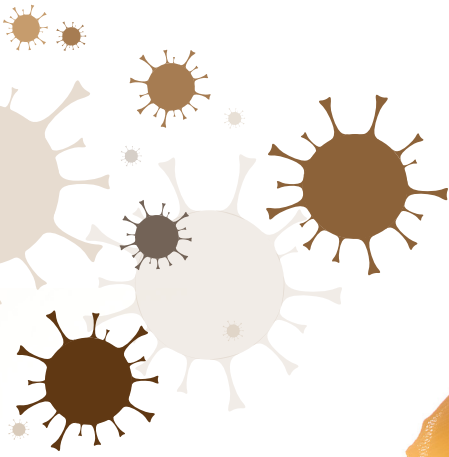




Maximizing sustainable agri-food supply chain opportunities to redress **COVID-19** in developing countries



2020, United Nations Conference on Trade and Development

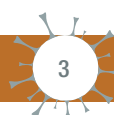
The findings, interpretations and conclusions expressed herein are those of the authors and do not necessarily reflect the views of the United Nations or its officials or Member States.

The designations employed and the presentation of material on any map in this work do not imply the expression of any opinion whatsoever on the part of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

This document has not been formally edited.

CONTENTS

Acknowledgements	4
Introduction	5
1. Long-standing causes of concern for developing countries in agri-food supply chains.....	7
2. Aggravated impact of COVID-19 on agri-food supply chains	10
3. Shifting to sustainable agri-food supply chains.....	13
1. Social dimension: Strengthening social protection systems	13
2. Environmental dimension: Addressing food losses and protecting natural resources	13
3. Economic dimension: Fostering inclusive economic growth.....	14
4. Recommendations	14
1. Aligning national goals to the SDGs: Leveraging sustainability standards as a common trade tool	14
2. Linking social protection in agricultural settings in order to support farmers	15
3. Harmonize global coordination along supply chains	16
4. Enhance market competitiveness in agri-food supply chains.....	16
5. Develop local sustainability capacity building programmes.....	16
References.....	17



ACKNOWLEDGEMENTS

This paper has been prepared by Siti Rubiah Lambert, Niematallah E. A Elamin and Santiago Fernandez de Cordoba, Trade Analysis Branch, Division on International Trade and Commodities, UNCTAD.

This paper is a contribution to the UNCTAD COVID-19 Response. It has benefitted from comments from Ralf Peters and Graham Mott. Jenifer Tacardon-Mercado provided desktop publishing support.



INTRODUCTION

The novel COVID-19 pandemic has been detrimental not just as a health crisis but also an economic and a humanitarian crisis. The nationwide lockdowns due to the spread of COVID-19 has forced developed and developing countries to halt their economies. With respect to its impact on the global food system, which also considers the pre-and post-production of food as well as its distribution and consumption interrelationship with political, social and environmental dimensions, this economic slowdown has greatly affected the progress towards achieving the 2030 Sustainable Development Goals (SDGs).

The pandemic's confinement measures and logistical disruptions limit the mobility of workers to perform their duties to operate food production. Workers are not able to farm and harvest their produce, and movements of produce along the supply chain are delayed. This affects sustainable development on many fronts; i) income instability for farmers, ii) with lower income, their access to nutrition is reduced which risks their food insecurity, iii) farm owners' access to farm inputs are limited which affects their production, iv) supply chain delays also risks food wastes, v) food waste affects the environment as the inputs used to produce and harvest have essentially gone to waste and rotten food itself produces methane, a greenhouse gas more potent than carbon dioxide, and vi) greenhouse gases generally affect human health.

From an economic standpoint, a recent UNCTAD report remarked on the vulnerability of developing countries facing exacerbated food crises through both supply-side and demand-side channels. The report suggested that the restrictions on movement due to the pandemic have slowed down economic activity, potentially affecting food production and reducing food supply (UNCTAD, 2020b).

The impacts caused by COVID-19 on agri-food supply chains and the food system in its entirety demonstrate precisely the dire need to advance the 2030 Sustainable Development Goals (SDGs). Recovery strategies must therefore be targeted to pursue goals that also reflects the quality of life, especially of the vulnerable stakeholders involved in agri-food supply chains, beyond public healthcare. This is in line with the United Nations push to incorporate the SDGs in the COVID-19 economic recovery strategy.¹ This crisis has in

¹ United Nations SDGs Framework for COVID-19 Recovery mentions: "Leveraging this moment of crisis, when usual policies and social norms have been disrupted, bold steps can steer the world back on track towards the SDGs. This is the time for change, for a profound systematic shift to a more sustainable economy, that works for both people and the planet ... The SDGs are vital for a recovery that leads to greener, more inclusive economies, stronger, and more resilient societies." <https://www.un.org/sustainabledevelopment/sdgs-framework-for-covid-19-recovery/>

fact re-enforced the interdependence of the world, where the response to the pandemic cannot be de-linked from the SDGs and requires a stronger collective multi-stakeholder approach to achieve the common global goal.

This paper elucidates the long-standing causes of concern caused by agri-food supply chains and how these have been aggravated by COVID-19. Based on these concerns, this paper also presents several recommendations on post-COVID-19 provisions for sustainable agri-food supply chains, paying particular attention on the use of sustainability standards as a tool to foster transparency and traceability along the supply chain. The issues raised here are especially important to developing countries, as almost one-third of the world's exports in agri-food products come from developing countries.² The economies of many developing countries are based on the exploitation of agriculture and agro-based manufacturing and are therefore vital to their economic development.

