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Challenges to the implementation and domestication of environmental, social and governance (ESG) guidelines in global agricultural and horticultural supply chains – a Kenyan perspective

Abstract

Efforts to embed international environmental, social and governance (ESG) safeguards in business operations are gaining momentum in many developing countries which supply agricultural, horticultural and livestock products to other middle income or highly developed countries. Whereas a little progress has been made, full compliance with ESG requirements is still not possible due to some constraints. This article is based on an elaborate literature review, critical review and expert opinion on the implementation and domestication of international ESG guidelines. It explores the nature of the ESG safeguards and the constraints that continue to impede full compliance to the standards. It is reckoned that ESG safeguards include a broad array of issues and the costs of compliance can be prohibitive, especially for small-scale producers. It recommends a gradual approach to implementation, increasing of sensitization on the importance of ESG and continuing training and research along every supply chain. It is also emphasized that political will at the international, national and corporate level are all crucial to achieving ESG compliance.

Keywords: sustainability, agriculture, horticulture, supply chains

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Introduction

Sustainable development has often been defined as the judicious use of natural resources by the present generation in such a way that guarantees the availability of resources and thus the survival for future generations. It is quite commendable that the United Nations General Assembly (UNGA) came up with the Sustainable Development Goals (SDGs), which are broad policy objectives that should guide the development priorities of virtually every nation on our planet till the year 2030.

The work of the UN and the majority of its members have largely been aligned with these broad policy goals in the past decade, even though most evaluation reports have pointed out that the SDGs are far from being achieved by the desired timeframe in most territories around our planet.[1] The recent United Nations report noted that progress is real but fragile, with only 35% of targets on track, while nearly half are too slow and 18% are regressing. It noted that the attainment of SDGs has been hampered by conflicts, climate change, debt and unequal access to resources.

It has been acknowledged that sustainability has three core dimensions; environmental, social and economic. These aspects of sustainability are interdependent and equally vital. In the agricultural, horticultural and livestock value chains, a holistic perspective to sustainability is increasingly being adopted after years of advocacy by scientists, political groups, various international development agencies, labour unions and consumer rights organizations.

The boldest, loudest and universal pitch for sustainable development (including sustainable value chains) still remain the Sustainable Developments Goals agenda that was adopted and promulgated by the UNGA in 2015, with a target to attain their objectives fully by 2030.[2] The SDGs 2030 include 17 interconnected goals for poverty eradication, protection of the planet and shared prosperity.

Thus, the pursuit of environmental, social and governance (ESG) safeguards in national and international agricultural, horticultural and livestock value chains answer to several SDGs. Producing healthy and nutritious food in sufficient quantities with minimal damage to the ecological environment would directly enhance the attainment of the three foremost SDGs, namely; no poverty, zero hunger, good health and well-being.

Many development actors have rightly pointed out that sustainable agriculture, horticulture and livestock production holds the key to reducing income poverty, food and nutrition insecurity, and combating malnutrition in the developing world. Consuming adequate and healthy amounts of balanced diets is also known to improve immunity in human beings and ward off common non-communicable illnesses.[3] It also contributes to economic resilience by eliminating dependence on expensive imported food thus saving foreign exchange spent on food.

Indeed, in many international development fora, it has also been observed that if developing countries could commit to increasing and modernizing food production and distribution systems, the strong desire to migrate to relatively more developed countries could be drastically reduced thus eliminating conflicts about immigrants in the developed world.[4]

It is also known that the full employment potential in agri-food value chains in many developing countries is still far from being achieved, and modern commercial agricultural value chains can unlock so many decent jobs for the youth,[5] thus contributing

immensely to attaining the SDG 8 which addresses decent work and economic growth. And this would be a direct contribution to peace and justice, which is addressed in SDG 16.

There is a problem in the ESG safeguards implementation agenda because many organizations have not embraced the guidelines fully. Whereas many governments around the world have a heightened sense of consciousness about ESG issues, there has been virulent opposition from political and industry groups to legislation that is meant to embed stringent ESG measures in different supply chains. It has also been noted by the UNDP, that in most countries, adherence to ESG safeguards is non-binding and does not have a clear legal framework.[6] In the case of agricultural, horticultural and livestock supply chains, the non-compliance problem is exacerbated by low business turnover, and low technical capacity amongst other factors. So, this article elaborates the nature of ESG safeguards and examines the constraints to the implementation and domestication of ESG standards in global agricultural supply chains, with the goal of exploring a more inclusive and rational approach.

