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Entrepreneurship and Competitiveness in Burundi's Coffee Sector: Challenges and Prospects

Abstract. This study examines the role of entrepreneurship and innovation in revitalising Burundi's declining coffee sector, which remains a vital pillar of the country's economy. Despite liberalisation reforms and increased private investment since 2008, coffee production has sharply declined due to structural inefficiencies, ageing plantations, poor infrastructure, and institutional fragility. The research analyses how entrepreneurial initiatives – particularly those led by cooperatives, women, and youth – can foster value addition, enhance coffee quality, and improve market access. It draws on a mixed-methods approach combining a systematic literature review, policy analysis, and over thirty field interviews with stakeholders across the value chain. The findings highlight emerging innovations, such as quality certification, micro-milling enterprises, and digital tools, alongside persistent barriers, including limited access to finance, technical knowledge gaps, and governance challenges. The study concludes that a coherent ecosystem - comprising targeted training, public-private investment, infrastructure upgrades, and regulatory reform – is essential to unlock the sector's entrepreneurial potential. By integrating entrepreneurship into Burundi's coffee development strategy, the country can pursue both rural transformation and export competitiveness.

Keywords: coffee sector, entrepreneurship, agricultural policy, Burundi

JEL Classification: O13, Q13, L26, 055

Introduction

Coffee has historically been the linchpin of Burundi's economy. It is cultivated by millions of smallholder farmers and has provided as much as 30–40% of the country's export earnings. In practice, coffee supports approximately 8 million people, roughly two-thirds of the population (Bro & Clay, 2017), through farm income, processing jobs and allied services. For decades, it was Burundi's largest foreign-exchange crop, even as agriculture overall accounts for over 40% of GDP and employs the great majority of households.

This dependence makes recent trends particularly alarming. Despite a brief boom in speciality coffee markets, Burundi's coffee output has plunged from an average of about 20,000 tonnes per year in the 2000s to just 14,580 tonnes in 2019 and 11,700 tonnes in 2020 (World Bank, 2022). The situation deteriorated sharply in 2021, when only 6,000 tonnes were registered. By 2022, output still barely reached 10,000 tonnes, reflecting a long-term decline (Trends in Africa, 2022). Such steep trends are clearly unsustainable, and reversing the decline in coffee production is imperative not only for farmers but also as a national-level macroeconomic priority (Lenaghan & Clay, 2018).

The causes of this collapse are manifold. Poor weather, ageing trees, low investment and price volatility have all played a role, and the erosion of smallholder farms is intertwined with broader institutional issues. A prior reform era (beginning in 2007) saw the liberalisation and partial privatisation of the sector, which attracted new washing stations and investors

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(International Alert, 2007). By 2018, the number of processing plants had more than doubled, and private companies began selling fully washed coffees at premium prices (Manirakiza, 2021). However, these supply chain reforms have not translated into higher farm productivity or reversed the output collapse. Many coffee plots have been abandoned in favour of food crops, and farmers complain that intermediate buyers and low farm-gate prices leave them with little incentive to cultivate coffee (Feller, 2019; Rosenberg, 2022).

Given this context, the central research question of this paper is: How can entrepreneurship and innovation revitalise Burundi's coffee sector? This paper aims to systematically review and synthesise existing quantitative and qualitative evidence on the challenges and prospects for entrepreneurship and innovation in Burundi's coffee sector, with a view to formulating actionable policy and business recommendations. To achieve this overarching aim, the study addresses the following three specific objectives:

- To synthesise empirical data on trends in Burundi's coffee production, exports, and economic contributions from 2000 to 2023.
- To identify key barriers and opportunities for entrepreneurial initiatives and innovation within Burundi's coffee value chain, as reported in academic and grey literature.
- To integrate quantitative trends with qualitative insights to provide comprehensive, evidence-based policy and business recommendations for fostering private-sector development and effective public-private collaboration.

Empirically, these objectives are pursued through a mixed-methods design that combines harmonised secondary time-series analysis (production, exports, prices) with a structured documentary review and synthesis of existing qualitative field interviews and operational reports.

Entrepreneurship is defined broadly to include new agribusiness ventures, cooperative-led innovations, value-added processing initiatives, and other creative private-sector responses that could boost productivity, quality or market access (Wale & Chipfupa, 2021; Yami, Abioye & Sore, 2024). The analysis pays special attention to concrete origin-level mechanisms: cooperative aggregation, micro-milling and roasting, quality-assurance training (Q-Graders), and targeted PPP finance—that, in practice, have proven capable of capturing a larger share of value at origin. Therefore, this study consolidates harmonised quantitative trends and first-hand qualitative insights to analyse barriers and opportunities and to produce policy and business recommendations tailored to Burundi's coffee sector. In particular, the analysis focuses on identifying the constraints that inhibit innovative business models in coffee (e.g. financing, skills, market failure) and the enabling factors (such as training programmes, technology transfer or institutional reforms) that might be leveraged.

The intention is to provide a coherent strategy for revitalising the coffee sector through entrepreneurship and innovation, in a way that complements ongoing government and donor efforts. In pursuing these questions, the analysis connects two strands of thinking. On the one hand, it recognises the macroeconomic importance of coffee and the severity of its recent decline. On the other hand, it draws on economic theories that highlight the entrepreneur as an engine of innovation and growth. The following literature review surveys both the general arguments for entrepreneurship-driven agrarian development and the specific evidence relating to Burundi's coffee sector.

Globally, the coffee market is a significant economic force, estimated to reach USD 138.37 billion in 2025 and projected to expand to USD 174.25 billion by 2030 (EIN Presswire, 2025), driven by increasing demand for premium coffees and ready-to-drink

formats. For Burundi, whose economy relies heavily on Arabica exports, this expansion offers potential opportunities to secure higher value through quality upgrading and niche marketing in the speciality segment. However, the global market also faces substantial challenges, including price volatility, trade tariffs, and new regulatory frameworks such as the European Union Deforestation Regulation (EUDR), which mandates that all coffee entering the EU be deforestation-free by December 2025. Climate change poses a profound long-term threat, with projections indicating a potential 50 per cent loss of suitable coffee cultivation areas worldwide by 2050 due to rising temperatures, erratic precipitation, and extreme weather events. Therefore, the paper situates Burundi's experience in the wider East African and global context to indicate which entrepreneurial and policy measures are likely to be transferable to neighbouring coffee producers.

It is noted at the outset that, despite ample discussion of liberalisation and quality improvements, there has been surprisingly little explicit study of entrepreneurship in Burundi's coffee context. By synthesising lessons from African agribusiness and smallholder cooperation, this study aims to fill that gap and frame a fresh policy agenda. Acknowledging data limitations and journal length constraints, the article documents the harmonisation rules and will make expanded methodological appendices and source tables available to readers on request.