This paper is positioned to focus on better and more sustainable ways to operate, produce, trade and handle food throughout the entire supply chain – that do not harm those who produce them and do not contribute to the negative impact on the environment.

Voluntary Sustainability Standards (VSS)³ are widely used today to govern environmental, social and ethical issues in global supply chains. Today, there are over 270⁴ VSS available in the market. Agriculture is the sector most covered by VSS and today many food industries are putting certification schemes at the centre of their sustainability approaches.

In that regard, this paper firstly highlights the long-standing causes of concern in agri-food supply chains, followed by its aggravated impact due to COVID-19 in chapter 2. The proceeding chapter 3 illustrates the opportunities of turning to sustainable development to redress COVID-19 in developing countries.

These opportunities are supported with clear recommendations in chapter 4 in order to facilitate sustainable agri-food supply chain in developing countries.

² Own calculations based on UNCOMTRADE data source.

³ The United Nations Forum on Sustainability Standards (UNFSS), describes VSS as “specifying requirements that producers, traders, manufacturers, retailers or service providers may be asked to meet, relating to a wide range of sustainability metrics, including respect for basic human rights, worker health and safety, the environmental impacts of production, community relations, land use planning and others”. Therefore, VSS are expected to enhance the export potentials from developing countries to developed ones, and at the same contribute to sustainable development by safeguarding public health and safety and ensure consumer, environment, and social protection.

⁴ The number of VSS in the Standards Map database is constantly increasing. See www.standardsmap.org for the most up-to-date information

1. LONG-STANDING CAUSES OF CONCERN FOR DEVELOPING COUNTRIES IN AGRI-FOOD SUPPLY CHAINS

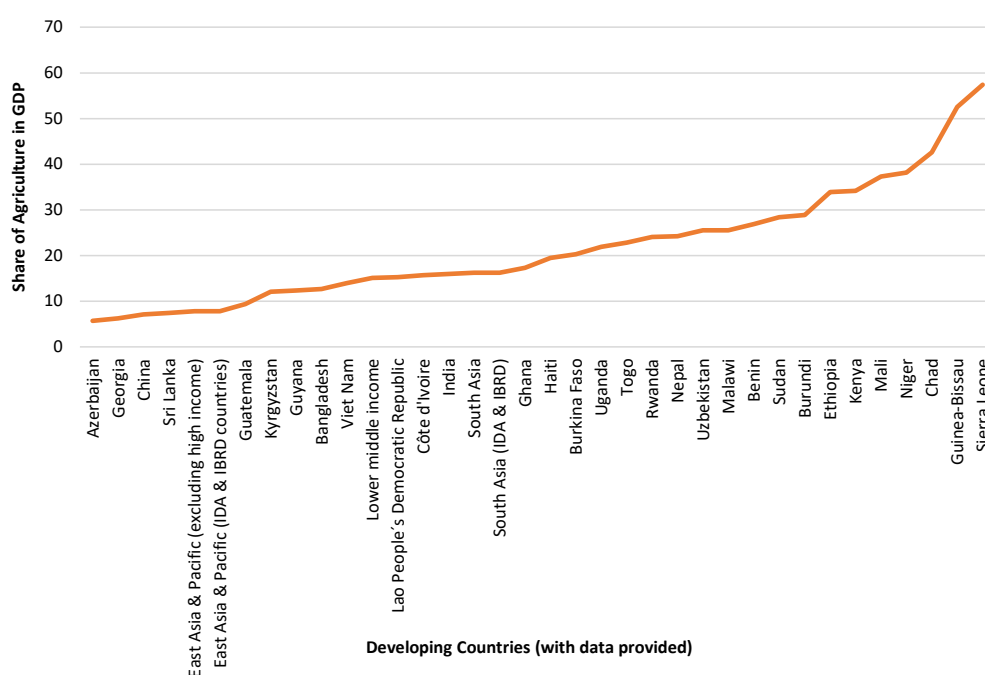
Agri-food global supply chains witnessed rapid and profound changes in the last decades, including a strong increase in agri-food trade and a consolidation of supply chains (Dequiedt, 2018). These changes have had a huge impact on smallholder farmers: positive if they are able to participate in the global value chain and exploit the opportunities it offers in terms of access to new markets for inputs and/or products; and negative if they are excluded from global value chains because they are unable to meet the requirements for entry. Reaching those markets is often not direct and necessitates intermediaries that may act as gatekeepers of the global value chain.

The diversification, differentiation and improvement of agriculture in developing countries is critical for the growth of the poorest countries and for poverty eradication. Increasing production and export of agricultural products can be an effective way of reducing rural poverty in developing countries. The case for promoting agricultural exports is therefore strong.

There are however some obstacles in the agriculture sector exports from developing countries, such as the high sensitivity to the quality of transport and trade-related infrastructure. A 10% improvement in transport and trade-related infrastructure quality has the potential of increasing developing countries agricultural exports by 30% (Moïse, E. et al., 2013). This also means that shocks impacting the quality of transport and trade-related infrastructure will affect the sector massively.

