Environment Sustainability Standards and Export Performance of Coffee among Co-operatives in Tanzania

Neema P. Kumburu[1*] and Sara Mmari[2]
[1*]Department of Human Capital Management and Administration,
Moshi Co-operative University, Kilimanjaro Tanzania
nkumburu1@gmail.com;nkumburu@yahoo.co.uk
[2]Tengeru Institute of Community Development, Arusha, Tanzania, email address:
saraemmanuel89@gmail.com

Abstract

Tanzania, as with many other coffee-producing countries in the world, accesses niche export coffee markets is by complying with quality and standards set in these markets. However, the influence of environmental sustainability standards on export performance is not known. This study assessed environmental sustainability standards and their effects on the export performance of coffee among co-operatives in Tanzania. Employing mixed methods, the study utilized a sample of 384 respondents from nine cooperatives. Descriptive statistics and inferential analysis were employed for data analysis. It was concluded that the main certification schemes operating in Tanzania are Organic, Fairtrade, Rainforest Alliance, and C.A.F.E. Practices by Starbucks. Furthermore, the study found that export performance has fluctuated yearly, leading to mixed sentiments regarding adherence to these standards. Additionally, it was determined that environmental sustainability standards have a significant positive influence on export performance. The study recommends AMCOS to increase the use of recyclable packaging, minimize the use of agrochemical, control soil erosion and deforestation. This can be done by directing more efforts towards enabling sensitizing cooperatives to adhere to sustainability standards. Strategies such as enhancing information dissemination to address the disconnect between producing and consuming countries through a coherent, reformed, and supportive international policy agenda are suggested. Moreover, setting sustainability standards and creating an operating environment that aligns with the local realities of coffee production are recommended to ensure that the benefits of international coffee trade sufficiently reach the producers.

Key words: Environmental sustainability standards, Export performance, Coffee, Co-operatives

AJCDT, Vol. 8 No. 1 (December, 2023), pp. 102 – 113, © 2023 Authors

INTRODUCTION

In the last decades, products certified according to environmental and social sustainability have become an important feature of production, trade, and consumption. The growing complexity of public and private sustainability standards, which can have an impact on exports from developing nations, has been one of the major concerns in agricultural food commerce during the past 20 years (Lazaro et al., 2008; Faße et al., 2015). One possible strategy to increase the value of agricultural exports is to ship items to niche markets, like coffee that

has been certified by one or more sustainability certifications (including Fair Trade, Utz Certified, Organic, and Rainforest Alliance). On the other hand, Numerous sustainability standards and regulatory measures reflect the rising global concern about environmental and social issues in agrifood value chains. This is seen in the rising use of certification programs like Fairtrade and initiatives that promote direct connections between producers and consumers (Thorlakson 2018). A standard is a practice that is accepted as the norm. They can be used formally or informally to improve efficiency, compatibility, effectiveness, and user-friendliness as well as safety and ethical commitment in products, services, and processes (Mithöfer et al., 2011; Coral & Mithöfer, 2022). A wide range of sustainability metrics are used by Rainforest Alliance, Organic, Fairtrade, EU or US organic Standards, and UTZ-certified coffee to meet multiple and co-existing sustainability goals like preserving food safety, preventing deforestation, combating poverty, and empowering producers. Certification therefore, is an important economic tool that is used to promote social-economic and environmental conservation objectives in the world (Kangile et al., 2021). It is used to stimulate quality. Through these trade arrangements, farmers adhere to set standards so that they can benefit from price premiums and other related advantages associated with certification. Increased yields and improved administration of farmer organizations are further advantages of certification. Through adhering to sustainability standards farmers may better manage their collective action groups, as certain certification programs, like Fairtrade, favour cooperatives and associations rather than individual farmers. The three core sustainability dimensions of social, economic, and environmental conservation are the foundation of coffee certification programs. Access to markets, price premiums, improved trade conditions, and price stabilization of coffee are some of the social and economic advantages. Reducing the use of agrochemicals, conserving water, preventing soil erosion, using less energy, and protecting biodiversity are all ways to improve environmental conservation. One of the likely venues for raising the value of agricultural trade exports from third world countries is through sales to rising, niche and value-added markets. Even if the market for special coffee is comparatively minute in relation to the total volume of the global coffee market, it is up surging and is attaining considerable plea amongst consumers (Ponte, 2004). At the heart of the European Green Deal, the Farm to Fork strategy establishes regulatory and non-regulatory initiatives to ensure that all foods placed on the EU market are sustainable (European Commission, 2020) Among these are pledges to tighten pesticide regulations (Maximum Residue Limits, MRLs) market-grade standards, traceability, general food hygiene, and other requirements in accordance with health hazards (European Commission, 2020). Since the policy is likely to have a substantial impact on third world countries as EU is the second-largest importer of agri-food products internationally (European Commission, 2019). Agro-food regulations are increasingly including environmental concerns. Criteria for ensuring food safety are increasingly integrated with those for promoting environmentally sustainable production techniques. Tanzania is among Africa’s largest coffee grower with yearly production in 2020/2021 amounting to 66,042.0 tons (TCB, 2021). The details of coffee production in Tanzania the year 2021 is indicates that Kagera is the leading region with the yearly production of 39257.8 tons followed by Ruvuma with yearly production 11,584.7 tons, the third one is Songwe region with the yearly production 8963.83. Despite the fact that coffee is produced by subsistence farmers with an average farm size of 1.5 ha (Ibrahim, 2015), it is a useful source of income for smallholder farmers in Tanzania. Coffee contributes almost 5% of Tanzania's total exports and generates income averaging US$100 million per year. The crop further, provides income to about 400,000