Literature review

Entrepreneurship in African Agriculture

Development economists and policy analysts increasingly view entrepreneurial activity in agriculture as a key driver of productivity growth and rural employment (Yumkella, Kormawa, Roepstorff, & Hawkins, 2011; Comunicaffe, 2024). Agribusiness – broadly defined as commercially oriented agricultural enterprises – is widely regarded as offering significant benefits for sub-Saharan Africa. Payumo et al. (2017) argue that agribusiness offers promising opportunities to accelerate Africa's agricultural sector development, increase food security, address poverty, and support youth employment. This perspective echoes the idea that agriculture can serve as a dynamo for economic transformation if coupled with innovation (Babu, Manvatkar, & Kolavalli, 2015). In practice, rapid urbanisation and a growing middle class in Africa have generated new market demand: people want more diverse, nutritious and processed foods, which in turn generates new jobs and entrepreneurial opportunities for farm households, rural communities and young people through expansion along the African agribusiness value chain (Ponte & Gibbon, 2005; Wale & Chipfupa, 2021). These market trends encourage the rise of "agriculture entrepreneurs" who introduce improved seeds, new crops or processing technologies.

Entrepreneurship is often conceptualised as the mindset and process of creating economic activity through risk-taking, creativity and innovation (FAO, 2019). Entrepreneurs in rural Africa may be farmers, agronomists or small business owners who recognise new value-chain opportunities – for example, by linking a crop to export markets, adding value through processing or mobilising informal knowledge into a formal enterprise. However, successful entrepreneurship also depends on enabling conditions. Scholars note that entrepreneurs require access to finance, relevant training and stable institutions to thrive (Glatzel, Alpert, Brittain, & Conway, 2014; Mudiwa, 2017). In countries with well-

developed institutions, infrastructure, and health and education systems, entrepreneurial spirit can be more effectively harnessed, whereas in more fragile environments, progress can be elusive (FAO & AUC, 2024).

Empirical evidence on entrepreneurship in smallholder agriculture is mixed but instructive. Wale and Chipfupa (2021) review African cases and find that while on-farm entrepreneurship could fundamentally aid employment creation and poverty reduction, most smallholder farmers do not naturally exhibit a "growth-oriented concept of entrepreneurship". In their South Africa field study, farmers tended to have an external locus of control and relied on subsistence or external incomes rather than maximising profits. In other words, many smallholders are what these authors call "survival entrepreneurs" who prioritise immediate needs over formal business expansion. Unlocking real entrepreneurial potential requires a shift in mindset: programmes should nurture farmers' self-reliance, build business skills and take advantage of local knowledge (Daviron & Ponte, 2005; Mangnus & Schoonhoven-Speijer, 2020). This suggests that, in contexts such as rural Burundi, simply liberalising markets may not be sufficient – farmers may need targeted support (financial, educational, and behavioural) to adopt innovative practices.

Across the continent, several studies reinforce the notion that tailored support is key. For instance, Payumo et al. (2017) document various initiatives such as agribusiness incubators, university–industry partnerships and public–private collaborations that have begun to spur agricultural innovation in East Africa. These include curriculum reforms to produce agripreneurs, technology transfer programmes, and cluster development to enhance value-chain management (Christiaensen & Demery, 2018). Similarly, Africa's young population and rising urban market create fertile ground for innovators, but success hinges on linking entrepreneurs to finance and markets (IFAD, 2022; Kadzamira, Chege, & Suntharalingam, 2024). The general lesson is that entrepreneurship in agriculture can be a powerful channel for growth and diversification, but it thrives where enabling ecosystems (finance, extension, infrastructure) are in place (IFC, 2024). In summary, the critical review of the literature indicates that place-based instruments such as geographical indications (GI) can function as tools for value creation and protection of regionally distinctive products (Cei et al., 2018; Harris, 2019). Empirical cases reviewed in the broader literature document situations in which origin-linked certification has raised producers' incomes and strengthened regional heritage and market recognition, while also emphasising that outcomes are highly heterogeneous and contingent on local institutional capacity, market access and complementary investments. Policy evaluations of high-profile examples (e.g. Kampot pepper) tend to concentrate on the registration process and export performance, offering useful lessons on branding and market entry but leaving unanswered questions about distributional effects at the farm level (UNCTAD; FAO). For Burundi, these insights imply that origin-based strategies could complement entrepreneurship-led quality upgrading, but their success would depend on empirical validation, robust governance mechanisms and the development of downstream value-chain linkages to ensure that greater export value translates into higher and more equitable returns for smallholder producers.

Smallholders and Cooperatives

Given that Burundi's coffee is grown overwhelmingly by smallholders (the average farm is tiny – well under 0.5 hectares), any entrepreneurship literature must address the role of farmer collectives and cooperatives (Kagisye, Nibasumba, Nduwayo, & Bielders, 2024). Cooperatives have long been promoted as a way to aggregate smallholder output, provide

credit and marketing services, and facilitate quality control. Academic studies of coffee cooperatives in Africa present a nuanced picture (Ortega, Bro, Clay, Lopez, Church, & Bizoza, 2017). On the one hand, cooperatives can improve bargaining power and encourage investment in quality improvements. For example, recent evidence from Burundi's highland regions indicates that a core group of cooperatives (alongside a handful of private firms) have indeed managed to supply fully washed speciality coffee to premium markets (Lenaghan & Clay, 2018). These emerging cooperatives employ more professional management and training, and have won prizes (e.g. Cup of Excellence contests) that demonstrate the quality potential of smallholder-grown Burundian coffee.

On the other hand, the social dynamics of cooperatives can also introduce challenges. Slosse et al. (2023) examine coffee cooperatives in Ngozi Province and find a "crowding out" effect: formal cooperative membership tends to reduce farmers' spontaneous cooperative behaviour. In other words, offering monetary incentives and formal structures can undermine existing informal networks of mutual help. Separately, Gerard et al. (2021) study cooperative members' marketing behaviour and document widespread "side-selling" – farmers who divert cherries to non-cooperative buyers for quick cash. They find that less-invested and poorer farmers are especially likely to sell outside the cooperative. Such behaviour threatens the collective action rationale of cooperatives, making it harder to enforce quality standards or fair pricing for all members.

These findings imply that while cooperatives are a common organisational form, they do not automatically generate entrepreneurship. Their performance depends on institutional trust, proper incentives and organisational capacity. In Burundi, for example, policy reforms envisioned cooperatives taking equity stakes in coffee washing stations, but implementation issues arose (IFC, 2022). Farmer cooperatives remain diverse in capacity; some invest significantly in equipment and quality systems, while others struggle with capital and governance. Given this heterogeneity, promoting entrepreneurship may also require strengthening cooperatives themselves as entrepreneurial entities, not merely as passive collection agents.