The economies of many developing countries are based on the exploitation of agriculture that are correspondingly important in relation to their economic development. Figure 1 shows the share of agriculture in GDP in 2019 where most African countries topped the charts – Sierra Leone (57.4%), Guinea-Bissau (52.5%), Chad (42.5%), Niger (38.2%), Mali (37.3%), Kenya (34.1%), Ethiopia (34%), Burundi (29%), Sudan (28.4%), Benin (27%) and Malawi (25.5%). Uzbekistan's share of agriculture in GDP also points slightly over 25%.

Figure 1.
Share of agriculture in GDP in 2019

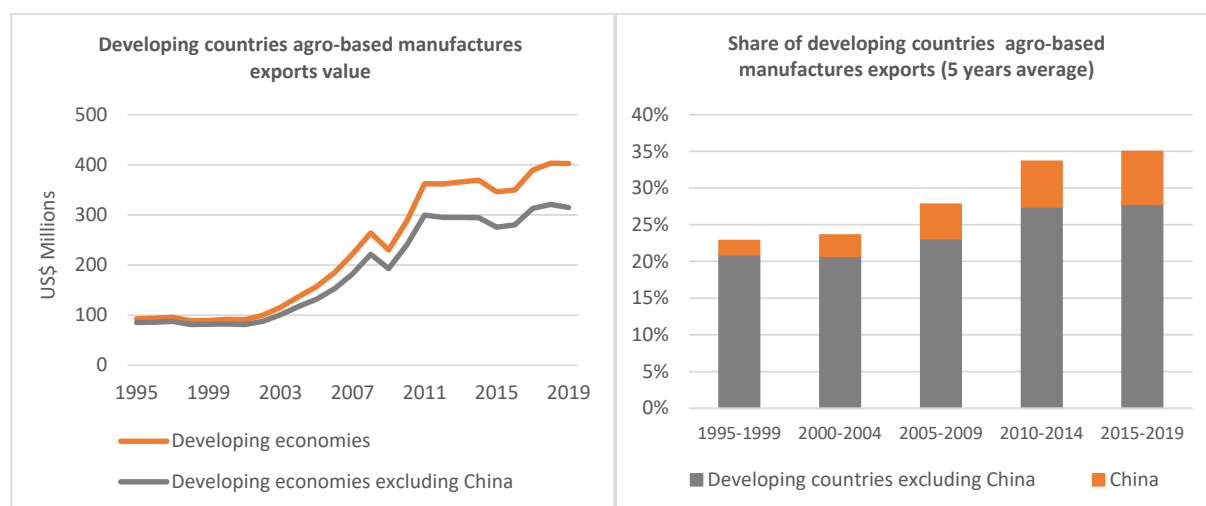


Source: World Bank data.

Figure 2 shows the integration of developing countries in the agro-based manufacture value chain. In 2019, the value of their exports was about 28% of the world's exports, excluding China; China alone accounted for around 7% of the world's export. In value terms, in 2019, developing countries agro-based manufacture exports was approximately 310 United States dollars.

Figure 2.

Developing countries agro-based manufactures exports



Source: Author calculations using data from UNCTAD Statistics.

Agro-based manufacturing contributes to the economic strength of an area by increasing the value of the raw materials, either by extending the product life or by converting them into more desirable commodities. In this way, they stabilize the economy by rendering the primary products of the country into more marketable forms. Such products can be sold more steadily, consistently, and reliably over a period, whereas the primary products of agriculture may normally sustain only a limited storage period and are generally seasonal in nature (FAO, 2000).

Hence, traditional exports of raw agricultural products from one country to another have been complemented by the intense integration of global food supply chains. Agriculture and agro-based manufacturing are thus considered as engines for development, allowing for additional and consequential development of other industries that lead, in turn, to overall growth of the community and the country.

Despite playing an important role in national economies and providing a link with the global structures of agriculture and trade, many agricultural workers (including subsistence smallholder farmers) engaged in the sector in developing countries are characterized by precarious working conditions and little or no social protection (ILO, 1996). Nonetheless, the agriculture sector will continue to be a major employer in low income countries – a decrease in the share of the workforce employed in Sub-Saharan Africa agriculture, is still accompanied by an increase in agricultural employment in absolute terms, as the population continues to grow quickly and cultivated land expands. Given the high population growth, the agricultural workforce is projected to continue swelling in the foreseeable future before it starts to decline (Christiaensen and Brooks, 2019).

However, the wage elasticity in agricultural sectors in developing countries is a source of concern. Even if millions of workers are active in agricultural production worldwide, their wages often place them on the bottom rung of the rural poverty ladder and even below subsistence level. Work in agriculture tends to be seasonal, with labour productivity often low and unpredictable. As countries start to realise that agricultural earnings are generally low, which also contributes to low productivity, their workforces shift out of agriculture into more stable and higher-paying jobs. This pattern of structural transformation is evident historically in high-income countries but is also unfolding in low-income countries (Christiaensen, L. et. al., 2020).

Moreover, when producers lose income, there is a greater risk of child labour, forced labour and other human rights abuses in global supply chains. This also means that deforestation could be aggravated as farmers seek more fertile land to increase earnings.⁵ All these shortcomings are not attractive for a younger generation who are more likely to give up farming altogether. This puts into doubt the long-term viability of supply chains in the agricultural sector.