Environmental (Ecological) issues

The environmental challenges in the value chains are the issues which have attracted the most intense attention in the recent past. The shifts in climatic patterns in many parts of the world have caused a strong suspicion that human activity is the principal cause of adverse climatic events. Emissions of greenhouse gases (GHG), notably carbon dioxide, have largely been blamed for the apparently increasing global temperatures, drying up of lakes, melting of snow, over flooding and even increases in pests and disease incidences in crops, cattle and humans (Figure 1).

Figure 1 Industrial factory emissions of GHGs, linked to climate change. Source: Business Standard, India, 2026.

Air pollution due to emissions from primary farm operations as well as agro-processing factories is known as one of the major sources of discomfort in the agricultural landscapes. Coupled with pollution from other industries and vehicles used in the transportation chain, they constitute an important source of contamination that may cause disease or reduce visibility in an urban area with large factories. Reducing air pollution per se has thus been a key objective in environmental protection and sanitation (Figure 2 & Figure 3).

Figure 2 Animals on a plastic waste dump in Nairobi, Kenya. Source; Heinrich Boell Stiftung, Nairobi, Kenya 2022.

Figure 3 Waste, industrial effluent continues to choke Nairobi River despite clean-up efforts. Source; the Eastleigh Voice, Nairobi, Kenya. 2024.

Pollution of water sources due to callous disposal of effluents from factories and domestic wastes is also a key environmental issue in the agricultural value chains. The over-application of fertilizers, pesticides and herbicides is also a threat to sustainable agriculture and human health for which concepts like precision farming, organic agriculture, nature-based solutions and traceability are increasingly being adopted to protect the ecological environment and ultimate product consumers.

There have been genuine fears about the loss of biodiversity due to climatic changes[7] and substantial research funding is currently directed towards conserving biodiversity in the face of climate change, through adaptation and mitigation mechanisms. Climate change is also blamed for increasing desertification and other forms of land degradation such as deforestation, soil erosion and salinization (Figure 4).

Shortage of water has been attributed to climate change in some cases and conflicts over water resources and grazing lands are very common in rural communities[7] in many parts of the developing world, especially where subsistence farming and livestock-rearing are the principal sources of livelihood. So, the careful utilization of scarce

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water resources for agriculture and horticulture through approaches like drip irrigation, rainwater harvesting, precision irrigation, deficit irrigation, planting early maturing crops, recycled wastewater, desalinated water and proper watershed management practices must be put in practice. The construction of dams, water pans and groundwater wells are also an important contribution to sustainable water management (Figure 5).

Figure 4 Drought-stricken animals in Northern Kenya. Photographer; Reuters. Source; The Guardian, 2014.

Figure 5 Simple greenhouses for vegetable and cut flower production in Kenya. Source: Aqua Hub Kenya website, 2026.

The sustainable utilization of energy resources in the agricultural value chain has also attracted a lot of attention. Energy is used in activities like land preparation, heating of agricultural buildings like greenhouse, harvesting, drying and processing, transportation/ distribution and storage. Fossil fuels are currently being phased out gradually due to GHG emissions and global warming fears. Clean energy or CO_2 neutral energy sources are being promoted for use in agricultural value chains. These are essentially renewable energy from sources like solar, wind, geothermal, biomass, biogas, hydropower and nuclear power. However, the full replacement of fossil fuels by renewable energy sources is still very far from being attained due to high switching costs, slow technological progress, stakeholder/ political resistance and lingering doubts about 'global warming' in some cases.

Socio-economic issues

The agricultural supply chains, from production to consumption, are also beset by several socio-economic sustainability issues which dovetail into the other goals of the SDGs. Slave labour, low wages for farm and factory workers, child labor, human rights violations, gender inequality, discriminatory wage practices and unhealthy working environments are some of the socio-economic issues that workers in the agricultural production and industries might face in many developing as well as developed countries. Ideally, the soundness of socio-economic compliance measures should be assessed not only at a single enterprise level, but also on the upstream supply chain of an enterprise (Figure 6).

Figure 6 Coffee berry harvesting and drying operations in Kenya. Fair wages and farmer's earnings have been big issue in the coffee value chain. Source; Getty Images 2023.

Governance issues

The key governance issues of concern include exclusion of employees from participation in decision- making, lack of a

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participatory management culture, denial of opportunities for education and personal development, endless use of casual labour, corruption and bribery, lack of transparency in procurement and other business processes, discriminatory employment laws, unfair contract practices and frustration of worker's rights, which are rampant in some countries. According to the IFC,[8] governance issues also include board structure and diversity, ethical conduct, risk management, disclosure and transparency in relation to conflict of interests.