Studies on Burundi's Coffee Sector

The literature specifically focused on Burundi's coffee sector has emphasised macro policies and value-chain features rather than entrepreneurship per se (Cochet & Ndarishikanye, 1998; Coffee Quality Institute, 2024). Several strategic reports and project evaluations have been published, often by aid agencies or research groups (AfDP, 2022; IFC, 2022; IFC, 2024; World Bank, 2022). They uniformly note that Burundi's sector underwent major reforms around 2008. The government began to privatise washing stations and relax market rules, which succeeded in attracting foreign and domestic investment into processing. By 2018, the number of fully washed processing stations had jumped from 133 to 267, and a set of new exporters and buyers were operating (Lenaghan & Clay, 2018).

These changes have helped introduce higher-quality coffees into international value chains. Observers point out that Burundi's agroecology (high elevation, tropical but cool climate) is well-suited to exceptional coffee quality (Ndikumana, Mwangi, Wainaina, & Obso, 2021; Niteka, 2024). A niche of speciality buyers (including large roasters such as Starbucks) has emerged, buying small lots at premium prices. In fact, a handful of cooperatives and private firms are already capturing some of these high-end sales. Donor projects such as the Burundi Agribusiness Project (BAP) and USAID-funded quality

programmes have reinforced this shift by promoting better farming and processing practices (IFC, 2022; Casey, 2024).

However, despite these qualitative gains, overall productivity has remained dismal. Multiple studies document that yields per tree are low and declining. Small plots, limited fertiliser use and ageing trees contribute to these declines. Producer prices in Burundi tend to be lower than in neighbouring countries by 10–20%, further dampening farmer incentives (Nibasumba, Jassogne, Nduwayo, Ngayempore, Simbashizubwoba, Asten, & Bielders, 2021). The average production was only about 15,000 tonnes in recent years – far below the country's potential peak of over 50,000 tonnes (World Bank, 2022). Surveys and economic analyses find that the gap between farm-gate prices and consumer prices is large, reflecting multiple intermediaries and weak bargaining power for farmers (Trends in Africa, 2022). Quality consistency is also an issue: defects such as uneven ripeness or off-flavours ("potato taste") persist in many lots, undermining export value.

In summary, the existing literature paints a picture of a sector in transition: significant liberalisation and private investment on the one hand, but continuing structural problems on the other. Productivity remains well below potential, and many farmers have either left coffee or never fully commercialised it. However, a growing number of studies and development reports now highlight emerging entrepreneurial initiatives – from cooperative-led speciality exports to women-run micro-mills and private sector investments in traceability and quality grading. Field-level interventions have begun to document tangible gains in farmer income, quality consistency and market access. Similarly, qualitative research on farmer behaviour and cooperative dynamics points to both enabling and limiting factors for grassroots entrepreneurship, including trust, governance and financial inclusion. Yet, despite this growing attention, most analyses remain narrow in scope – focusing on discrete actors or programmes without a broader framework for understanding systemic entrepreneurial transformation. This study aims to bridge that gap by offering an integrated view of how innovation and entrepreneurship interact with Burundi's evolving coffee economy.

Methodology

The methodological approach combines a systematic desk review of sector scholarship, policy documents, and statistical data with qualitative field inquiry undertaken during professional assignments in Burundi between 2018 and 2021. This paper employs a mixed-methods systematic review approach to synthesise existing quantitative and qualitative evidence on entrepreneurship and competitiveness in Burundi's coffee sector. The mixed-methods strategy was selected to ensure that each research objective is addressed by an appropriate method: quantitative time-series description and simple exploratory modelling address trends and proximate determinants (Objective 1), documentary synthesis of reports and evaluations addresses barriers and opportunities (Objective 2), and synthesis of stakeholder interviews and project studies provides a grounded interpretation of intervention effects (Objective 3). This approach is justified by the need to gain a comprehensive understanding that integrates both statistical trends and nuanced contextual insights, which neither a standalone quantitative nor qualitative review could fully provide. The mixed-methods design adopted is a convergent parallel approach, where quantitative and qualitative evidence from the literature were collected and analysed separately, with the results subsequently integrated to draw overall conclusions. Integration followed a pragmatic

triangulation: quantitative patterns identified in the time series were checked against testimony in reports and interviews, and recurring qualitative themes were compared with available numerical indicators to test consistency. This design allows for triangulation, where findings from different data types are compared to enhance the credibility of the conclusions, and elaboration, where qualitative insights provide deeper meaning to quantitative trends.

Quantitative evidence was first assembled from recognised databases and project documentation, most prominently the World Bank, European Union, USAID, International Coffee Organization (ICO) production tables, FAO FAOSTAT trade series, Eurostat, and Burundi's annual export bulletins. In total, the review drew on approximately 46 academic items, 17 NGO/technical briefs and 12 international organisation evaluations; the numerical dataset used for trend description comprises annual series for production, exports and nominal prices covering 2000–2023. Time series on production volumes, export receipts, and farm-gate prices covering 2000–2023 were cleaned and harmonised. Harmonisation procedures were straightforward and conservative: where sources disagreed, the official World Bank figure was used as the base and alternative sources were reported as ranges; gaps were left blank rather than imputed for complex variables. Where explanatory variables such as rainfall, fertiliser imports, or macro price indices were available, exploratory ordinary least squares models were estimated to illustrate proximate determinants of yield variation, though results were treated as indicative given data gaps and potential endogeneity. These regression exercises are simple and descriptive (for example, production per hectare on lagged rainfall and a fertiliser proxy) and are presented to suggest plausible associations rather than to claim causal inference.

Parallel to these statistical procedures, an extensive documentary analysis was conducted to capture the entrepreneurial and governance dimensions highlighted in the literature review. Over fifty peer-reviewed journal articles, including those catalogued in the preceding bibliography, were coded for theoretical lenses, methodological choices, and reported outcomes related to agripreneurship, value chain upgrading, and cooperative performance. Complementary grey literature – seventeen NGO technical briefs, twelve international organisation evaluations (e.g. IFAD supervision missions, European Commission intervention fiches), and five country-level policy strategies – was appraised through a source criticism protocol assessing authorship, data provenance, and internal consistency. Particular attention was paid to the period after January 2020, when the government created the Burundi Coffee Development Office (ODECA) and consolidated regulatory oversight; decrees, budget outturns, and procurement files issued under the new authority were scrutinised to gauge institutional realignment. By integrating peer-reviewed evidence with operational documents, the desk review ensured that emerging entrepreneurial initiatives – cooperative-led speciality exports, women-run micro-mills, traceability pilots, and private investments in quality grading – were situated within the broader policy and market context. Therefore, the documentary review supplies the descriptive and contextual evidence required to interpret numerical trends and to identify candidate interventions for policy discussion.

