



CHAPTER 5

Driving trade and markets for inclusive and sustainable food systems

Trade creates challenges as well as opportunities for food systems. Around the world, most food is still domestically produced. Yet recent decades have seen food markets become increasingly global. While trade can improve food access and affordability in less developed countries, these positive effects are not always self-evident or predominant. Open trade can constrain the potential for local food production by lowering prices and putting higher pressure on local farmers. A rise in food import dependency can expose consumers to external shocks in food availability and discourage the integration of domestic value chains.

Must these concerns mean that trade – the emergence of international competition and the evolution of global food and agriculture value chains – is an enemy to inclusive, efficient and sustainable food systems? No. Despite the legitimate concerns, the benefits of trade for food security remain substantial. In addition, international trade can balance regional differences in climate change impacts and biodiversity. Trade is thus a potential adaptation mechanism (Janssens et al., 2020). Yet international standards can be daunting for less developed countries seeking to expand their trade in agricultural commodities and food products.

This chapter develops four messages:

1. **Trade-offs between trade openness and food system resilience must be overcome.** While trade has been a huge force in increasing food availability around the world, it can also pose threats to food security by increasing indebtedness and making food supplies more vulnerable to shocks – always at the expense of poor producers and consumers. For countries with economies dominated by the agricultural sector, two important strategies to increase resilience to external shocks are to diversify food production and the composition of food trade and to integrate regional markets to develop comparative advantages in food production.

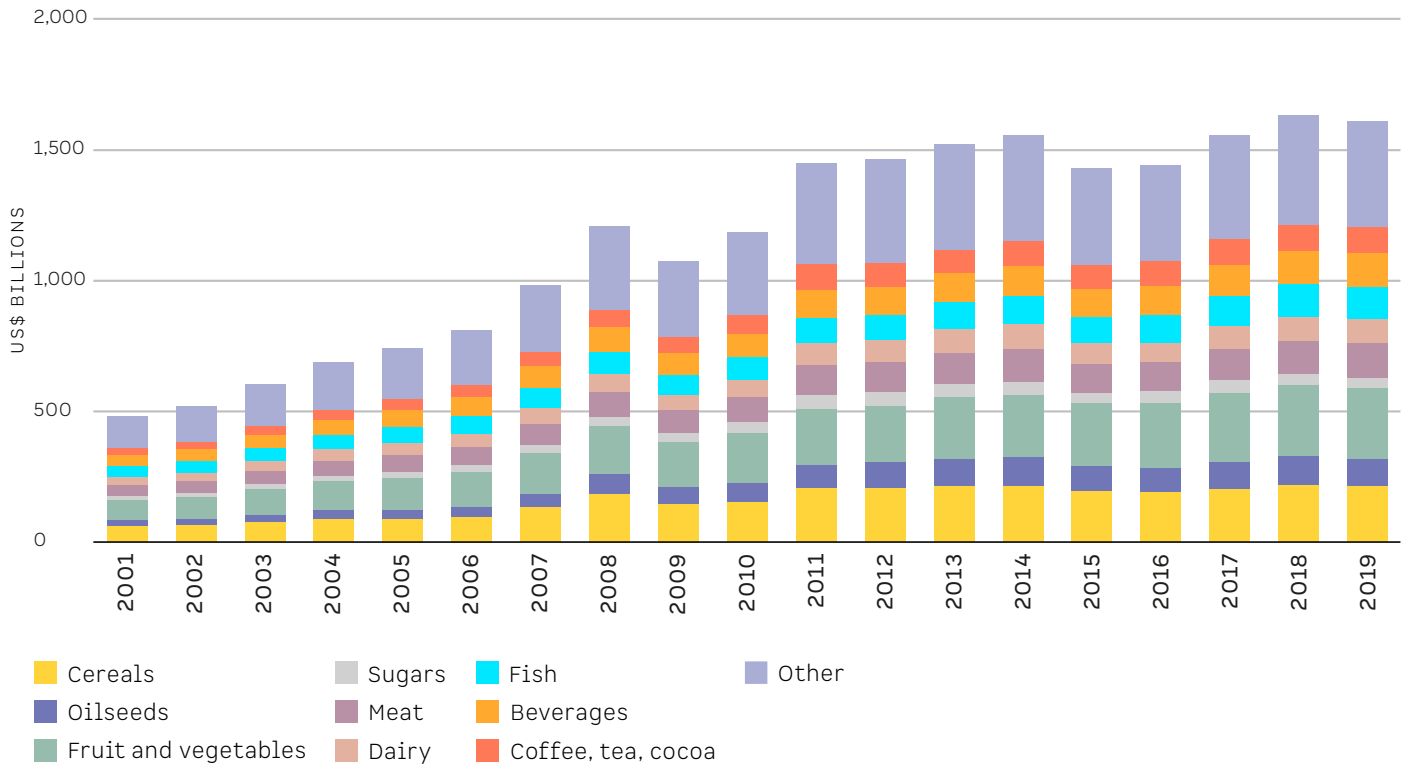
2. **Market and trade policies drive improvements in domestic agriculture and food security.** Governments should enhance the agrifood sector's competitiveness by creating a stable market environment and improving market access opportunities. The opportunities for public intervention in aligning food systems with international trade opportunities differ widely between small and large countries – and also depend on the degree of food system development and international market integration.
3. **Low-income countries must reinforce standards compliance for products they are competitive in supplying to fully realize the benefits from trade.** Because production and international trade are increasingly regulated by standards (whether voluntary or compulsory), low-income countries must ensure trade complies with these standards. But grades and standards can easily become a barrier to trade, requiring substantial investments in equipment, vocational training and support services before compliance and control can be enforced. So focusing on the most competitive products is essential.
4. **Trade policies need to incorporate critical externalities and reinforce non-market values.** Trading systems are bound by regulations and standards that often do not incorporate such non-market values as food safety, environmental quality, nutritional content and decent labour conditions. To support environmentally sustainable, nutritionally beneficial, safe and inclusive food systems, countries should pursue trade agreements that reinforce these non-market values.