smallholder farmers who produce 90% of percent of Tanzania coffee. Statistics further indicate that most coffee produced in Tanzania is exported and local consumption is estimated at only 7% of the overall production (TCB, 2021). Coffee is a truly traded globally, and Tanzania coffee finds itself into global market through AMCOS.

AMCOS, or Agricultural Marketing Cooperative Societies, represent socio-economic systems with two significant implications: firstly, as a movement, and secondly, as an economic system. As a movement, AMCOS embodies an association of individuals who have voluntarily come together to pursue a shared objective through the establishment of a democratically governed organization. Rooted in specific values and philosophies (Sonny & Saluja, 2013), it operates according to universally recognized principles that serve as a balancing mechanism between capitalist and socialist economic systems. Another core tenet of cooperative philosophy is the equitable distribution of profits based on members' utilization of services. As an economic system, AMCOS functions as a business enterprise geared towards advancing the collective economic interests of its members. It operates within competitive markets and is professionally managed. In essence, Agricultural Marketing Cooperative Societies (AMCOS) represent a holistic approach to fostering community-oriented economic activities. Overall, Agricultural Marketing Co-operative Societies (AMCOS) stood out as the predominant type, constituting approximately 44% of all registered co-operatives in the country, while SACCOS and Cooperative Joint Enterprises (CJE) were among the least common. AMCOS become instrumental facilitating coffee trade and enhance rural development. However, the modifications that producers and enterprises must make to comply with environmental standards have a significant financial impact in terms of reducing negative environmental consequences and enhancing worker health effects, compliance can also present potential for advantages. On the other hand, Standards compliance requirements may make it difficult for developing nations to engage in trade and, more significantly, may cause them to lose access to global supply chains for their small-scale producers (UNCTAD, 2007; Lazaro, 2008; Coral & Mithöfer,2022). Since co-operatives are the are the main instrument for raising the value of agricultural trade exports from third world countries is through sales to rising, niche and value-added markets. The performance of co-operatives in terms of export performance as a result of compliance with environmental sustainability standards is not known. Furthermore, studies that have been done such as Kangile et al. (2021), Alandia et al. (2020), Graz (2021), Thorlakson (2018) and Johnson (2019) seems to concentrate on other issues such as standard-setting, coordination, legitimation, asymmetric power and certifications. It is unknown how cooperatives in Tanzania have performed export-wise as a result of adhering to environmental sustainability requirements. Thus, understanding the influence of environmental sustainability standards on export performance of coffee co-operatives in Tanzania, is important for crafting policies that will spur the production of sustainably grown coffee, social equity, and overall sustainability within the coffee supply chain.

