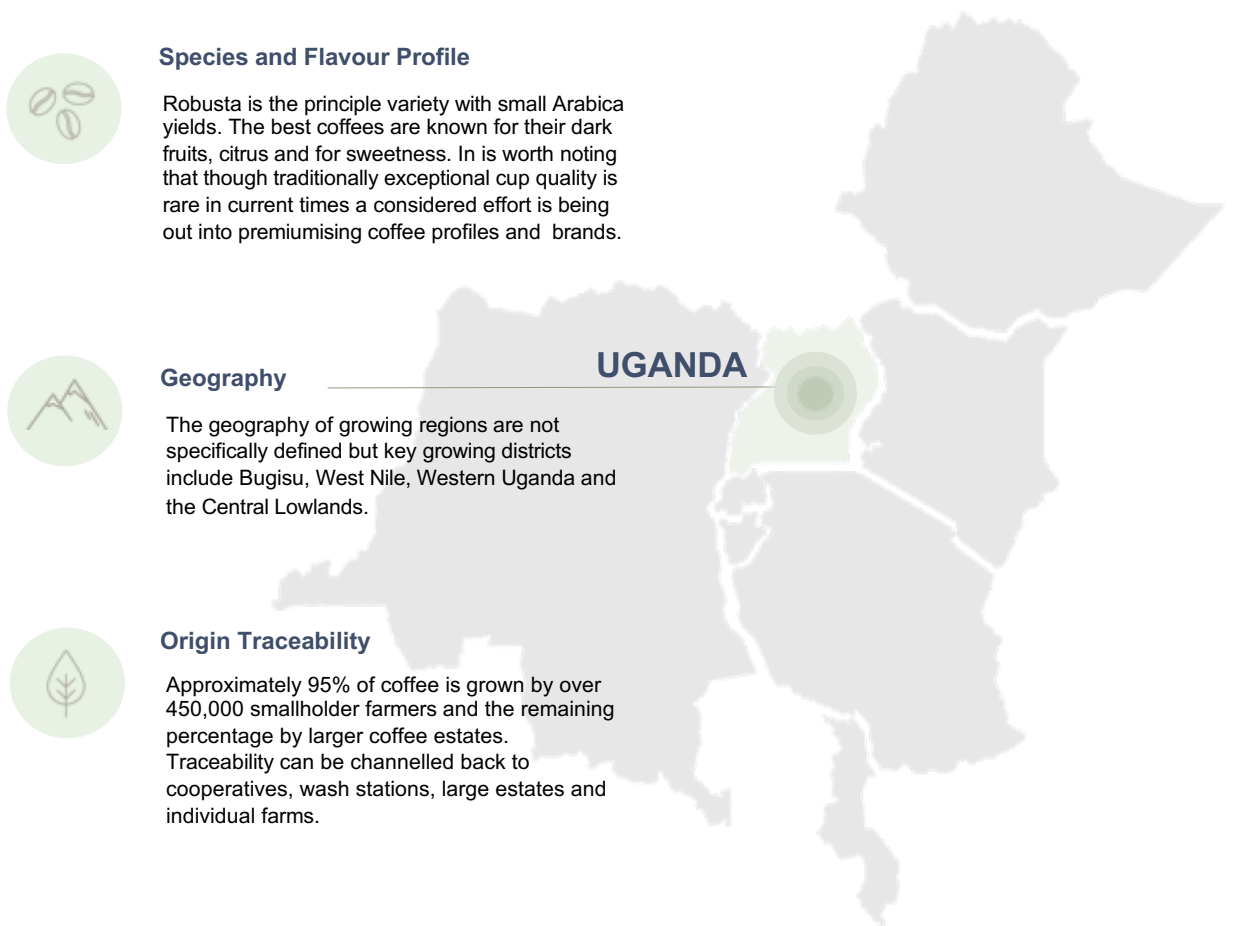


Fig 2: Coffee production in Uganda. Source- *The World Atlas of Coffee: From beans to brew*

History of Production in East Africa

Kenya

Coffee was imported into the country during the late 1800s by French missionaries brought the Bourbon variety of Arabica. The Coffee Act of 1933, under British rule, established the Kenyan Coffee Board. During this period the great coffee estates flourished, an auction and grading systems was introduced, and Scott Agricultural Laboratories founded which that set Kenyan coffee apart as an innovative and expansionist producing country.

The 1950s agricultural act called the Swynnerton Plan marked the shift of coffee production back to Kenyans from British colonisers. As a consequence, smallholder production rose exponentially, and the country has been producing top quality coffees since gaining independence since 1963.

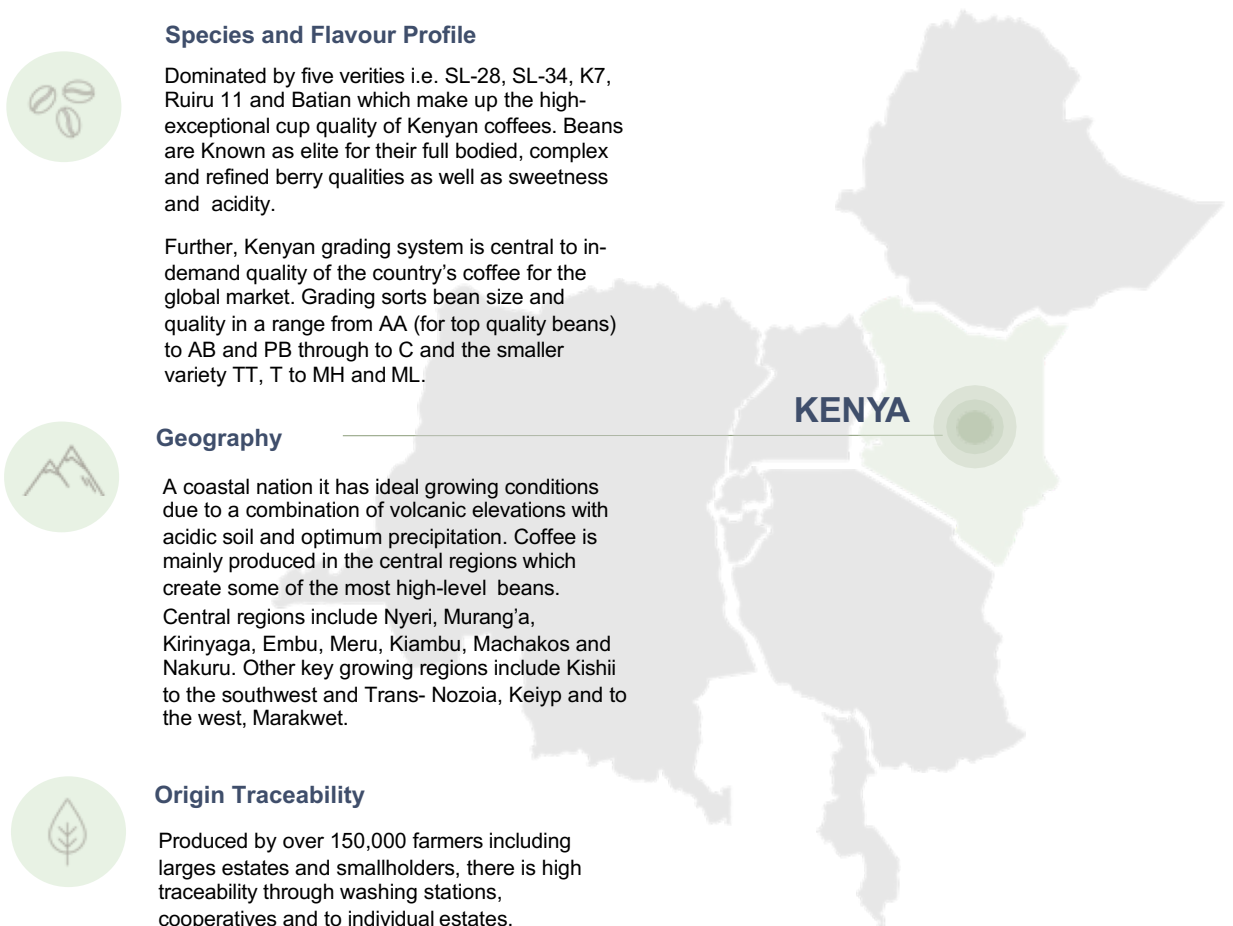


Fig 3: Coffee production in Kenya. Source- *The World Atlas of Coffee: From beans to brew.*

History of Production in East Africa

Tanzania

The fourth largest producer in Africa, the history of coffee growing in the country dates back to the 16th century when it was introduced via Ethiopia by the Haya tribe who dried and chewed the cherries as opposed to brewing for a drink. Later under German 19th century colonial rule coffee was commodified, and the planting of Arabica coffee trees mandated.

The development of the railway system, the changeover to British rule, and emergence of cooperatives from 1925 onwards saw production and export activities in the country grow. During the 1990s the introduction of trade and administration reforms allowed for direct trade outside of the State Coffee Marketing Board.



Species and Flavour Profile

Arabica accounts for 70% and Robusta 30% of production with beans known for their berry and red fruit profiles and bright acidity.

Wilt disease spread across the regions during the 1990s impacting trees loss for a significant period.



Geography

The largest country on the continent its topography is defined notable altitudes, great lake districts and its coastline.

Key growing regions include Kilimanjaro, Arusha, Ruvuma, Mbeya, Tarime, and Kigoma.



Origin Traceability

Approximately 95% of coffee is grown by over 450,000 smallholder farmers and the remaining percentage by larger coffee estates.

Traceability can be channelled back to cooperatives, wash stations, large estates and individual farms.

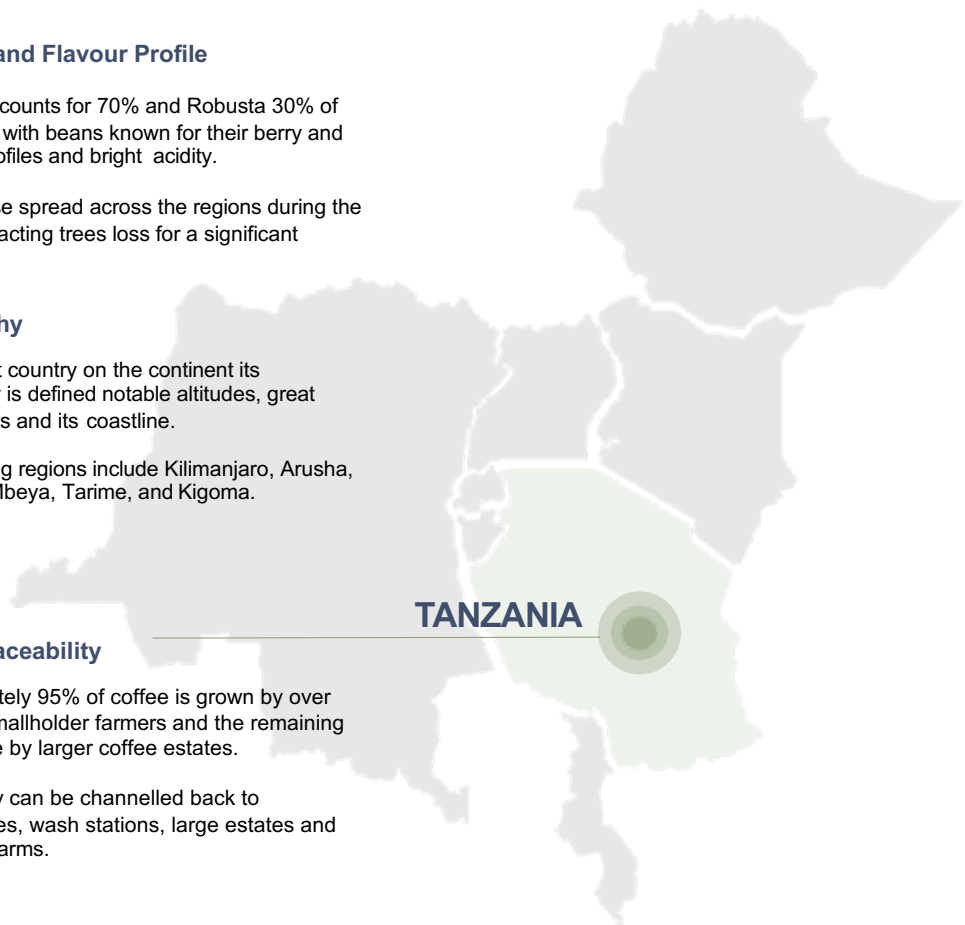


Fig 4: Coffee production in Tanzania. Source- *The World Atlas of Coffee: From beans to brew.*

History of Production in East Africa

Rwanda

Located south of the Equator coffee was thought to have been brought into the country by German missionaries in the early 20th century. Having been colonised by Belgian colonists the industry in recent years, after considerable political upheaval and genocide in the 1990s and the impacts of falling world coffee prices, the industry is an important agri-economic indicator of post-war recovery.



Species and Flavour Profile

Arabica is the principle bean cropped with smaller Robusta outputs. Coffees are known for their fruitiness and fresh berry fruit and floral profiles. USAID investment initiated the establishment of washing stations with over 300 in operation today. Rwanda was the first African country to host the Cup of Excellence in 2018 and is on a trajectory to greater quality and export volume.



Geography

A land locked nation punctuated by mountainous areas which favourable altitudes and climatic conditions favour coffee growing. The country is not distinguished by specific provinces but key growing regions include South and Western regions and the Eastern region.



Origin Traceability

The majority of producers can be classified as smallholders and coffees are largely traceable to cooperatives and washing stations.

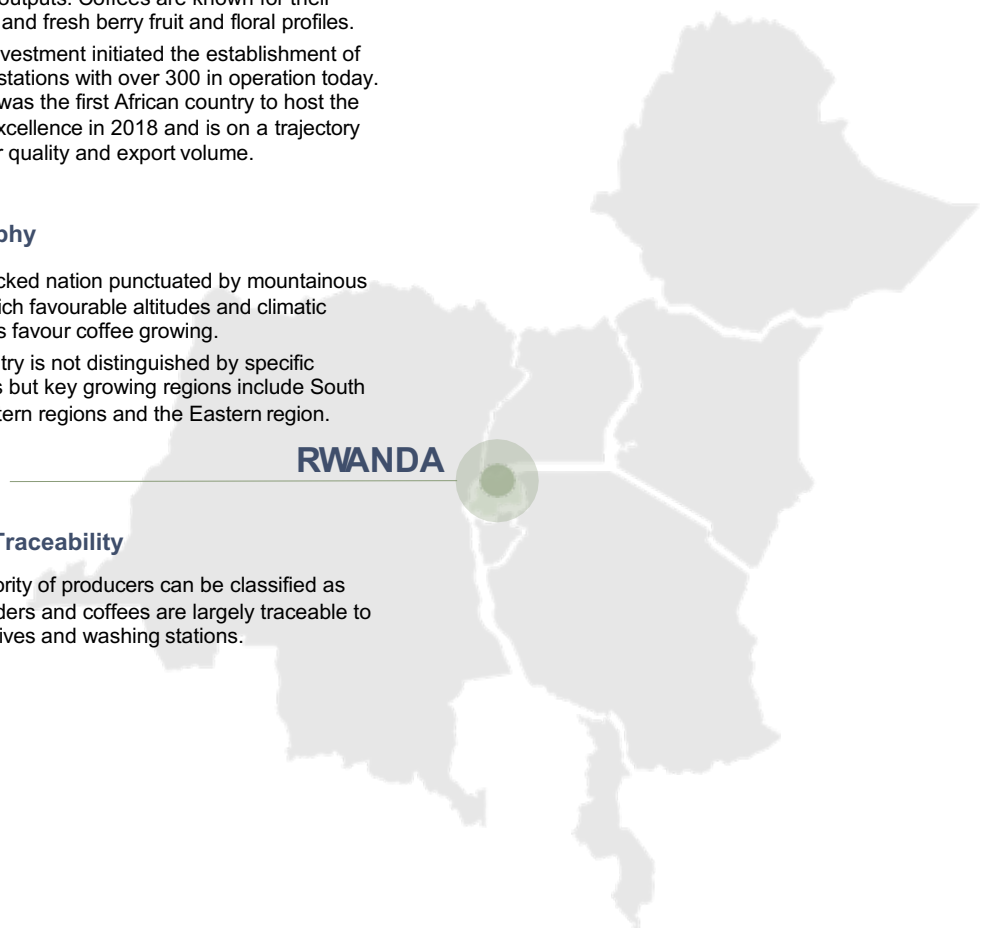


Fig 5: Coffee production in Rwanda. Source- *The World Atlas of Coffee: From beans to brew*

History of Production in East Africa

Democratic Republic of Congo (DRC)

Coffee was brought to the country in 1880s and escalated after discovery by Belgian colonists of a new variety i.e. *Coffea canephora*. Production boomed during the 1970s and 1980s due to free market economics and later government intervention. However, in the 1990s coffee production was marked by two Congolese wars and coffee wilt disease which attacked Robusta crops. The country and the sector has been revitalising in recent years with public and private support.

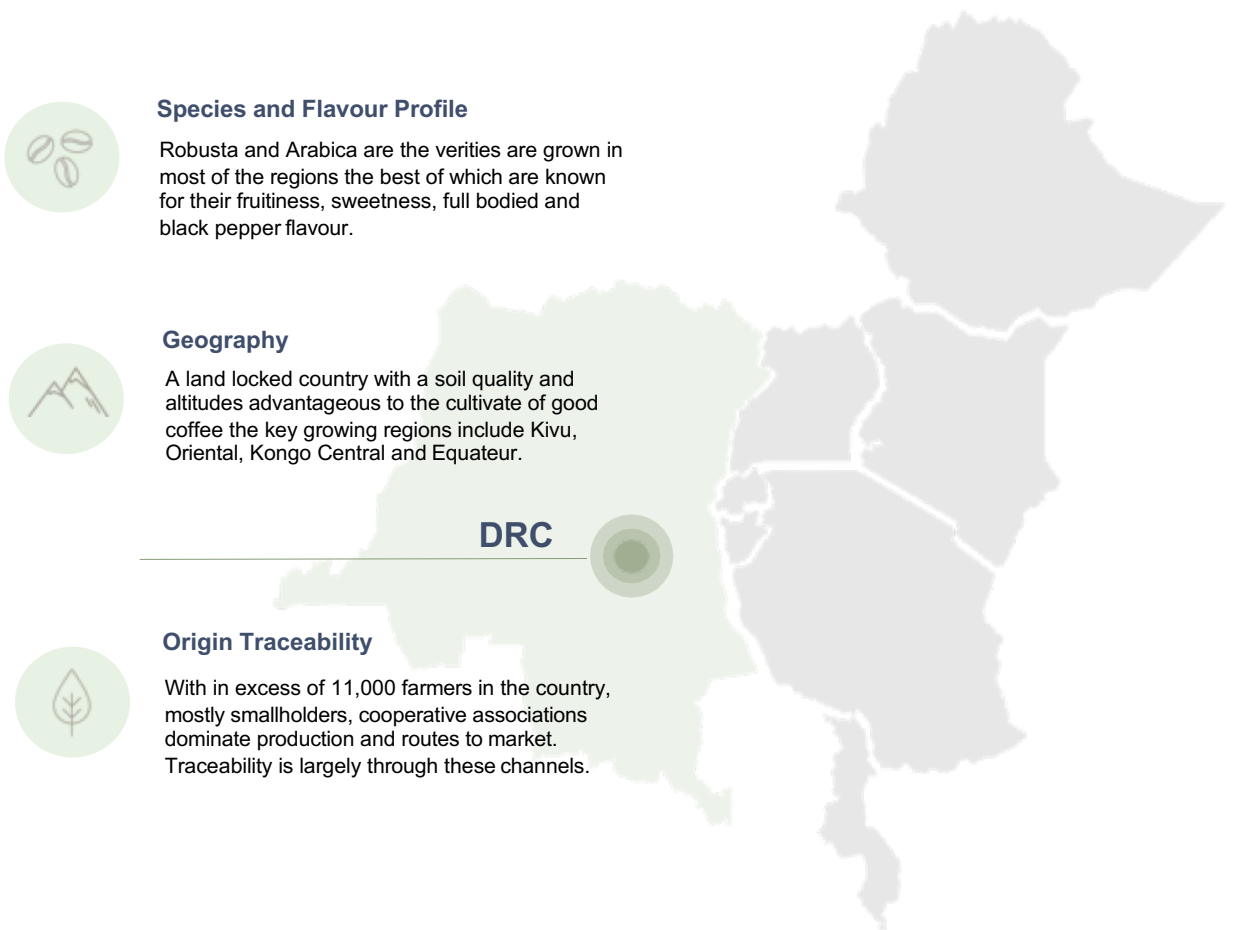


Fig 6: Coffee production in DRC. Source- *The World Atlas of Coffee: From beans to brew.*

History of Production in East Africa

Malawi

Coffee was brought to the country in 1880s and escalated after discovery by Belgian colonists of a new variety i.e. *Coffea canephora*. Production boomed during the 1970s and 1980s due to free market economics and later government intervention.

However, in the 1990s coffee production was marked by two Congolese wars and coffee wilt disease which attacked Robusta crops. The country and the sector has been revitalising in recent years with public and private support.

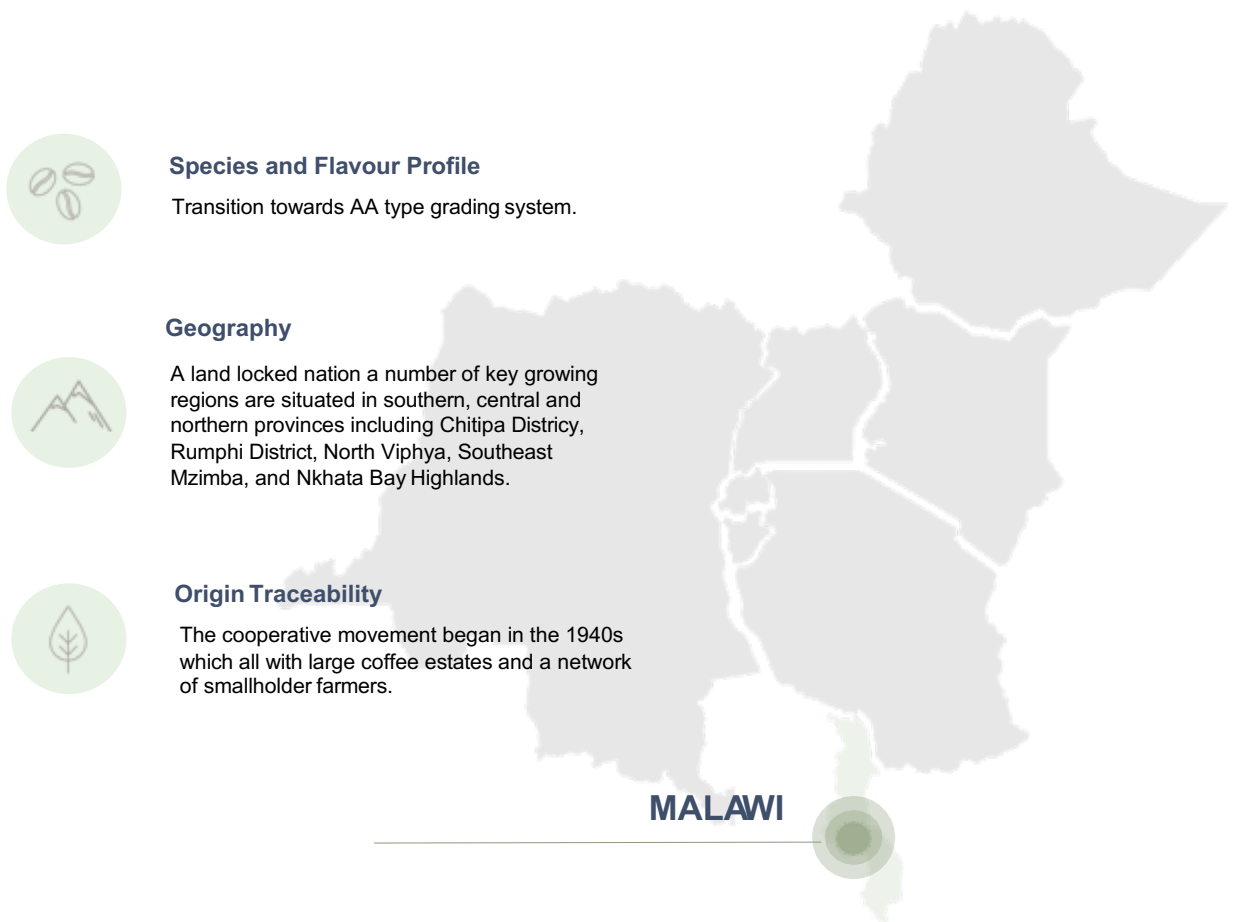


Fig 7: Coffee production in Malawi. Source- *The World Atlas of Coffee: From beans to brew.*

History of Production in East Africa

Burundi

Coffee was introduced to the country under Belgian colonial rule in the 1920s, and by the early 1930s it was mandatory for the nation's farmers to cultivate the crop. The industry was privatised following the nation's independence in 1962, but government control resumed by 1972.