Overcoming trade-offs between open trade and resilient food systems

During the past half century, as global agricultural production tripled, trade in agricultural commodities and food products increased eightfold – with an acceleration in growth in the past two decades (**FIGURE 5.1**). Even though the majority of food produced around the world is consumed domestically, trade increasingly contributes to feeding the world's people.

To achieve inclusive and sustainable growth, the socio-economic and environmental trade-offs of international trade must be systematically assessed, confronted and reduced. Despite trade's positive association with food security, it could also make low-income food-deficit countries more dependent on food imports – putting local producers under uneven competitive pressures and making consumers more vulnerable to external shocks in food availability (Koning and Pinstrup-Anderson, 2007; De Schutter, 2011; Hepburn, 2019).

These dynamics are reflected in the responses to the regional survey conducted for this report. Respondents considered market dynamics the most important driver of food affordability, and access to markets is seen as an important driver of both low income levels and food availability.

FIGURE 5.1 DEVELOPMENT OF GLOBAL TRADE IN AGRIFOOD PRODUCTS**WORLD IMPORTS OF AGRIFOOD PRODUCTS**

Source: International Trade Centre.

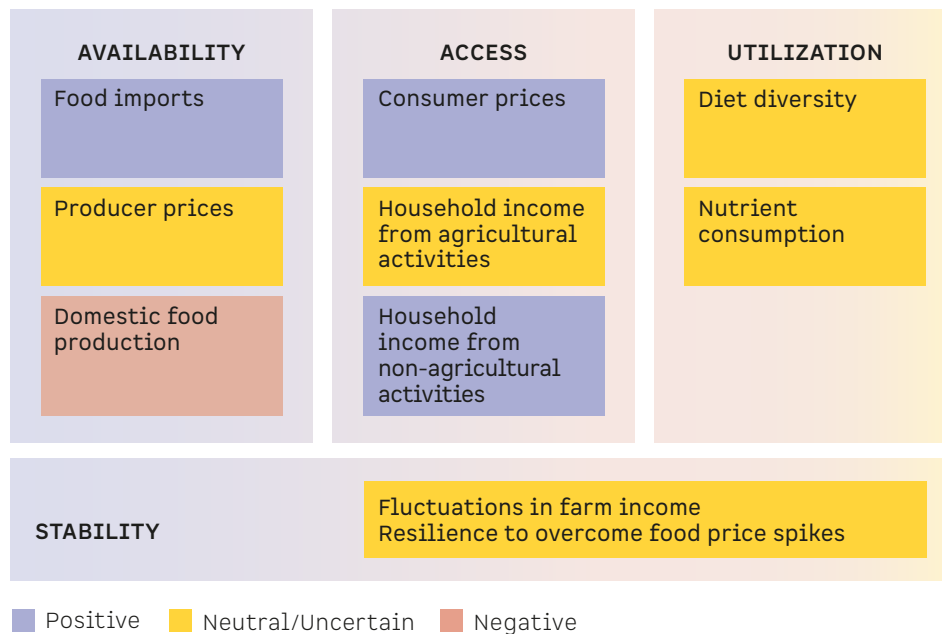
How can less economically developed countries increase resilience to external shocks in agricultural and food markets? One vital strategy is the diversification of national economies. Another key strategy is regional market integration, which allows regions to exploit comparative advantages in food production.