Theoretical framework and Empirical debates: Environmental sustainability standards, established by non-state entities across multiple countries, aim to address regulatory gaps by prescribing behaviors transcending national borders (Dingwerth & Pattberg, 2009). Unlike transnational laws, voluntary standards lack sovereign authority and rely on decisions by market participants (Bernstein & Cashore, 2007). Despite lacking centralized enforcement, they can function like laws, enforced through third-party certification systems (Terlaak, 2007). These standards entail predefined rules to evaluate corporations' social and environmental

performance systematically. Researchers have underscored the significance of exporting within the global economy, considering it a key indicator of a cooperative's ability to effectively utilize its resources and capabilities on an international scale (Abdallah et al., 2009; Spasova, 2014; Boehe and Jiménez, 2016; Cadogan, 2016; Azar and Ciabuschi, 2016). Export performance is defined as the degree to which a cooperative achieves its economic and strategic objectives regarding the exportation of a product into foreign markets through the planning and execution of an export marketing strategy. Coffee export performance is particularly crucial and can substantially contribute to the Tanzanian economy. Various metrics can be used to assess export performance, with two primary dimensions being financial performance and strategic effectiveness. These metrics may include the decision to export, the number of markets served, the variety of products sold, and the value of exports (Kim and Hemmert, 2015; Spanos, 2016). Some studies have categorized these measures into two broad groups: economic/financial measures (such as profitability and sales) and noneconomic/non-financial measures (Carneiro, 2016; Tan and Hu, 2016). This study however, used MT of coffee exported as a proxy measure of export performance. Based on the above description, this study anchored its assumptions on two theories. These theories explain motive for co-operatives to follow environmental sustainability standards as well as consumers prefer environmental sustainably grown coffee. Two prominent theories discussed in this context are the random utility theory and the profit maximization theory. The random utility theory operates within the framework of random utility (RUF) and its underlying assumptions, as outlined by Apesteguia et al (2023). This theory posits that every farmer is a rational decision-maker, striving to maximize utility based on their decision to participate in environmental sustainability standards or not. On the other hand, the profit maximization theory suggests that farmers are primarily motivated by monetary gains when making decisions. According to this theory, farmers consistently act in their own self-interest with the aim of maximizing profits. Co-operative members are the maximizers of the utility of the potential monetary payoffs. In maximizing profits, co-operatives members are assumed to equate marginal revenues to marginal cost of producing and selling their coffee. On the other hand, coffee consumers maximize utility by consuming environmental sustainably grown coffee due to the fact that consumers are more concerned with human health and sustainability of the soil by making sure that they consume coffee while remain health but at the same time the soil continues to be productive even after so many years. Furthermore, consumers are willing to pay premium prices for organic products coffee. Hence, the decision of cooperative members to pursue certification or not relies on several rationality assumptions. Firstly, both coffee farmers and consumers regard the decision between becoming certified or not as mutually exclusive alternatives. Secondly, each farmer or consumer assigns a perceived utility to each alternative and selects the option that maximizes their utility. Lastly, the utility attributed to each choice alternative is contingent upon various attributes of the alternative itself and the individual coffee farmer or consumer. Empirically, studies found that these certification programs offer impartial, reliable, traceable, and creative solutions for coffee supply chains. For a variety of targeted markets, they make sure farmers provide certified coffee (CBT, 2021). In addition to being environmentally friendly, economically viable for farmers and fostering social fairness (human rights) among farmers and other workers throughout the coffee supply chain Farmers should be cautious before taking up any of these standards, as evidence on the ground suggests that supply of certified coffee greatly outstrips demand. A 2018 study by the Center for Global Development indicated that the relationship between certification and issues of profitability, productivity and

sustainability is not always a clear-cut positive one. Evidence on the ground also suggests that there is more certified coffee available than is sold. According to the Coffee Barometer, about 55% of total global coffee production is certified, but only 20% of it is purchased as certified, meaning that 80% of producers of certified coffee are not able to sell all their certified coffee at a premium price. On the other side, it was further noted that certified coffee exports (Organic, UTZ/ RainForest, Fair Trade & Cafe Practices) almost doubled. Most certified coffees are sold under direct trade arrangements. Study by Ponte (2004) examines the role of sustainability standards in the global coffee sector, which faces low prices and environmental challenges. Using a global value chain approach, the paper analyzes how standards coordinate the value chain and affect the costs and benefits of different actors. The paper also discusses the barriers and opportunities for small-scale producers to join sustainability initiatives. On the other hand Krishnan (2017) is an article that provides an overview of the botany, origin, cultivation, processing, and trade of coffee. The study also discusses the environmental, social, and economic impacts of coffee production and consumption, as well as the role of certification schemes, research, and innovation in promoting sustainable coffee production. Finally, Mirhedayatian et al. (2014) demonstrated that adopting sustainability standards practices plays a crucial role in bolstering environmental protection efforts. By embracing such practices, organizations can significantly reduce emissions and waste, thereby enhancing their cooperative export performance. It is evident that adherence to sustainability standards is of paramount importance for achieving positive environmental outcomes and successful export endeavors. While studies have investigated the influence of environmental sustainability standards such as environmental information disclosure certification, on firms' export activities (Xu et al., 2018; Wang & Zhao, 2020; Martos-Pedrero et al., 2023). However, generalizing these findings in Tanzania context pose challenging due to the significant differences that exist between developed and developing countries. Hence this study was conducted.