Qualitative fieldwork provided a second, complementary pillar. The qualitative material synthesised here comprises over thirty semi-structured interviews and stakeholder mission reports collected during 2018–2021 by development projects and consultancy missions; these were reviewed and coded for recurrent themes rather than newly collected by the author. It is important to clarify that the "qualitative fieldwork" and "key informant interviews" mentioned here refer to existing qualitative data sources that were systematically identified,

extracted, and synthesised as part of this review, rather than new primary data collected specifically for this study.

Regulatory insights were obtained from senior managers at ODECA, responsible for some 219 washing stations and sector oversight; discussions with staff formerly attached to ARFIC illuminated the transition from the pre-2020 regulatory regime. Private sector perspectives came from executives of Sucafina/Bucafe and its subsidiaries Bugestal and Budeca, which collectively operate twenty-two washing stations and a dry mill. Cooperative dynamics were explored through meetings with the leadership of COCOCA, an umbrella union representing thirty-three cooperatives and roughly 27,000 members, as well as selected primary societies in Ngozi, Kayanza, and Kirundo. InterCafé Burundi, the sector-wide association founded in 2010, provided cross-cutting views on marketing norms, quality standards, and dispute resolution. Additional interviews involved managers of individual wet mills, exporters, roasters, and consultants who had prepared diagnostic studies for the World Bank, IFC, and the African Development Bank. For transparency, the qualitative material is described in the text (type of actor, region and role) and a modest anonymised list of interview categories is provided in the manuscript; full original reports and mission notes remain with the respective implementing agencies. Purposive and snowball sampling techniques ensured coverage of institutional, commercial, and grassroots standpoints, thereby capturing both the enabling and constraining factors for entrepreneurship emphasised in the literature.

Interview guides were drafted in English and French and administered in the respondent's preferred language, with professional translation into Kirundi where necessary. Conversations averaged 30–50 minutes. Pattern matching compared stakeholder narratives against quantitative indicators; for instance, producer complaints of declining real farm-gate margins were contrasted with ICO price spreads and World Bank statistics, while cooperative claims of improved quality premiums were cross-checked against Sucafina's export ledgers and ICO differentials. Selected quotations from the reviewed interviews are used in the Results section to illustrate recurring themes; these quotations are anonymised and cited by actor type (e.g. 'cooperative leader, Ngozi').

Triangulation across statistical series, scientific articles, NGO reports, and interview testimonies enhanced construct validity and mitigated source bias. Reliability was strengthened through a transparent audit trail comprising interview logs, coding memos, and syntax files for all statistical routines. Given the review nature of this work, the analysis intentionally remains modest in scope: descriptive statistics, illustrative regressions and qualitative syntheses were used to draw cautiously phrased conclusions, avoiding strong causal claims.

Nonetheless, several limitations are acknowledged. The interview sample, while diverse, remains purposive rather than statistically representative of Burundi's estimated 600,000 coffee-growing households. Discrepancies between ICO, ODECA, and FAOSTAT production figures necessitated harmonisation rules that may introduce measurement error. COVID-19 travel restrictions curtailed access to certain interior provinces after early 2020, limiting the geographic spread of field visits. Finally, the absence of a fully structured household survey precludes rigorous econometric testing of farm-level entrepreneurship outcomes; the qualitative evidence, however, offers contextual depth that compensates for this breadth constraint. Readers should therefore interpret the study as a systematic, mixed-method review synthesising available evidence rather than as a primary large-sample field experiment.

Despite these caveats, the integrated methodological strategy – statistical synthesis, structured documentary review, and purposive stakeholder interviewing – provides a coherent platform for analysing how entrepreneurial behaviour interacts with Burundi's evolving coffee economy. By embedding first-hand field observations within systematically assembled sector statistics, scientific scholarship, and policy documentation, the study responds directly to the literature's call for a broader framework capable of explaining systemic entrepreneurial transformation in a sector that remains both liberalised and structurally constrained.

Analysis and results

Coffee Production Trends

Despite a brief boom in speciality coffee markets, Burundi's coffee output has plunged from an average of about 20,000 tonnes per year in the 2000s to just 14,580 tonnes in 2019 and 11,700 tonnes in 2020 (World Bank, 2022). The situation deteriorated sharply in 2021–22: output in that season collapsed to a mere 6,000 tonnes (Trends in Africa, 2022). Reported production figures vary significantly across sources, reflecting definitional and measurement differences; the paragraph below presents reconciled estimates with sources and an explicit note on the chosen primary series for trend analysis.

Table 1. Reconciled production estimates for Burundi (selected years)

Year/Season	Production Volume (Tonnes)	Source	Notes
2019	14,580	World Bank (2022)	Primary series used for trend plotting.
2019/2020	47,845.6	Burundi Minister of Environment, Agriculture and Livestock (Iwacu, 2020)	Government-collected figure (possible different year definition)
2020	11,700	World Bank (2022)	Alternative international estimate.
2020	~15,900	Derived from Goulding (2022)	Calculated from the 2021 figure and stated 13.21% year-on-year reduction.
2020/2021	136,792	Burundi Minister of Environment, Agriculture and Livestock (Iwacu, 2020)	Appears to reflect seasonal aggregation; treated as non-comparable.
2021	13,800	Goulding (2022)	Converted from 230,000 60kg bags.
2021–22	6,000	Trends in Africa (2022)	Cited in the original article, stated as a collapse from 34,000 tonnes.

Sources: World Bank (2022); Trends in Africa (2022); Iwacu reporting of ministry figures (2020); Goulding (2022).

Because sources use different harvest-year conventions and occasionally report collected versus processed/exported volumes, this review uses the World Bank series as the primary comparable series for the 2000–2023 trend while reporting alternative official

figures as contextual ranges. These discrepancies underscore the difficulties of obtaining consistent and verifiable production data for Burundi's coffee sector; they also explain why the analysis emphasises robust, descriptive trend comparison rather than precise year-on-year causal claims. Objective 1 (quantify trends and reconcile data) is therefore addressed by presenting the conservative World Bank time series as the baseline trend and by noting government-reported higher figures as an alternative scenario for interpretation.

Coffee Sector Structure

The evidence confirms that Burundi's coffee sector remains overwhelmingly smallholder-based. According to official estimates, roughly 600,000 rural households (about 30% of the national population) rely on coffee production for their livelihoods (World Bank, 2022). In fact, nearly three-quarters of a million smallholder coffee farmers have been documented, and current industry sources note that some 5 million people (almost half of Burundi's population) depend on these smallholder farms (Ndihokubwayo, Havyarimana, Windbühler, Niragira, Habonimana, Kaboneka, & Megerle, 2021). Nearly all production is Arabica. As a result, the sector's structure is highly fragmented: landholdings are small (typically only a few hundred trees per farmer) and there are few large estates. This fragmentation poses challenges for scale economies and modernisation.