Benefits and trade-offs of trade openness

International trade has a broadly positive association with all four dimensions of food security: availability, access, utilization and stability. Yet the configuration of international trade varies considerably across countries, as does the domestic macroeconomic environment. For some countries, food trade can also have some neutral or uncertain effects on each dimension of food security – and on one, food availability, it can have partly negative effects by reducing domestic producer prices (**FIGURE 5.2**). Accordingly, international trade comes with complex trade-offs that need to be addressed through a decisive package of policies.

Because of the complex potential effects, the net impact of international trade and food systems – and of policies to boost trade even further – is uncertain and dependent on local conditions. Some specific areas where problems can arise are as follows:

FIGURE 5.2 HOW INTERNATIONAL TRADE AFFECTS THE FOUR DIMENSIONS OF FOOD SECURITY IN FOOD-DEFICIT COUNTRIES



Source: van Berkum, 2021.

- **Trade may reduce food availability in low-income food-deficit countries.** Despite the widely acknowledged links between increased trade and improved food security, trade can pose challenges to food systems in low-income food-deficit countries, where increased trade brings a risk of higher dependence on food imports – putting local producers under growing competitive pressure, and making consumers more vulnerable to external shocks in food availability.
- **Trade may drive the adoption of unhealthy diets.** Increased access to cheaper, more diversified food through open trade may not necessarily improve the nutritional quality of diets. Because as trade openness drives nutritional transitions (CHAPTER 1), it can also increase access to unhealthy food and thus drive overweight and obesity (GLOPAN, 2020).
- **Trade may not always support stability in food markets.** Recent international price spikes – in 2007/2008 and 2011/2012 – have cast into doubt the assumption that trade openness makes food markets more stable.

Some of these issues can be overcome by macroeconomic policies (**BOX 5.1**).

Respondents in our regional survey considered market dynamics the most important driver of food affordability, and access to markets is seen as an important driver of both low income levels and food availability.

BOX 5.1 MACROECONOMIC FACTORS AFFECTING FOOD SECURITY

Trade alone cannot solve food security problems, for economic development drives food security. But macroeconomic factors can influence the four components of food security through different channels (Diaz-Bonilla, 2013, 2015). Government revenues could also support food security policies and investments, such as research and development (affecting availability and stability), basic health services, and food assistance and social protection programmes (affecting use and nutrition). Nutrient security pertains mostly to the individual but is largely affected by income and factors that determine access to food (Global

Panel on Agriculture and Food Systems for Nutrition (GLOPAN) Summit 2017; GLOPAN, 2020). From this perspective, actions that affect non-agricultural markets and employment – such as building infrastructure or ensuring equitable access to education – could be just as important for food and nutrition security as policies and investments in the agrifood sector.

This means that discussions of trade and food security need to be placed in the context of an overall framework of macroeconomic transformation and exchange rate policies (Diaz-Bonilla, 2015; OECD, 2019).