METHODOLOGY

Description of Study areas: The research was carried out in three regions of Tanzania: Kilimanjaro, Songwe, and Ruvuma. Kilimanjaro Region is situated in the northeastern part of Tanzania and shares a border with Kenya to the north. Songwe region is located in the southwestern part of Tanzania and shares borders with Zambia and Malawi to the south. Ruvuma region is found in the Southern part of Tanzania and shares a border with Mozambique to the south. AMCOS from each region were purposefully selected. These include Amkeni, Lukani Losaa, and Marangu West in Kilimanjaro; Shilanga, Iyenga, and Itumpi in Songwe; and Kingerikiti, Lituru, and NAMCU in Ruvuma region. Agriculture is the primary economic activity practiced in these regions, with coffee being one of the main cash crops (URT, 2013). Coffee is sold through primary AMCOS according to government directives. Despite a decline in coffee production, the current strategy in these regions is to encourage farmers to plant new species and to stump old coffee trees to achieve higher yields (URT, 2013).

Data and Research Design: Data for this study was collected using a cross-sectional survey design since data were collected only once (Setia, 2016). This design is considered as efficient and cost-effective since it enables the collection of a large volume of data in a short period of time (Saunders et al., 2019). Data collection utilized a mixed methods approach, combining both quantitative and qualitative techniques for triangulation purposes (Arbale & Mutisya 2024). Furthermore, documents from the Tanzania coffee board such as production and export reports were also reviewed. The targeted population of this study consisted of co-operatives leaders and ordinary members

from dominant coffee growing areas (Kilimanjaro, Songwe and Ruvuma).

Sample Size, Techniques, and Data Collection Methods: Sample size determination was done basing on the Cochran's formula which states that:

Where,

Estimated sample size

Confidence level at 95% (standard value of 1.96)

Estimated target population farmers (Using standard value of 0.5% since it is unknown) (1-0.5)

Margin of error at 5% (standard value of 0.05)

Estimated sample size will be calculated as follows:

384.16

Therefore, the sample size of the target population was 384. Proportionate sampling was used to determine the number of respondents in each AMCOS. Questionnaires were administered to smallholder farmers who were selected randomly. Random sampling was chosen as the preferred method because it reduces bias by providing each individual with an equal opportunity to be selected. On the other hand, Key Informant Interviews (KIIs) were conducted with 10 key informants selected purposively based on their experiences in AMCOS operations, the coffee business through cooperative channels, and export issues. These primary data were complemented by secondary data obtained from TCB. This was necessary for triangulation, ensuring robustness and reliability.

Data Analysis: The qualitative data gathered through Key Informant Interviews (KIIs) underwent analysis via content analysis methodology. Content analysis was employed to scrutinize the qualitative data obtained from the Key Informants, utilizing ATLAS software. The initial step involved coding the data, followed by categorization, sorting, and retrieval. Transcription was performed from the recorded information to textual format. Additionally, notes taken in notebooks were transcribed into text documents. Subsequently, coding was applied to the text, grouping sentences with similar ideas under the same code. Following coding, themes and sub-themes were identified, aligning with the study's objective. Quantitative data underwent analysis using both descriptive and inferential methods. Descriptive analysis was utilized to identify environmental sustainability factors (recyclable packaging, minimal use of agrochemical, eco labelling, control of soil erosion and control of deforestation), while the contribution of each factor to export performance was assessed inferentially through linear regression analysis. This is due to the fact that the dependent variable was continuous and linear and measured by the total amount of coffee that was exported for the year 2021/2022. Therefore, the specification model for this study was as follows:

Where: Y= Export performance,

X1=Recyclable packaging (measured by number of recyclable materials used), Minimal use of agrochemical (measured by number of agrochemical), control of soil erosion (dummy) 1 if yes, 0= if otherwise), Control of deforestation (dummy) 1 if yes, 0= if otherwise),

In the model, β 0 = the constant term while the coefficient β i i = 1….5 was used to measure the sensitivity of the dependent variables (Y) to unit change in the predictor variables. μ is the

error term which captures the unexplained variations in the mode.