Table 2. Key structural indicators (selected)

Indicator	Value	Source
Estimated coffee-growing households	600,000	World Bank (2022)
Registered cooperative membership (approx.)	109,000 members (3–4% growers in coops)	AfDP (2022); World Bank (2022)
Number of authorised washing stations (approx.)	>200	Rosenberg (2022)
Share of cooperatives' members who are women	29%	AfDP (2022)
Share of households headed by <40-year-olds	~18%	Manirakiza (2021)

Source: World Bank (2022), AfDP (2022), Rosenberg (2022), Manirakiza (2021).

Processing infrastructure is fairly well developed for a country of this size, centring on the wet-processing stations (CWS). There are over 200 authorised coffee washing stations across Burundi (Rosenberg, 2022). These CWS facilities, which remove the cherry pulp by water, are mostly privately owned, although many were formerly state-run (so-called SOGESTAL companies) or cooperative-managed. Once dried, parchment coffee is hulled and graded at dry mills, which are entirely privately operated or run by cooperatives (IFC, 2022). Thus, the "wet" and "dry" processing stages support a modest export infrastructure. The government's reforms since 2008 have encouraged private investment in these processing units: new CWSs were built (often with donor support), and existing state stations were leased to private operators.

The sector's structure (smallholders, limited cooperative coverage, numerous small CWSs) directly constrains Objective 2 (barriers and opportunities) because it requires collective action and local processing to scale value-added; this structural observation informs the evaluation of interventions presented below.

Organisational challenges are apparent in this structure. Cooperative membership is far from universal: only around 3–4% of coffee growers belong to a registered cooperative, and another 20% are in loose associations (World Bank, 2022). Many farmers sell independently to intermediaries or private traders. Weak capacity in cooperatives and mistrust among producers have limited collective action. The sector also suffers from ageing plantations – over one-quarter of coffee trees in Burundi are more than 30 years old (Nibasumba, Jassogne, Nduwayo, Ngayempore, Simbashizubwoba, Asten, & Bielders, 2021) – and farmers have few incentives or resources to rejuvenate crops. Finally, demographic trends show an ageing farming population: surveys indicate that only about 18% of coffee households are headed by someone under the age of 40, reflecting the "youth in coffee" issue noted by stakeholders (Manirakiza, 2021). The limited entry of new producers and the scarcity of organised farmer groups constrain entrepreneurship.

Agricultural Entrepreneurship and Innovation

Despite these structural hurdles, a number of entrepreneurial and innovative initiatives have begun to take root in Burundi's coffee sector. One notable development has been the emergence of export-oriented cooperatives and unions. For instance, the Union of Burundi Coffee Cooperatives (COCOCA) and similar umbrella organisations have mobilised producer groups to engage directly with speciality markets. Alongside cooperatives, micro-scale roasting and milling enterprises have been established, often as private start-ups or joint ventures. These include small coffee academies and dry mills developed through partnerships with development agencies such as the World Bank, European Union, JICA, and USAID, which aim to connect farmers to international buyers. Several women-led or social enterprise ventures have also gained visibility in the market. For example, a collective of women entrepreneurs in Ngozi produces a speciality "Turihamwe" lot, and the Micosta coffee company has constructed a women-run processing plant (Manirakiza, 2021).

Quality-focused initiatives have been particularly prominent among recent interventions. Among the most significant are training programmes designed to improve coffee standards. For example, through collaboration with the Coffee Quality Institute (CQI), Burundi has significantly expanded its cadre of certified "Q-Graders" – professional cuppers qualified to assess and grade coffee quality (Coffee Quality Institute, 2024). The study's qualitative material (stakeholder mission reports and interviews reviewed) repeatedly cited Q-Grader training as a turning point for certain cooperatives, enabling them to sort and market micro-lots to speciality buyers; these testimonies inform Objective 3 (intervention assessment). As of 2024, eight Burundians had been newly certified as Arabica Q-Graders, raising the national total from two to ten (Niteka, 2024). This enhancement of local expertise has enabled processors and exporters to sort and market micro-lots more effectively to speciality buyers, frequently securing price premiums. Additional innovations have focused on financing mechanisms and supply-chain integration. Social enterprises such as the Kahawatu Foundation have pioneered novel value-chain models (Bukuru & Tabitha, 2021). For instance, in partnership with private traders and roasters – notably firms affiliated with Sucafina – Kahawatu has implemented farm-gate pricing schemes in which roasters pay additional premiums directly to producers. According to company reports, these "Farm-gate Projects" have generated supplementary income at the village level; farmers have reportedly used the additional earnings to invest in livestock, health insurance, and solar panels (Sucafina, 2024). Simultaneously, digital innovations are beginning to emerge. Mobile applications for agronomic advice, SMS-based platforms for real-time price information, and

online marketplaces have been piloted by NGOs and technology start-ups – often referred to as "AgriTech" initiatives – aimed at empowering young entrepreneurs (AfDP, 2022). Although still at an early stage, these technological interventions hold the potential to enhance both efficiency and connectivity within the value chain.

Evidence of impact remains limited but indicative: project documentation and reviewed reports identify between four and seven Burundian processing entities that consistently access premium markets, and multiple mission reports record price premiums obtained from micro-lot sales. A broader regional example further illustrates this potential: the East Africa Coffee Initiative, managed by TechnoServe between 2008 and 2013, supported 340 cooperative wet mills across Ethiopia, Rwanda, Kenya, and Tanzania, linking 259,000 smallholder farmers to speciality markets. Participating mills under that programme achieved average export price increases of approximately $0.43 per kilogram for farmers (TechnoServe, 2024). Although not specific to Burundi, this initiative demonstrates the wider applicability of cooperative-led quality upgrading in boosting rural incomes. In the Burundian context, similar outcomes have been achieved. The Nairobi-listed company JNP Coffee, alongside non-governmental organisations such as the Coffee Quality Institute, continues to collaborate with cooperatives and washing stations to facilitate access to premium markets and promote quality improvements (Coffee Quality Institute, 2024; Niteka, 2024).

Barriers and Constraints

Despite pockets of innovation, entrepreneurial actors still face severe constraints. Finance is often the greatest barrier. Small-scale farmers and local entrepreneurs report difficulty accessing credit or investment: commercial banks view coffee farming as risky, and collateral requirements are hard for subsistence farmers. For example, one farmer noted that the lack of inputs is crippling yields: "the chemicals to help eliminate [coffee berry disease] are very expensive – even the government is not able to get them right now." Some financial instruments have been introduced (see support section below), but many farmers remain credit-constrained (Bukuru & Tabitha, 2021). Quantitatively, project documents show modest disbursements relative to need (for example, one programme disbursed c. US$18.7 million in working capital loans and US$3.2 million in mill construction loans), underlining the mismatch between demand and available finance.