Considering the foregoing, environmental, social and governance (ESG) safeguards have been developed by leading international standards bodies and other interested actors to assure a sustainable future and protect the interests of different actors in the agricultural, horticultural and livestock supply chains. In some political jurisdictions, such as the EU, elaborate laws to assure global supply chain compliance with ESG requirements have been enacted to guide producers and manufacturers in supply chain due diligence measures, with the aim of protecting consumers, stakeholders and society at large.[9] However, the appropriately named EU Corporate Sustainability and Due Diligence Directive (CSSDD) has encountered enormous resistance from business and political groups due to its far-reaching requirements on supply chain monitoring and compliance requirements.

Total quality management in agricultural supply chains

The end product of the agricultural supply chain is in most cases food for human consumption. Maintaining the quality of food products is crucial not only because of the price the item would fetch in the market but more so to protect the consumer from food poisoning and possible death.

Different food products are specified by different quality attributes which calls for an agricultural or food specialist to effectively manage their supply chains. Coupled with the perishability of many food items and seasonality of food production, the effective management of a long food supply chain can be very challenging (Figure 7).

Figure 7 Use of drones in precision agriculture. Technology is increasingly being applied for achieving crop protection and reducing agricultural inputs. Source; Toll Unscrewed Systems, 2025.

Quality assurance is a proactive quality management system where customer focus and quality consciousness is embedded in the organization, and getting the quality right first time and always is the credo for the enterprise. The concept of total quality management (TQM) has been popularized in many organizations as a means of making quality the top priority in any enterprise.

Obtaining the products of the right quality at the right time and price is one of the overarching objectives of a purchaser. That is to say the purchaser (customer) will always define his quality standards or requirements. It is in this sense that consumers or buyers often come together to define the quality requirements of a particular product in a given sector.

The use of global quality standards and certification schemes to assure quality from the source of agricultural, horticultural or livestock products has now been in existence for decades. The certification by an International Standards Organization (ISO) representative or other reputable standards organization is normally seen as a pre-requisite for a supply business in the international markets. There are several international organizations that offer certification and audit services to producers in the upstream value chain so as to enable them to attain ISO standards and penetrate the quality conscious export markets. And even in the local markets, the importance of good quality products cannot be gainsaid (Figure 8).

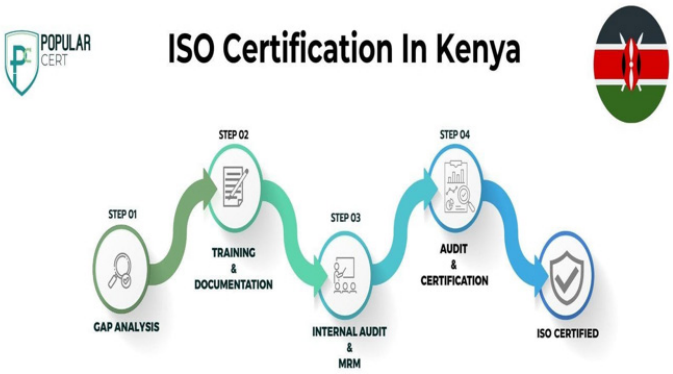

Figure 8 Steps to be followed for certification in Kenya. Source; Popular Cert website, 2025.

The application of the global quality standards and certifications scheme constitute the implementation of broadly agreed ESG guidelines. The certificates of conformity to an agreed standards are often issued by an independent certification body or a national standards body, thereby giving assurance to the buyer that the quality of a product has been independently verified.

However, buyers might also work with suppliers through approaches such as supplier appraisal, supplier rating, supplier development, partnership relationship management, performance management and pre-qualification of bidders, to try and ensure that they get the best quality from the supplier. A credible and independent certification scheme would make most of these measures unnecessary and help reduce the cost of purchase. Where suppliers are selected by an open tendering or bidding process, it is still important to incorporate the ESG requirements in the tender evaluation criteria.

Objectives

Where the upstream supply chain has many actors (several tiers) it becomes very difficult to apply the full ambit of ESG guidelines or quality assurance measures in practice. This could be one of the reasons why the European Union's Supply Chain Directive of 2024 has encountered strong headwinds. And this is why it is vital to try and understand the challenges that might impede the implementation and domestication of ESG guidelines, especially in organizations which

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source from the developing world. This article thus seeks to identify the challenges to the implementation of the ESG guidelines in the agricultural, horticultural and livestock value chains and to suggest ways on which the situation can be ameliorated.