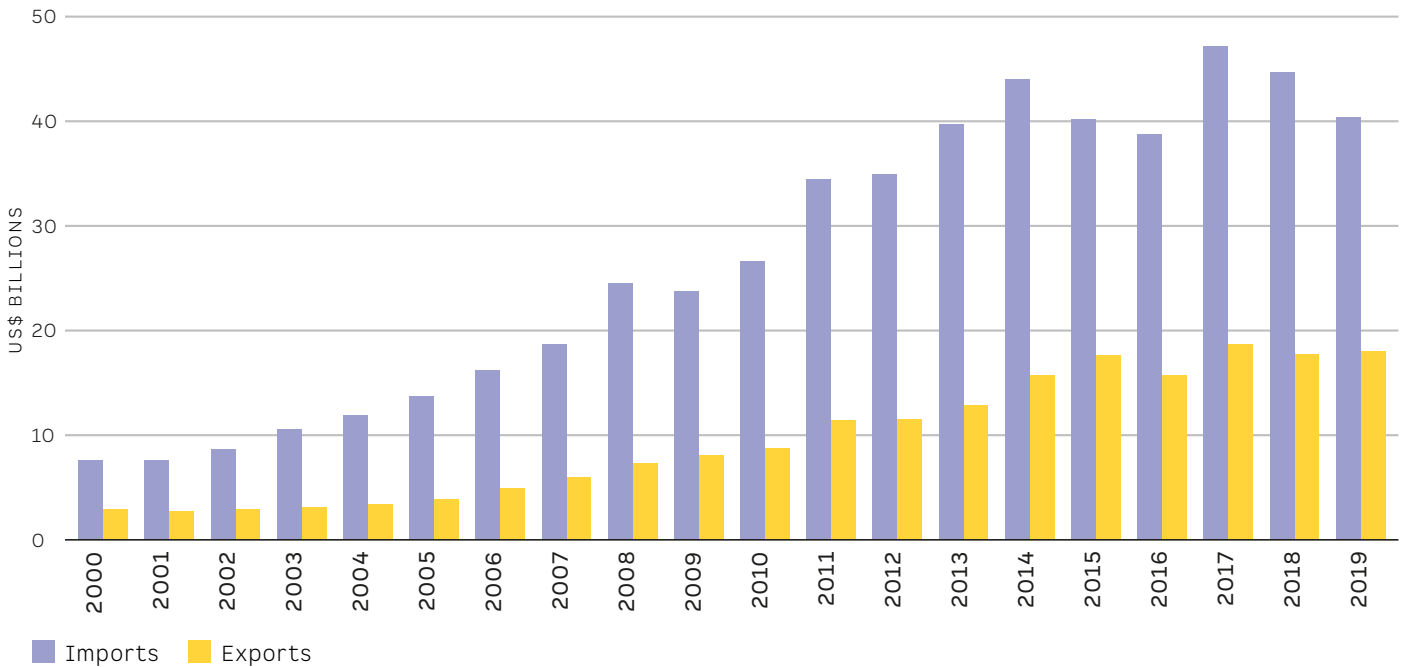
How can efforts towards inclusive food system transformation address these trade-offs, even if they cannot wholly eliminate them? Countries that depend heavily on food imports need policy and investment strategies that reduce the propagation of international shocks to local food markets – without losing the potential benefits of open markets. Such policies and investments aim to make a country's agrifood sector more competitive while enhancing national food security, two objectives that can be reconciled only through trade-compliant domestic policies that also support inclusive and sustainable value chains.

Low-income countries must reduce food import dependence by diversifying supply, exports and trade partners

The least developed countries, as a group, increasingly depend on food imports. Over the past two decades, their combined annual imports of agricultural and food products have risen more than fivefold – from US\$8.7 billion in 2000 to around US\$50 billion in 2017-2019 (FAOSTAT). As exports have risen more slowly, the least developed countries' joint agricultural product trade deficit has substantially increased: since 2011 it has exceeded US\$20 billion, and it reached US\$29 billion in 2017-2018 before falling back to US\$23 billion in 2019 (**FIGURE 5.3**).