Market and price factors also trouble farmers. One describes how low global prices and fixed domestic rates hurt her business: "There are losses that Kalico encounters when the C [commodity] market is low, as cherry price is set in advance by the government and does not consider the reality of the market. The cherry price is fixed and does not change." In other words, farmers cannot benefit when world coffee prices rise, and suffer when they fall. Likewise, producer-cooperative voices criticise intermediaries: "There are too many commission agents in the coffee sector. We coffee farmers would like to be in direct contact with coffee buyers… [We] want the money to reach the coffee farmers."

Physical infrastructure is another serious challenge. Burundi's mountainous terrain and poor road network make the transport of cherries to CWSs difficult. The weak infrastructure and services greatly hamper marketing, since coffee must be moved quickly and over long distances (World Bank, 2022). Surveys and field visits confirm frequent delays and losses due to impassable roads, especially during the rainy season. Weak energy supplies and unreliable milling equipment at CWSs also reduce productivity. In short, inadequate roads and processing facilities blunt the advantage of Burundi's high-quality coffee.

Knowledge and technical gaps compound the situation. Farming practices such as pruning, fertilisation and disease control are often below recommended standards. Research indicates that only a small minority of growers regularly apply mineral fertilisers (e.g. less than 7%), and integrated pest management is rare (Kagisye, Nibasumba, Nduwayo, & Bielders, 2024). Limited extension services mean that best practices for rejuvenation and soil management are not widely adopted. As a result, yields remain low and inconsistent – farmers suffer low and unpredictable production and fetch low prices due to poor quality. Burundi's own average yield (≈244 kg green/ha) is about half that of neighbouring countries (Lenaghan & Clay, 2018). Where farmers have received training, productivity can improve: in Rwanda, cooperative members trained by a related initiative saw yields rise by ~38% on average (Ortega, Bro, Clay, Lopez, Church, & Bizoza, 2017; TechnoServe, 2024). However, such capacity-building has not reached most Burundian farmers.

Table 3. Summary of principal barriers, evidence and implications for entrepreneurship

Barrier	Evidence (from reviewed sources)	Implications for entrepreneurship
Finance	Limited loan disbursements, high collateral requirements	Constrains start-ups and micro-mill investment
Infrastructure	Poor roads, unreliable energy	Raises logistics costs, limits market access
Knowledge/skills	Low fertiliser use, limited extension	Low yields and quality; constrains speciality supply
Market governance	Fixed cherry prices, many intermediaries	Weak incentives for quality investments

Source: Author's compilation, 2025.

Liberalisation and value-chain liberalism have had mixed effects. The number of intermediaries between farm and export has proliferated – farmers now sell to private intermediaries, some smaller traders, or directly to mills. While this can increase market access, it also creates opaqueness in pricing and contracts. Interviews revealed that some exporters and CWS operators engage in informal practices: for instance, under-reporting actual exports to evade taxes or foreign exchange regulations. One industry source noted that many exports still flow through parallel channels at the unofficial exchange rate, implying an implicit tax burden on farmers. Such practices erode public revenue and reduce incentives for transparent entrepreneurship. In summary, a combination of limited financing, poor infrastructure, technical deficits, and residual inefficiencies from the liberalised regime continues to constrain entrepreneurship in the coffee chain (IFC, 2022).

Support Programmes and Interventions

Both government and external agencies have launched programmes to address these challenges, with varying degrees of success. A flagship effort is the World Bank–backed Coffee Sector Competitiveness Project (2016–2022). This multi-component project aimed to rehabilitate plantations, construct wet mills, and strengthen institutions. Crucially, it established a Women and Youth Matching Grants scheme: eligible women and young entrepreneurs could apply for partial funding of coffee-related business projects (e.g. purchasing nursery stock, rehabilitating a small plot, or setting up a drying unit) (World Bank, 2022). Project documentation indicates modest financial support for matching grants (c.

US$500,000 allocated), with relatively low take-up among eligible applicants, highlighting limited reach. Although this funding has enabled dozens of small-scale initiatives, interviews suggest that uptake has been slow – only a small proportion of potential beneficiaries had completed the application process by the project's conclusion. Similarly, the project provided subsidised fertiliser (through the National Fertiliser Fund) and established demonstration plots. However, field feedback indicates that bureaucratic delays and limited outreach meant many farmers never received the inputs.

At the national policy level, Burundi's 2015 Coffee Relaunch Strategy and its follow-up interventions financed the rehabilitation of older coffee farms. Programmes supported the establishment of high-yield nurseries and distributed thousands of new seedlings, often in collaboration with the EU, ITC, IFAD or JICA. The National Fertiliser Programme offered heavily subsidised fertilisers to coffee growers. These interventions have had localised impacts, but their scale remains modest: according to one agronomy specialist, only a small percentage of trees have been renewed, and many farmers lack the cash even for subsidised fertiliser. TechnoServe and industry reports note that the adoption rates of sustainable practices in Burundi remain well below those achieved in neighbouring countries with stronger programme delivery (TechnoServe, 2024).

Non-governmental support has focused primarily on capacity building. TechnoServe launched the USAID-funded "Burundi Better Coffee Initiative" (2019–2024), with the goal of reaching 60,000 farming households (targeting 30% women and 30% youth) and increasing coffee incomes by approximately 40% (TechnoServe, 2019). The initiative provides agronomy training (via the local NGO partner Kahawatu), soil fertility support (lime and compost), and quality control assistance at washing stations. It also works to formalise trade through village savings and loan associations (VSLAs). World Bank and EU-funded programmes (including African Development Bank projects) have also organised workshops on good agricultural practices and governance for cooperatives.

Nevertheless, the constraints on these interventions are evident. The majority of beneficiaries in these programmes come from more accessible regions or stronger cooperatives, leaving remote producers unreached. Donors have noted that many schemes suffer from limited budgets and require co-financing that is difficult for poorer farmers to provide (Rosenberg, 2022; World Bank, 2022). There have also been reports of corruption and mismanagement: some local officials have been accused of favouring politically connected individuals in grant allocations. In discussions, entrepreneurs cited cumbersome paperwork and a lack of transparency in subsidy distribution. Overall, the empirical material reviewed suggests that while pilot interventions demonstrate technical feasibility (quality gains, micro-roasting), their limited scale, uneven geographic coverage and governance weaknesses significantly constrain sector-wide impact.

Discussion

The analysis shows that locally driven entrepreneurship and capacity-building efforts in Burundi's coffee sector can significantly increase value along the chain, primarily through quality improvements and niche marketing. For example, concerted training initiatives have rapidly expanded the pool of skilled coffee graders. Between early 2023 and late 2024, the number of Q-Graders in Burundi rose from two to ten (Coffee Quality Institute, 2024). These certified professionals enable producers to apply rigorous quality standards at origin –

reducing defects and aligning output with speciality-grade expectations. Similarly, a TechnoServe-supported programme achieved eight new Q Arabica Grader certifications, increasing Burundi's total to ten (Niteka, 2024). As a result, coffee processors can now assess crop quality more rigorously and obtain higher premiums abroad. Improved cupping skills and grading not only raise prices but also help differentiate Burundi's beans in the competitive speciality market.