With regards to the access to food, the United Nations World Food Programme's latest data shows that the food insecurity of 135 million people was categorized as crisis level or worse.⁶ The number of people who are acutely food or nutrition insecure will rapidly expand as a result of increased poverty due to the severe long term impact of COVID-19.⁷ This is especially important to take note given that the discussion of this paper predominantly relates to agri-food supply chain. The global food system is off-balance: one side of the globe with 800 million people who are suffering from chronic hunger⁸ and on the other side, 2.8 million people dying each year as a result of obesity.⁹ Despite being the food producers themselves, smallholder producers in rural areas of developing countries are disproportionately at risk of food insecurity due to low incomes.¹⁰

Food systems, in general, have also been affecting the planet with significant contributions to the climate crisis. Food systems, which also considers the side effects beyond just the food production factors, have been calculated to contribute up to 29% of all greenhouse gas emission; livestock contributes 14.5% of all anthropogenic greenhouse gas emissions, of which 44% is in the form of methane (United Nations, 2020). Food systems activities tend to undermine biodiversity, contributing to the mass extinction of species, ecocide, soil loss, land degradation, air pollution, greenhouse gas emissions etc. The effect of food systems are different between developed and developing countries for example, the priority for food systems action in a developing country might be tackling post-harvest losses and use of pesticides, whereas in a developed country, it might be land degradation caused by continuous monocropping, or food waste.

External factors affecting the food system will also require systematic changes within the agri-food supply chains. Food system activities largely include production methods, processing, market access, consumption patterns and handling food wastes, thereby affecting the workers and other stakeholders operating in the agri-food supply chains. Therefore, the precision of the agri-food supply chain should be studied relative to the food system as a whole, rather than independently.

However, identifying ways to change and improve the entire food system may pose innumerable challenges, as food systems are more complex- politically, ecologically and socially. As an entry point for change, thriving in sustainability in agri-food supply chain will help to improve the production side of the food system.

⁵ <https://www.weforum.org/agenda/2020/06/sustainable-supply-chains-covid-19-era/>

⁶ Read the full article on COVID-19 will double number of people facing food crises unless swift action is taken <https://www.wfp.org/news/covid-19-will-double-number-people-facing-food-crises-unless-swift-action-taken>

⁷ [https://news.un.org/en/story/2020/12/1079152#:~:text=An%20additional%207%20million%20people,Programme%20\(UNDP\)%20has%20found.](https://news.un.org/en/story/2020/12/1079152#:~:text=An%20additional%207%20million%20people,Programme%20(UNDP)%20has%20found.)

⁸ <https://news.un.org/en/story/2019/07/1042411>

⁹ <https://www.who.int/news-room/facts-in-pictures/detail/6-facts-on-obesity>

¹⁰ <http://www.fao.org/news/story/en/item/1268059/icode/>



2. AGGRAVATED IMPACT OF COVID-19 ON AGRI-FOOD SUPPLY CHAINS

The traditional view of international trade that each country produces and offers services that are exported as final products to consumers abroad have shifted to a more agile operation known as global value chains (GVCs). GVCs became a dominant feature of world trade over the past decades in part due to technological innovations allowing firms to split production processes across countries. Even more than before, trade is determined by strategic decisions of firms to outsource, invest, and carry out activities wherever necessary skills and material are available at competitive cost and quality.

Due to COVID-19's health precautions, many companies stopped operating in order to prevent the spread of the virus and to abide the social distancing rules. This greatly affected the operation line throughout the entire supply chain. Limits on mobility of people have reduced the availability of seasonal workers for planting and harvesting in the food supply chain sectors in many countries (OECD, 2020).

Bottlenecks in transport and logistics have disrupted the movement of products along supply chains. Extra checks (e.g. requirements of new and/or additional certificates) at borders translate to delays that are detrimental to perishable goods. Some countries quarantine trucks and/or drivers, thereby significantly reducing ground fleets (OECD, 2020). Quarantines also apply to ships, which need to stay longer in port as a result, leading to increased risks of produce damage and longer delays reaching markets.

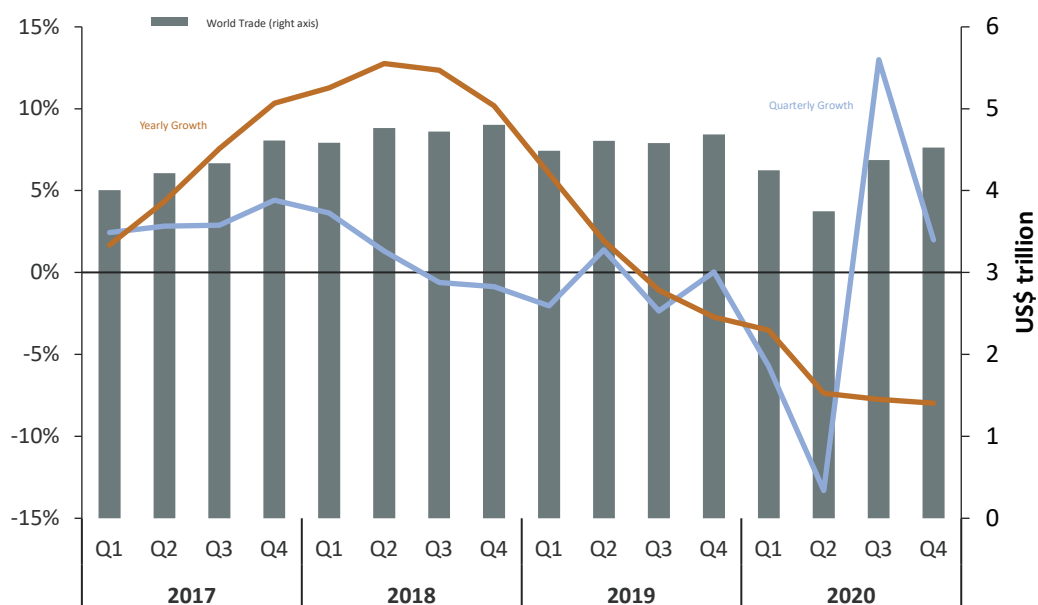
Trade contraction from COVID-19 has been deeper than the 2008 financial crisis. UNCTAD's latest Global Trade Update (released in October 2020) indicated that the value of international trade in goods has declined by about 19% in the second quarter of 2020. Preliminary data for Q3 suggest that global trade growth has remained negative with a further decline of about 4.5% on a year-over-year basis (see Figure 3 – UNCTAD, 2020a).