FINDINGS AND DISCUSSIONS

Quantity exported: Quantity of coffee exported is one of the parameters that has been employed in this study to establish if adherence to environmental sustainability standards do influence export performance

among co-operatives in Tanzania. Results show that export performance has been fluctuating yearly. For example, the five years trend 2017/18, 2018/19, 2019/20,2020/21 and 2021/2022 export performance were MT 43,740, 54,837, 43,485, 60,840 and 54,984 respectively (Table 2). This show that export performance in term of MT exported is not stable and that is fluctuating yearly. This aligns with the findings of Kangile et al. (2021), who observed that, despite a growing demand for sustainably sourced coffee, the global production of certified coffee has been declining. According to available statistics, between 2014 and 2018, the production of certified coffee decreased by 15.1%. Additionally, during the same period, the area dedicated to certified coffee production also saw a decline of 12.2%.

Table 1: Export Performance in MT Globally 2017/18-2021/22

S/NO.	Country	2017/18		2018/19		2019/20		2020/21		2021/22	
		M/T	%	M/T	%	M/T	%	M/T	%	M/T	%
1	Japan	13,590	31.07%	15,217	27.75%	10,786	24.80%	14,232	23.53%	15,900.95	28.92%
2	Italy	6,501	14.86%	5,695	10.38%	6,758	15.54%	7,469	12.35%	6,978.02	12.69%
3	Germany	4,659	10.65%	9,031	16.47%	7,779	17.89%	14,878	24.60%	7,412.00	13.48%
4	Belgium	2,198	5.03%	6,279	11.45%	3,939	9.06%	3,274	5.41%	4,192.29	7.62%
5	USA	5,488	12.55%	3,090	5.63%	2,606	5.99%	2,992	4.95%	2,978.85	5.42%
6	Moroco	1,556	3.56%	3,027	5.52%	1,062	2.44%	3,732	6.17%	2,847.92	5.18%
7	Finland	853	1.95%	295	0.54%	232	0.53%	611	1.01%	839.05	1.53%
8	Rusia	1,244	2.84%	1,091	1.99%	1,355	3.12%	1,075	1.78%	921.69	1.68%
9	Sweden	327	0.75%	870	1.59%	834	1.92%	428	0.71%	946.18	1.72%
10	Israel	822	1.88%	1,267	2.31%	821	1.89%	1,584	2.62%	883.30	1.61%
11	South Africa	1,417	3.24%	858	1.57%	1,237	2.84%	560	0.93%	1,445.40	2.63%
12	UK	326	0.75%	193	0.35%	153	0.35%	256	0.42%	337.43	0.61%
13	Canada	537	1.23%	693	1.26%	518	1.19%	555	0.92%	268.80	0.49%
14	Australia	598	1.37%	510	0.93%	673	1.55%	813	1.34%	833.23	1.52%
15	Spain	209	0.48%	988	1.80%	391	0.90%	626	1.03%	896.40	1.63%
16	Denmark	17	0.04%	75	0.14%	116	0.27%	18	0.03%	-	-
17	France	148	0.34%	244	0.45%	37	0.09%	44	0.07%	96.00	0.17%
18	Netherlands	155	0.35%	101	0.18%	121	0.28%	235	0.39%	308.76	0.56%
19	Polland	76	0.17%	166	0.30%	65	0.15%	645	1.07%	168.06	0.31%
20	Norway	0	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%
-	Others	3,019	6.90%	5,147	9.39%	4,003	9.21%	6,452	10.67%	6,730.56	12.24%
	Total	**43,740**	**100%**	**54,837**	**100%**	**43,485**	**100%**	**60,480**	**100%**	**54,984.88**	100.00%

Source: Field data (2023)

Adherence to environmental sustainability standards: The results from Table 2 indicate that the overall mean for adherence to environmental sustainability standards is 3.42, with a standard deviation of 0.825. This suggests a mixed sentiment and uncertainty regarding the adherence to environmental sustainability standards among cooperative members. There are times when they are able to meet the set standards and thus increase their exports, while at other times they fail to comply. The high mean score for the minimal use of agrochemicals such as industrial fertilizers and pesticides can be attributed to the fact that many certification organizations, such as Fair Trade or ECOCERT, require minimal chemical usage. Additionally, cooperative members, who are often farmers, may not be able to afford these chemicals. For them, this represents a significant advantage.