Methodology

This review cum opinion piece emanates from the problems identified in the introductory section above, namely, the resistance and low level of compliance to ESG safeguards in agricultural, horticultural supply chains. The hypothesis of this study is that long and complex supply chains need a gradual and nuanced implementation of the ESG compliance guidelines. And understanding of the challenges in the supply chains from literature review, critical thinking and expert opinion is then adopted to provide pragmatic solutions to the problem.

Literature review, critical thinking and expert opinion of the current situation of the upstream and downstream activities of agricultural, horticultural and livestock supply chains in Kenya, and the constraints they encounter in trying to penetrate the international fruits, vegetables and flower markets has been adopted. Literature review in this case entails summary, synthesis and evaluation of important information relating to theme of sustainable agricultural supply chains and the challenges therein.

To summarize implies to recap some of the important information on the published material. In synthesis, the information from the various sources was re-interpreted to align them with the current thinking and best practices in supply chain management and ESG principles. Evaluation of the literature was undertaken by considering alternative viewpoints and assessing the veracity through a professional lens, logic and worth of each position.

Discussions with sustainable supply chain actors in Kenya as well as some research work done by undergraduate and post-graduate students were also incorporated in coming up with this article. Although this work does not encompass empirical data collection and analysis, the challenges to compliance that have been identified here provide a good foundation on which further empirical research can be formulated. Thus, the results present normative statements that need to be tested through primary qualitative and quantitative research.

Results

Considering the scope and requirements of environmental, social-economic and governance due diligence issues in agricultural, horticultural and livestock value chains that have been highlighted in the introduction section above, a number of challenges can be identified from an expert viewpoint. These include;

Breadth of ESG requirements

The breadth of ESG requirements is quite broad and compliance with every single item can be a gigantic task for an enterprise. Whereas large corporates might have the human, financial and technical resources necessary to achieve compliance, it might not be easy for small scale farmers or medium and small-scale enterprises to achieve full compliance. For instance, the ESG standards promoted by the International Finance Corporation (IFC) cover eight major topics including even up to the rights of indigenous people, land rights and settlements and cultural heritages.[10] Whereas not all the issues canvassed in this guideline might be applicable to every enterprise, project or operation, it is important to note that almost sixty percent of ESG issues normally affect every enterprise.

Costs incurred

The costs incurred in trying to achieve compliance with the ESG guidelines can be a deterrent in pursuing the noble objectives. Apart from the costs of inspection, certification and auditing of the supply chain processes, there is the added cost of training and continuous updating of skills in the ever-changing business environment.[11] In the case of environmental issues, the cost of retrofitting the value chain with renewable energy technologies might be too costly in the short term and thus cause delays in compliance. And many suppliers in the upstream of the value chains are normally small-scale enterprises which might find it difficult to marshal the financial and technical resources to enable full ESG compliance.

Lack of awareness

In a study of sustainable construction practices in Kenya, Simwero et al.[12] identified lack of awareness as one of the main barriers to adoptions of sustainable construction concepts in Kenya. This observation can also apply to agricultural supply chains when issues of energy and water consumption are considered as core elements of sustainability in agricultural or horticultural buildings. With regard to environmental compliance requirements, lack of awareness is still rampant especially among small to medium scale producers.

Variety of standards

Although there have been efforts to develop generic and global standards for some ESG parameters, it is not feasible nor very advisable to do such a thing, especially when we consider the environmental aspects of ESG. In agricultural, horticultural and livestock production systems, the local climate plays a significant role in deciding on an appropriate production system, which results in differences in inputs and therefore different standards.

A standard that requires all small-holder horticultural farms to run on solar powered water pumps for irrigation, might not be easily adopted for regions with only a few hours of sunshine in a day for most part of the year. And consumers themselves might prefer different standards, depending on their own perceptions and ability to pay for highly priced quality products. So, whereas it is desirable to have standards of wide application, the realities of the production environment and the preferences of the dominant consumer groups must be considered.

Lack of technical expertise

For the environmental aspects of the ESG, lack of technical expertise can be a serious deterrent to achieving compliance. For instance, a good number of farmers have no idea of what carbon footprints or carbon accounting means. Even amongst the highly educated agricultural extension staff, some of the technical jargon used in the environmental sustainability dialogues is still confusing and unclear.