The World Trade Organization (WTO) expects world trade to fall by 13 to 32% in 2020,¹¹ while UNCTAD predicts around 20% for the same year.

¹¹ Data retrieved from the trade forecast press conference: remarks by DGA Azevedo. https://www.wto.org/english/news_e/pres20_e/pr855_e.htm

Figure 3.

A step down in Global trade in goods



Source: UNCTAD: Global Trade Update (2020).

As pandemic measures continue to deteriorate economies around the globe, many governments have also implemented export restrictions that aim at isolating domestic food markets from global market developments. Food export controls by major exporters, such as outright export bans and other measures including export taxes, could exacerbate the supply shock already engendered by restrictions and lockdown measures (UNCTAD, 2020b).

In the same vein, governments are also pressured to implement protectionist policies and measures on import restrictions, which includes tariffs, quotas and various forms of subsidies, as a way of saving domestic jobs and enterprises. These restrictions are known to introduce economic distortions and reducing the income of countries and the welfare of citizens. More importantly, the COVID-19 pandemic has placed unprecedented stresses on agri-food chains, with bottlenecks in farm labour, processing, transport and logistics, as well as momentous shifts in demand.

Logistical challenges within supply chains, particularly cross-border and domestic restrictions of movement, as well as labour issues, have resulted in many job losses. High-value commodities, especially perishables such as fresh fruit and vegetables, meat, fish, milk and flowers, are likely to be particularly affected, resulting to massive food waste as production surpluses decay. Food decay releases methane which aggravates the greenhouse gas to further environmental hazard.¹²

Moreover, confinement and the consequent delays of movement of goods are harming developing countries that depend mostly on agriculture. Due to the lack of staff, the interruption of fertilizer production by some suppliers puts in serious difficulty to the manufacturers of raw CO₂ (fertilizers). Other inputs, such as seeds and pesticides, are also affecting farm production. Smallholder farmers in developing countries are particularly affected, as closures of village-based agro-dealers added to the inability to access affordable inputs for farm production (OECD, 2020).

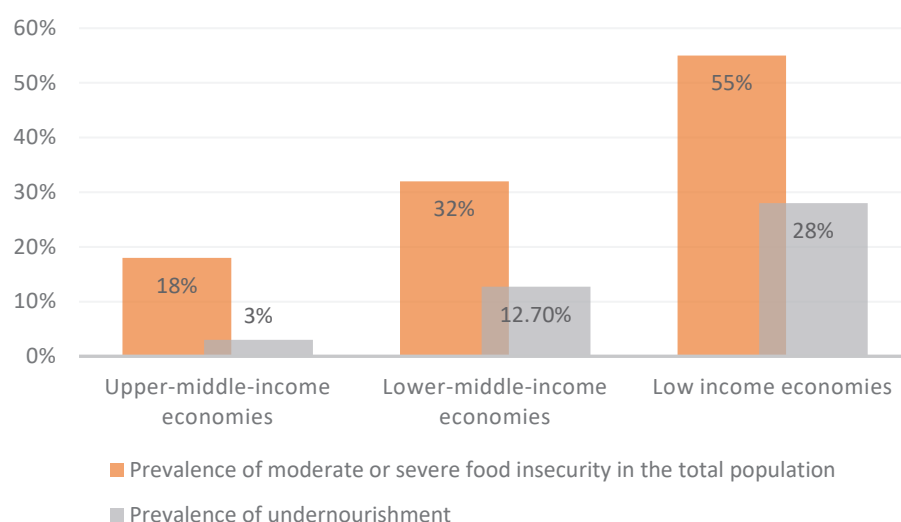
Prior to the onset of this pandemic, more than 820 million people were already identified as chronically food insecure (United Nations, 2020). Data gathered from FAOstats as illustrated in Figure 4 shows that low

¹² To learn more about methane on the rise, visit <https://www.epa.gov/lmop/basic-information-about-landfill-gas>

income countries were already facing high prevalence of undernourishment – 28%. Additionally, 55% of the population faced severe or moderate food insecurity.

Figure 4.

Prevalence of severe, moderate food insecurity and undernourishment in the total population (Percentage, 2017-2019 average)



Source: Author calculations using data from FAOstats.