Table 2: Adherence to environmental sustainability standards

item	Mean	Std. Deviation	Estimation degree
Recyclable packaging	3.22	1.13	Average
Minimal use of agrochemical	3.81	.933	High
Control of soil erosion	3.24	1.06	Average
Control of deforestation	3.41	1.05	average
Overall mean	3.42	,825	Average

Source: Field data (2023)

This is due to the fact that adherence to environmental is associated with costs that co-operative members in Tanzania cannot afford. During key informant interview it was reported one co-operative board member that "…*we are aware that adherence to environmental sustainability standards has truly enabled us to get better prices, incomes and profits after coffee exports…*". Another key informant also reported that, "*despite of these reported benefits, regulatory initiatives and the associated compliance with environmental sustainability standards has proved to be highly costly to the extent that the price premiums received do not cover members' costs effectively at all the times*". Another key informant also reported that "coffee sector in Tanzania is overregulated in the whole process of complying with the environmental certification standards right from the production stage, all of which cut off the eventual premium prices received. For example, it was noted that there are about fifty procedures and standards to be complied before they are allowed to export coffee but also, they have to pay multiple taxes at various stages of the coffee value chain. They have to pay 5% of total sells as local government authority crop cess, 0.3% of gross revenue as service levy and 30% as income tax among others. It was also reported that coffee growers in Tanzania have to comply with more than 50 regulations which compares unfavourably with regulations observed in neighboring countries like Kenya where only 30 regulations apply and Rwanda where there are only 7 ruling regulations. All these regulations plus compliance with sustainability standards was reported to affect negatively their ability to produce more export more and generate adequate income.

Environment Sustainability Standards and Export Performance of Coffee Among Co-Operatives in Tanzania: In this study, regression analysis was performed to predict export performance based on the environmental sustainability indicators. The independent variables were recyclable packaging, minimal use of agrochemical, control of soil erosion and control of deforestation. The model produced R-value of 0.664, indicating a moderate correlation between dependent and independent variables. The R square value was determined to be 0.441, with a statistical significance of P 0.05. This means that 44.1 per cent of coffee export performance is

predicted by the independent variables included in the study.

Table 3: Coefficient of Environment Sustainability Standards and Export Performance

Variable	Unstandardized Coefficients		Std. Coefficients	t	Sig	95.0% Confidence Interval for B	
		Std. E				Lower bound	Upper bound
Constant	1.227	0.150		8.205	0.000	0.933	1.521
Recyclable packaging	0.125	0.026	0.231	4.858	0.000	0.075	0.176
Minimal use of agrochemical	0.115	0.033	0.166	3.478	0.001	0.050	0.179
Control of soil erosion	0.122	0.032	0.175	3.789	0.007	0.059	0.185
Control of deforestation	0.029	0.036	0.306	0.805	0.000	0.042	0.100

Source: Field data (2023)

The findings indicate that employing recyclable packaging, minimizing agrochemical usage, controlling soil erosion, and preventing deforestation significantly enhance export performance. Specifically, a one-unit increase in each of these measures corresponds to export performance boosts of 12%, 11%, 12%, and 0.2%, respectively. This correlation stems from the requirement within the European coffee trade that participating nations enforce sustainability initiatives for all marketed food products. Results show that Reyclable packaging improves export performance by 12.5%. this is due to the fact that they are crucial in warranting that products are preserved during holding, transporting and stowing, prolong the shelf life of the products as well consumers' health. On the other hand, the use of non-recyclable materials plastic-based packaging materials items often present challenges for recycling due to their complexity thus, has bad implication for environment. This is supported by the study conducted by Ibrahim et al. (2022) who noted that sustainable packaging is key in terms of protecting environment as well as inducing consumers' willingness to pay. Xu et al. (2018) noted that Due to the limited access foreign customers have to monitor or assess the internal operations of co-operatives in Tanzania and considering that environmental practices often remain internal hence there is a need for distinct and recognizable references that acknowledge a global dedication to environmental stewardship, recyclable packaging and traceability is among them. However cooperative members show concern during focus group discussion that certification process often proves to be bureaucratic and expensive, with costs potentially reaching several thousand euros, varying based on the sustainability standard and production volumes. Typically, these expenses are deemed excessive. For instance, effective soil erosion control can expand the land available for coffee cultivation, potentially increasing yields and subsequently the quantity of exported coffee by 12.2%, assuming other variables remain constant. This notion finds support in Meemken's (2020) study, which underscores how standards can serve as tools for farmers to enhance productivity and product quality. Adopting environmentally conscious farming practices such as erosion control or intercropping can enhance soil fertility and, consequently, yields. These include commitments to make restrictions on pesticide usage through maximum residue limits which all coffee producers anticipating to supply their products in such markets should adhere to. Results further showed that, minimal use of agro chemical improves export performance by **11%.** This shows that smallholder farmers or co-operative members in Tanzania, are aware of producing agri-foods products with minimum residual so that they can trade in global markets participating in fair-trade. This is supported