Following the nation's first democratic elections in 1993 and the succeeding civil war both the economy and coffee production dramatically decline. The threat of political instability remains a constant challenge, however, today production is recovering, returning to semi- privatisation, e.g. private washing stations, and is a vital source of income for 650,000+ farmers.



Species and Flavour Profile

Arabica is the main species cultivated though Robusta is also grown. Coffees are distinguished by complex berry fruit flavours and juicy acidity. Crops are susceptible to potato defect which affects specific bean varieties.



Geography

Mountainous regions provide optimum altitudes and climatic conditions. Key growing provinces include North/ Northwest: Bubanza, Bujumbura Rura, Kirundo, Cibitoke Kayanza; central: Muramvya, Gitega, Karuzi, Mwaro; South / Southwest: Makamba, Rutana and Bururi; North/ Northeast: Muyinga, Ngozi.



Origin Traceability

Produced mainly by smallholders, as there are no coffee estates. Coffees can be traced back to each regional SOGESTAL where they are blended. Washing stations in every region are organised into Sociétés de Gestion des Stations de Lavage (SOGESTALS) which manage the processing. Speciality coffee sector is seeing increase in direct trade purchasing.



Fig 8: Coffee production in Uganda. Source- *The World Atlas of Coffee: From beans to brew.*

Coffee Beans and Varieties

As detailed in earlier in this chapter, coffee fruit is mainly farmed in the 'bean belt' southern latitudes of the tropics. Both in the tropics, with its favourable equatorial conditions, and in other parts of the world a taxonomy of over 130 *Coffea* species exist (Bilen et al., 2022; Davis et al. 2021).

Out of the plethora of crop varieties two of the most prodigious and popular varieties are *Coffea arabica* and *Coffea canephora* (more commonly referred to as *Coffea robusta*) which together dominate coffee blends accounting for approximately 90% of global coffee production (ICO, 2023; Hoffman, 2018). Below is a detailed look at each species.

Coffea arabica is a species of flowering plant from the Rubiaceae family. The plant is a small evergreen tree which typically grows to a height of 2 to 8 metres. It blooms with white flowers and bears berries that ripen from yellow to red and purple. Each cherry produces two green seeds or coffee beans which darken upon roasting. A high-altitude plant it grows between 950 and 1,950 metres above sea level and favours tropical climates with even rainfall, a short dry season and an absence of frost or windy conditions. The plant thrives in marginally acidic soils like those found in countries across Africa, South America, Asia, Indo-China and the Caribbean.

Arabica can be divided into two main varieties Typica and Bourbon. Both are prized for their complex and even aromas and has a smooth sweeter taste profile with fruit and beery tones. Arabica contains little caffeine and has a balanced acidity.

Of the world's coffee production, 65-70% is produced by this dominating cultivar. Said to have been the first species to be cultivated its antecedents were native to the forests of South Ethiopia and Yemen where it still grows in abundance today e.g. Ethiopia, according *Statista*, is the leading African exporter of coffee, valued at \$1.5 billion USD in 2022 (Statista, 2022).

Research literature highlights the potential effects of climate change which is likely to deplete indigenous populations of the plant. Excessive rainfall, droughts and rising temperatures will bring pests and diseases and impact the reproductive success of the plant. Kew Garden's Plant Assessment Unit, which conducts risk assessments for the International Union for Conservation of Nature (IUCN), has revealed that 'wild arabica is endangered' and 'the natural population of arabica coffee is estimated to reduce by up to 50% by 2088 due to climate change alone' (Royal Botanic Gardens Kew, n.d.).

It is therefore critical to the scientific community that conservation efforts are trained on conservation of wild populations of the plant and developing adaptation practices around more resilient strains such as the recently rediscovered *Coffea stenophylla* in Sierra Leona.



Fig 9: *Coffea arabica*

Coffee Beans and Varieties

Deforestation and habitat clearance also presents a major challenge to *C. arabica* due to it being an understory plant which does not flourish in harsh sunlight. According to the UN Food and Agricultural Organization (FAO) over 4 million hectares of African forests are being cut down annually affecting important East African coffee growing habitats in Ethiopia, Tanzania, Uganda and Malawi.

In response to this challenge the European Union has ratified a ban on imported crops from deforested land. Due to come into force in 2025, mandatory compliance means value chain players will be required to submit proof crops are not grown on deforested land (De Sousa, 2023).

Coffea canephora (robusta) is a species of flowering plant from the Rubiaceae family. The plant originated in central and western sub-Saharan Africa. It is primarily found in humid environments, evergreen forests, and at lower elevations ranging from 50 to 1500 metres above sea level (Davis, et al., 2006).

A more robust plant it is less susceptible to pest and disease and more resilient at thriving in less shaded conditions. However, trees are susceptible to coffee leaf rust, berry borer and stem borer to name but a few (Vega et al., 2006).

Robusta is known for two of its most popular varieties Erecta and Nganda. Taste profiles have a strong, more bitter and woody cup quality. It is less acidic and has lower sugar levels but contains twice as much caffeine and more antioxidants than that found in Arabica beans.

In this respect, Robusta has long been considered of inferior quality to its Rubiaceae relative and thus heavily farmed for its commodity volume. On the other hand, Robusta is a cross-pollinating species and a range of varieties can be found which future agro is being rediscovered for breeding development particularly for the speciality market.

Of total global coffee production 35-40% is produced by this cultivar. Indigenous to the forests and slopes of the Congo the species is today grown mainly in the Eastern hemisphere primarily in Africa and Indonesia. The top global producers are Uganda, the world leading exporter, followed by Vietnam, Brazil, Indonesia and India (Slipchenko, 2021).

Whilst being a resilient and adaptable crop Robusta is not without vulnerability to climate variability. Recent research studies indicate that 'temperatures above 20.5 degrees centigrade can have significant negative impacts on yields' plus the species 'may be more susceptible to increasing intra-seasonal temperature variability' (World Coffee Research, 2020; Bilén, 2022, p.2). This means climate change expected to reduce land suitable and yield capacity significantly by 2050 risking the very real potential to destabilise the future of commodity coffee.



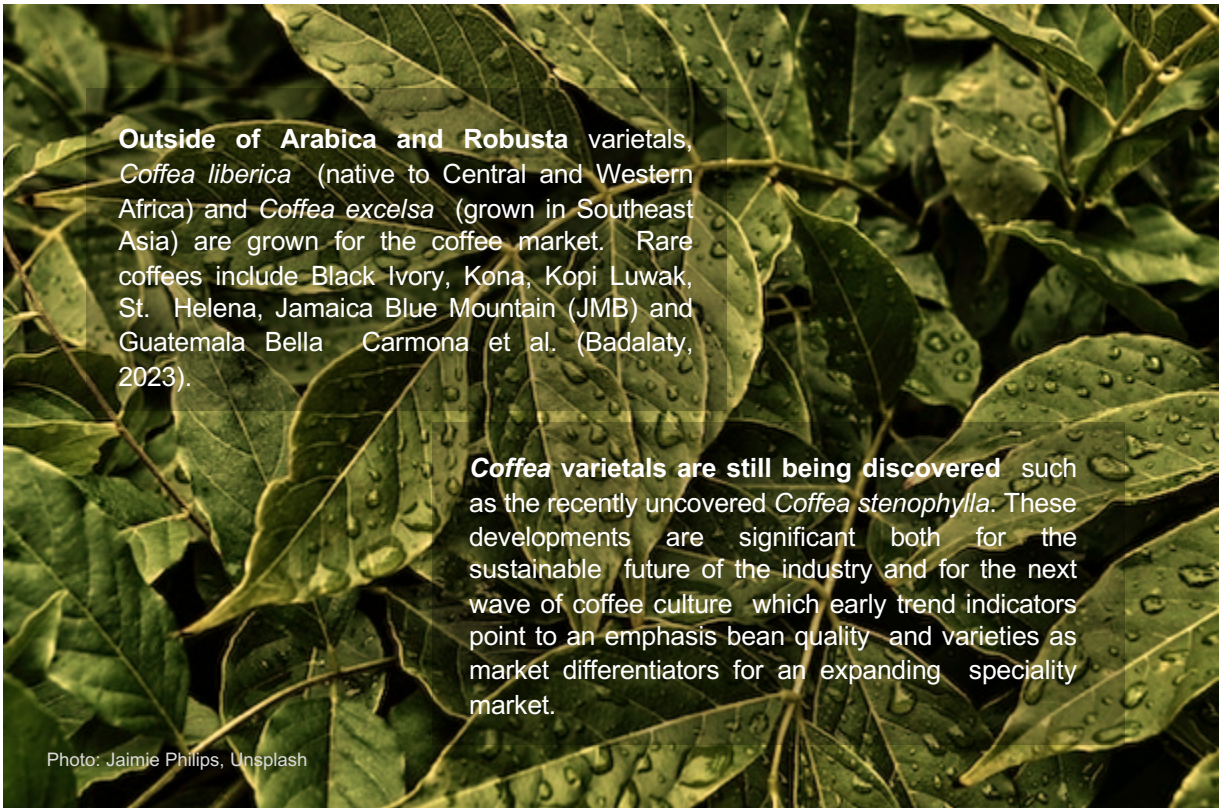
Fig 10: *Coffea canephora (Robusta)*

Coffee Beans and Varieties

Robusta coffee's agrosystem is also at risk of destabilisation due producing high commercial yields. Commercial farming often includes a heavy reliance on fertilizers and pesticides which together with poor soil management can function to increase soil acidification and thus impact yields in the longer term.

Whilst *Coffea arabica* and *Coffea canephora (robusta)* are the main species grown for production in East Africa (detailed in section 2.1.2) the sub-region is home to many high-quality sub-varieties and additional varieties a few of which are highlighted here:

- **Ethiopia Longberry:** one of the oldest cultivars of Arabica, it is grown in the Harra region of Ethiopia. Produced in small batches this coffee is hand harvested, sundried and processed creating a heavy, complex and bold cup flavor.
- **Peaberry coffee:** comes from a mutation inside a berry where only one bean/seed germinates which produces a single half-moon shaped bean. Associated with Kenya and Tanzania (but also found in Brazil) this rare fruit requires hand sorting creating higher labor costs which translate into expensive gourmet coffees. Peaberries tend towards a sweeter taste profile with bright acidity and complex aromas. This is attributed to sugars and flavors condensed into one bean as opposed to two.
- **Kenyan coffee:** superior cup quality of SL-28 and SL-34 varieties (cultivated in the country for over ninety years), K7 developed during colonial period for high yields; and Ruiru 11 developed by the Coffee Research Foundation it is a crossbred with good cup quality and high yield capability.



Outside of Arabica and Robusta varieties, *Coffea liberica* (native to Central and Western Africa) and *Coffea excelsa* (grown in Southeast Asia) are grown for the coffee market. Rare coffees include Black Ivory, Kona, Kopi Luwak, St. Helena, Jamaica Blue Mountain (JMB) and Guatemala Bella Carmona et al. (Badalaty, 2023).

Coffea varieties are still being discovered such as the recently uncovered *Coffea stenophylla*. These developments are significant both for the sustainable future of the industry and for the next wave of coffee culture which early trend indicators point to an emphasis bean quality and varieties as market differentiators for an expanding speciality market.

Photo: Jaimie Philips, Unsplash

Quality of Coffee

The quality of coffee is influenced by many factors, not least bean quality and variety detailed in the previous section. Other important contributors are 1) the growing conditions in the countries of origin including elevations, soil quality and irrigation, and climatic conditions and 2) the processing methods and techniques applied after harvest including the use of wet or dry processing and 3) the roasting and brewing techniques applied to develop flavour profiles and cup quality. This section examines at the main categories of coffee and the distinct characteristics that define each type.

Commodity v Speciality

The World Atlas of Coffee indicates the ‘coffee industry can be divided into two distinct areas commodity and speciality’ (Hoffman, 2018). Each area is differentiated from the other in terms of distinct characteristics including quality, origin, process of production and price. Below are key highlighted differences for commodity and speciality types:

Characteristics	Speciality Coffee	Commodity Coffee
Flavor and taste	Light roasted; fruity and floral natural aromas; gentler, sweeter, milder taste	Dark roasted; taste defects and inconsistency
Beans variety	Green beans; high grade	Mix of low quality
Origin of the Beans	Arabica coffee beans; lower caffeine content; found in certain countries	Robusta coffee beans, resilient in extreme temperatures
Types	Arabica is the dominant type with 60% of the market	Entirely Robusta or mix of Arabica and Robusta
Qualities	High quality coffee graded 80 and above by the Speciality Coffee Association	Does not meet international SCA standards
Price differences	Expensive due to labor intensive nature of its harvesting and processing. Harvest yields are lower. Done in small batches	Cheap due to mass production, less need for worker attention
Ingredients	Non-GMO, organic, vegan	Pesticides
Picking methods	Hand picked	Often picked by machines
Health benefits	Antioxidants, Vitamin B2, Vitamin B5, Vitamin B1, Vitamin B3, Manganese, Potassium, Magnesium, Folic Acid, Phosphor	Magnesium, Phosphorus, Potassium, Calcium

Table 2: Commodity versus Speciality Coffee. Source- www.bartholomewbakery.com

Commodity Grade Coffee

Commodity grade coffee is defined as a global product, its price determined by world supply and demand without due regard for its intrinsic quality or variety. Traded for its C-price and consumed as a mass market product this category of coffee is largely homogenous, interchangeable and with neutral flavour profiles not distinguished by provenance or roasting techniques.

The global scale commodity coffee value chain is dominated by large corporations such as Nestlé, J.M. Smucker, Starbucks Corporation and JAB Holding Company responsible for branding and marketing products (whole bean, instant coffee, pod, capsules) for both the out-of-home and at-home coffee markets. Due to the bulk nature of production, the lack of traceability and the use of low-quality varieties, this class of coffee is often charged with issues relating to quality and sustainability.

Characteristics	Overview
Fruit	<i>Coffea canephora</i> , known as Robusta coffee largely used and accounts for 40 percent of the world’s production. Robusta plants grow to height of 10 meters and depend on cross-pollination. The plant is more robust than the arabica variety but produces an inferior taste with higher caffeine content. Low quality Arabica and/or Arabica-Robusta blends are also used to produce commodity coffee.
Quality	Describes homogenous coffees that are not traded on quality but rather simply ‘coffee’ as a product. Traded for its C-price on the stock market means ‘coffee types are interchangeable and towards higher caffeination.
Farming	Often grown on large high altitude plantations or at lower elevations where cherries (ripe and unripe) are machine harvested for high volume yields at a lower cost of production.
Producers	Distinguished by large scale farms and largely by farmers in developing countries who are often not fairly compensated especially when the C-price falls or yields (impacted by climate conditions) are low.
Origin	Traceability traditionally not emphasised as mass production on large swathes of land is to produce in bulk for global market. Industry shift towards greater traceability in recent years.
Ethics	General sectoral focus on market price and volume of production. C-price variability and yield volumes means farmers often suffer with price drops barely covering cost of production. This leads to financial insecurity and short-term business relationships between farmer and buyer.

Table 3: Commodity Grade Coffee

Speciality Grade Coffee

Speciality grade coffee is defined by Specialty Coffee Association (SCA) as coffee graded 80 points or on a 100-point scale. Coffee graded within this bracket is also distinguished by two additional minimum requirements that is beans used must be hand-picked and mature and have a maximum of five defects per 350g cup.

The fastest growing segment of the coffee market, speciality quality coffee is curated in a chain of artisanal expertise along the CVC from farming to processing and from roasting to blending and brewing. Consumers willing to pay for this premium product also mark a demand shift towards integrated traceability and sustainable practices from bean to cup.

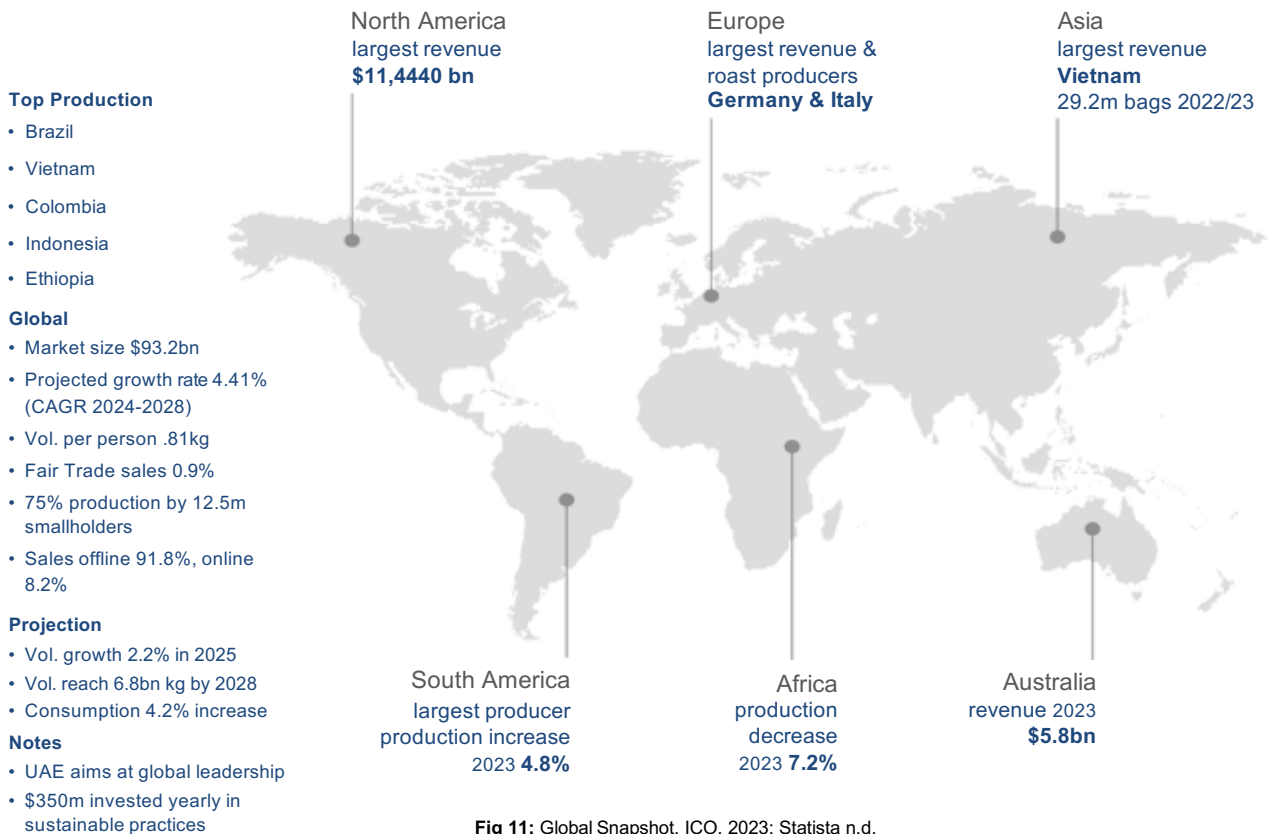
Characteristics	Overview
Fruit	<i>Coffea arabica</i> , known as Arabica coffee, largely used for specialty coffee and accounts for 60 percent of global production. The arabica plant is more susceptible to diseases and pests and the plant is self-pollinating.
Quality	Defined by Specialty Coffee Association (SCA) as coffees with a score of 80 or above, cup quality assurance and is central to the production process of specialty of coffee. Beans are tested extensively for aroma, flavour complexity, sweetness, acidity levels, mouthfeel and balance of distinctive tasting notes.
Farming	Grown on higher altitude farms where conditions are favourable to cultivating the Arabica plant. High quality ripe cherries are carefully selected, hand-picked making yields more often lower in volume (compensated by higher market prices).
Producers	Distinguished mainly by small scale farms with producer-owner grown methods. This allows for great attention to farming and harvesting processes ensuring greater skill, quality control and therefore greater farmgate prices.
Origin	Farm to cup traceability is emphasised i.e. traced back to downstream specific farms or region of origin. This origin traceability encourages embedded support of fair trade and/or fair chain practices which are often distinguished in marketing to the consumer (who is often based in affluent societies with higher disposable income).
Ethics	General industry focus on fair treatment within the supply chain particularly for smallholders i.e. when coffee prices are higher compensation is passed on to the downstream players. Certification schemes such as Fairtrade, Rainforest Alliance and B Corp and/or direct trading are considered important as are 'food miles.'

Table 4: Speciality Grade Coffee

Global Sector Snapshot

The global coffee industry is a dynamic and expanding sector which recent reports confirm holds a robust market position. Current global market revenue is valued at \$93.2 billion (2024) and projected to grow at an annual rate of 4.41% CAGR during the forecast period 2024-2028 (Statista n.d.).

As the second most consumed drink on the planet the positive projected outlook can be attributed to a number of key factors including escalating consumer demand and consumption, expanding disposable income, convenience and on-the-go lifestyles, emerging markets, omnichannel retail sales, new product lines, and the proliferation of next generation coffee outlets and chains. Below are highlights of current and projected market data and an overview of the key growth drivers.



Key market data and growth drivers

- **Market size:** coffee industry accounts for 2.5% of the world's agricultural trade value (Chandrasekhar et al., 2023). Coffee production increased by 0.1% in 2022/23 to 168.2 million bags but the relatively stagnant growth rate 'belies the tremendous changes at the regional level, with the expanding Americas and the shrinking rest of the world' (ICO, 2023, p.2). The dominant producing regions in the world are South America, Asia, Africa, and Central America. Current global outlook indicates Brazil will hold its position as the largest coffee producer in the world followed by Vietnam, Colombia, Indonesia and Ethiopia in succession.