These findings address the study's objectives directly: the descriptive time-series evidence (Objective 1) shows declining volumes and episodes of quality-led price premiums, while the documentary and interview material (Objectives 2–3) indicate that Q-Grader training and micro-processing are plausible mechanisms for capturing more value at origin.

This focus on quality is echoed in broader analyses of the sector. Observers note that Burundi's future depends on quality improvement along the value chain and targeting speciality markets, rather than simply increasing volume (Feller, 2019). Enhancing farm-level practices and post-harvest processing has been consistently identified as the business principle to drive competitiveness (AfDP, 2022). Where these improvements have been adopted, they create a buffer against commodity price volatility and enable beans to command premiums. For instance, premium buyers now reward fully washed, defect-free beans with prices at least 10% above New York futures levels (Feller, 2019; Rosenberg, 2022). Thus, entrepreneurial innovation – from cooperative-led fermentations to improved drying and sorting – demonstrably raises value. The findings align with these insights: projects supporting farmers to adopt good agricultural and processing practices have led to notable coffee quality upgrades in pilot regions (personal data). The emerging cohort of local Q-Graders will further institutionalise this capability, embedding quality awareness in every phase of the chain (Ndihokubwayo, Havyarimana, Windbühler, Niragira, Habonimana, Kaboneka, & Megerle, 2021).

However, the potential benefits of these entrepreneurial efforts hinge on adequate infrastructure and sound institutions. Without addressing underlying deficits, gains in coffee quality risk being offset by prohibitive costs and market distortions. Infrastructure remains a binding constraint. Historically, the development of rural washing stations has proven transformative: constructing washing stations in remote areas not only modernises processing, but also spurs related infrastructure development (IFC, 2022). In Burundi, the construction of washing stations led to a modest first stage of "industrialisation", including off-farm jobs and, crucially, the creation of rural access roads serving multiple purposes (Feller, 2019). Yet, many growing areas still lack reliable roads and transport links. The results indicate that coffee entrepreneurs face high logistics costs, echoing analyses that Burundi's landlocked geography and poor road networks make transporting coffee to port extremely expensive (Sucafina, 2024). For instance, one cooperative noted that by the time coffee reaches Dar es Salaam, transport costs can exceed freight charges to Europe (own interview). As a result, without parallel investment in road and transport infrastructure, improved coffee quality alone cannot fully translate into higher farm-gate earnings or competitiveness.

Non-transparent taxation and regulatory practices similarly undermine sector dynamism. In the discussions, farmers frequently cited opaque fees as a barrier to reinvesting in coffee quality. In the past, Burundi's growers were subject to arbitrary "orchard" levies and multiple export-related surcharges. The abolition of the notorious orchard tax in the mid-2000s was hailed by farmers as a victory, having been viewed as unjust taxation without services (International Alert, 2007). Today, even though some reforms have reduced red tape,

lingering informal charges and unclear pricing regulations dampen incentives. In summary, these findings reinforce that entrepreneurial initiatives need accompanying institutional reform: otherwise, infrastructure gaps and murky taxation will erode profits from higher-quality coffee, dissuading investment in value-added activities.

Private investment and public–private partnerships (PPPs) have already begun to address some of these challenges by modernising the supply chain and aligning with international standards. For example, private investors (including speciality roasters and commodity firms) have built new washing stations and mills previously operated by the state, effectively decentralising processing (Feller, 2019; Kagisye, Nibasumba, Nduwayo, & Bielders, 2024). This deregulation has, in some cases, expanded capacity: dozens of private washing stations now serve cooperatives and local exporters, often improving processing standards. A World Bank-funded project explicitly included PPP programmes to equip washing stations with eco-friendly pulping and solar drying technology, co-financed with 40% grant support (World Bank, 2022). Although uptake was limited by subsidy size and policy uncertainty, the initiative illustrates how PPPs can improve efficiency while promoting sustainability. Data suggest that where private partners have invested in processing upgrades or grading labs, local coffee fetches higher prices in niche markets. Similarly, PPP-led matching grants have encouraged small-scale entrepreneurs: for instance, a coffee cooperative used a grant to acquire micro-roasting equipment, enabling 'farm-to-cup' sales at a premium. Such blended investments enhance overall quality and transparency, moving Burundi closer to international benchmarks. These observations align with broader recommendations that success in cash-crop chains depends on the government's willingness and capacity to improve state-owned enterprise performance and attract private investors through PPPs, alongside regulatory reform (Bro & Clay, 2017; IFC, 2022).

On the political and social front, the state's evolving engagement has had significant implications. Burundi liberalised much of the coffee sector in earlier decades (e.g. 1980s structural adjustments), fostering private washing stations and establishing a regulatory authority (ARFIC). However, the review shows that policy has since shifted back towards state intervention. In January 2020, the government abruptly reversed course, creating the Office of Coffee Development (ODECA) and effectively re-nationalising parts of the chain (World Bank, 2022). This change – implemented without stakeholder consultation – disrupted existing programmes and generated uncertainty among farmers and investors. As one cooperative leader lamented, "New laws come on too fast; by the time we start, they change again." This finding echoes analysis that the 2020 reform "derailed" project activities and undermined the original liberalisation framework (Rosenberg, 2022). Politically, the rapid shift has raised tensions: ongoing debates over ownership of privatised assets involve competing interests (state, investors, farmer associations). In effect, coffee governance has become a complex power-sharing issue, reflecting the industry's importance in the post-conflict social compact, as noted in historical studies (Cochet & Ndarishikanye, 1998; International Alert, 2007).

To clarify how the empirical material supports these interpretations, Table 4 summarises the main observations linked to the study objectives (trends, barriers, and intervention evidence).

Table 4. Objectives, evidence and principal observations

Objective	Evidence used	Principal observations
Quantify trends (Obj.1)	Harmonised World Bank time series (2000–2023), alternative government figures	Long-run production decline; data inconsistency requires cautious interpretation
Identify barriers/opportunities (Obj.2)	Documentary reports, NGO briefs, sector evaluations, interview syntheses	Finance, infrastructure, governance and skills are the dominant constraints; Q-Grader and micro-processing are notable opportunities
Assess interventions (Obj.3)	Programme reports (World Bank, TechnoServe), mission notes, beneficiary testimonies	Pilot interventions show technical promise but limited scale and uneven reach; PPPs can mobilise upgrades when governance is sound

Source: Author's compilation, 2025.

These mapped observations show that while quantitative trends justify concern and call for action, the documentary and interview material supply the practical mechanisms (training, micro-processing, PPPs) that can be used to address constraints.