Some of the claims of modern science are also disputed. For instance, there are still so many scientists and even political leaders who are still doubtful about global warming and even the harmful effects of methane from livestock production. When key stakeholders fail to have intellectual convergence on some of these issues, implementation and domestication can be frustrated.

It is also important to note that the ESG agenda in many corporations is being implemented by graduates from business schools and little involvement of scientist and engineers. Ideally the champion of the

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ESG agenda in any forward-looking corporation today should be a multi-skilled person with a good science/engineering background and a fair dose of business skills.

Dynamic environment

Research and innovations in the agricultural, horticultural and livestock value chains have led to the discovery of new plant varieties and hybrid livestock which often require different growth conditions and husbandry. Thus, some standard approaches in the production environment might need to consider the differences between breeds. A case in point could be the development of salt-tolerant crop species which do much better in highly salty soils. The guidelines for fertilizer usage in such a case might be different to that used for normal breeds.

Long supply chain tiers

Some enterprises make products which indeed have a long supply chain, not only in terms of distance between the supplier and buyer, but rather in terms of the intermediaries. It is possible that a product might be made of components from only ten suppliers, but these first-tier suppliers have to rely on twenty second tier suppliers who in turn rely on thirty third tier supplies. So, cascading the ESG compliance requirements to the last tier of suppliers can entail enormous work and significant supplier appraisal costs. This is one of the strong reasons why the enforcement of elaborate supply chain management directives such as the EU-CSSDD might be problematic.

Lack of enough data

Compliance to ESG requirements requires the measurement of objectively-verifiable indicators or incidences recording. That is to say, apart from the initial issuance of the certificates of compliance, there has to be regular and continuing audit of the value chain processes to ensure that the performance indicators are being observed. Only a few large organizations can commit to a schedule of regular quality audits by authorized certification bodies, due to the costs to be incurred. So, there is lack of reliable data to make prudent supplier performance decisions in most cases.

Lack of political will

Finally, it must be mentioned here that there has to be political will to entrench the ESG safeguards into national or local legislation and provide support in monitoring and evaluation of the ESG system. This is true for all the three dimensions of the ESG requirements. Many countries have beautiful legislation on paper but the actual implementation of the key provisions of the law is lacklustre and erratic. Buying organizations, especially in the public sector, should then be compelled by law to include ESG criteria in their supplier pre-qualifications or bid evaluation.

Personal etiquette

It should be pointed out that personal etiquette of individuals in a society might also affect their behavior as business leaders and their sense of responsibility for the environment. For instance, in a country where people throw away pieces of solid waste anywhere, even along the streets and highways, it is very difficult to enforce a culture of cleanliness and proper waste disposal. Therefore, it would be necessary to emphasize proper personal etiquette issues when thinking of a clean environment. Apart from the family, people in political leadership need to be at the forefront of promoting proper personal etiquette in society

Conclusions

From the literature review on ESG requirements and the critical analysis on the challenges that have hampered the attainment of the noble objectives of the compliance efforts, it is sound to conclude that in many countries, the ESG guidelines are still far from being achieved. The attainment of the ESG guidelines should be a gradual process in which training and research should provide the technical inputs into the system.

There is serious need for creating more awareness about the ESG compliance requirements and robust engagement between the standardization authorities in every country with producers and consumers. Ambitious ESG targets, however, should be moderated with the level of technology and the economic condition in every country.

In the agricultural, horticultural and livestock value chains, the adoption of universal ESG guidelines is not possible due to different climatic conditions, crop and animal varieties and consumer preferences. Therefore, a nuanced approach should be adopted, guided largely by the agro-ecological conditions in a given country.

Due to the costs and amount of work involved, I would suggest that, that ESG compliance audit should be limited to the first two tiers of the supply chains for medium to large organizations, whereas for small organizations, it should not go beyond the first-tier supplier. However, in both cases, there should be continuous sensitization to other upstream actors on the importance and significance of the ESG and SDG goals. Each industrial or commercial buyer should pursue a deliberate supplier development programme in which the ESG issues count as a core topic, in additional to the product's technical quality issues.

Recommendations

This article is based on literature review and critical analysis of the challenges to implementation and domestication of international ESG guidelines from a multi-skilled perspective. It would be very interesting for a serious post-graduate student to pursue this topic in the spirit and framework of North-South collaboration so that we can have a clearer picture on this important sustainable development and international trade theme.

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Conflicts of interest

The author declares that there is no conflicts of interest.

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