World Production

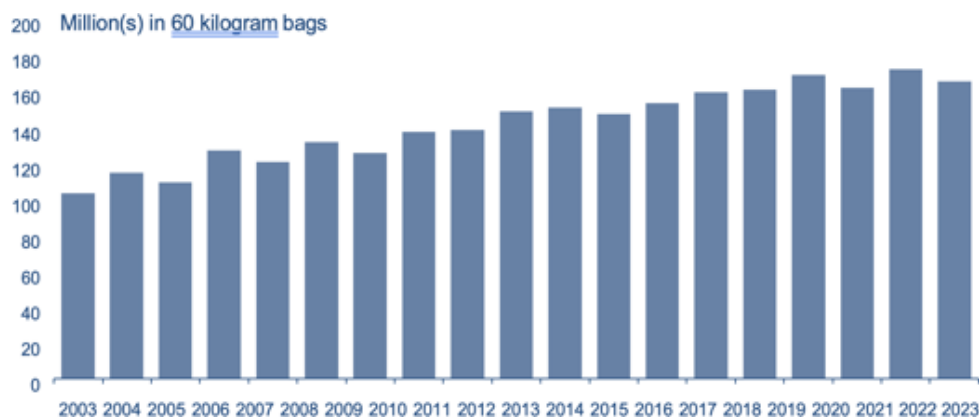


Fig 12: World Production 2003-2022. Source- Statista, 2023.

Market size due to the positive impact of biennial production is expected to see a growth in Arabica yields increased by 1.8% to 94.0 million bags in 2022/23 whilst exports of Robusta performed negatively, down 2.0% to 74.2 million bags i.e. this was due to 'a strange conflation to traditional Robusta-producing regions from negative growth, while traditionally Arabica-producing regions saw their Robusta output increase (ICO, 2023, p. 21).

Categories	Coffee Production, million 60kg bags					
Coffee year	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Production	169.8	169.4	170.8	168.0	168.2	178.0
Arabica	99.5	96.4	100.6	92.3	94.0	102.2
Robusta	70.3	72.0	70.3	75.7	74.2	75.8
Africa	18.5	18.5	19.2	19.3	17.9	20.9
Caribbean, Central America & Mexico	21.3	19.2	19.7	18.9	19.2	18.7
South America	81.9	81.1	83.9	77.6	81.3	89.3
Asia & Oceania	48.1	49.6	48.0	52.2	49.8	49.9
Growth Rates	1.7%	-0.9%	1.4%	-1.7%	0.1%	5.8%

Table 5: Source- ICO Coffee Market Report, December 2023.

- Global production:** In coffee year 2022/23 Africa's coffee production decreased by 7.2% with Uganda and Côte d'Ivoire impacted by drought; the Caribbean, Central America and Mexico's production increased by 1.7% with Honduras the largest producer in the region but Colombia impacted by challenging weather conditions; and South America's production increased 4.8% with Brazil benefiting from biennial output; Asia & Oceania's production decreased by 4.7% to 49.8 million with Vietnam (the second largest global producer) impacted by persist rains and shifts to other profitable crops (ICO, 2023).

World Production Balance

70 Million in 60 kilogram bags

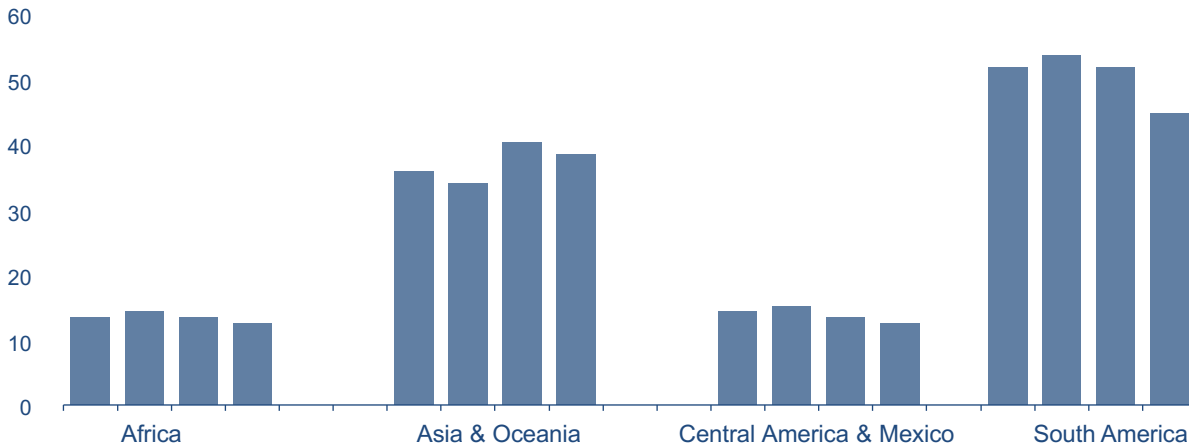


Fig 13: World Production Balance. Source- ICO Coffee Market Report, October 2023.

The global picture by coffee forms presents a mixed view. Global green bean exports were down 5.5% to 110.81 million bags for the coffee year 2022/23 compared to 117.28 million bags in coffee year 2021/22. But ICO reported an increase in green beans market share in October 2023. However, there were also reported decreases in both roasted (down 26.7%) and soluble (down 10.4%) coffee exports.

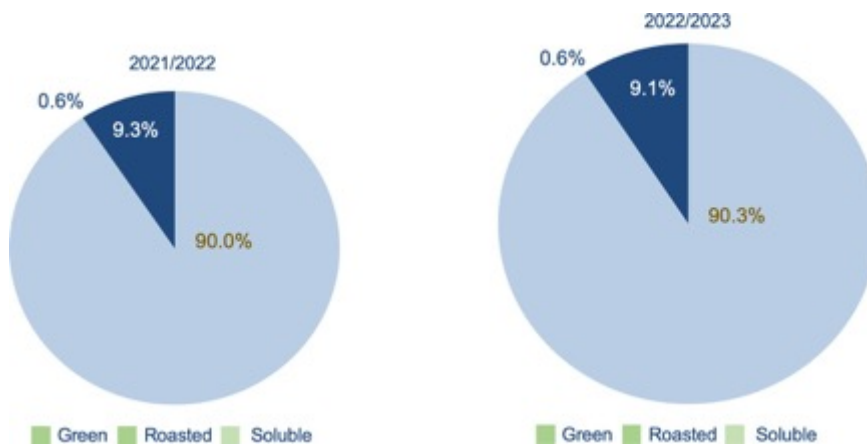


Fig 14: Total exports by form (October – September). Source- ICO Coffee Market Report, October 2023.

World Production and Consumption

Market projections: results of recent market data indicate the world coffee market production is projected to increase in the coffee year 2023/24 by 5.8% of 178.0 million bags. Arabica market output is projected to grow to 57.4% (102.2 million bags) with Robusta output forecast at 75.8 million bags (ICO, 2023). In addition, South American product is projected to increase by 9.8% to 89.3 million bags (ICO, 2023).

World coffee consumption: consumption did not ‘follow established pattern due to the impact of high cost of living, falling disposable incomes and a long stocks drawdown’ (ICO, 2023, p.29). However, world coffee consumption outlook for the coffee year 2023/24 expects a growth of 2.2% to 177.0 million bags. In excess of 3 billion cups of coffee are now consumed daily around the globe with the top five consuming countries per capita being the US, Germany, France, Italy, and Canada (see below).

Leading Importing Countries

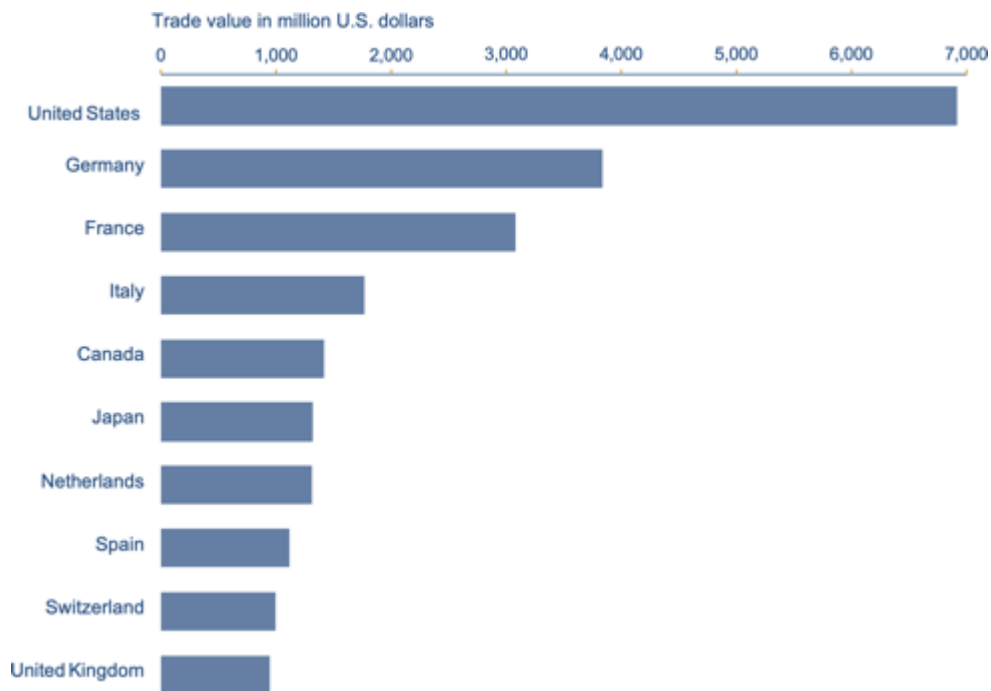


Fig 15: Leading Importing Countries Worldwide 2021. Source- Statista, 2023.

However, economic deceleration headwinds together with continuing inflationary pressures and geopolitical impacts will see 2024 demonstrate slower growth rates. Consumption to increase fastest in North America i.e. by 3.8%, and European coffee consumption to recover but at a slow rate of 1.1% which is the same for South America; whilst the Caribbean and Central America and Mexico to see consumption increase by 2.3% (ICO, 2023).

World Coffee Consumption

Coffee Consumption, million 60kg bags						
Coffee year	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Total	171.2	168.6	169.9	176.6	173.0	177.0
Producers	52.5	52.2	53.1	168.0	168.2	178.0
Non-producers	118.6	116.4	116.8	122.2	118.1	120.5
Africa	11.9	12.1	13.0	12.9	12.2	12.5
Caribbean, Central America & Mexico	5.8	5.8	5.9	6.0	6.0	6.1
South America	26.3	26.0	26.4	27.0	27.5	28.3
North America	31.8	30.6	30.2	31.3	29.8	30.9
Asia & Pacific	55.5	54.0	52.2	55.2	53.1	53.7
Growth Rates, Year-on-Year						
Coffee year	2018	2019	2020	2021	2022	2023
Total	3.3%	-1.5%	0.8%	4.0%	-2.0%	2.2%
Producers	1.6%	-0.6%	1.8%	2.4%	1.2%	2.6%
Non-Producers	4.0%	-1.9%	0.3%	4.7%	-3.4%	2.1%

Table 6: World Coffee Consumption. Source- ICO Coffee Market Report, December 2023.

- **Emerging markets:** green coffee consumption is set to propel consumer growth in emerging markets such as Africa, due to expanding urbanization, rising youth populations, levels of middle-class income, and the spread of coffee shop culture. A similar positive upward trend in the APAC region i.e. up by 3.1%, due to increased demand from countries such as China and India with growing populations, disposable income and economic strength. Africa and Asia & Oceania market is expected to expand by 2.7% for the forecast period 2023-2024 (ICO, 2023).
- **Disposable income:** a principle growth determinant is the rising personal disposable, particularly in developing countries, and amongst youth demographics. Though many countries are experiencing weakening economies and inflation is trending upwards with consumers remaining cautious about spending a long-term positive outlook is predicted. For example, Europe, the world's largest coffee market and green coffee importer as well as the most significant market for specialty coffee, is according to the European Commission's *European Economic Forecast, Winter 2023*, set for growth in the coming year at 1.6% in 2024 which will 'support a rebound in private consumption' (p. 19).
- **Routes to market:** traditional distribution channels and the proliferation of e-commerce retail sales, both B2C and B2B, has been a large contributor to coffee market growth. Online coffee sales, expedited during the pandemic, have continued to gain traction.
- **Key players:** leading competitors in the global coffee market include J.M Smucker Company, Starbucks Corporation, Coca-Cola Company, Kraft, Keurig Green Mountain, Nestlé, Massimo Zanetti Beverage Group and Caribou Coffee amongst others. Of note is that the leading players are signaling opportunities for growing their respective market share through joint ventures, production innovation and regional expansion (Mordor Intelligence, 2023).

World Coffee Trends

The sector is undergoing essential shifts in how it operates and services customer habits change the coffee industry must continually evolve, from the downstream farmers and producers who influence varieties and bean flavours at source, to the roasters that create unique flavour profiles; to the product manufacturers who innovate technologies and product lines, to the baristas and coffee shop owners who apply inventive brewing methods; techniques and flavour combinations together with new customer experiences, the industry relies on all of these influencers to maintain and evolve coffee culture.

This segment profiles some of the major trends influencing the sector in 2023 which include:

- **Specialist coffee market** is growing with a demand for unique high-quality coffee and exploring flavour profiles and specialty coffee shops set to grow 13.62% CAGR 2020-2025. Africa is renowned for its specialty bean varieties e.g. Ethiopia produces over 5,000 strains of Arabica such as the unique Yirgacheffe, Sidamo and Hara varieties.
- **Emphasis on sustainability and ethical sourcing** as consumers are becoming more conscious and discerning about the environmental and social impact of coffee production and greenwashing.
- **Increasing demand for certified products** as consumers become more focused and aware of where purchases come from and manufacturing processes. In particular next generation certification is looking to offer even greater value chain traceability and income parity.
- **Brewing methods** continuing to evolve, for example, capsule, AeroPress, cold brew, nitro-brew and servicing temperature versatility gaining popularity.
- **Ready-to-drink products** on a growth trajectory particularly cold coffee consumption on the rise as evidenced by a 23% increase since 2021.
- **Next generation products** such as coffee pods/capsules that are commercially compostable created using bio-compostable material (PLA). Also demand for dietary supplements and nutraceuticals rising with sales expected to increase in EU countries such as France, Germany, UK and Italy.



Image: Brent Gorwin, Unsplash

- **New innovative companies** continuing to emerge on the market such as Bizzy Coffee (cold brew specialists), and Compound Foods (coffee made by synthetic biology to reduce the effects of global warming).
- **Big data** playing a more central role in supply chain transparency and traceability e.g. World Coffee Research open-access *C. arabica* genetic fingerprinting database launched August 2023; Starbucks Digital Traceability Platform (in partnership with Microsoft Azure).

Africa Sectoral Snapshot

Africa is a significant player in the global coffee market with a reputation for cultivating high-quality beans and export volume. The continent makes up 12% of worldwide coffee production. In particular, the East African sub-region is the key coffee power belt where a concentration of producer countries, detailed in Chapter 5, ensure the generation of sizable export earnings and domestic revenues.

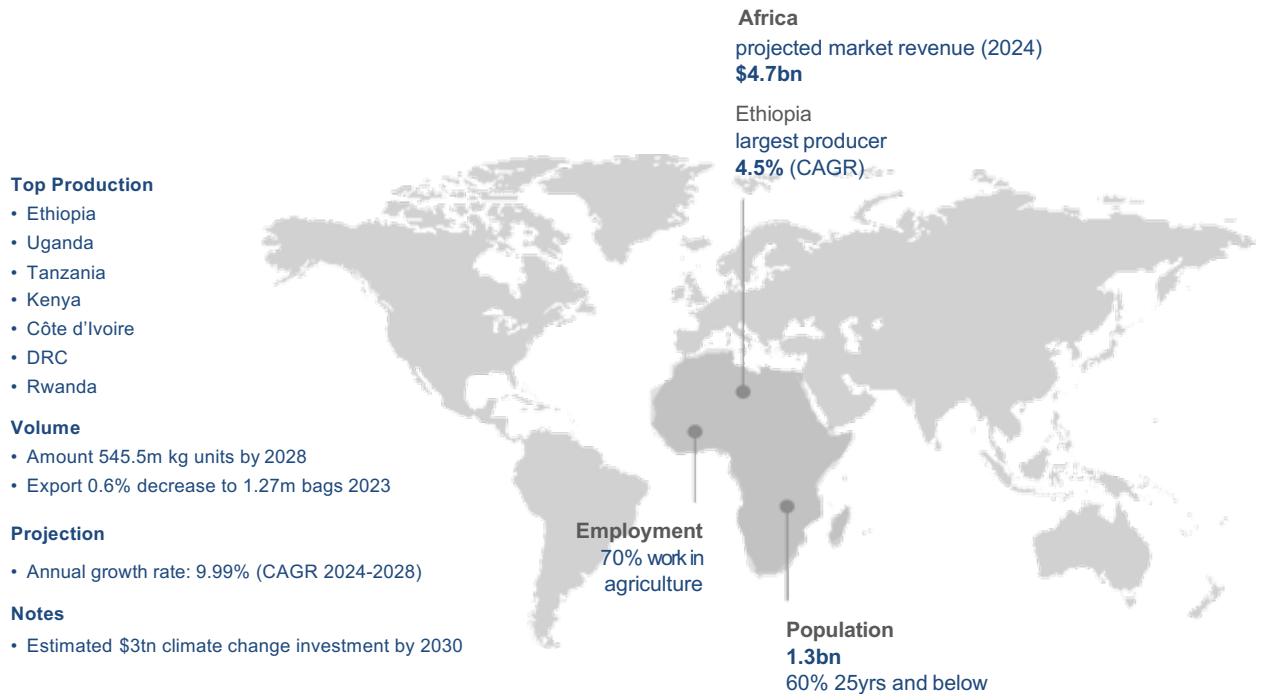


Fig 16: Africa Sectoral Snapshot. Source- ICO, 2023; Statista n.d.

Key market data and growth drivers:

- **Market size:** coffee exports from the continent in 2023 were valued at \$4.2 billion USD (Statista, n.d.). As of coffee year 2022/23, Ethiopia maintained position as the largest volume producer followed by Uganda, Tanzania, Kenya, Côte de D'Ivoire, Democratic Republic of Congo, Rwanda, Madagascar, Cameroon, Burundi, Guinea et al. (ICO, 2023).
- **Export volume:** African exports decreased by 1.4% to 13.53 million bags in coffee year 2022/23. For example, September 2023 registered 1.21 million bags, down 1.9% from 1.23 million bags in September 2022. However, exports were stronger in fourth quarter in coffee year 2022/23 due in part to the global demand for Robusta and reduce volumes from APAC i.e. Vietnam region in particular (Statista, 2022; ICO, 2023).
- **Market projections:** GDP in sub-Saharan Africa grew by 4.4% in 2022 over the previous year whilst the coffee sector has a projected growth rate of 9.99% CAGR in the forecast period 2024-2028 (Statista, n.d.). However, a positive economic outlook for Africa has slowed due to global economic uncertainty, domestic inflation and ongoing global and internal conflicts.

Total Value of Exports by Country

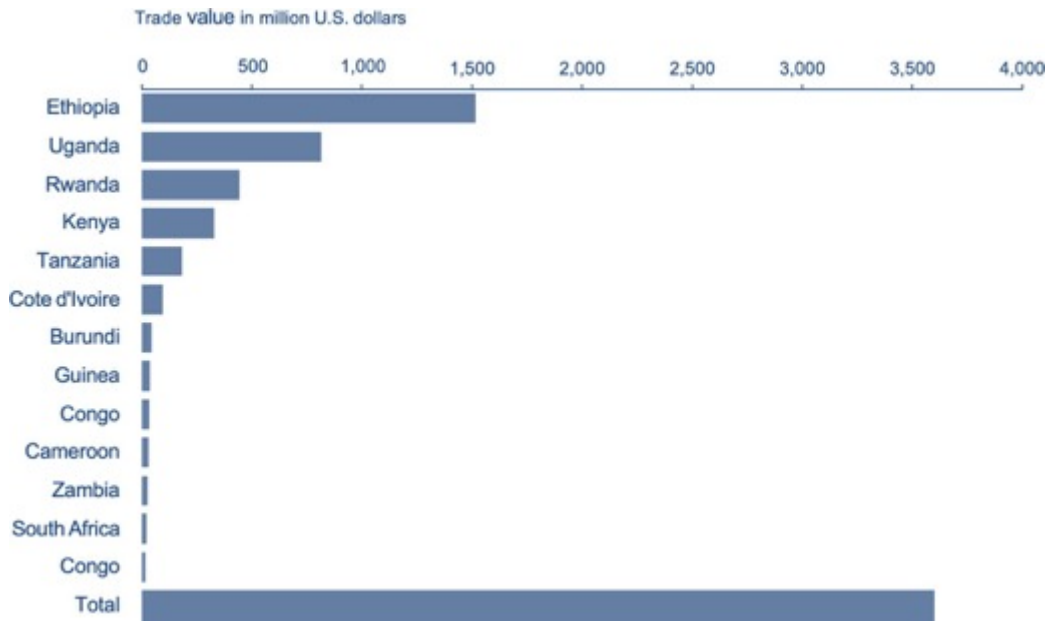


Fig 17: Total value & value of coffee exports from Africa in 2022 by country

GDP Growth in Africa by Region

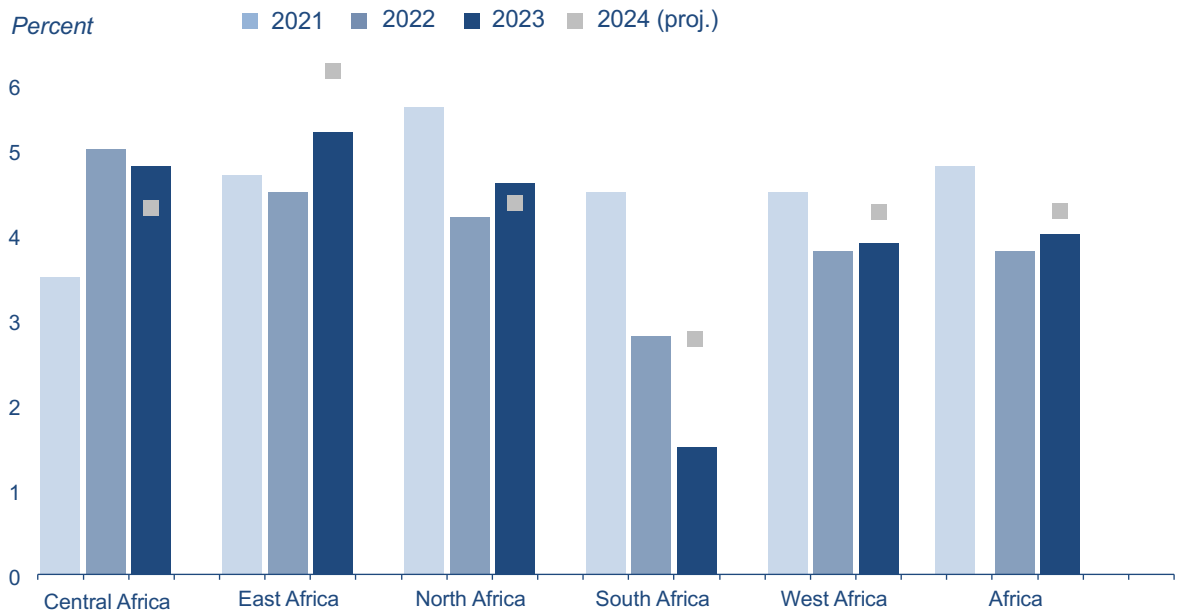


Fig 18: GDP growth in Africa by region. Source- African Development Bank, 2023.