Furthermore, many low-income developing countries are also dependent on imports for their food consumption. These countries spend 37% of the value of their merchandise exports on food imports. For example, in the Caribbean Community (CARICOM), 11 countries import more than 50% of their food needs and food security could become even more challenging if stock of hard currency is depleted, depending on the duration of the pandemic. The challenges posed by the pandemic have thus once again highlighted the relevance of the long-term debate about food security in developing countries (UNCTAD, 2020b).

More than 2 billion small producers, farm labourers, rural workers, and their families, who represent a large proportion of the moderately and severely food insecure are affected by this economic shock (United Nations, 2020a).

COVID-19 may also heighten the risk of child labour in agri-food supply chains. A recent report by the International Cocoa Initiative compared more than 50 studies looking at how changes in income impact child labour.¹³ It stated that when household incomes unexpectedly decrease, child labour tends to increase. However, the interplay of income and child labour is complex, and there are numerous other factors to be considered, such as market failures, net returns to schooling, local labour market conditions, and family and cultural context, when trying to enhance farmer incomes in order to address child labour.

¹³ https://cocoainitiative.org/wp-content/uploads/2020/04/ICI_Lit_Review_Income_ChildLabour_15Apr2020.pdf

3. SHIFTING TO SUSTAINABLE AGRI-FOOD SUPPLY CHAINS

The argument made to foster sustainable agri-food supply chain in this paper has a wider economic intention. Developing countries can maximise sustainability as an opportunity to enhance their trade and development approaches in order to be equitably integrated into the world economy. Thus, a strategic production component leading towards sustainable trade practices is essential – one that acknowledges implementation policies for sustainability at local or national level are not sufficient if transboundary pollution, global resource depletion, erosion of environmental standards are not addressed. While trade can be a major transmitter of economic disruptions across the globe, it also plays a key role in fostering economic recovery from the current COVID-19 crisis (UNCTAD, 2020b). International trade opens bilateral and multilateral coordination, which can signal the meaningful concept of sustainability as a global effort.

From an agricultural, trade and policy setting perspective, this paper identifies three key areas that can ameliorate the situation of agri-food supply chains in developing countries.

1. SOCIAL DIMENSION: STRENGTHENING SOCIAL PROTECTION SYSTEMS

From the outset, agricultural interventions and social protection interventions are needed for combatting hunger and poverty among poor smallholder farmers. Social protection policies generally aim to reduce socio-economic risks, vulnerability, extreme poverty and deprivation, which helps smallholder farmers focus on improving productivity in crops, fisheries, forestry and livestock and improving access to markets.

Social protection can serve as powerful instruments to strengthen people's access to food, nutrition, and essential services, particularly for vulnerable groups in both urban and rural settings. Social protection programmes can protect food access by increasing purchasing power for those in need.

By linking social protection in agricultural settings, agri-food supply chains can build resilience and sustainable rural livelihoods. Climate and economic shocks can affect farmers and their production, while increased food price volatility impact both producers and consumers who don't necessarily have the means to cope with them. Thus, resilience becomes central to the transition towards sustainable agriculture, and must be addressed in both natural and human dimensions.

2. ENVIRONMENTAL DIMENSION: ADDRESSING FOOD LOSSES AND PROTECTING NATURAL RESOURCES

One third of the food produced globally for human consumption is lost or wasted along the supply chain.¹⁴ Losses are even higher in Africa: between 30% and 50% (Deloitte, 2015), and have a negative effect on food security, nutrition, and economic stability. Quantitative losses constitute a physical reduction in the marketable volume and qualitative losses refer to deterioration of nutritional quality, safety or grade.

These losses occur mainly at the downstream end of the supply chain, between production and retail stages of the supply chain. Losses at the farm level can be attributed to poor harvest practices and poor handling.¹⁵ Generally, any loss of produce translates to lost production resources, mainly land, water, energy and inputs, which also constitutes loss of income for the various actors in the supply chain and food insecurity. Food losses are thus associated with environmental, social and economic implications.

By linking sustainability measures in this area, one can look at better storage infrastructure and a better disposal method that does not harm the environment, and most importantly better harvest practices and food handling – all of which requires public intervention and training guidance.

¹⁴ Evidence found in <http://www.fao.org/food-loss-and-food-waste/flw-data>

¹⁵ <https://theconversation.com/why-reducing-post-harvest-losses-is-a-priority-for-africa-87312>

Addressing this issue from a social perspective, a mechanism to distribute food to the poor before it turns into unnecessary wastage could also be considered as an aid policy in developing countries.

By curbing food losses, it reduces the production of methane, a greenhouse gas that is even more potent than carbon dioxide, which affects the environment and human health.

3. ECONOMIC DIMENSION: FOSTERING INCLUSIVE ECONOMIC GROWTH

Ensuring that producers and smallholder farmers have adequate access to, and control, productive resources can contribute significantly to reducing poverty and food insecurity in rural areas. Agriculture is the most labour intensive of all economic activities and it provides, directly and indirectly, a source of livelihoods for rural households. Yet, poverty is still excessively associated with agriculture thus, the need to turn to sustainability can substantially improve decent labour conditions.

There are also opportunities for smallholder producers to opt for sustainably certified products. However, the complexities and capital-consuming nature of standards and certification system will require governmental intervention. In sectors such as tea and coffee for example, strategies for adding value to such products involve certification (for example, organic produce) or closer links with traders and processors or retailers (for example, compliance to Fairtrade). The process of adding value requires that the identity and distinctiveness of the product be established at the point of origin and maintained as it moves along the value chain. Thus, an improved agri-food exporting calls for better facilitation for market access.