by Zhou et al. (2023) and Mithoefer et al. (2011) , who concluded that environmental labelling certification (ELC) has a significant positive influence on firms' exports, During key informants' discussions it was reported they are producing pure organic coffee where they don't apply any industrial fertilizer, pesticides or fungicides. They also affirm that this is crucial in human health and sustainability of the soil to make sure product consumers remain health but at the same time the soil continues to be productive over time. As a result of this compliance, they are certified by ECOCERT Rainforest Alliance, Organic, and Fairtrade, EU or US organic Standards and Utz-certified coffee. Although organic farming has potentials of lower purchased farm input costs, the surveyed farmers have indicated their worry that it is difficult to realise better output levels at their current scales of production through such practices indicating a need to further farmer training and facilitation. Furthermore it was reported by co-operative leaders that as glowers of coffee they are mostly price taker where coffee price is determined abroad furthermore, environmental sustainability standards happen at a cost that is not shared among all value chain actors and that they are subjected to implement standards imposed to them without considering local context.

CONCLUSION AND RECOMMENDATIONS

Tanzania is among the suppliers of coffee to the EU and other markets overseas. However, its market share is relatively low, and its competitiveness is declining over time. In order to export, Co-operatives through their members in the coffee value chain are supposed to adhere to various environmental sustainability standards and certification schemes. Export performance fluctuates yearly, with members showing mixed sentiment and uncertainty regarding adherence to these standards. On the other side it is concluded that environmental sustainability standards have a significant positive influence on export performance. Recyclable packaging, minimal use of agrochemical, control of soil erosion and control of deforestation increase export performance. However, there are some challenges on how to properly fit into these standards and schemes at various stages of the value chain despite or the rising demand for coffee that complies with sustainability standards over time especially in European markets. One of the observed challenges is that the setting of international level sustainability standards which value chain actors are supposed to adhere to have been done without involving these key actors. The actors feel that they have been isolated in the standard setting process resulting in setting some standards which are difficult to comply with, given the nature of the environment in which the various actors are supposed to operate. Regulations on sustainability standards such as the Maximum Residue Limits which smallholder farmers are supposed to observe do not fit well in their operating environment and these farmers perceive them to be an obstacle for increased production. This is one of the reasons as to why the overall output of certified coffee from smallholder farmers is declining over time. Smallholder farmers have weak linkages to the main value chain actors and therefore in most cases they participate passively in the value chain with minimal powers to make important production, pricing and marketing decisions. Customers at the other end of the coffee value chain have remained more powerful in making important market decisions on the basis of the set sustainability standards which ultimately continue to overrule smallholder interests in the major markets. It is thus recommended that central and local government should continue to sensitize members on the importance of increased use of recyclable packaging, minimized agrochemical usage and control on soil erosion. Furthermore, AMCOS should provide training, field visit as well as demonstration farms to enable members acquire sustainable agriculture techniques and improved export. Furthermore, when setting these

standards key actors in the producing countries to be involved for effective operationalization of these standards and hence enhancing competitiveness of cooperatives in Tanzania.

REFERENCES

Alandia, G., Rodriguez, J. P., Jacobsen, S. E., Bazile, D., & Condori, B. (2020). Global expansion of quinoa and challenges for the Andean region. Global Food Security, 26, 100429.

Apesteguia, J., & Ballester, M. A. (2023). Random utility models with ordered types and domains. Journal of Economic Theory, 211, 105674.

Arbale, H., & Mutisya, D. N. (2024). Book Review:" Research Methods for Business Students" by Mark NK Saunders, Philip Lewis, and Adrian Thornhill (Pearson Education, 2019). African Quarterly Social Science Review, 1(2), 8-21.

Azar, G., & Ciabuschi, F. (2017). Organizational innovation, technological innovation, and export performance: The effects of innovation radicalness and extensiveness. International business review, 26(2), 324-336.