Africa Sectoral Snapshot

- **Growing consumption:** Known primarily as producer region the majority of Africa's coffee is exported to the global market. However, from a demand perspective, Africa's domestic consumption fell by 4.7% in coffee year 2022/23 to 12.3 million bags (ICO, 2023). This negative growth rate is however in contrast to changes at individual country levels i.e. 'Algeria, Egypt, Morocco and South Africa were the main negative driving force in the region, with a combined 13.6% or 0.7 million bags drop in consumption' against 'Ethiopia, Sudan and Libya, with a combined net 5.1% or 0.2 million bags increase in consumption' (ICO, 2023, p.33).
- **Key socioeconomic factors** will positively influence growth rates and consumption per capita in each region (ICO, 2023). These include expanding urbanization, rising youth populations (60% of the continent's population is under 25), growing middle-class incomes, and the spread of coffee shop culture particularly in major cities like Nairobi, Addis Ababa, Lagos and Cape Town (Fitch Solutions, n.d).
- **Convenience:** plays a major role for African consumers, for example, the ready-to- drink coffee culture gaining popularity i.e. the RTD market set to grow at a CAGR of 1.3% during the forecast period 2023-2028 (Mordor Intelligence, n.d.). Similarly, the demand for freshly brewed and specialty coffees are gaining traction in Africa particularly in urban centers driven primarily by large youth populations and the expanding middle- classes.
- **Routes to market:** The domestic market remains secondary to the international export trade which the African Development Bank's report indicates expected to grow further.
- **Key players:** Neumann Kaffee Gruppe, Ecom Agro Industrial, Olam, Volcafe (ED&F Man), Louis Dreyfus, Noble, and Sucafina.



Image: Killian Stokes

Market Segmentation

As explored in the previous sections, coffee consumption is on a growth trajectory, which means downstream industry players must continually target emerging markets, service new customer demographics and drive new brewing, technological and customer experience innovations. This is in order to service a customer market that can be divided into two main categories, that is, the out-of-home and at-home markets. Product types including whole bean, ground or instant coffee, capsules and coffee pods are branded and marketed to each segment through a plethora of distribution channels. This report takes a closer look at each market segment below:



Fig 19: Out-of-Home Market. Source- Mordor Intelligence n.d.; <http://tinyurl.com/5dycvujh>

Out-of-Home Market

The out-of-home market refers to worldwide coffee sales through Hotels, Restaurants and Cafés (HoReCa), also referred to as Hotels, Restaurants and Institutions (HRI), and offices and communities. The most sizable segment of the consumer market, it has experienced a significant post-pandemic rebound and shifting customer needs and demands.

- **Market size:** valued at \$39.26 billion USD in 2023 with an expected CAGR of 3.70% in the forecast period 2024-2029 (Mordor Intelligence, n.d.; ICO, 2023). Rebounding growth trends are attributed to renewed coffee chain expansion, particularly in the APAC regions, rapid urbanization; renewed post-pandemic consumer expenditure in out-of-home environments; and increasing work populations contributing to the growth of workplace coffee culture, the proliferation of co-working spaces and work-from-home ready-to-go consumption. Europe and US (North America) dominate the out-of-home market.
- **Eurozone:** the current trading environment remains positive despite a weakened economic outlook i.e. Reuters reported that the economy contracted 0.1% in the third quarter of 2023. This is amid an ongoing cost living crisis, rising inflation and the economic impacts from the war in Ukraine. However, imports and retail sales remain at a high with market with leading countries such as Germany, Italy and France recording The EU market is driven by a consumer preference for premium specialty coffee, certified products together with a demand for new brewing techniques and technological innovations.

Out-of-Home Market

- **Other markets:** in North America the obesity epidemic has catalysed shifting consumer preferences from fizzy drinks to hot beverages and cold alternatives in the U.S. market .In emerging markets such as Asia, Africa, and the Middle East are experiencing growth trends Smaller jurisdictions are also on an upward trajectory, for example, Ireland's out-of-home market is set to grow at CAGR of 3.92%.
- **Distribution channels:** offline HRI channels continue maintain position though online distribution channels are increasing in line with e-commerce platforms and the ubiquity of digital devices.
- **Coffee Products:** include whole bean, ground coffee, instant coffee, pods and capsules. Traditional coffee remains a staple, but specialty coffee is enjoying a renaissance as the demand for premium, single origin, customized brews, flavoured, and dairy alternative coffees are trending as is RTD and cold brew. Sustainability is an important customer focus and brand principle as is product certification.
- **Key players:** the competitor landscape is dominated by corporates like Nestlé, J.M. Smucker, Starbucks Corporation, JAB Holding Company, Maxwell House, Unilever, Illycaffè, Trung Nguyễn, Peets, Dunkin' Donuts, Caribou Coffee and Cacique amongst others. Many of the big players are expanding into the specialist market with strategic partnerships and are investing heavily in R&D, product innovation and supply chain management systems.



Image: Martin Widenka, Unsplash

At-Home Market

The at-home coffee market refers to global sales of coffee products for consumption at home. This segment of the market has experienced significant growth in recent years, precipitated by pandemic lock-downs, hybrid working, the growth of specialty coffee and the availability of home brewing technologies (Harvard Business Review, 2021; National Coffee Association).

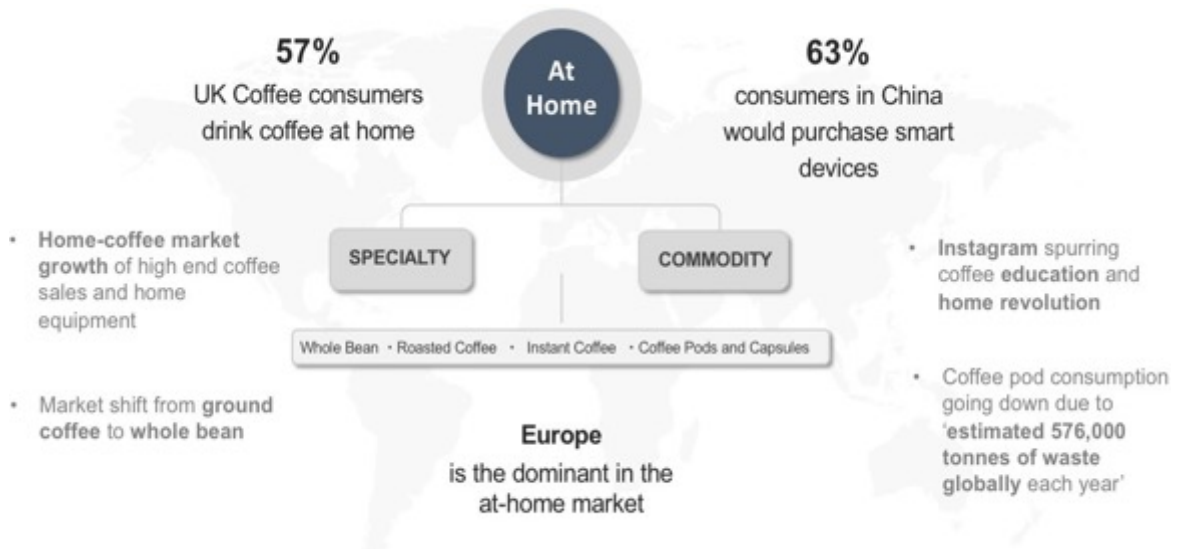


Fig 20: At-Home Market. Source- www.expertmarketresearch.com/reports/coffee-market

- **Market size:** there are no current or forecast data details for the at-home market for the period 2024-2029.
- **Distribution channels:** the at-home coffee market has been driven by the recent boom in online sales and expedited by the pandemic. Further the online direct-to-consumer market is predicted to grow at a CAGR of 15.3% from 2022 through 2027 (Mordor Intelligence, n.d.).
- **Coffee Products:** sales of ground, instant, pods and capsules still retain position but increasingly premiumization and customization i.e. the ability to replicate barista standard specialty brews at-home is defining the new coffee wave. This momentum for higher quality coffee has driven a recent consumer shift to whole bean product. Smart tech is also a central component for the at-home revolution e.g. the capability to combine craft and technology with next generation espresso and pod machines, automated steamers and grinders. As such, revenue for the coffee machine market was estimated at \$12.29 billion USD in 2023.
- **Key players:** key players in the at-home market include Nestlé SA, J.M. Smucker, Starbucks Corporation, JAB Holding Company and Kraft Heinz Company



Section Three

Coffee Supply Chain

Six Stage Coffee Supply Chain

Coffee supply chains, also referred to as the value chain, defines the life cycle stages and production processes by which coffee beans travel from farm to consumer cup. These chains often involve complex gated steps which ultimately define the quality, value and pricing of the world’s most consumed hot beverage.

This segment turns to detail the six-stage supply chain process, from upstream cultivation along the supply chain to downstream retailing and consumption.

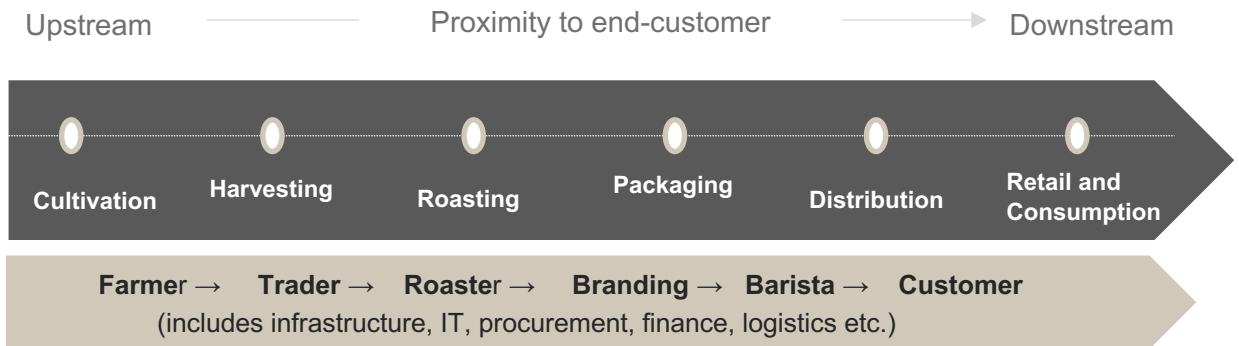


Fig 21: Six Stage Supply Chain

Coffee Cultivation

Coffee trees grow in the Tropics of Cancer and Capricorn, in three to five-year cycles (seed to fruit bearing) and require a delicate interplay of temperature, sun, shade, water, nutrients and soil quality in order to thrive. The balance of the ecosystem is fundamental to maintaining quality for both commodity and specialty coffee beans.

Quality coffee cultivation involves high altitude farms (between 1,000-2,000 metres) which is optimum for growing *Coffea arabica*, a varietal acutely dependent on the diversity of habit and adequate tree cover to mitigate against direct sun. Arabica coffee is most associated with up slope humid forest environments where it proliferates in ideal temperatures of between 12-14°C. Higher temperatures can be tolerated for short periods i.e. a few hours but extreme temperatures, above 32°C, for prolonged periods are detrimental to plant survival.

Equally precipitation (rainfall) is a critical determinant of plant survival therefore changes in rainfall patterns due to climate change can dramatically affect farming suitability. Both temperature and precipitation rates are strongly correlated with seasonality where climate-sensitive coffee beans are grown to peak ripeness (red cherries) though green cherries are often harvested. On the other hand, commercial coffee, mainly *Coffea canephora (robusta)* can be cultivated at lower altitudes (between 200-300 metres) in regions 10 degrees north or south of the equator. This sun coffee is hardier, requiring less shade and therefore is often grown on large plantations for high commercial yields. But both varieties are subject to biennial production cycles characterised by coffee trees alternating between and high and low yield years.

Six Stage Coffee Supply Chain

As well as the natural ecosystem coffee cultivation requires a number of management system 'inputs' i.e. seedlings, fertilizers, pesticides, irrigation systems and machinery to ensure efficient cultivation. In addition, general cultivation requires labour to maintain ongoing pruning and stumping (tree cutting), weeding, pest and disease control and planting stock (Davis et al., 2018; Hoffman, 2018).

In East Africa the majority of coffee cultivation is conducted on smallholder farms (5 hectares or less) by growers who live off the land they own. For many of these smallholders coffee is their only source of real revenue and is used to pay for family costs through long periods of subsistence between payments. Upfront input costs against the realities of low-farmgate prices often become prohibitive to economic viability for many farmers and therefore a challenge to efficient cultivation.

Harvesting

The harvesting cycle occurs once a year with the exception in some countries of twice annually. As such the speed of maturation, as discussed in the previous section, is dependent on seasonal climatic conditions and elevation levels; fruit ripening coincidences with declining rainfall as the dry season sets in. The first phase of harvesting happens on the land and divided into different methods which are listed below.

- **Hand picking:** the most common method used in the region it involves hand picking ripe cherries. This process is repeated as often as is necessary as the cherries reach maturation. This harvesting methodology is labour intensive and skilled work and it is the one on which the high elevations of East African farms most depend. It is synonymous with better the quality of green beans as the more selective the cherry picking by labourers ensures greater quality control.
- **Strip picking:** involves harvesting all cherries, whether ripe and unripe, at once. Conducted either by hand or machine, this method is cost effective but due to its indiscriminate nature is often associated with low grade coffee. Cherries also require further sorting due to the mix of mature and immature fruit.
- **Machine harvesting:** uses industrial machinery to shake the coffee trees causing cherries to fall for collection. Fruit is mixed between ripe and unripe cherries. Used predominantly in commercial farming where large farms or plantations are flat this method conducive to lower costs of production and higher yield but is synonymous lower quality coffee.
- **Combing:** involves using a comb to remove ripe cherries. This method is like hand-picking labour intensive but ensures quality fruit is collected.

After initial harvesting production moves to the processing stage where cherries are collected and transported to process stations (large operators or estates tend to have their own processing plants, whilst smallholders and cooperatives use collective stations). Here cherries are weighed and recorded before first level of sorting which involves removing very unripe or defective fruits and any waste material e.g. leaves, twigs, insects etc. The next sorting stage following this involves either dry (natural) or wet (washed) processing.

Six Stage Coffee Supply Chain

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Image: Killian Stokes

Six Stage Coffee Supply Chain

After dry/wet processing coffee beans go through a resting period (1-3 months) after which beans are hulled, that is, the outer layers are mechanically removed with the remaining coffee beans extracted from inside. The choice of method is by a confluence of factors including water access and/or the flavour profile to be created e.g. dry-processing is associated to strong fuller bodied, fruitier, sweeter and less acidic coffees. Whilst wet processing is associated with less coffee defects with lighter bodied with more acidity and bright fruit profiles, they are more often graded as higher quality. The resulting green coffee is condition which coffee is ready for export to consuming countries for roasting and distribution.

It is important to note that the key players along the upstream stage of the supply chain are the farmers (smallholder farmers or large estates), collectors, cooperatives and associations and lastly the international traders who serve as the commodified link between the upstream and downstream value chain. This juncture is where coffee gains its price value where a coterie of agents, traders, exporters and importers, roasters and retailers et al. compete to acquire green beans and sell it through auctions for export to the consumer market

Roasting

This pivotal stage of production is when green beans are transformed into brown beans where they transform into key aspects of coffee: taste, acidity, sweetness and bitterness. Developing roasted coffee beans from green bean involves a three step process i.e. drying, browning and roasting. Different types of coffee roasters (drum, fluid-bed, tangential or centrifugal) subject the beans to varying degrees of heat where they lose moisture and volume and in the final stages crack. The resulting four categories of roasted beans are light, medium, medium-dark and dark flavour characteristics. The longer beans are roasted the more sugars and acids undergo chemical reactions that affect the flavour, therefore profiles range from lighter (with more origin character) caramel to dark bitterness at the extreme end.



Image: Tina Guina, Unsplash

Six Stage Coffee Supply Chain

Roasters expertly manipulate the roasting process in order to change and enhance flavour profiles and aromas. Once the roasting process is complete beans are stored in storage containers, which can preserve bean quality for up to a year, before being sold on to retailers.

Notably the majority of roasting is commercial, managed by large-scale dominant players such as Nestlé, Starbucks, Keurig Dr Pepper, Lavazza and JDE Peet’s Coffee and Tea et al. are located in consuming countries. Smaller scale specialty or independent roasters have gained popularity as the trend towards specialty and single-origin coffee is growing. In addition, calls for roasting at origin in the producer countries is gaining positive momentum as a business model alternative that both challenges the supply chain monopoly of multinational intermediaries and seeks to provide more stability and equitability terms to producers in the country of origin (Moyee, 2023; Moyee, 2015; Reilly & Stokes, 2021; UNTCAD, 2018).

Packaging

Packaging is the final step before distribution. It functions to provide a barrier against oxygen, light and moisture and example include functional coffee packaging which consists of PET, aluminium, polyethylene and is not easy recyclable. In that regard the EU Packaging and Waste Directive implements measures to prevent waste and promote recycling and increasingly bio-based alternatives such as mono-material soft packs are increasingly entering packaging manufacturing.

Distribution

Distribution of coffee to the consumer involves first allocating grading and classifying of coffee that guarantees origin, nature and quality of the product. This is followed by the logistics of transporting coffee from the roaster to locations across the globe. It involves a network of planners and operators who negotiate the industrial container(s) through shipping, warehousing and trucking on a journey that can take between two and three months. Costs play a heavy role in coffee logistics and distribution, one which is ultimately passed on to the retailer and the consumer.

Post transport to consumer countries the large roasters (some of which are also retail multinationals) distribute a number of products via wholesale channels to supply both HoReCa/HRI and the work/community segments. Similarly, independent roasters supply via wholesale, retail and e-commerce channels.

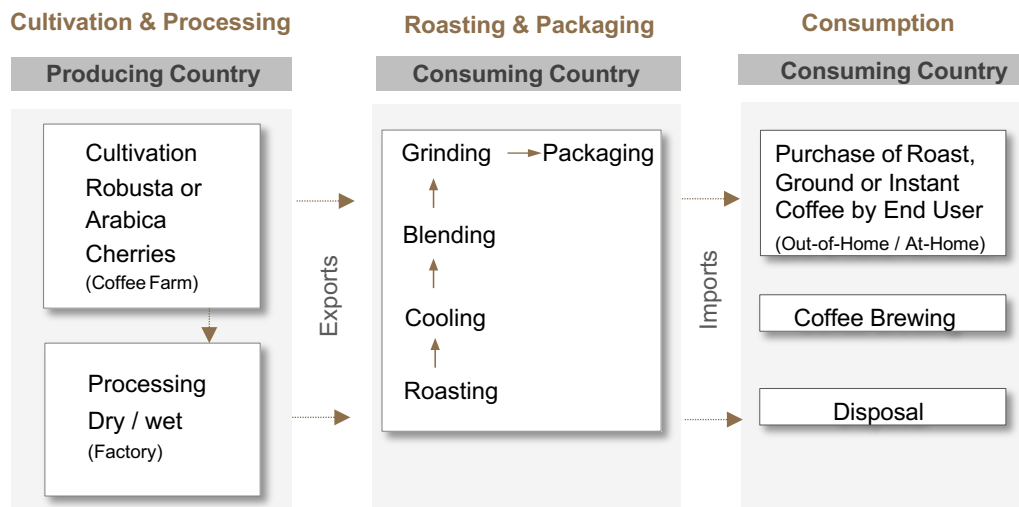


Fig 22: Coffee Supply Chain

Retail and Consumption

The final stage of the supply chain is the activation of the retail channels that service the consumer segments into the out-of-home and at-home segments (as discussed in section 2.4). Retail distribution is omni-channeled with a competitive selection of players in the supply chain including wholesalers, supermarkets, food services, restaurants; coffee chains and coffee shops, and e-commerce platforms. Marketing and brand awareness play a key role in customer acquisition and retention and coffee certification as part of this is utilised as an important quality and sustainability guarantee for consumers.

As seen in the life cycle stages of the coffee supply chain it is a lengthy process that is complex and fragmented and with the intervention of a large number of players. With respect to value chain mapping it noteworthy that the market concentration and profit margins are skewed towards the downstream players in the CVC (Willoughby & Gore, 2018).



Image: Tabitha Turner, Unsplash

Top Producers in East Africa

Africa's international coffee trade and consumption has been steadily growing, with several countries establishing themselves as prominent coffee producers. Highlights of the continent's top producing countries ranked in order by production volume is detailed below:

Coffee Production by Country	% Global Production	Global Ranking
<i>Marketing Year 2022 October to September</i>		
Ethiopia: 8.27 million (60kg bags)	5%	#5
Uganda: 6.57 million (60kg bags)	4%	#6
Ivory Coast: 1.22 million (60kg bags)	0.7%	#16
Tanzania: 1.12 million (60kg bags)	0.7%	#17
Kenya: 750,000 thousand (60kg bags)	0.4%	#19
DRC: 265,600 thousand (60kg bags)	0.2%	#27
Rwanda: 260,000 thousand (60kg bags)	0.2%	#28
Burundi: 165,500 thousand (60kg bags)	0.1%	#30
Malawi: 11,000 thousand (60kg bags)	-	#41

Table 7: Source-<https://fas.usda.gov/data/production/commodity/0711100/>



Section Four



Challenges in East Africa

Introduction

The eastern sub-region of Africa comprises eighteen countries which are those collectively referred to as the East African Community (EAC) Burundi, Democratic Republic of Congo (DRC), Kenya, Rwanda, South Sudan, Tanzania and Uganda; the countries that make up the Horn of Africa including Djibouti, Ethiopia, and Eritrea; together with Malawi, Mozambique, Somalia, Zambia, Zimbabwe; and the island territories of Mauritius, Madagascar and the Seychelles.

The sub-Saharan countries of East Africa rich in natural resources (precious metals, minerals, tea and coffee to name but a few) are also home to over 462 million people, making it the most populous region on the continent. This has contributed in recent decades to rapid urbanisation and the rise of the middle classes and has precipitated some of the fastest growing economies on the continent. However, whilst at a new dawn of new potential the region is also subject to a complex and overlapping web of economic, social and environmental challenges including high debt and fiscal headwinds, political unrest, income inequality and poverty; along with climate threat impacts and ongoing challenges regarding access to health care, education and labour rights (African Development Bank, 2023; Carmody & Owusu, 2016; Sachs et al., 2019; Samper & Quiñones-Ruiz, 2017; UNCTAD, 2018).

This report, with reference to the long-term sustainability and value chain reform of East Africa's coffee sector, turns to examine the aforementioned socioeconomic and environmental forces at play in the region which include:

Economic Challenges

African economies have been on a post-pandemic growth trajectory as the African Development Bank's latest report projected '18 countries will experience growth rates past 5 percent in 2023 [...] expected to increase to 22 in 2024' (African Development Bank, 2023, p.1). This positive economic outlook comes in the face of downward pressures from tightening world financial conditions, cost of living challenges due to inflation and rising energy costs, and the conflicts between Russia-Ukraine and Israel-Palestine. Against this backdrop East Africa's coffee producers continue to navigate key domestic and external economic challenges as outlined below:

▪ Price Volatility

Africa has demonstrated strong year on year market share and export growth (exports were valued at \$4.2 billion in October 2023) but is subject to future trading fluctuations (Statista, 2023). In this regard, coffee sold as a commodity is determined by the cup price or C-price which is defined by world supply and demand.


Calculations are based on market shifts with the primary activity revolving around trading futures contracts for Arabica on the Intercontinental Exchange (ICE) in New York, and Robusta on the London International Financial Futures and Options Exchange (LIFFE). It is these exchanges that set the C-price for coffee where the process of predicting coffee futures is subject highly volatile fluctuations affected by critical factors such as coffee yields, climate shocks, geopolitics, supply chain costs, plant disease and changing consumer demands.