4. RECOMMENDATIONS

The importance of agri-food exports and primary commodities confirms that the agriculture sector is a key component of export growth strategies for developing countries. This sector covers a wide range of technical levels, employs many thousands of people and makes use of both simple and sophisticated processes. A typical food system considers several critical components – storage, pre- and post- distribution, packaging, transport, animal feeds, farm chemicals such as pesticides and fertilizers, all of which are essential to maintain the flow of the agri-food supply chain. Therefore, any lack will disrupt the production and distribution of the food supply.

The main motivation for the current paper is to address the long-standing causes of concern deriving from agri-food supply chains that have become even more acute post-COVID-19. This analysis calls for an agenda that promotes firstly, sustainably produced food products and secondly, economically and mutually benefitting agreements to move goods across borders, especially for developing countries.

The economic shock of COVID-19 has considerably worsened the shortcomings of countries that are economically reliant on agriculture. As this paper has shown, a common characteristic evident in countries with economies most reliant on agriculture is poverty. Thus, more attention should be emphasized on how to facilitate sustainable agri-food supply chain:

1. ALIGNING NATIONAL GOALS TO THE SDGS: LEVERAGING SUSTAINABILITY STANDARDS AS A COMMON TRADE TOOL

Conventional production and trading practices can have impacts on sustainable development. At present, more than 150 countries have adopted national strategies on sustainable development (UNCTAD, 2020a). In the agri-food sector, food industries are putting certification schemes at the centre of sustainability approaches.

By establishing synergetic linkages between agri-food supply chains and the SDGs, this recommendation is predominantly targeted at the national level with the aim of contributing to SDG 8: Decent work and economic growth; SDG 12: Responsible Consumption and Production; and SDG17: Partnerships for

the goals. Extending from these primary targets, by complying to sustainability standards in agri-food supply chains, the recommendation can also address SDG 15: Life on Land.

As a result of COVID-19, there has been increased interest from retailers and buyers to obtain a better understanding of where their food product comes from (Borsellino, V. et. al., 2020). Certifications and quality standards in this case are important tools to achieve transparency and traceability of the product origins in international trade, especially considering its efficiency to detect any possible causes of diseases.

Sustainability standards are vital instrument for both developed and developing countries to show that the governance of agri-food sector is taking steps to address sustainability in supply chains and international trade. Mainstreaming sustainability standards can help create more resilient supply chains by emphasizing continuous improvements through its monitoring mechanism, transparency and accountability.

Therefore, certification schemes and more specifically, Voluntary Sustainability Standards (VSS) can be essential tools in making the agri-food global supply chains more sustainable. While VSS cover several sectors, agriculture and food products are more prominent in the use of VSS.

The number of VSS for agriculture is double that of other sectors and the number of certifications has also intensified, in terms of both the proportion of some certified commodities in their respective markets and the proportion of certified production areas.

A major factor that explains the widespread uptake of VSS is the existence of an increasingly large consumer market for certified products, on top of the use to mitigate reputational risks, a way to govern supply chains and industry sector pressure i.e. forestry. In relation to trade, VSS certification may expand demand (improve access to importing markets) and the shift towards greater sustainability may be associated with productivity improvements (UNFSS, 2018).

However, the burden of transforming agricultural production to be more sustainable cannot be the sole responsibility of the producers alone, in particular those operating in developing countries. Mainstreaming VSS can help to achieve many fronts aligned to the SDGs. However, in many instances, the financial and resource burden to meet the criteria defined in VSS may pose challenges for smallholder producers in developing countries, who may end up being marginalized from the export market.

Therefore, the need to establish a multi-stakeholder initiative can help institutionalize an infrastructure that facilitates sustainability standards and certification. This collective opportunity can foster, maintain and promote sustainable agri-food supply chains from both top-down and bottom up approach.

2. LINKING SOCIAL PROTECTION IN AGRICULTURAL SETTINGS IN ORDER TO SUPPORT FARMERS

In the effort to strengthen a nation's social protection system, providing investments to promote and diversify agricultural activities and survival activities to maintain a minimum subsistence level are vital for farmers in developing countries who are already challenged by the informal nature of their work. Farming is a seasonal activity which means that a season miss will affect their income for the entire year.

Hence, there is scope for governmental intervention in developing countries to ensure the continuous flow of farm inputs like seeds, fertilizers and chemicals, and ploughing service providers to ensure uninterrupted food productions. This intervention requires protection and support for the suppliers of farm inputs, as well as the farmers themselves.

Furthermore, there is also the need to buffer any effects on food prices. Where affordability is concerned, governments should also facilitate food distribution systems that ensures food availability for these farmers. This way, food waste can be minimized, and farmers are also guaranteed food security.

3. HARMONIZE GLOBAL COORDINATION ALONG SUPPLY CHAINS

Continuous transparency along supply chains will help minimize interruptions of the critical flow of supplies and materials, and improve overall response speed. Furthermore, transparency contributes to restoring trust and cooperation in the rule-based trading system. It reduces trade costs and can increase trade around 20 to 25% (UNCTAD, 2020b). Governments need to co-ordinate among each other and have a harmonized policy response to ensure that food supply chains continue to function effectively. This may include (not exclusive to):

- i. facilitating standard port sanitation procedures
- ii. better storage facilities and organized food handling instructions
- iii. agreements on an international protocol for transport workers which reduces delays, especially for fresh produce
- iv. allowing movement of essential goods (in reference to agri-food products) across borders

This recommendation will strengthen global cooperation where governments can improve and harmonize coordination mechanism as a measure to keep supply chain and movement of food flowing.