Boehe, D. M. (2016). The internationalization of service firms from emerging economies: An internalization perspective. Long Range Planning, 49(5), 559-569.

Cadogan, J. W., Boso, N., Story, V. M., & Adeola, O. (2016). Export strategic orientation–performance relationship: Examination of its enabling and disenabling boundary conditions. Journal of Business Research, 69(11), 5046-5052.

CBT (2021) Tanzania Coffee Board Annual Report. Moshi Kilimanjaro Tanzania

Coral, C., & Mithöfer, D. (2022). Contemporary narratives about asymmetries in responsibility in global agri-food value chains: the case of the Ecuadorian stakeholders in the banana value chain. Agriculture and Human Values, 1-20

Faße, A., Oelze, N., & Grote, U. (2015). The Role of Food Safety Standards in Tanzania and their Implications for Food Security. Work package, 3.

Ibrahim, I. D., Hamam, Y., Sadiku, E. R., Ndambuki, J. M., Kupolati, W. K., Jamiru, T., ... & Snyman, J. (2022). Need for sustainable packaging: an overview. *Polymers*, 14(20), 4430.

Kangile, J. R., Kadigi, R. M., Mgeni, C. P., Munishi, B. P., Kashaigili, J., & Munishi, P. K. (2021). Dynamics of coffee certifications in producer countries: re-examining the Tanzanian status, challenges and impacts on livelihoods and environmental conservation. *Agriculture*, 11(10), 931.

Krishnan, S. (2017). Sustainable coffee production. In Oxford research encyclopedia of environmental science.

Lambin, E.F., and T. Thorlakson. (2018). Sustainability standards: Interactions between private actors, civil society, and governments. Annual Review of Environment and Resources 43: 369–393.https://doi.org/10.1146/annurev-environ-102017-025931

Lazaro, E. A., Makindara, J., & Kilima, F. T. (2008). Sustainability standards and coffee exports from Tanzania (No. 2008: 1). DIIS Working Paper.

Martos-Pedrero, A., Jim´enez-Castillo, D., Ferr´on-Vílchez, V., & Cort´es-García, F. J. (2023). Corporate social responsibility and export performance under stakeholder view: The mediation of innovation and the moderation of the legal form. *Corporate Social responsibility and*

Environmental Management, 30(1), 248–266

Meemken, E. M. (2020). Do smallholder farmers benefit from sustainability standards? A systematic review and meta-analysis. Global Food Security, 26, 100373.

Mirhedayatian, S. M., Azadi, M., & Saen, R. F. (2014). A novel network data envelopment analysis model for evaluating green supply chain management. International Journal of Production Economics, 147, 544-554.

Mithoefer, M. C., Wagner, M. T., Mithoefer, A. T., Jerome, L., & Doblin, R. (2011). The safety and efficacy of±3, 4-methylenedioxymethamphetamine-assisted psychotherapy in subjects with chronic, treatment-resistant posttraumatic stress disorder: the first randomized controlled pilot study. *Journal of psychopharmacology*, 25(4), 439-452.

Ponte, S. (2004). Standards and sustainability in the coffee sector. International Institute for Sustainable Development. Available at http://www. iisd. org.

Saunders, M., Lewis, P. and Thornhill, A. (2019), Research Methods for Business Students, 8th ed.,

Setia, M.S. (2016), "Methodology series module 3: cross-sectional studies

Spasova, D. S., & Surh, C. D. (2014). Blowing on embers: commensal microbiota and our immune system. Frontiers in immunology, 5, 102171.

Terlaak, A. (2007). Order without law? The role of certified management standards in shaping socially desired firm behaviors. Academy of Management Review, 32(3), 968-985.

Thorlakson, T. (2018). A move beyond sustainability certification: The evolution of the chocolate industry's sustainable sourcing practices. Business Strategy and the Environment, 27(8), 1653-1665.

Wang, J. X., & Zhao, M. Z. (2020). Economic impacts of ISO 14001 certification in China and the moderating role of firm size and age. Journal of Cleaner Production, 274, Article 123059.

Xu, X., Zeng, S., & Chen, H. (2018). Signaling good by doing good: How does environmental corporate social responsibility affect international expansion? Business Strategy and the Environment, 27(7), 946–959. Yi, J., Wang, C., & Kafouros, M. (2013).

Zhou, L., Ren, S., Du, L., Tang, F., & Li, R. (2023). Is environmental labeling certification a "green passport" for firm exports in emerging economies? Evidence from China. International Business Review, 32(5), 102171.