Increasing investment fund activity has further contributed to volatile C-price fluctuations which in turn impacts the profit-margins and therefore the livelihoods of small-scale coffee farmers in producer countries in significant ways. This was mitigated in some way under the International Coffee Agreement (ICA), introduced in the 1960s as export quota and regulatory system. Since its collapse in 1989 the market has seen high yield, mechanised and intensive coffee farming from countries like Brazil, Vietnam and Colombia, Indonesia and Honduras dominate due to their bulk supply capacity which has resulted in downward pricing.

This has resulted in power imbalance along the value chain with persistent low farmgate prices for lower yield, labour intensive producer regions such as East Africa. The impact of pricing destabilisation on low-margin farmers in East Africa is firstly placed on the economic viability and sustainability of operating a coffee farm. With the majority of farms concentrated on smallholdings, of 5 hectares or less, indigenous producers rely on coffee as their sole earner. The mountainous lands they tend are largely unsuitable for mechanisation and therefore incur higher labour costs against lower yields. Secondly, low prices challenge farmers capacity to carry upfront production costs and inputs e.g. to make investments in irrigation systems, new technologies, access certification or to tackle unforeseen climate events. Thirdly, diminished profits derive a compound effect on income and food insecurity within farming communities leading to the stagnation and/or decline of production particularly with younger generational farmers

▪ Market Access

The coffee value chain, as discussed in Chapter 3, is a complex model consisting of numerous production stages and with many intervening players along its process and supply nodes. Since the collapse the ICA regulatory system and the emergence of market liberalisation oversight has shifted to consuming countries where the downstream GVC is developed and maintained (Panhuysen & De Vries, 2023; Utrilla-Catalan et al., 2022). Here key industry players in the buying, trading and roasting segments dominate the value chain with 40% of total coffee traded is controlled by five international trading companies and in the roasting market two major operators 'handle about a quarter of the world market' (UNCTAD, 2018, p.24; Sachs et al. 2019). In addition, the adoption of the Supplier Managed Inventory (SMI) system by roasters, according to the United Nations Conference on Trade and Development, 'allowed them to outsource stock management to trading houses which minimized their costs (warehousing, finance and insurance), closely managed supply', this 'reinforced the position of international trading houses, enabling them to strengthen their upstream networks' (UNCTAD, 2018, p.24).



Subject to this oligopolistic operating environment with weak bargaining power, upstream coffee producers encounter major challenges accessing markets and buyers controlled by 'big coffee'. Multinational processors and large retailers in Europe and America obtain majority share whilst production, as discussed earlier, is skewed towards the economies of scale made possible by the mechanised cost efficiencies achievable in countries like Brazil and Vietnam. Raw coffee beans account for the majority of East Africa's coffee exports and therefore local producers only receive a small portion of the income from the global coffee trade. The knock on macro-economic effects are felt acutely not only on farmers but the region's wider revenue from exports earnings, GDP and on each nation's tax yields.

Image: Killian Stokes

▪ **Cost of Production**

The EAC countries, explored in Chapter 2, with a combination of high elevations and equatorial climates provide optimum conditions for cultivating high quality coffee fruits and strong yields. But due to its mountainous crop areas the sub-region incurs great costs of production including labour, inputs, infrastructure and technology all of which are rising against inflation.

The combination of rising costs of production together with price volatility and the environmental realities of rising temperatures, droughts, unpredictable rainfall and the spread of pests and disease, are hamper local farmers economic resilience by diminishing profits, thereby reducing earnings and producer purchasing power. So too falling farm productivity due to higher labour migration and aging agricultural populations is a contributing factor to economic destabilization in the sector which in turn raises levels of food insecurity and poverty.

▪ **Income Inequality and Poverty**

A buyer driven value chain and the 'financialization of coffee trading has exacerbated price volatility' which in turn has adversely impacted 'producer welfare' (Sachs et al., 2019, p.17). This has created a dichotomy, known as the *coffee paradox*, where there is a demand boom in consumer countries, resulting in increased retail coffee prices, in contrast to a low-priced crisis experienced in producer countries (Daviron & Ponte, 2005; Utrilla-Catalan et al. 2022). As detailed in Chapter 3, coffee production in East Africa is largely non-mechanised and thus requires labour intensive activity over long hours. Yet, the majority of coffee producers in East Africa are welfare compromised in that they do not earn a living wage or have access to additional income support, and are economically impacted by the low-yield capability of smaller farm holdings together with rising costs of production. As a result, rates of poverty amongst producers in the region continues to be a significant sustainability challenge for the value chain.

But closing economic inequality gaps between low-income producer countries and high income market control countries is an ongoing economic challenge. Certification bodies, such as Fairtrade go some way towards addressing the buyer-driven commodity chain to advocate for economic sustainability. For example, the Fairtrade Minimum Price sets market price benchmarks for certified products and the Fairtrade Premium drives the distribution of additional payments for investment in inputs and communities etc.

However, the sector continues to be economically skewed to value capture and return in consuming countries. Studies also show that the proportion of revenue distributed to upstream farm holders remains disproportionately low compared to downstream actors profit margins (Jena et al. 2012; Moyee, 2023; Naegele, 2020; Ruben & Hoebink, 2015; Utrilla-Catalan et al., 2022; Willoughby & Gore, 2018). In addition, certified products represent a fraction of the total coffee products and therefore, according to Moyee, the remaining commodified value chain means '90% of the proceeds of every cup of coffee ends up in Western corporate pockets, while only 10% remains behind in coffee-growing countries' (Moyee, 2021, p.7).

Social Challenges

Though the East Africa is on a GDP growth trajectory which, according to the African Development Bank, is projected to grow by 5.1% in 2023 and 5.8% in 2024' the region faces a number of societal challenges including food insecurity, poverty, lack of access to health care and education; as well as labour rights and human rights issues, conflict and civil unrest; political instability and governance issues (African Development Bank, 2023, p.2). On the agricultural producer end, the livelihood and welfare of growers are income precarious due to both the wider societal challenges, indicated above, but also due to industry specific factors. Here this reports investigates some of the main challenges that producers face.

▪ Food Insecurity

The *UN Sustainable Development Goals Report: Special Edition 2023* identifies that hunger and food insecurity continues to be an issue in all sub-regions of Africa making it the 'continent with the highest prevalence for undernourishment' (ICO, 2019, p. 32). For East Africa in particular, a historical over reliance on coffee production as the primary source of income means farmer's revenues are more often tied to twice annual harvest revenues. A resulting cyclical scarcity has become endemic in the sector as revenues from low farmgate prices must stretch across 'the thin months' of year (Coffee Barometer, 2023; Sachs et al. 2019).

Efforts to address and alleviate food insecurity amongst smallholders includes strengthening economic resilience through, for example, crop diversification and training; by boosting local agricultural production and working with partners on tech innovation solutions. From a top down level, intergovernmental organisations, NGOs, and transnational corporations are working to address the challenge. For example, Nestlé in 2022 partnered with Africa Food Prize, hosted by AGRA (the Alliance for a Green Revolution in Africa) to provide financial support to help transform food systems in Africa. Similarly, the World Bank, the UN Food and Agricultural Organization (which includes 194 Member Nations) and organisations like World Vision, Oxfam are implementing direct interventions to increase food security. Also worth noting is a study by the International Coffee Organisation which found a 'significant positive correlation of higher coffee prices with food security in countries that are dependent on coffee' with a '1% increase in the price of coffee associated with a 3% increase in rural employment' (ICO, 2019, p. 32).

Though the literature confirms much has been done to tackle the problems of food insecurity and poverty among African coffee producers, the necessity for long-term interventions

▪ Unemployment Rates

Unemployment figures for Africa stood at 4.7% in 2022 and projected to fall to 4.5% in 2023 and the International Labour Organization (ILO) reported that the working poverty rate in Africa was at 31.1% in 2022 (*Statista*, 2023; International Labour Organization, 2022). Though Africa has an expanding labour force and a large youth population (60% under 25 years) unemployment remains highest amongst this demographic followed by female unemployment at 5.4% as compared to male unemployment at 4%.

Agriculture is the largest employer in region accounting for 65.4% of all employment, yet the region struggles high levels of unemployment and informal employment. Of particular concern for this study are rates of youth unemployment which will adversely affect the agriculture sector in terms of long-term labour supply. Additional contributory causes of unemployment includes the informal and seasonal nature of agricultural work, low rates of pay, and low farm productivity due climate shocks e.g. drought; as well as, the socioeconomic cascade effects of poor harvests, global supply chain disruptions and lack of input investment.

In response, East African governments and cross-collaborative partnerships and initiatives with organisations such as the Youth Entrepreneurship Foundation (YEF), the National Employment Development Agency, the Africa Commission and the ILO are working to reduce unemployment in the region. East African Community (EAC) Common Market Protocol in 2010 is working to address the challenge. However, the challenge particularly for the coffee sector requires further long-term socioeconomic stabilising measures. For instance the implementation of labour policies and income supplements for farmers, greater provision of resources and training

▪ Labour Rights and Human Rights

Producer welfare in coffee production is inextricably linked to industry labour practices and human rights. East Africa continues struggle with irregular labour policies and human rights issues and violations with the areas of labour administration and inspections requiring ongoing attention. Amongst the key challenges for farming communities is a lack of minimum wage legislation to be found in some EAC countries; the continuation of forced labour and child labour, and substandard working conditions regularly practiced found throughout the value chain (Deuschle, 2023).

To address the aforementioned challenges, this report notes that the International Labour Organization recently called on East African countries to adopt global labour standards and common laws on migrant labour (ILO, 2020) and at a governmental level all fifty-three African states have ratified the Abolition of Forced Labour Convention 1957 and the Discrimination (Employment and Occupation) Convention 1958; fifty-one have ratified Equal Remuneration Convention 1951; and fifty have ratified Worst Forms of Child Labour Convention 1999. On a sectoral level the coffee industry the OHCHR East Africa Regional Office (EARO) works with the African Union to address the challenges.

▪ Gender Equality

Women are estimated to operate 20% to 30% of coffee farms worldwide and provide up to 70% of the labour required to produce coffee yet income distribution amongst men and women in coffee supply chains is found to be unequal (ICO, 2018; Kangile et al., 2021). In East Africa, according to USAID, '96% of women in Burundi, 76% in Kenya, 84% in Rwanda, 71% in Tanzania and 77% in Uganda' work in agriculture (USAID, 2022, p. 1).



Women's farming activities are also found to be impacted by family and household commitments such as childcare and domestic. In addition, exclusionary measures such as restricted land and inheritance rights, lack of access to finance and credit; barriers to decision-making, limited digital skills or training have historically limited women's development in the sector (ICO, 2018; IWAC, 2022; World Bank, 2023; USAID 2022).

In response to the challenges, detailed above, this report notes that public and private industry stakeholders, including governmental organisations, certification bodies, NGO's and corporate businesses are working to institute change in line with the UN Sustainable Development Goals on gender parity. Organizations' such as African Fine Coffees Association (AFCA), International Women's Coffee Alliance (IWCA), International Labour Organization (ILO), International Coffee Organization (ICO), Farm Africa and On The Ground are working across East African communities to raise the profile of women in the sector and to close the gender gap through advocacy initiatives, training and leadership programmes and driving cooperative membership amongst others.

▪ Health Care

EAC's producing countries face a range of health care challenges such as epidemics, and workplace health and safety problems such as occupational injuries and work-related diseases (from exposure to chemicals and pesticides). In addition, coffee farming communities often experience limited access to healthcare providers or to affordable healthcare.

These, together with the downward pressures of aging farming demographics and labour shortages; political and governance instabilities; income inequality, food insecurity and poverty, the effects of climate change and infrastructural challenges such as access to clean water and sanitation negatively impact both the coffee producers and wider community well-fair e.g. the health and nutritional of children.

▪ Education

Child labour and school absenteeism are closely linked to the coffee industry, both of which are more often driven by food insecurity and poverty in farming communities (Ango et al., 2022; Sachs et al., 2019). The International Labour Organisation reported that 'one in five children is involved in child labour' and has in recent years put a primary focus on eliminating child labour in supply chains in Africa which it determines must be addressed at a policy and governance levels and through knowledge sharing, advocacy and education (ILO, 2017; ILO, 2020).

In addition, to tackling child labour and school absenteeism the coffee sector, in partnership with international NGOs and public and private stakeholders, must continue to prioritise access to quality education and training to improve the knowledge, skills and capabilities of coffee farmers.

▪ Governance

Governance challenges continue to dominate the region with the coffee trade impacted by ongoing regulatory changes and onerous bureaucracy in the following:

- **Political systems:** the region is a mix of customary and statutory systems which can lead to complexities around participatory and inclusivity in governance. This systemic context is crucial to implementing policy, programmes and supports and can also have critical impact on producers, when for example, there are exporter delays as a result of government-fixed prices and payments that are centralized making trading with countries like Burundi, Tanzania, and the Congo.
- **Institutional weakness:** weak governance including judiciary systems, law enforcement agencies and public administration.
- **Legal and regulation:** competitive disadvantage for the region from price volatility due deregulation and a current buyer-led market. This puts Africa as a supplier continent at a competitive disadvantage.

Environmental Challenges

East Africa is elevated at 1,500 metres above sea level with average daily temperatures below 20°C/68°F in the region's highlands. The geography has been blessed with optimum rainfall, temperate temperatures and micro-climates and excellent soil ideal for coffee farming.

That said it is well documented the current and historical environmental challenges faced by the region not least due to effects of man-made interventions on the delicate natural ecosystems both domestically and on a global level. As a result, East Africa, along with many producer countries and territories across the Tropics, is experiencing serious environmental degradation which the United Nations defines as 'any change or disturbance to the environment perceived to be deleterious or undesirable' (United Nations, n.d.)

▪ Climate Change

Vulnerability to climate change and negative meteorological conditions with extreme temperatures and unpredictable weather patterns play a substantial role in declining yields in the region. Ethiopia, for example, experienced a 20% decline in yields in comparison to the previous season. Just Transition aims support transition to climate neutral economies e.g. a report indicates global warming may half growing arabica beans by 2050 (Wadekar, 2022).

▪ Deforestation and Habitat Clearance



Over 4 million hectares of African forests are being cut down annually, according to UN Food and Agricultural Organization (FAO); Open forests in Ethiopia, Tanzania, Uganda, Malawi and Zambia converted to crop land reducing in wood-vegetation classes (*Three Decades of Land Cover Change in East Africa*). The world's largest agricultural producers (including Brazil) pushing back against new EU rules requiring proof crops are not grown on deforested land (De Sousa, 2023; Millard 2017).

Note: The EU Deforestation law came into effect in June 2023, and as such the Regulation on Deforestation free products requires traders and operators to provide evidence that commodities (including coffee) entering the EU market have not come from deforested land nor have contributed to deforestation or forest degradation (European Commission, n.d.)

Image: Annie Spratt, Unsplash

▪ **Land Stress and Biodiversity Loss**

Stress on land use is the biggest indicator of loss of ecosystem biodiversity. The region contains '60% of global uncultivated arable land and population expected to double by 2050' which combined with expanding urbanization, consumption and 'the expansion of crop and grazing lands' is set to adversely affect biodiversity in the region.

▪ **Monocropping**

The phenomenon of land degradation has been expedited through intensive monocropping, which is a common place practice in Africa. Organisations like Alliance for a Green Revolution in Africa (AGRA), funded by Bill Gates Foundation and the Rockefeller, working on intercropping and regenerative agriculture with small farm holders i.e. growing variety of crops simultaneously, quality seeds, enhancing soil and regenerative farming practices.

▪ **Low Productivity**

Many coffee farms, particularly smallholders, have low productivity levels due to factors such as aging trees, poor agriculture practices, and limited access to technology and resources.

▪ **Chemicals, Fertilisers and Pesticides**

Recent studies call for more organic farming or natural solutions to minimize ecosystem impacts. Use of pesticides, insecticides and chemicals used in coffee farming can have negative impacts on human and environmental life. Added to natural ecosystem responses to chemicals and pesticides soaring fertilizer costs have a serious effect on coffee production.

▪ **Coffee Waste and Water Pollution**

Coffee Water Waste (CWW) known as coffee effluent is high in pollution i.e. uses a 'strong oxidant with 80% of pollution load with values as high as 50.' Wet coffee in particular leads to incredibly high volumes of water waste. Sustainable alternatives such as ion exchange, eco-pulpers and policy initiatives and information campaigns e.g. Zero Waste Coffee Alliance Ireland.

▪ **Infrastructure Sustainability**

Supply chain inadequate processing facilities can lead to post-harvest losses and affect the overall quality of coffee.



Section Five

**Coffee Production in
East Africa:
Country Case Studies**

58 00

Ethiopia

Country background: The East African country of Ethiopia, often heralded as the birthplace of coffee, is Africa's leading and the world's fifth largest exporter of Arabica coffee. With 123 million people, the country, though one of the fastest-growing economies in Africa, also remains as one of the poorest in Africa and it is heavily reliant on coffee production.¹

Coffee growing regions: The coffee plant is very sensitive to climate conditions and, in Ethiopia, is grown in humid evergreen forests at altitudes from 1200 to 2100 m. Despite Ethiopia's fitting climate, coffee is not produced commercially across the country, instead, 95% of production occurs in the five regions of Harrar, Sidama, Limu, Bebeka and Yiragachefe.²

Variety and quality: Only Arabica coffee is produced in Ethiopia, with Ethiopian coffee considered high quality. The coffee is noted for its unique fruity flavour and aroma. This quality and flavour results in a high demand in the international market.³

Trade figures: The commodity is the country's largest source of export earnings, accounting for 30-35 percent of its export revenue.⁴ In 2023/24, forecasted exports are 4.83 million 60 kg bags.



Fig 23: Coffee growing regions in Ethiopia

Year	Volume (MT)	Value (USD)
2019 / 20	248,129	821,140,000
2020 / 21	280,607	1,138,254,000
2021 / 22	289,873	1,516,877,102

Table 8: Source - Coffee exports, value and volume 2019/20 to 2021/22 MY

Key players and process of selling: Cooperatives are comprised of farmers and trade occurs, mostly, through these cooperatives via the Ethiopia Commodity Exchange (ECX). Cooperatives can also sell directly to export markets. Smallholders produce 95 percent of the coffee, and because of its cultural significance, 50 percent of what is produced is consumed locally with the remainder exported.⁵ Most coffee is not certified by international organic commodity certifying agency due to the cost of certification.⁶

Farms and farmer cooperatives: More than 2 million smallholder farmers produce coffee in Ethiopia, and the industry provides 15 million with direct or indirect employment. These farmers have organized themselves into cooperatives, of which over 160 exist in the country.⁷

Social and environmental issues: Due to climate change, coffee farming in Ethiopia is moving from optimal lower land to 1800 meters above sea level. This could lead to a major decrease in Ethiopian coffee. The primary reason for Ethiopia's annual variations in coffee harvests has been climate. Coffee growers suffer from delayed harvests as a result of insufficient rainfall and a lack of information and resources to adopt climate-smart agricultural techniques.⁸

Spotlight case study- Cooperative profile: The Oromia Coffee Farmer's Cooperative Union was founded in the Oromia region of Ethiopia in 1999. It has 405 cooperatives with over 400,000 members and 20,000,000 USD in capital. The union's goal is to assist smallholders to profit from the Fairtrade coffee industry, and 70 percent of its net profits are returned to the cooperatives.⁹

Kenya

Country background: Kenya is an East African country with a population of over 54 million.¹⁰ Coffee is Kenya’s main cash crop. It is the country’s principal foreign exchange earner, revenue source, food security source, and rural employment source.¹¹ The country has experienced sustained economic growth, social development and political stability in the past decade, but still faces the development challenges of inequality, poverty, climate change and youth unemployment.¹²

Coffee growing regions: There are five regions in Kenya that grow coffee: The Great Rift Valley, the Central, Western, Eastern, and Coastal regions. Of Kenya’s 47 counties, 32 produce coffee. The majority of coffee grows in deep, well-drained volcanic soils at elevations between 1400 and 2000 meters.¹³ Approximately 105,000 hectares are harvested for coffee, a decrease from Kenya’s prior-2021 coffee acreage due to a conversion of farms to real estate. The areas most impacted are the peri-urban areas of Nairobi, Thika, Kiambu and Nyeri.¹⁴

Variety and quality: Due to Kenya’s ideal growing environment, Arabica coffee accounts for nearly all of the coffee produced there. Commonly grown varieties include Batian, Ruiru 11, K7, SL-28, and SL-34. Kenyan coffee is known for being medium or full-bodied with a distinct acidity and a strong flavour. It has notes of berries, citrus and tropical notes.¹⁵ Almost all coffee grown in Kenya is Arabica as the climate is suited to high quality coffee.¹⁶

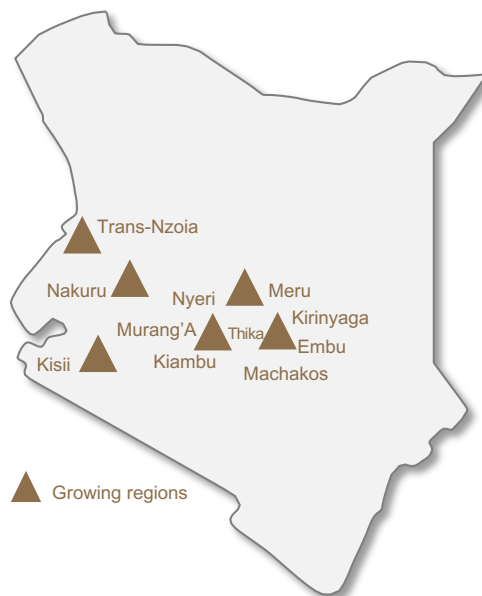


Fig 24: Coffee growing regions in Kenya

Trade figures: It is forecasted that coffee exports will increase in 2023/34 by 5.5%, bringing the total number of coffee exports to 760,000 bags. However, Kenya still accounts for less than one percent of global exports. The United States is the leading export destination for this coffee, ahead of Belgium and Germany.¹⁷

Importing	Amount (MT)			Market Share (%)		
	2019/20	2020/21	2021/22	2019/20	2020/21	2021/22
United States	8,831	6,512	8,870	19.98	16.57	19.18
Belgium	6,631	6,450	7,565	15	16.42	16.36
Germany	8,726	5,644	7,488	19.74	14.36	16.19
South Korea	3,982	3,400	4,897	9.01	8.65	10.59
Sweden	2,703	2,891	2,656	6.11	7.36	5.74
Switzerland	1,415	1,978	1,998	3.2	5.03	4.32
Tunisia	0	0	1,364	0	0	2.95
Japan	7,60	1,395	1,289	1.72	3.55	2.79
Norway	1,359	971	1,253	3.07	2.47	2.71
Australia	1,246	1,251	1,207	2.82	3.19	2.61

Table 9: Trade Figures by Country and Market Share

Kenya condt.