4. ENHANCE MARKET COMPETITIVENESS IN AGRI-FOOD SUPPLY CHAINS

Developing countries can look at improving market competitiveness by rethinking value-add global value chain strategies in the wake of this pandemic, such as:

- i) incentivize the uptake of sustainability standards in order to promote sustainable agri-food supplies to the global market
- ii) foster tighter and strategic collaboration with its stakeholders to build a collective and innovative infrastructure that would facilitate certification adoption
- iii) strengthen South-South knowledge exchanges as an opportunity to enhance their market presence in the global governance of sustainable development
- iv) develop an internationally agreed framework on sustainability standards in the context of trade agreements.

5. DEVELOP LOCAL SUSTAINABILITY CAPACITY BUILDING PROGRAMMES

In order to transform markets for producers and consumers to comply with and demand for sustainably produced food, capacity building and awareness programmes should be exercised. Therefore, greater levels of support to provide adequate information should be provided as a public good. Educational programmes can be used to better understand sustainable operations in the agricultural and agri-food manufacturing context. Public awareness must be raised in order for sustainable supply chains to be viewed as a strategic economic factor.

This can be achievable with an institutionalized multi-stakeholder structure in the public system with a mandate to promote sustainability programmes for agri-food supply chains. Thus, supply chain acts/policies that incorporate VSS into them can establish an institutionalized system that should also provide access to capacity building, information, systematic certification infrastructure, and adequate financial resources.

REFERENCES

- Borsellino, Valeria; Kaliji, Sina A.; Schimmenti, Emanuele (2020). "COVID-19 Drives Consumer Behaviour and Agro-Food Markets towards Healthier and More Sustainable Patterns." Sustainability 12, no. 20: 8366.
- Christiaensen, Luc, and Brooks, Karen (2019). "In Africa, More Not Fewer People Will Work in Agriculture" Consultative Group for International Agricultural Research (CGIAR) [blog] <https://pim.cgiar.org/2018/11/21/in-africa-more-not-fewer-people-will-work-in-agriculture>
- Christiaensen L, Rutledge Z, Taylor JE. Viewpoint: The future of work in agri-food. Food Policy. 2020 Oct;101963. DOI: 10.1016/j.foodpol.2020.101963. <https://europepmc.org/article/med/33071436>
- Deloitte (2015). "Reducing food loss along African Agricultural Value Chains". Deloitte Touche Tohmatsu Limited. United Kingdom. https://www2.deloitte.com/content/dam/Deloitte/za/Documents/consumer-business/ZA_FL1_ReducingFoodLossAlongAfricanAgriculturalValueChains.pdf
- Dequidt, Vianney (2018). "[Product quality in developing countries agrifood supply chains: a survey of theory](https://ferdi.fr/dl/df-r5s6cxeybQjy546NQfyLoL7t/papier-de-recherche-product-quality-in-developing-countries-agrifood-supply.pdf)" Universite Clermont Auvergne, France. <https://ferdi.fr/dl/df-r5s6cxeybQjy546NQfyLoL7t/papier-de-recherche-product-quality-in-developing-countries-agrifood-supply.pdf>
- FAO (2000). "Agro-industries, water resources and public health" Part 2. http://www.fao.org/tempref/GI/Reserved/FTP_FaoRne/morelinks/Publications/English/agro1/Chapter-2.pdf
- ILO (1996). "Wage workers in agriculture: Conditions of employment and work". Report for discussion at the Tripartite Meeting on Improving the Conditions of Employment and Work of Agricultural Wage Workers in the Context of Economic Restructuring. ISBN 92-2-110126-6. International Labour Office, Geneva, 1996.
- Moïsé, E. et al. (2013). "Estimating the Constraints to Agricultural Trade of Developing Countries", OECD Trade Policy Papers, No. 142, OECD Publishing. <http://dx.doi.org/10.1787/5k4c9kwfdx8r-en>
- OECD, (2020). "OECD Scheme for the Application of International Standards for Fruit and Vegetables" TAD/CA/ FVS/WD(2020)1/REV7. Committee for Agriculture <https://www.oecd.org/agriculture/fruit-vegetables/oecd-covid-19-impact-on-fruit-and-vegetables-trade.pdf>
- United Nations (2020). "Policy Brief: The impact of COVID-19 on Food Security and Nutrition". United Nations. https://www.un.org/sites/un2.un.org/files/sg_policy_brief_on_covid_impact_on_food_security.pdf
- UNCTAD (2020a). "Global Trade Update", https://unctad.org/en/PublicationsLibrary/ditcmisc2020d2_en.pdf
- UNCTAD (2020b). "Impact of the COVID-19 pandemic on trade and development: transitioning to a new normal" https://unctad.org/system/files/official-document/osg2020d1_en.pdf
- UNFSS (2018). "Voluntary Sustainability Standards, Trade and Sustainable Development". <https://unfss.org/wp-content/uploads/2018/09/UNFSS-3rd-Flagship-Report-FINAL-for-upload.pdf>



Photo credit: Cover © maxbelchenko, © K.Milkowski- Adobe Stock