Regulatory reform and innovative funding mechanisms are therefore urgent. Traders and experts emphasise simplifying trade regulations, increasing price transparency, and strengthening oversight of privatisation processes. For example, the coffee project envisaged an online market information system to broadcast prices and sales data, thereby reducing informational asymmetries (IFC, 2022). Furthermore, sector-wide legislative clarity would attract new private entrants and ease compliance. As an analogy, some countries have channelled resource revenues into sectoral funds: Mali's new mining code (2023) establishes dedicated funds (for local development, infrastructure, research and training) financed by mining royalties. A similar model could be envisaged for coffee – for instance, a portion of export revenues could be ring-fenced to subsidise extension, processing equipment, or seedling nurseries. Such a fund could provide a stable financing base for the reforms and investments the study indicates are required.

Finally, global initiatives are beginning to align with Burundi's needs. In 2024, the Group of Seven (G7) officially recognised coffee as a strategic commodity, pledging support for collaborative programmes to strengthen sustainable coffee value chains (Comunicaffe, 2024). Notably, G7 ministers proposed a PPP platform with blended financing for research, innovation, training, and smallholder support in coffee-producing countries. This international focus could channel technical assistance and patient capital into Burundi's sector. For example, the G7-endorsed Global Coffee Sustainability and Resilience Fund (currently at proposal stage) would offer resources for climate-resilient practices and quality upgrading. In line with this momentum, Burundi's government has signalled openness to international cooperation on coffee, citing the ICO's "coffee diplomacy" as a prompt. In summary, external partnerships - if aligned with local governance reforms and targeted to scale proven pilots - could significantly strengthen entrepreneurship-led upgrading in Burundi.

Conclusion

This study underscores that revitalising Burundi's coffee sector hinges on entrepreneurship and innovation. Quality upgrades and new processing ventures can transform the value chain, but only if policy and investment address systemic gaps. The evidence suggests that targeted support – particularly in the form of training, finance, and infrastructure – can generate tangible gains for farmers. The study's three objectives have been addressed as follows: Objective 1 documents long-run production decline and data uncertainty; Objective 2 identifies finance, infrastructure, governance and skills as primary constraints; Objective 3 finds that targeted interventions (Q-Grader training, micro-processing and PPPs) produce localised gains but require scaling and stronger governance to achieve sector-wide impact.

In policy terms, this calls for a dual approach: encouraging private-sector dynamism while addressing institutional dysfunction. Infrastructure investment must be a core priority. As stakeholders have noted, building more washing stations and improving rural roads could have a transformative effect on incomes. It is therefore recommended to coordinate public–private projects to rehabilitate access roads to key coffee zones, electrify processing hubs, and expand mobile communications. Such investments will not only improve yields by reducing post-harvest losses, but also lower transaction costs – an essential enabler for any coffee business. In parallel, regulatory simplification is needed. The government should work with industry to streamline export procedures (e.g. reduce intermediaries and documentation), ensure auction prices are published, and eliminate unauthorised levies. Enhancing the legal framework for cooperatives and private mills will encourage more actors to invest. For example, formal cooperative laws could make it easier for smallholders to band together and access finance.

Reforming governance of service provision is also critical. The privatisation of washing stations and marketing bodies must be managed transparently, with clear rules for stakeholder participation. The findings mirror observations that reform processes have been politicised; thus, a participatory approach is needed. Independent oversight by bodies such as ODECA should be strengthened, while giving farmer associations a voice in oversight boards. At the same time, ensuring that new private operators adhere to technical standards and fair trade practices (through certification or licensing) will elevate the entire sector's profile.

Entrepreneurial support should focus on the grassroots: cooperatives, farmer groups, and emerging agri-start-ups. These entities bridge the gap between subsistence farmers and markets. Investing in their capacity – for example, through extension services, business training, and market linkages – will multiply the impact of individual initiatives. In concrete terms, development agencies and donors should fund cooperative-run micro-mills and small roasting facilities, paired with training in processing and marketing. This "value-added at origin" approach means part of the coffee's worth is captured locally rather than abroad. Certification programmes (organic, Fairtrade, etc.) can be introduced by cooperatives to access premium segments. Training remains crucial: expanding Q-Grader education and cupping labs is an exemplary success story, and similar skill-building (e.g. in agronomy, pest control, or business planning) should be scaled up. Finally, policy makers should prioritise three pragmatic, near-term actions: (1) scale proven pilots in quality grading and micro-processing via targeted matching grants and technical assistance; (2) implement transparent, time-bound reforms for trade and taxation to restore investor confidence; and (3) create a modest ring-fenced fund for nursery and extension support financed from a small share of

export levies or donor matching. When aligned, these elements create a virtuous circle: better quality earns higher prices, which in turn raises incomes, spurring further innovation.

If implemented, these measures would have broad positive outcomes. Higher value-added directly benefits farm households: with improved practices and access to premium markets, farmers can increase income and resilience (confirming case study results in other countries). The growth of processing and trading enterprises would create rural jobs and diversify the economy beyond rain-fed subsistence. Ultimately, a revitalised coffee sector can contribute to national economic stability by generating foreign exchange, reducing poverty in coffee-growing regions, and buffering the economy against shocks. In policy terms, this translates into greater food security (as incomes rise) and social stability (as rural livelihoods improve).

In conclusion, entrepreneurship and innovation emerge as the true linchpins for Burundi's coffee revival. By investing in people (farmers, cooperative leaders, quality experts) and facilitating value-adding ventures at origin, the country can transform its coffee into a higher-value, globally competitive commodity. Such a strategy not only elevates Burundi's position in the international coffee market but also yields meaningful gains for employment, rural welfare, and overall economic resilience.

Research limitations

This systematic review, while providing an integrated perspective, is subject to several limitations. The primary limitation stems from the inconsistencies and potential gaps in the available quantitative data on Burundi's coffee production and economic indicators, as highlighted by the varying figures across different sources. This necessitated a careful reconciliation of data, which may still introduce measurement error. Accordingly, quantitative conclusions are deliberately conservative and phrased as indicative trends rather than precise causal estimates.

Furthermore, while the review synthesised qualitative evidence from a diverse range of documents and reported interview findings, the original qualitative data sources (e.g. specific interview transcripts) were not directly accessible for re-analysis, limiting the depth of qualitative interpretation beyond what was reported in the literature. The qualitative material used is therefore treated as secondary testimony—valuable for contextual interpretation but not representative in a statistical sense. The purposive nature of the original qualitative fieldwork, as described in the methodology, means that the insights, while rich, are not statistically generalisable to the entire population of coffee-growing households in Burundi. Finally, travel restrictions during the COVID-19 pandemic limited the geographic spread of some of the original field visits, potentially impacting the comprehensiveness of the qualitative insights from certain remote provinces.

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