Key players and process of selling: Cooperatives sell more than 80% of Kenya's coffee, and individually and corporately held companies sell the remaining 20%. With over 90 years of history, the Nairobi Coffee Exchange (NCE) has been the primary spot market for over 90% of Kenya's coffee sales. All of it is sold via "direct sales," which are negotiated contracts between marketing representatives acting on behalf of manufacturers and importers.¹⁸ Major coffee companies source coffee from Kenya, including Starbucks and Nestlé.¹⁹

Farms and farmer cooperatives: Though difficult to quantify, there are approximately 700,000 smallholder farmers, according to estimates. Around 85000 hectares of the 110000 used for coffee cultivation are owned by these smallholders, who produce the majority of the nation's coffee.²⁰ Kenya had 688 coffee cooperatives as of 2022.²¹

Social and environmental issues: Kenya's coffee export amounts have been more volatile in recent years due to adverse weather conditions, seed shortages, reduced fertiliser application and the conversion of agricultural land to real estate. For example, 2021 coffee exports were approximately 17% lower in 2021 than 2020,²² and 2022/23 coffee production was 10% lower than the prior year due to reduced fertiliser application. These variances can have large impacts due to coffee being such an important case crop for Kenya.²³

Spotlight case study, Nairobi Coffee Exchange: Most Kenyan coffee is marketed through a centralised auction system, the Nairobi Exchange. Every Tuesday, an auction of coffees from cooperatives occurs with the highest bidder purchasing the coffee. Transparency is a clear benefit of this system; however, it results in a lack of relationships between buyers and producers and can also encourage the existence of a long chain of middlemen. This dilutes the farmer's income. Because of this, some coffee is sold via the 'second window' system which allows direct negotiation between the parties; however, the majority of coffee is still sold via auction.²⁴

Uganda

Country background: Uganda is located in East Africa and lies close to the equator and approximately 800 kilometres inland from the Indian Ocean.²⁵

The population of the country is estimated at 46 million and it is a designated low-income country by the World Bank, with agriculture being the most important sector of the economy.²⁶ Coffee remains one of the most important cash crops and the most important agricultural export in Uganda.²⁷

Coffee growing regions: Coffee is grown in five areas in Uganda. These are the central, western, southwestern, northern and eastern regions. Robusta is mostly grown in the northern and central lowlands, while Arabica is grown in the southwestern, western and eastern highlands.²⁸

Variety and quality: Both Robusta and Arabica coffee are grown in Uganda, at an approximate ratio of 4:1. Because of Uganda's climate, soil and altitude, its coffee has excellent and unique intrinsic qualities. The country's Robusta is of the highest quality when wet processed, with well retained flavour. The Wild Robusta Coffee still grown in the rain forests of Uganda comes from some of the rarest naturally occurring coffee trees globally.²⁹



Fig 25: Coffee growing regions in Uganda

Uganda cond.

Trade figures: Uganda’s total coffee distribution has been gradually growing in recent years.

In 2021/22 6.429 million 60-kilogram bags were distributed, of which 5.85 million were exported. In 2022/23 7.019 million were distributed of which 6.25 million were exported, and in 2023/24 it is forecasted that 7.319 million bags will be distributed, with 6.515 million bags exported. Top export destinations are the EU, US, Morocco and India.³⁰

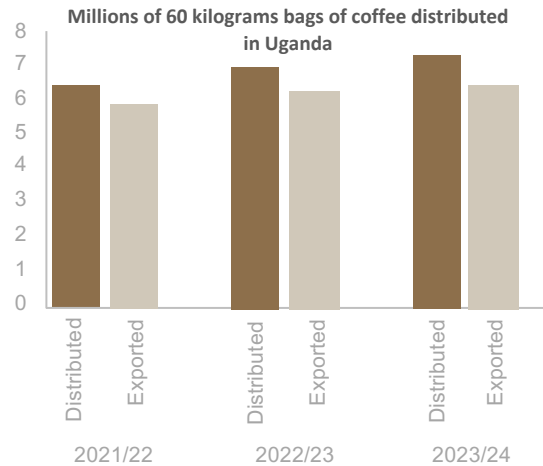


Fig 26: Source – USDA, 2023

Key players and process of selling: The marketing of coffee in Uganda is liberalised, with the government keen on helping to improve coffee production. Producer organisations or farmers sell to private traders who then process and export the coffee beans. Most international coffee trading companies are represented in Uganda because of this liberalisation, and the sector has a significant amount of private investment.³¹ However, some cooperatives have cut out middlemen and have become direct exporters.³²

Farms and farmer cooperatives: It is estimated that 1.7 million farmers from 108 districts grow coffee in Uganda. As of 2019, the number of coffee associations, coffee farmer cooperatives and community-based organisations was estimated to be 1600 by the Uganda Coffee Alliance.³³

Social and environmental issues: Coffee faces several environmental challenges such as drought, erratic rainfall, deforestation, flooding, mudslides, and soil erosion. Rising temperatures has also increased the prevalence of pests and diseases, reducing coffee yields. However, in Uganda, as intercropping is a common practice, soil quality can be improved by coffee production.³⁴

Spotlight case study- Cooperative profile : Kibinge is a region approximately 150 kilometres from Uganda’s capital, Kampala, and is famous for its high-quality robusta coffee. The cooperative has over 1600 members and employs many fulltime staff. In 2011, it became Fairtrade certified. The cooperative’s goals include improving market access for farmers and giving back more of the profits to their farmers. They also provide training and help coordinate the delivery of coffee beans. The cooperative has set up a farm supply shop and a savings and credit union, where the profits from these operations are reinvested back into the organisation’s fairtrade funds.³⁵

Tanzania

Country background: Tanzania is an East African country with a population of over 65 million.³⁶ (World Bank, n.d.). As of 2019, Tanzania is the 6th largest producer of coffee in Africa, and forms approximately 1.7% of the total global share of coffee production. Coffee production contributes importantly to job creation, economic growth, and various livelihood improvements. It generates approximately 1% of the agriculture sector GDP.³⁷

Coffee growing regions: In Tanzania, coffee is grown in the Lake Victoria regions, as well as the northern, western, eastern and southern regions. Arabica coffee is grown in the northern, southern and western highlands, whereas Robusta is cultivated in the eastern region and near Lake Victoria.³⁸

Variety and quality: The traditional crop of Tanzania is Robusta, which was produced by the native tribes. Arabica cultivation only began when Europeans introduced the crop in the 16th century. Today, over 70% of coffee exported from Tanzania is Arabica. The main Arabica varieties include Kent, Blue Mountain and Bourbon.³⁹

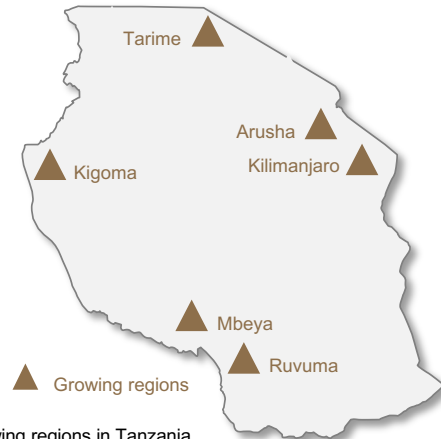


Fig 27: Coffee growing regions in Tanzania

Trade figures: Tanzanian coffee production is forecast to increase in 2023/24 by 21 percent, to 1.35 million 60-kilogram bags. This large growth is due to the good climate this season, after drought stunted production by 13% in 2022/23. It also because the Government of Tanzania supported the distribution of high-yield Arabica seeds in 2018. These replaced older maturing trees on existing plantations and have matured to their highest yielding period in their cycle. The harvested area will not increase with this increase in production. It is worth noting that in 2022, the Government also distributed Robusta seeds free of charge to replace older trees, with these expected to reach high yields by 2025.⁴⁰

Key players and process of selling: Approximately 90% of coffee producers are small-scale in Tanzania, the remainder of coffee is produced by estates.⁴¹ Coffee can be marketed via auction or direct export (from cooperatives) in Tanzania. An exporter must get government approval to initiate a contract with a cooperative by guaranteeing a higher purchase price than the value of the coffee at auction. Peet's coffee is one of many large coffee companies that sources a portion of their coffee from Tanzania. The company sell an 'Uzuri African Blend'® with coffee from Rwanda, Kenya, Tanzania and Ethiopia.⁴²

Farms and farmer cooperatives: Coffee is the main source of income for approximately 450000 smallholder farming households in Tanzania.⁴³ There are 3875 agricultural marketing cooperatives in Tanzania, however, the amount of coffee-specific cooperatives remains unclear.⁴⁴

Social and environmental issues: Tanzanian coffee farmers face a host of challenges. Research has found that a lack of market information, as well as the low prices received for coffee beans demoralizes farmers in the country. The result is low returns on investments for farmers. Yield expansion would improve these returns, but to improve yields, training and resources are required, which in turn, require more investment. Farmers are stuck in a circle of poor returns.⁴⁵

Spotlight case study- Company: Located in Moshi Municipality, Tanzania, Mambo Coffee Company Limited (MCCL) is an exporter of sustainable green coffee. Established in 2011, it exports 300 containers of Arabica and Robusta coffee annually, primarily sourced from small-scale growers. Coffee is purchased directly from cooperatives or through the Moshi Coffee Auction. MCCL's largest export destination is Europe (63%), followed by Japan (26%) and South Africa (6%). Their core objective is to alleviate poverty and improve livelihood of smallholder coffee producers in rural areas by adding value of their coffee, buying and export into sustainable markets.⁴⁶

Rwanda

Country background: Rwanda is a landlocked country bordered by the larger and richer Democratic Republic of Congo and the East African countries of Tanzania, Uganda and Burundi. There is a population of over 13 million people. It is a low-income country according to the World Bank, but it aspires to achieve Middle Income Country status by 2035, thanks to its improved living standards and sustained economic growth. This growth has slowed since the pandemic. Though poverty has decreased dramatically in recent decades, over 38% and 52% of the population still live below the national and international poverty line respectively.⁴⁷

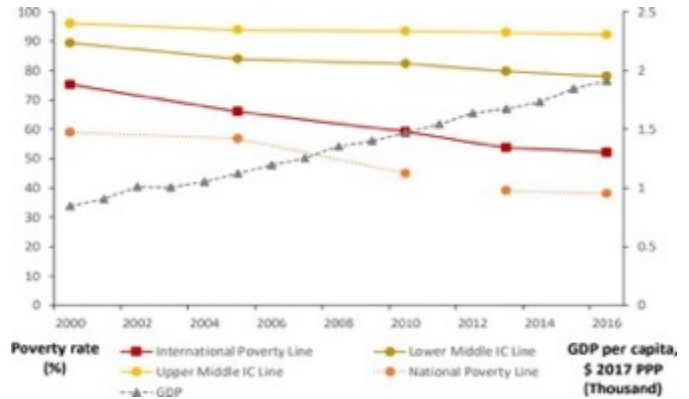


Fig 28: Rwanda Coffee Production. Source- World Bank, 2023

Coffee growing regions: The majority of Rwanda’s coffee is produced in the Southern and Western districts, with farms generally located between 1700 and 2000 metres above sea level. Coffee is produced in farms along Lake Kivu in the West, from the northern Gisenyi down to Cyanguu. In Southern Rwanda, a large portion of coffee is grown in Butare; and in the east of the country great coffees are produced in Ngoma and Nyagatare.⁴⁸

Variety and quality: Today, approximately 96% of coffee grown in Rwanda is high-quality Arabica, grown from Bourbon trees. It is known for its silky creamy body, with fruity aftertastes.⁴⁹

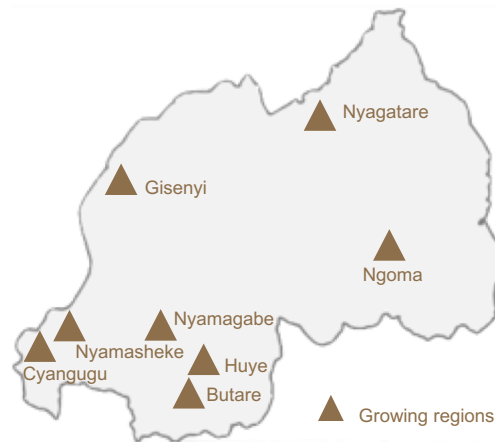


Fig 29: Coffee growing regions in Rwanda

Trade figures: In 2021, Rwanda exported close to 71 million USD of coffee. This placed it as the 39th largest coffee exporter globally and coffee was the country’s 6th largest exported product. Rwanda coffee’s largest export destinations, in order, are Kenya, Sweden, United States, Germany and Russia. Kenya is their fastest growing export market.⁵⁰

Key players and process of selling: In a liberalised market, farmers have increasingly grown specialised coffee. In Rwanda, premium roasters pay more than three times as much for speciality coffee than for standard beans. These prices remain relatively high and resilient even when coffee commodity prices fall. When these prices are paid to cooperatives, profits directly go to farmers. In 2018, Rwandan coffee started trading on the world’s largest e-commerce platform, Alibaba after the Rwanda Government entered into a partnership with the e-commerce giant to trade Rwandan products on the online market.⁵¹ (Rwanda Development Board, n.d.)

Rwanda condit.

Farms and farmer cooperatives: Between 450,000 and 500,000 smallholder farmers produce coffee in Rwanda, with each of these farms averaging less than one hectare.⁵² It is estimated that 14% of farmers are members of cooperatives or small-holder associations. Rwanda's coffee cooperatives are farmer-run and were founded with the primary goal of enhancing the income and standard of living of smallholder farmers. They accomplish this by processing fully washed coffee, offering technical support and production inputs, strengthening the farmers' negotiating position, and opening up new markets. Many of these cooperatives have arisen due to the backing of NGOs and the government.⁵³

Social and environmental issues: Climate change is observed and predicted to bring rising temperatures, changing seasonality, changing rainfall and extreme weather events to Rwanda in the coming years. Due to climate change, land suitable for Arabica coffee cultivation is predicted to change from 400-2000 metres above sea level to 800-2000 metres above sea level. This climate change will impact the East of Rwanda the most. Producers in Rwanda could instead switch to Robusta coffee, however, the country's development strategy places a high importance and price on higher-value crops and coffee.⁵⁴

Spotlight case study- Cooperative profile: In 2012, Coffee Exporters and Processors Association of Rwanda (CEPAR) was established. It is a non-political and non-profit membership of coffee farmers and coffee exporters. CEPAR's main objectives are to promote, protect and defend the interests of its members in economic, social and professional areas. They support coffee production by facilitating washing stations, supporting wet processing and roasting. CEPAC are a member of the African Fine Coffees Association.⁵⁵



Image: Killian Stokes

Democratic Republic of Congo (DRC)

Country background: The DRC is the largest country in sub-Saharan Africa and is similar in size to Western Europe. The country is rich in natural resources, such as copper, cobalt, hydropower potential, arable land, immense biodiversity, and a large rainforest. However, the history of conflict, political instability and authoritarian rule has led to a humanitarian crisis and forced displacement of populations. These features of the country have not changed since the ending of the Congo Wars in 2003, and as a result, much of the population has not benefited from the abundance of natural resources. The country is among the five poorest in the world, with nearly 62% of the population living below \$2.15 a day.⁵⁶

Coffee growing regions: Coffee grows across DRC widely, but only three regions account for the production of Arabica coffee. These are North Kivu, South Kivu and Ituri. All three regions are in the east of the country as the East benefits from its higher altitudes, good climate, and fertile soil. However, the east of the country is also subject to ongoing political unrest, which creates challenges for the industry.⁵⁷

Variety and quality: The Democratic Republic of the Congo is home to both Arabica and Robusta coffee production. Even though Robusta has historically accounted for most of the production, Arabica is gaining popularity among farmers these days. The two Arabica varieties that are most frequently grown are Blue Mountain, a Typica mutation that originated in Jamaica, and Bourbon, which grows well at high altitudes. There is also a local Robusta variety known as Petit Kwilu, which has smaller beans and a less bitter flavour.⁵⁸

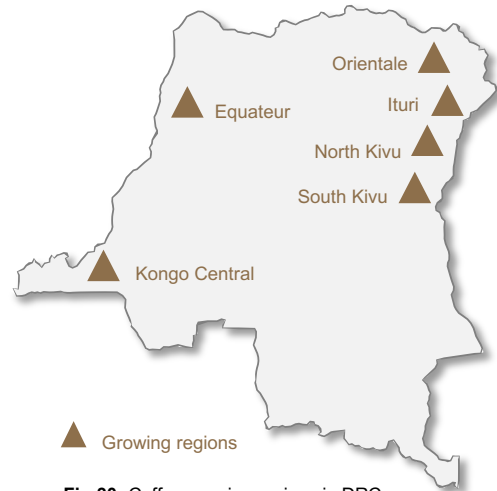


Fig 30: Coffee growing regions in DRC

Trade figures: It is extremely difficult to quantify coffee trade figures in Rwanda as thousands of farmers smuggle their coffee across borders into neighbouring countries where they can gain a better price for their products. Farmers make the dangerous journey across Lake Kivu to transport their coffee. Estimates suggest that upwards of 70% of coffee production in the DRC is undocumented as it is moved into Rwanda and Uganda where it is mixed in with their production.⁵⁹ In 2020, the DRC is credited with producing 375000 60kg bags of coffee, a 4% decrease from the prior year and 2% of Africa's total production.⁶⁰

Key players and process of selling: Coffee farmers who are members of cooperatives sell to these cooperatives, as well as participate in the informal market discussed above. This informal market is a safety net as it allows for immediate payment of coffee. Lingering conflict has resulted in structural and institutional market constraints and impedes the functioning of cooperatives.⁶¹ Cooperatives facilitate sales to exporters. Starbucks and Falcon Coffees are working with farmers in the DRC to support the industry.⁶²

Farms and farmer cooperatives: Accurate figures on the number of coffee farmers and farming cooperatives in the DRC are difficult to ascertain. Downie, of the centre for strategic and international studies (CSIS) states that up to 50000 farmers are members of cooperatives in the DRC. The true amount of farmers and cooperatives in the DRC is unknown due to the lack of reliable statistics.

Democratic Republic of Congo (DRC) contd.

Social and environmental issues: The expansion of the Congolese coffee sector faces challenges, primarily stemming from poor infrastructure and logistical issues. Delays in transporting coffee to the Kenyan port of Mombasa, due to inadequate roads and slow customs processes, hinder growth. Developing a domestic market within the DRC is a long-term strategy. Government support, addressing security concerns, reducing informal taxes, and strengthening the National Coffee Office's capacity is crucial. Collaborative efforts with neighbouring countries and international partnerships could enhance trade. A comprehensive approach involving infrastructure improvement, policy changes, and security measures is necessary for the sector's sustainable development.⁶³

Spotlight case study- Cooperative profile: Founded in 2009 with 350 members, the Muungano Coffee Cooperative in eastern DR Congo, meaning "Togetherness" in Swahili, has grown to include over 4,300 farmers. Situated near Lake Kivu, the cooperative exports specialty coffees to Europe and the US, processing beans at two main washing stations. While 95% of farmers deliver fresh cherries to the cooperative, 5% perform wet processing at the farm. The coffee undergoes sorting in Goma before the long journey to Mombasa, Kenya.



Image: Killian Stokes

Malawi

Country background: Malawi is a country located in Southern Africa. It is landlocked and bordered by Mozambique, Tanzania and Zambia. With a population of over 20 million, it remains as one of the world's poorest countries. Malawi relies heavily on agriculture for 80% of the population's employment.⁶⁴

Coffee Growing Regions: The majority is grown in the country's southern regions, bordered by Mozambique. These regions have higher altitudes and warmer temperatures, and include Mangochi, Mulanje, Zomba, and Thyolo.⁶⁵ Additional regions

Variety and quality: In Malawi, the predominant coffee variety is Arabica due to its higher quality and profitability compared to the cheaper Robusta. Despite the potential for greater profits with Robusta, both smallholders and larger estates prefer Arabica trees. The country's limited coffee production also encourages the cultivation of specialty coffees over bulk Robusta. Historically, Caturra was the dominant coffee varietal in Malawi until the widespread damage to crops in 1999. In response, many farmers replaced Caturra with Catimor hybrids known for their resilience against coffee leaf rust. Various coffee types in Malawi are chosen for their durability or premium taste profiles. For durability, Ruiru 11 and Catuai are favoured, while K7, SL28, and SL34 offer unique benefits. For instance, K7 matures faster than the average Arabica tree, contributing to increased profitability and sustainability in the Malawian coffee industry.⁶⁶

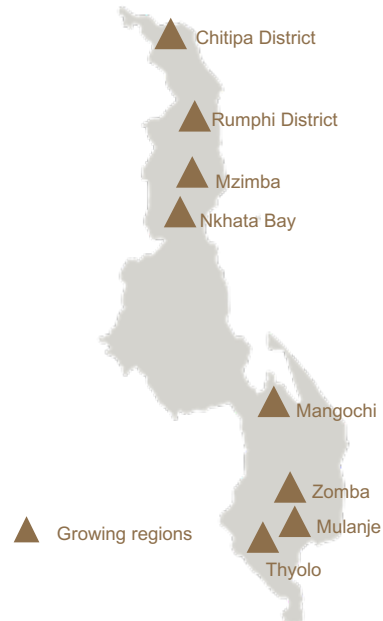


Fig 31: Coffee growing regions in Malawi

Trade figures: Malawi coffee exports and production have significantly decreased in recent years. In 1993, the country exported 109000 60 kg bags of coffee. By 2016 this had fallen to 9000 bags a year. This decrease was due to coffee wilt disease and widespread industry mismanagement.⁶⁷ (Perfect Daily Grind, 2021). In 2018, coffee exports amounted to USD 2722000. Coffee is not yet a cash crop for Malawi, and has lower export volumes than tobacco, tea and macadamia.⁶⁸

Key players, farms and farmer cooperatives, and process of selling: Coffee production in Malawi is currently dependent on a limited network of coffee cooperatives and five large estates, mainly situated in the southern region. These estates primarily focus on the above-mentioned cash crops of the country, with coffee being a secondary crop produced by them. Despite this, the estate sector contributes significantly, accounting for about two-thirds of the country's annual coffee production, totalling 1,500 metric tons. Sable Farms, among the estates, is the primary producer and exporter of washed Arabica coffee.⁶⁹ Currently, the remaining one-third of coffee production in Malawi is attributed to approximately 3,000 to 4,000 smallholder coffee farmers. These farmers are organized into six cooperatives located in different regions of the country: Misuku Hills, Phoka Hills, Viphya North, Nkhatabay Highlands, South East Mzimba, and Ntchisi East. Annually, this sector contributes between 350 to 450 metric tons of coffee. In 1999, the cooperatives collaborated to establish the Mzuzu Coffee Planters Cooperative Union. Farmers in this sector either export their coffee independently or sell it through the Mzuzu Cooperative Union.⁷⁰

Malawi cond.

Social and environmental issues: Malawi's coffee sector faces a major hurdle due to climatic factors, inadequate infrastructure and aging rootstock susceptible to diseases. While estates like Sable Farms set an economic example for the region and showcase the country's coffee potential, there is considerable untapped potential among smallholder farmers. Recent pilot initiatives in Malawi have shifted their focus to bolstering the sustainability of smallholder coffee farms. These endeavours involve the implementation of organic fertilizers, such as manure, the utilization of nitrogen-fixing plants like beans to enhance soil health and fertility, and the adoption of inter-cropping banana grasses. This not only provides shade for coffee trees but also serves as fodder for animals, marking a step towards a more sustainable and diverse agricultural approach.⁷¹

Spotlight case study- Cooperative profile: Established in 1999 during Malawi's coffee sector liberalization, the Mzuzu Coffee Planters Cooperative Union expanded in 2006 with European Union support. With 2,600 smallholder farmers in five cooperatives, Mzuzu dominates Malawi's specialty coffee scene. Operating 61 Centralized Processing Units and a centralized mill, Mzuzu also provides training in gender equity and produces women-led coffee. Each cooperative, independently registered, contributes to the union and ensures a balanced and fair board. The cooperative engages in diverse businesses, such as roasted coffee production, a coffee shop, the Usingini coffee estate, and tea and honey production. Mzuzu aims to elevate specialty coffee in the market despite historical production challenges in Malawi.⁷²



Image: Killian Stokes

Burundi

Country background: Burundi is a landlocked nation in East Africa with an economy based mostly on agriculture, employing 80% of its workforce. Situated in the Great Lakes region, Burundi shares borders with Tanzania to the east, Rwanda to the north, the Democratic Republic of the Congo to the west, and Lake Tanganyika to the southwest. Burundi is among the world's most densely populated countries, with 12.8 million inhabitants in 2022, 50.3% of whom are women and 41.5% of whom are young people under the age of 15 (2020 population projection). The country has a density ratio of 442 persons per square kilometre.⁷³

Coffee growing regions: Coffee is grown in five main areas in Burundi: Muyinga, Bubanza, Kirundo, Gitega and Buyenzi amongst others. The quality flavour and variety all change depending on geographical location. These varied and appreciated flavours are a result of the high altitude, pleasant temperature, and fertile volcanic soil.⁷⁴

Variety and quality: Arabica coffee is almost exclusively grown over Robusta in Burundi.⁷⁵ Muyinga beans have a sweet and chocolatey flavour with hints of bitter black tea, oiliness, and nuttiness.

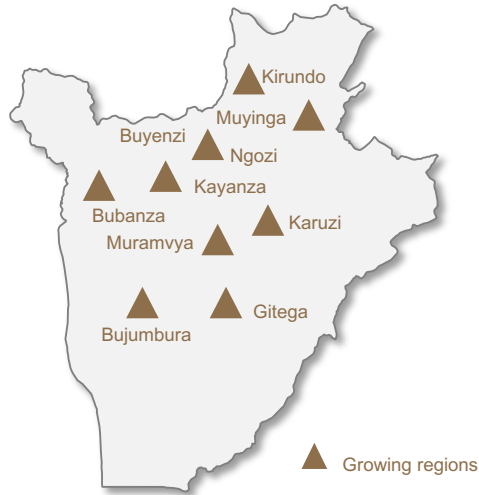


Fig 32: Coffee growing regions in Burundi

They are best suited for dark roast methods like espresso, French press, or cold brew. The coffee from Bubanza is mild and features fruity, delicate flavours with citrus, berry, and pineapple undertones and a bright acidity. It's best suited to those who favour a light roast coffee. Kirundo coffee has a wild, floral flavour profile with complex fruity notes and hints of mysterious spice. It's recommended as a medium-dark roast for drip or espresso. Coffee from Gitega is decadent, with a sweeter profile and pronounced melon, berry, and citrus notes. It's best enjoyed with a medium to light roast, preferably using a drip or pour-over method. Buyenzi coffee is fruitier with high acidity and pleasant citrus aromas. It's ideal for a light to medium roast using drip or pour-over brewing methods.⁷⁶

Trade figures: In 2021, Burundi produced 230000 60 kg bags of coffee. This is a year-on-year decrease of 13.2 percent. Though difficult to obtain the most recent trade figures, the cost of coffee in Burundi has fluctuated significantly over time and has recently decreased. Prior to 2019, the price of one kilogram of coffee could range from \$2.87 to \$2.36 (USD). The export price dropped to a low of \$1.76 (USD) per kilogram in 2019, a decrease of - 25.6% from the previous year.⁷⁷

Key players and process of selling: In Burundi, cooperatives work with farmers to support productivity and incomes by negotiating with the market. Burundi's coffee sector was liberalised in the early 2000s and the government privatised coffee washing stations in the country. Cooperatives have thus began buying or building their own washing stations. Fully washed coffee commands a higher price from international buyers and exporters.⁷⁸

Farms and farmer cooperatives: Over 700000 families are involved in coffee farming in Burundi. All coffee is farmed by smallholder farmers. These families use a combined acreage of 60000 hectares.⁷⁹ It is almost impossible to accurately count the amount of coffee cooperatives in Burundi, as many lack any form of digital presence.⁸⁰ Cooperatives form union in the country.

Burundi cond.

Social and environmental issues: Coffee production is declining in Burundi as the government has attempted to privatise the industry in order to attract investment. Coffee trees in the country are mostly the traditional Bourbon variety. They are an older stock and subject to large biennial swings in production. A good harvest is followed by a weak one and vice versa. This adds to the issue of volatile and low coffee prices.⁸¹

Spotlight case study, Company Cooperatives: Kahawatu Foundation is an NGO which aims to improve the livelihoods of coffee communities in Eastern Africa, including Burundi. It began in 2013 and focuses on aiding smallholder farmers to increase yields and optimise their income in an economic, social and environmental sustainability way. They have now expanded beyond agronomy. Current focuses include educating coffee communities on the empowerment of youth and women, and diversifying income sources.⁸²



Image: Killian Stokes



Section Six

Value Chain Reform

Business Models and Frameworks

The coffee sector is changing driven by rapid market liberalization and the impacts of climate change along with increasing ESG calls for more stringent quality and transparency standards in global supply chains. A central component of many economies and livelihoods around the world, the production practices and associated industry business models and frameworks bear significant direct impact on upstream smallholder farmers and the communities dependent on the commodity crop for their income (ICO, 2023). As a consequence, the theory of value chain reform has drawn increasing industry interest due to opportunities for the sector to streamline efficiencies and to raise coffee growers' standard of living.

In an effort to improve the industry's sustainability standards (economic, social and environmental) and to optimism competitiveness, these reforms necessitate adjustments to business models and frameworks, to governance, and to the operational structures across the coffee value chain. In this regard, the models and frameworks under analysis include certification systems, emerging business models such as direct trade and roasted at origin and coffee cooperatives and associations.

This chapter examines and evaluates the proposition for value chain reform through the lens of business model innovation and with due regard to the production, aggregation, processing, retail roles players central to the coffee value chain. Any adjustment or reform therefore must address, as the literature reflects, a number of issues such as low producer prices, restricted market access and business model inefficiencies amongst others (Daviron & Ponte, 2005; Gereffi & Korzeniewicz, 1994; Jaramillo et al., 2013; Minten et al., 2019; Sachs et al. 2019; UNCTAD, 2018). Reform of the CVC also points to enabling environment, support services, and governance structures that affect how the value chain operates. Having conducted an analysis this chapter moves to identify areas for development and strategic directions for strengthening the coffee value chain.



Certification Systems

Are organisations which administer certification through rigorous processes related to quality and supply chain standards. The certification indicates whether or not the different supply chain participants comply with the necessary environmental, social, and economic sustainability requirements. Schemes for certification have nothing to do with coffee quality. Common certifications include Fairtrade, Rainforest Alliance, USDA National Organic Programme, Bird Friendly Coffee and 4C. Additional certifications include Enveritas, SMS Verified and Sucafina; emerging trend of sustainable self-verification such as Starbucks C.A.F.E. Practices and the Nespresso AAA Sustainability Quality™ programmes.

Image: Killian Stokes

Fair Trade

Since its founding in 1998 Fairtrade International has been driving Fairtrade standards worldwide. Includes 1.6 million farmers globally, 1,599 producer organisations in seventy five countries with over 2,400 licences and 30,000 products with Fairtrade mark.



Model



Certification
FLOCERT

Key Highlights

- **84% coffee** from Latin America and the Caribbean.
- **Issued via** Fairtrade International producer networks (co-funded by European Union).
- **Uses** independent third party auditor (ISO 17065 accredited).
- **Sets** Fairtrade Minimum Price and Fairtrade Premium.
- **Criteria includes** Fairtrade mark indicates producers / businesses meet stringent social, economic, and environmental standards.
- **Coffee not required** to be organic for certification.

Image: Killian Stokes

Source: *Fairtrade International* – www.fairtrade.net/

Rainforest Alliance

Rainforest Alliance (established in 1987) includes 1,034 farm certification holders growing coffee, in 60 plus countries with four million farmers and farm workers part of the programme and 6,000 company partners, 8,000 donors.



Key Highlights

- **Focus on** sustainable agriculture via three pillars of sustainability: social, economic and environmental.
- **Issues via** the Rainforest Alliance Certification Programme Sustainable Agricultural Standard, Coffee Scorecard (introduced in 2022).
- **Uses** independent third party auditor.
- **Criteria includes** environmental; social; economic (transparent pricing, access to credit, business management skills). Note: Coffee not required to be organic or shade grown.
- **UTZ merged** with Rainforest Alliance 2017.
- **Partnerships** with governments, companies and civil society organisations
- **Impact areas** include forests and diversity, climate, rural livelihoods and human rights.
- **Interventions** include certification, landscapes, advocacy, and supply chain services.

Model





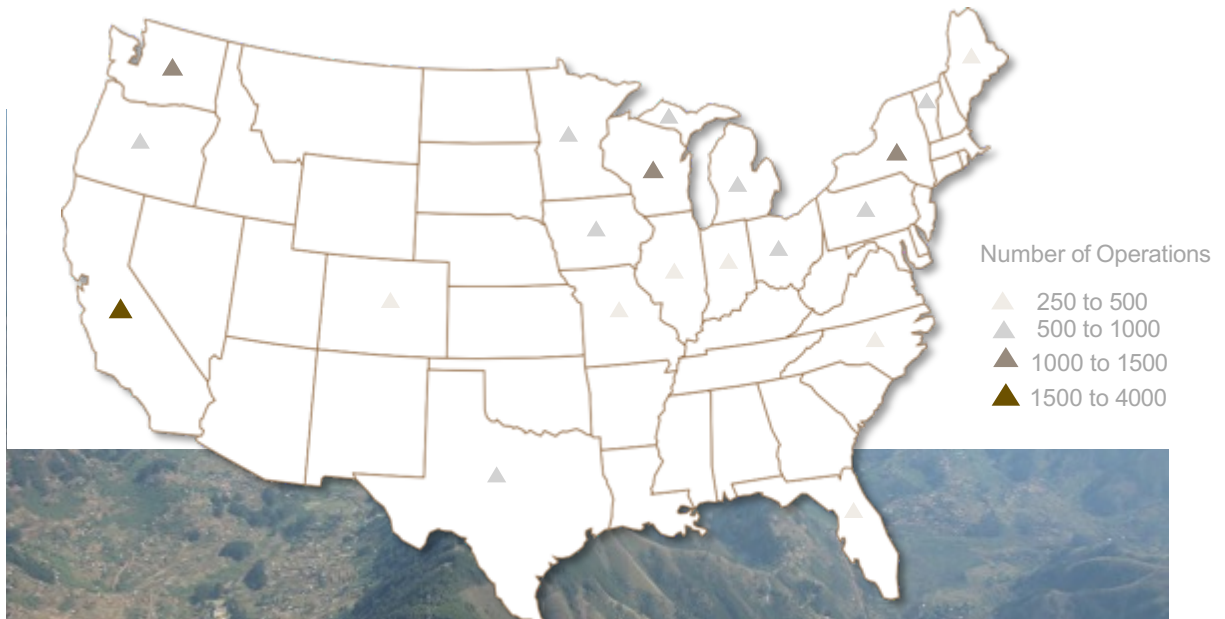
Certification
Rainforest Alliance

Image: Killian Stokes

Source: Rainforest Alliance – www.rainforest-alliance.org/

USDA Organic

USDA Organic (established in 2002) operated by the U.S. Department of Agriculture, oversees 22,000 certified organic operations globally that supply the US market.



Model



Certification
U.S. Department
of Agriculture

Key Highlights

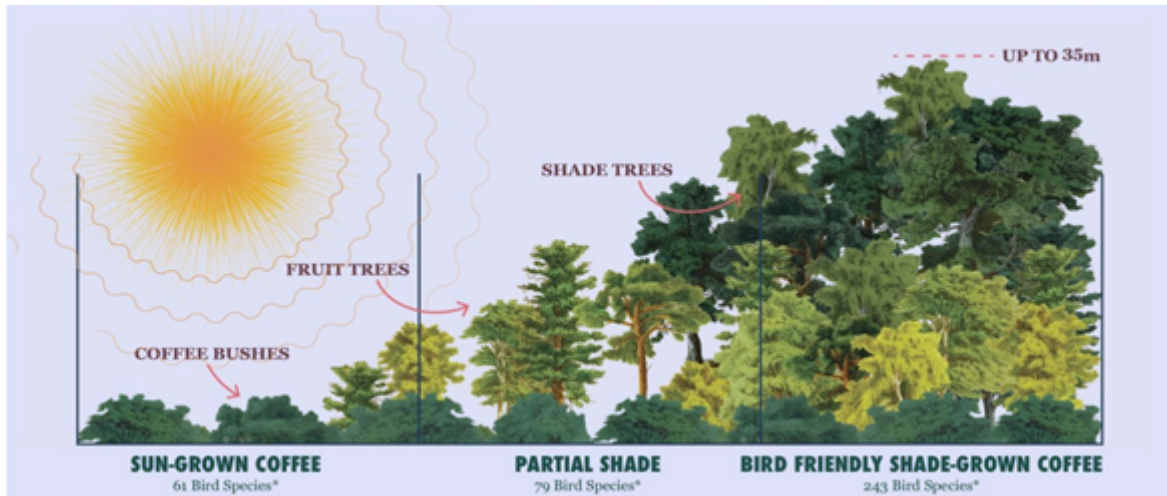
- **Focus on** certifying organic coffee and on environmental impacts.
- **Issues via** the National Certified Organic Program (NOP).
- **Uses** a number of third party agencies responsible for verifications.
- **Criteria includes** soil has no prohibited substance additions for 3 years prior to certification; prohibited substances include fertilizers and pesticides; prohibited substances permitted with approval where absolutely necessary; strict manufacturing and supply chain controls for roasting, manufacturing and auditing.
- **Products** are labelled according to percentage of organic ingredients i.e. 100% organic, organic, made with organic, organic ingredients.

Image: Killian Stokes


Source: USDA Organic – www.usda.gov/topics/organic

Bird Friendly

Bird Friendly (established in 1996) has grown to include 5,100 Bird Friendly farms in 11 countries which produce on average 34million pounds of coffee annually.



Model



Certification
Smithsonian
Migratory Bird Center
(SMBC)

Image: Killian Stokes

Key Highlights

- **Focus on** certifying organic coffee and on environmental impacts.
- **Issues via** the National Organic Program.
- **Uses** independent third party agencies.
- **Criteria includes** >12 meters canopy spectrum, >40% foliage cover (during dry season / pruning), >10 woody species, structural diversity, leaf litter, living fences, buffer zones along waterways; farms 100% organic (certified by USDA).
- Most stringent standards for shade-grown coffee production.
- **Smithsonian Migratory Bird Centre** conducts cutting-edge ornithological.
- **'Sun-coffee'** i.e. *coffea robusta* is better at withstanding sun, fungus and producing higher yields has resulted in deforestation and loss of habitat for bird populations.

Source: Bird Friendly - <https://nationalzoo.si.edu/migratory-birds/bird-friendly>

4C

4C (established in 2004) is active in 17 countries working with 191 producing groups which includes 307,000 coffee producers. Over 94% of producers under certification are smallholders covering 832 thousand hectares of farmland.



Model





Certification
4C Association

Key Highlights

- **Focus on** supply chains.
- **Issued via** the Common Code for the coffee community.
- **Uses** independent third party auditor (ISO 17065 and ISEAL assurance).
- **Criteria includes** management; capacity and skill development, traceability, services and market information), social (human and labour rights, working conditions, add-ons include food security, gender equality, environmental (protection of biodiversity, use of pesticides and other chemicals, soil and water conservation and fertility, waste management, energy consumption).
- **Uses** remote sensing technologies GRAS – provides sustainability related geo-reference info

Image: Killian Stokes

Source: 4C – www.4c-services.org

Enveritas

Established in 2016 Enveritas operates in 10 countries and has a network of roaster partners who work with 400,000 smallholder coffee farms across the globe.



Model

▼

Enveritas

Certification
Enveritas

Key Highlights

- **Focus on** traceability, sustainability and continuous improvement.
- **Works** with unorganised smallholders that lack access to existing supply chain certification.
- **Issues via** the Continuous Improvement Framework and Farmer Support Programs provides free verification.
- **Criteria includes** social (no child or forced labour, min wage respected, no discrimination);
- **No farmers fees**
- **Continuous improvement** elements include supplier engagement, collaborative initiatives, farmer support, progress transparency.
- **Offers buyers** two additional pathways for traceability and sustainability includes 'Enveritas Gold' and 'Enveritas Green.'

Image: Killian Stokes

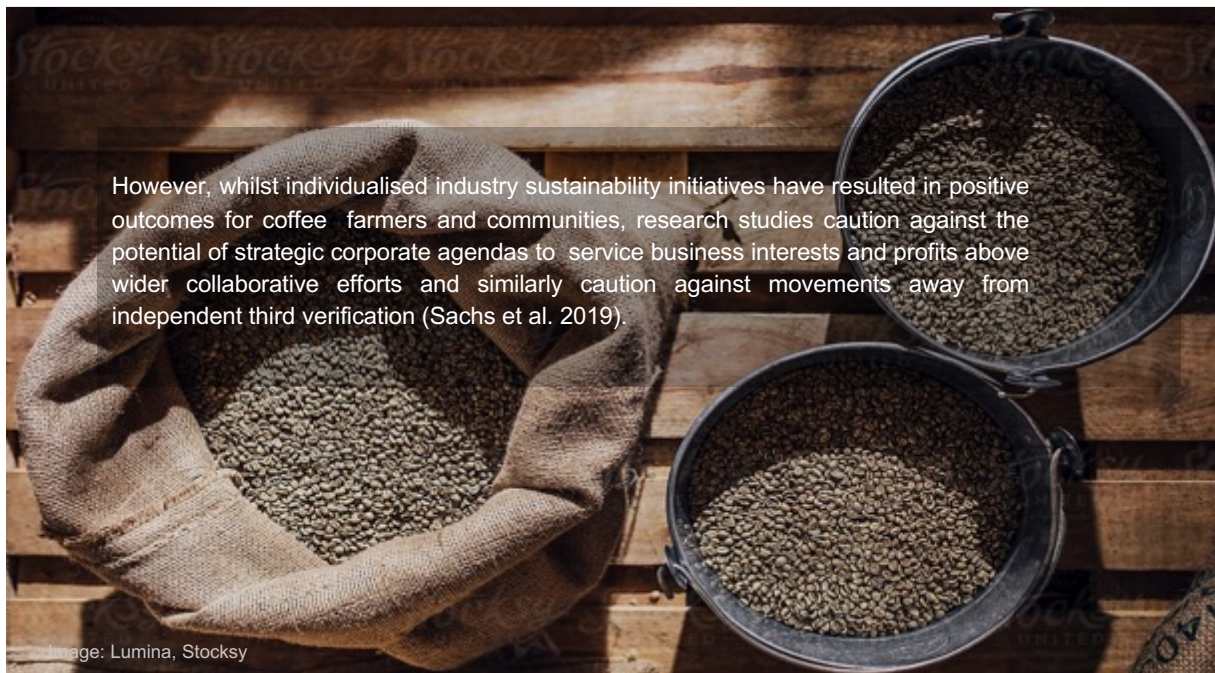
Source: *Enveritas* – www.enveritas.org/

Additional Sustainability Schemes

In addition to the well-known certification schemes, discussed in the previous section, roasters and retailers have also integrated corporate sustainability strategies, programmes and projects into their supply chain management. For example, Starbucks C.A.F.E Practices and Nespresso's AAA Sustainability Quality™ programme are focused on ensuring a sustainable sourcing approach to their supply chains.

- **Starbucks C.A.F.E Practices:** established in 2004, in partnership with Conservation International, the Coffee and Farmer Equity (C.A.F.E.) practices is a company verification programme, with more than 200 indicators, to assess farms against economic transparency, social responsibility and environmental leadership. The programme was started by Starbucks in order to aid the long-term supply of quality coffee and to positively impact the livelihoods of farmers and their communities (Starbucks, n.d.).
- **Nespresso's AAA Sustainability Quality™:** established in 2003, in partnership with Rainforest Alliance, the programme recognises the underpinning livelihood instability and risk farmers face in the production of coffee. The programme is focused on advocating for a sustainable approach to sourcing and as such uses a three-pillar assessment on quality, productivity and sustainability to deliver positive impact in the areas of farm management, community resilience and wider systemic solutions (Nespresso, n.d.).

Certification systems such as Fairtrade, Rainforest Alliance, 4C and Enveritas are positively identified in the literature for their function in the regulation (through third-party auditing) and promotion of sustainable practices in the CVC. Further their adoption of the technology innovations in the value chain, for example, the use of blockchain and satellite imaging is advancing the future production upstream (Heldt & Beske Janseen, 2023). In addition, their adherences to international protocols and conventions, for example, the International Labour Organization's conventions on Child Labour and Forced Labour functions to international pressure on domestic regulatory and compliance measures.



Emerging Business Models

The emergence of alternative value chain business models such as direct trade and roast at origin are predicated on coffee producers dealing directly with roasters and manufactures without the intervention of intermediaries. These approaches function to maximise the self-determined power of farmers to negotiate direct trade relationships and price deals.

- **Direct Trade:** model producers and roasters collaborate directly with each other eschewing commodity exchanges and conventional distribution routes. Greater control over the coffee's origin and quality and therefore transparency and traceability are made possible. The model helps to build long-term partnerships between coffee growers and roasters.
- **Roasted at Origin:** is a framework that concentrates on roasting coffee nearer to its upstream source i.e. either inside the producer country or at a coffee farm. The concept functions to support local economies and sustainability of value chains by lessening environmental impacts by lowering the carbon footprint connected with the transglobal transportation of coffee beans. In addition, because coffee beans are roasted soon after processing roasting at origin can contribute to coffee development at origin which is fresher and more flavour driven.



Model

Key Highlights

- **Established 2012** and operates via a sustainable coffee company called Moyee.
- **Focus on** a business model that returns production and profit to countries of origin and reduces middlemen in the value chain.
- **Uses** FairChain Foundation and the FairChain Farming Program.
- **Framework advocates** for future business models to 'combine entrepreneurial competitiveness with social impact' i.e. substituting development aid with sustainable consumption. A key aspect is roasting at origin rather than in intermediary countries such as the EU / US. Advocates for equal distribution of value to value chain participants.
- **Products** are labelled according to percentage of organic ingredients i.e. 100% organic, organic, made with organic, organic ingredients.
- **Uses technologies** such as blockchain to enhance transparency and traceability e.g. digitised 12,000 farmers (Ethiopia) and 7,500 farmers (Kenya).

Source: Fairchain Foundation – <http://fairchain.org>

Emerging Business Models contd.,

This report acknowledges that the business models, detailed above, whilst gaining traction with ethically minded consumers are at emerging stages of development. As such both lack any third-party verification or a set of universal standards by which consumers can gain assurances on sustainable practices.

Coffee Cooperatives and Associations

Agricultural cooperatives and associations are producer organisations which farmers use to pool their resources in selected areas of activity such as supply inputs (seeds, fertilisers, machinery etc.) and/or marketing (packaging, pricing, sales and distribution). Coffee cooperatives and associations play a vital role in East Africa with the primary goal of enhancing the income and standard of living of smallholders through technical support, the provision of resources such as agricultural inputs and coffee processing services. They also provide important non-technical services such as bargaining leverage and gaining market access opportunities for farmers.

As a business model the collectivised effort of cooperatives and associations in the value chain are instrumental in empowering smallholder farmers with knowledge sharing, bargaining power and access to resources and routes to market i.e. to the international markets where they can command higher prices particularly through direct trade. In addition, the cooperatives are important support channels for leading conservation efforts and improving farming practices that improve the quality of coffee crops.

However, research findings point towards a need to improve efficiencies and maximise the capabilities of coffee cooperatives and associations in the region. As such business model challenges for cooperatives and associations to overcome include:

- Implementation of efficient and effective governance as issues persist with leadership effectiveness, and transparency and accountability i.e. corruption and power imbalances continue to exist.
- Access to financing and credit remains a challenge and thus hinders the ability to invest in technology, infrastructure and personnel.
- Market volatility which continues to impose downward pressure on prices and therefore on the collective incomes of the cooperatives and associations



Image: Killian Stokes

Value Chain Analysis and Reform

Value chain reform refers to efforts aimed at restructuring and improving the various stages of the coffee production and distribution process to enhance efficiency, sustainability, and overall value for all stakeholders involved. The concept, first introduced by Michael Porter in *Competitive Advantage: Creating and Sustaining Superior Performance*, lays out a comprehensive strategic framework for businesses to analyse and understand the range of activities involved in the production and delivery of a product or service (Bayu, 2017; Porter, 1985). According to Porter, the activities that encompass a business's value chain can be divided into two categories 1) primary activities which involve in the creation, marketing, delivery and support of a product and 2) support activities which provide the infrastructure and resources necessary for the primary functions.

The application of Porter's value chain analysis framework, whilst primarily focused on a profit margin end results, is a useful tool to investigate any gaps, inefficiencies or opportunities for new value creation and trade-offs in the coffee value chain. In this regard it is worth noting that to date the main focus of reform has concentrated on the restructuring and improvement of primary activities, such as the various stages of coffee production, cultivation harvesting, processing, roasting and distribution. However, as the business models and frameworks (certification schemes, emerging business models and frameworks, and cooperatives and associations), discussed in the previous section highlight, in a complex and often predatory operating environment reform is also increasingly required across support activities.

Below outlines a few of the key primary and secondary value creation activities identified for further development and/or reform:

Primary Activities

▪ **Inbound Logistics**

Robust logistics are essential for value chain efficiency and therefore business models and frameworks that emphasise the need to invest in modernising transportation networks, reducing post-harvest losses, and ensuring the integrity of the coffee supply chain are critical. Certification bodies such as Fairtrade, Rainforest Alliance/UTZ and USDA Organic, as they continue to gain prominence there are value chain reform opportunities to drive further initiatives that support sustainable logistics e.g. impact projects and environmental stewardship programmes. In addition, emerging business models such as roasted at origin which place particular emphasis on lessening environmental impacts by lowering the carbon footprint connected with the transglobal transportation of coffee offer reform opportunities.

▪ **Production**

Value chain reform extends to quality control and product innovation and differentiation. Emerging trends, identified in Chapter 2, includes the fourth wave evolution of the industry to include experimenting with unique processing methods and diversifying product offerings to meet sustainability standards and evolving consumer preferences.

▪ **Outbound Logistics**

Implementing eco-friendly practices in downstream distribution and packaging to reduce the environmental footprint of coffee production are in continued need of reform. This involves optimizing transportation to minimize emissions and the use of compostable packaging together with the promotion of recycling initiatives.

▪ **Marketing & Sales**

As coffee retailers rethink strategies on consumer acquisition and the consumer experience embracing online sales and direct-to-consumer models which increase market reach and reduce reliance on traditional distribution channels and/or intermediaries are a key focus downstream value chain reform.

In addition, as this report's review of the certification schemes has identified, there is a growing focus on traceability and transparency throughout the coffee supply chain. Blockchain technology and other digital solutions are being employed to provide consumers with detailed information about the origin of the coffee beans, the supply chain journey, and the practices involved in production.

Value Chain Analysis and Reform

Supporting Activities

▪ **Technology Development**

Technology is playing a crucial role in optimizing various aspects of the coffee value chain from precision agriculture through IoT devices to mobile apps for farmers and the use of blockchain for traceability. Technological innovations are also enhancing efficiency and transparency in farming practices and processes. In addition, business models such as Moyee (FairChain coffee company) and new certification schemes such as Enveritas and 4C have integrated technologies into their core operations to optimise oversight. Amongst the use of remote sensing, blockchain and geotagging to trace payment transactions in the value chain.

▪ **Procurement**

Gaps exist for establishing more direct trade relationships with coffee producers which have the benefit of leveraging for farmers both market access, opportunities for fairer compensation and branding and marketing exposure. By bypassing traditional intermediaries, coffee companies can ensure that a greater share of the revenue reaches the farmers.

Technologies also play a role in optimising procurement processes, for example can improve the consistency and quality of coffee e.g. using state-of-the-art machinery for sorting and roasting. Introducing new coffee products or blends. Expanding market opportunities and catering to diverse consumer preferences. This may involve creating unique blends, introducing specialty coffees, or developing new processing methods.

▪ **Outbound Logistics**

Implementing eco-friendly practices in downstream distribution and packaging to reduce the environmental footprint of coffee production are in continued need of reform. This involves optimizing transportation to minimise emissions and the use of compostable packaging together with the promotion of recycling initiatives.

▪ **Infrastructure**

Regulatory frameworks and infrastructure gaps pose challenges to the seamless and equitable functioning of the value chain. The East African coffee industry faces the ongoing challenge of market volatility and therefore any coffee value chain reform must include risk management strategies, diversification, and the establishment of strategic partnerships to mitigate the impact of price fluctuations. In addition, any reform efforts must include broad collaboration with governments, international bodies, corporate players, and NGOs to streamline regulations and invest in critical infrastructure development.

Whilst no individual theory or framework can manage the complexity of radically innovating well-established business models, the value chain systematic way of breaking down processes within a business to identify areas where value is added, costs can be minimized and potential areas for innovation. By looking to reform various aspects of the coffee value chain across primary activities (such as the production, aggregation and processing of coffee) and supporting activities (such as procurement, deployment of new technologies and enhanced infrastructure) this report that producer regions can position themselves competitively in the global coffee economy whilst achieving sustainable and inclusive growth.



Section Seven

Opportunities and Recommendations



Sustainable Farming

Traditionally the coffee value chain has separated profit-seeking activities from those activities aimed at generating positive social and environmental impact. Driven by commercial power, consolidated at the downstream end of the market, the former has represented the coffee industry's core focus. Yet, as this study's coffee value chain mapping and evaluation illustrates, this operating model is no longer fit for purpose. New opportunities for value chain creation together with the need to tackle regional challenges and global headwinds, points towards the development of new business models and frameworks that provide a deeper purpose to simultaneously achieve positive economic, social, and environmental impact. With this imperative in mind, this section overviews some of the opportunities and recommendations available to achieve value chain reform:

Sustainable Farming

As consumer demand for more sustainable and ethical coffee production grows there are market opportunities for East African coffee producers to differentiate their products and reform value chains that also support indigenous producers and communities. These include:

- Initiatives that promote and support the sustainable and environmentally friendly farming practices, such as organic farming, shade-grown coffee, agroforestry and biodiversity e.g. World Breeding Network and World Coffee Research (WCR) working to preserve origin diversity by innovating in nursery and seed sector.
- Africa advanced priorities under the Kunming-Montreal Global Biodiversity Framework i.e. 'the establishment of an independent biodiversity fund' (p.2). Housed in the Global Impact Facility there is a 'need to continue pressing for the mobilization by 2030 of at least \$200 billion per year in domestic and international biodiversity-related funding from all sources – public and private.'
- Promotion of generation certification which aims to ensure deeper transparency and accountability regarding ecological and environmental sustainability, biodiversity, carbon footprint, water conservation.
- Widespread implementation of fair trade and ethical sourcing practices to ensure farmers receive fairer compensation and/or benefit from shared profit models and improved labour conditions and access to affordable health care.
- Adoption of practices to enhance the quality of coffee beans through improved cultivation techniques, selective harvesting, and better processing methods.
- Engagement in short and long-term sustainability planning opportunities, for example, adopt a National Coffee Sustainability Plan (NCSP) that 'accounts for differentiated needs, challenges, and opportunities within the country's coffee sector' and also to consider the introduction of a Global Coffee Fund (Sacks et al., 2019, p.7).
- Climate change mitigation and adaption through the adoption of practices to mitigate the impacts such as implementing sustainable water management and agroecological approaches, and the global adoption of regulations on de-forestation free products.
- Engagement and sign-up of East African coffee businesses to the UN Global Compact. The UN Global Compact Strategy 2021-2023 set strategic objective growing impact through focus, driving inclusive impact and leveraging associations, supply chains and sources of capital' (p.4) via Ten Principles in human rights, environment and anti-corruption.

Sustainable Farming contd.,

- Supporting farmers in adapting to changing climate conditions through education and the introduction of resilient coffee varieties.
- Focused promotion on the retail end consumer switching e.g. switching to sustainable coffee has the potential to reduce the crop's carbon footprint by 75%.

Investment and Support

East Africa has the opportunity to meet the global shortage of coffee by expanding value chain competitiveness, business partnerships, sales channels through coordinated inward investment and support, including:

- Investment, at a national level, to support access to technology, machinery and equipment would increase quantitative and qualitative outputs and thus increase EAC competition on the market.
- Investment in research and development to identify and cultivate high-quality coffee varieties.
- Increased infrastructure and capacity building which will lead to improved productivity and competitiveness for the region with, for example, the extension of public-private partnerships that support for micro/nano lots.
- Standard corporate tax rates in East Africa currently stands at between 30-37.5%, depending on the country, which matches with global averages but tends to be higher than rates in European and Asian jurisdictions. To attract greater foreign direct investment (FDI) for the sector e.g. the setting up of roasters by transnational corporations (TNCs) requires creating a favourable policy and investment climate.
- Extend trade and investment hubs across the EAC to support agricultural entrepreneurship. For example, modelled on the USAID East Africa Trade and Investment Hub, based in Nairobi, designed to help unlock private sector business potential and opportunities via market intelligence, market linkages, fund and financial structuring, advisory services, capacity building services.
- Investment in education, healthcare, and infrastructure projects in coffee-producing regions.

Technology and R&D

The future of coffee in the region depends on the role of science and technology, research and development (R&D), and innovation to address challenges and raise levels of sustainability in production. They include:

- Adoption of traceability systems using blockchain and IoT technologies for greater precision agriculture, better farm management and that provides consumers with information about the origin and authenticity of the coffee beans.
- Investment in agricultural R&D as according to World Coffee Research the sector faces as innovation crisis with the need for \$425 million annual investment in agricultural R&D needed to preserve biodiversity. East Africa has the opportunity to develop a broad crop portfolio, that is, to introduce new bean varieties and smaller seed variation of the species such as 'excelsa'.
- Technology and institutional innovations such as blockchain technology used to optimise value chain transparency and technologies that address ecoregion challenges such as water scarcity, and pest and disease control are key to unlocking the future potential of production.

Diversification and Value-Added Products

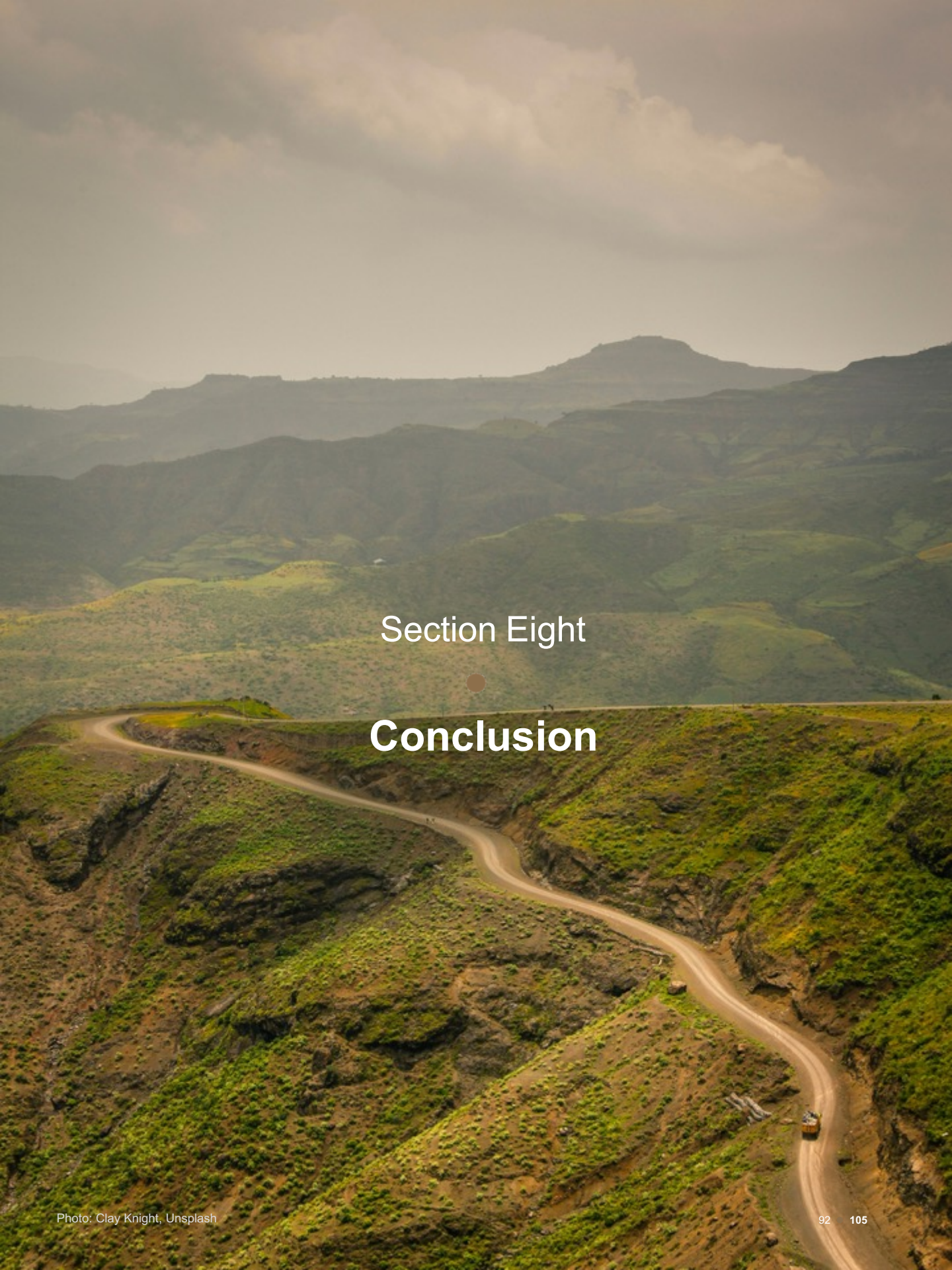
As global coffee demand fails to meet supply the demand for diversification and value-added products offers a unique set of opportunities for East African producers to capture market share which includes:

- Premiumization of coffee means amplifying the region's renowned production of high-quality and origin specific specialty coffees to cater to current and emerging niche markets. This provides an opportunity for higher farmgate prices and thus greater sustainable incomes for farmers.
- Encouragement of diversification in the types of coffee produced and the development of value-added products.
- Domestic market growth is escalating with Africa (along with UAE) the fastest growing coffee market bolstered by a large youth population, increased urbanization and an expanding middle class. This provides unique new market capture opportunities.
- Driving marketing and branding opportunities for market segmentation specific to premium brand promotion and centered on EAC origin stories.

Trade Policy and Practice Reform

As global coffee demand fails to meet supply the demand for diversification and value-added products offers a unique set of opportunities for East African producers to capture market share which includes:

- Next generation certification schemes supported through public and private policy initiatives. For example, radical investment, education and promotion of schemes such as FairChain, Enevrilas and 4C et al. that are working to ensure that green coffee is ethically, sustainably and fairly sourced, produced and traded.
- Improve prospects for East Africa with greater regional economic integration and targeted international collaboration that support value chain practice reform. For example, build on initiatives such as the National Coffee Sustainability Plan (NCSP) and the EAC Market Access Upgrade Programme (MARKUP), and Country Coffee Platforms (CCPs) in each coffee-producing country.
- Build on coordinated trade, policy and association efforts such EU and EAC Market Access Upgrade Programme (MARKUP); Agenda 2063: The Africa We Want; Africa Continental Free Trade Agreement (One Africa) and the African Business Leaders Association.
- Promotion of direct trade relationships between coffee producers and buyers, allowing farmers to receive a higher share of the final product's value.
- Develop additional credit guarantee schemes and finance initiatives to enable better access to commercial loans for smallholder farmers and cooperatives.
- Create integrated regional wide initiatives and trade interventions to reduce the influence of intermediaries and increase transparency in the supply chain.
- Extend advocacy for greater diversity and gender parity through the implementation of labour and regulatory support for organisations such as the Alliance for the Green Revolution in Africa.



Section Eight



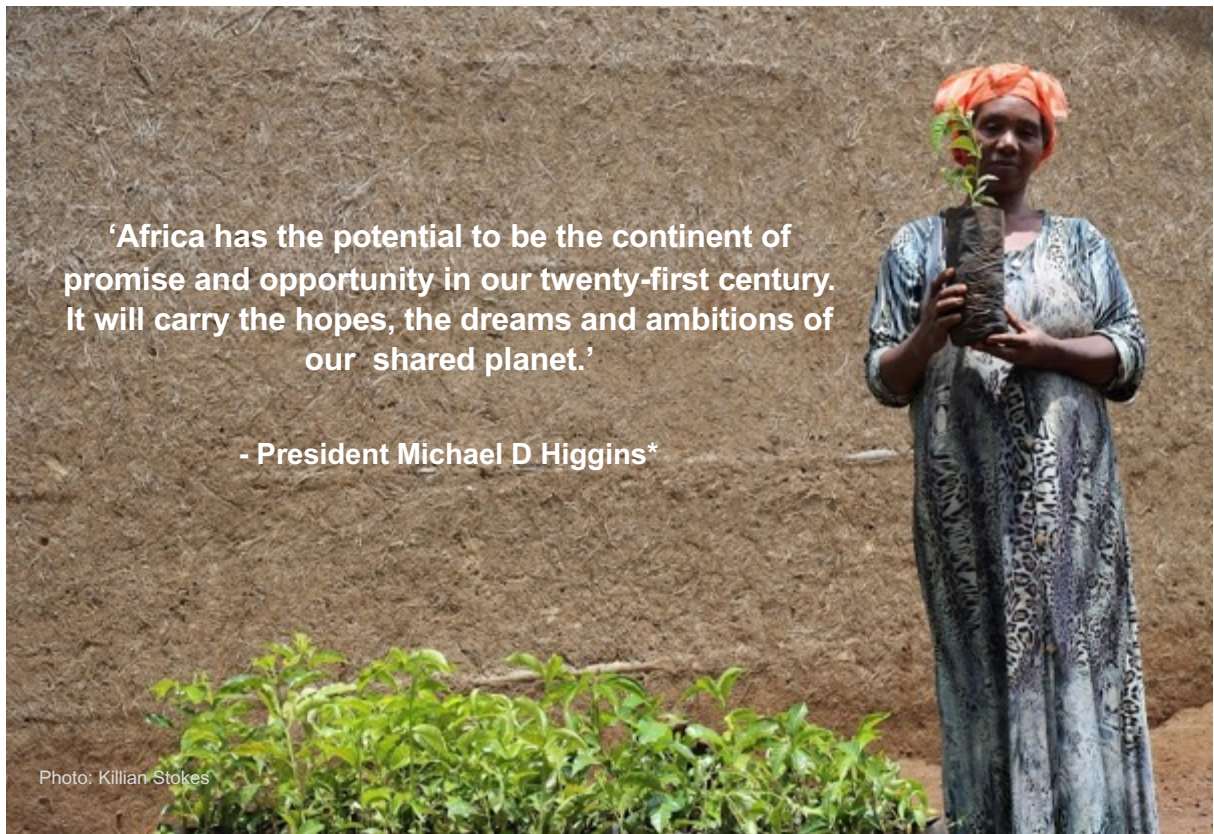
Conclusion

8. CONCLUSION

This report underscores the importance of value chain reform to enhance the future sustainability, competitiveness and innovative potential of the coffee industry in East Africa. The proposed reforms cut across the various stages of the value chain from upstream production and processing to the downstream marketing and retailing; and from primary activities to support activities in existing business models and frameworks, with the aim of addressing the key challenges (such as low productivity, environmental degradation, and limited market access) and the market opportunities open to the region.

As such, this study functions to provide valuable insights into the value chain from an examination and consolidation of the literature and current market data. This in turn led to an exploration and analysis of the region's key challenges and opportunities and resulted in a proposed set of targeted reforms and interventions to support the long-term sustainability of coffee production in the region.

Further, this report notes, that for systemic change and business model innovation to be achieved in the value chain it is imperative for all stakeholders including industry players, policymakers, government bodies, and NGO partners to collaborate in the design and implementation of these reforms. Such reforms would have the lasting benefit of capitalising on coffee sector's contribution both to the economic development of East Africa, to improving the livelihoods of millions of smallholder farmers and to ensuring the long-term environmental sustainability of production in the region.





Section Nine
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Appendices

Acronyms

Acronym	Overview
AFCA	African Fine Coffees Association
AGRA	Alliance for a Green Revolution in Africa
APAC	Asia-Pacific
BAU	Business As Usual
C.A.F.E.	Coffee and Farmer Equity
CAGR	Compound Annual Growth Rate
CGS	Credit Guarantee Scheme
CVC	Coffee Value Chain
CWW	Coffee Water Waste
DCAD	Development Co-Operation and African Division
DFA	Department of Foreign Affairs
EAC	East African Community
ECX	Ethiopian Commodity Exchange
ESG	Environmental, Social, and Corporate Governance
EU	European Union
FAO	UN Food and Agricultural Organization
GVC	Global Value Chain
HoReCa	Hotels, Restaurants, Cafés
HRI	Hotels, Restaurants, Institutions
ICA	International Coffee Agreement
ICE	Intercontinental Exchange
ICO	International Coffee Organization
ILO	International Labour Organization
IMF	International Monetary Fund
IoT	Internet of Things
IWCA	International Women in Coffee Alliance
LIFFE	Financial Futures and Options Exchange
NOP	National Organic Program
PMIA	Proudly Made in Africa
SCA	Specialty Coffee Association
RTD	Ready-to-drink
UNCTAD	United Nations Conference on Trade and Development
USAID	United States Agency for International Development
USD	US Dollars
USDA	United States Department of Agriculture
VSS	Voluntary Sustainability Standards
WB	World Bank
WCR	World Coffee Research
WFH	Work-from-Home
YEF	Youth Entrepreneurship Foundation

Glossary of Terms

Term	Overview
C-price	Value of coffee as a commodity.
Eurozone	Economic region formed by member countries of Europe that have adopted the euro.
Food security	Access to sufficient amounts of safe and nutritious food for normal growth, development, and an active and healthy life.
Global South	Comprises countries in regions of Africa, Latin America, the Caribbean, Asia and Oceania.
Biennial production	Production of a heavy crop one year followed by a light or not crop the following year.
Shade coffee	Shade grown coffee is coffee grown under the shade of other trees. This can range from the farmer planting shade trees on their farm to planting coffee trees in the existing forests
Single-origin coffee	Coffee sourced from a distinct geographical area or region. It can be traced to a single farm, producer, crop or region in one country.
Smallholder	A grower cultivating 50-300 coffee trees on land of about 1 hectare or less.

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