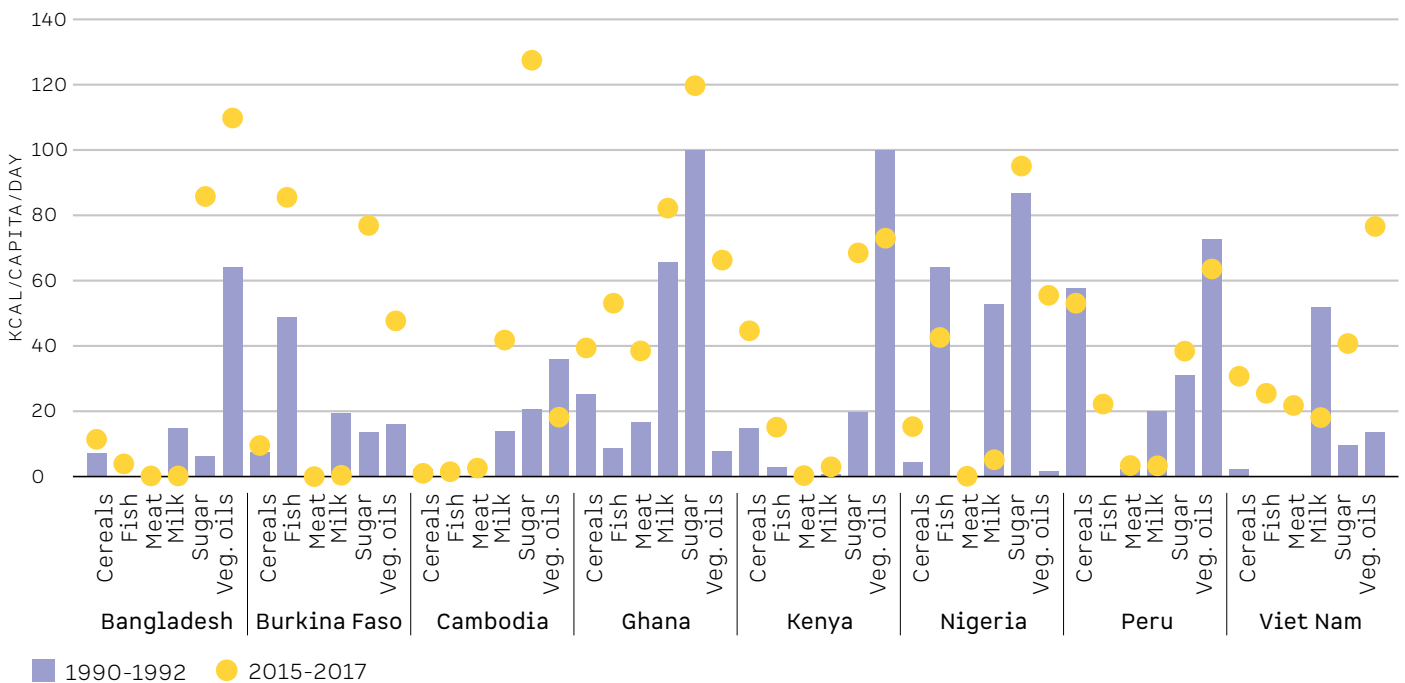
For a number of low-income countries, rising imports have led to higher import dependency over the past three decades. But because markets for different products are changing in various directions, countries face a range of net trade positions and food import dependencies that evolve differently over time. These more complex dynamics do not appear in the aggregated totals shown in **FIGURE 5.3**. Variations in trade positions across food products for eight countries are displayed in **FIGURE 5.4** (see also AGRA [2020] on country and regional developments in Africa).

FIGURE 5.3 LEAST DEVELOPED COUNTRY EXPORTS AND IMPORTS OF AGRICULTURAL PRODUCTS, 2000-2019



Source: FAOSTAT data on crops and livestock products trade.

FIGURE 5.4 SHARE OF IMPORTS IN DOMESTIC FOOD SUPPLY IN SELECTED LOW- AND MIDDLE-INCOME COUNTRIES



Note: Food balance sheet (FBS) imports in tonnes are converted to kcal/capita/day based on the ratio between the FBS food supply in tonnes and the FBS food supply in kcal/capita/day. For some products, percentages of imports are above 100, which means that production (and stocks) are very low and the country mainly imports this product but there are also some exports, which brings domestic supply available below the level of imports.

Source: Food and Agriculture Organization of the United Nations Food Balance Sheets.

Regions and countries with both high import reliance and low domestic food availability face specific challenges to the stability of their food supply. High import dependency easily creates food security risks, as harvest failures affecting foreign suppliers and policy changes can cause supplies and prices to fluctuate. The chances of supply disruption are further increased if the importing country depends on just one or two suppliers – which is often the case with commodities such as wheat, rice, palm oil and soybean, where the concentration of exporters is high (OECD and FAO, 2019; ITC, 2020). Diversifying supply sources is thus an important additional strategy for reducing risks to food security.

Food import dependency becomes severe when countries are less able to finance food imports – a risk that is highest if a country's economy depends heavily on commodity exports or imports. For 129 low- and middle-income countries, high export and import dependence on primary commodities had a statistically significant and negative effect on food security over 1995-2017 (FAO et al., 2019). Moreover, 80 per cent of the countries that saw a rise in hunger during recent economic slowdowns have economies that are highly dependent on primary export or import commodities (or both).

Evidence from several African countries shows that past commodity price shocks seriously affected food and nutrition security, as households saw a decline in purchasing power – the result of income declines and job losses caused by currency devaluation and public spending cuts (FAO et al., 2019, 2020).

Countries that depend heavily on export commodities such as coffee, cocoa, tea, palm oil or rice may face food security risks from a deterioration in those products' terms of trade. In this case, it is vital to promote commodity and market diversification, say by focusing on added value creation. But because most low-income countries have undeveloped processing industries, substantial investments are required for value addition. Where trade dependency is mainly related to import demand, diversifying domestic food production – in areas where this is feasible – may be the required approach. But such structural transformations must also be pro-poor and inclusive.

From an extensive analysis of export diversification options in Chad, Guinea, Mali and Niger, López-Cálix (2020) identifies key elements for simultaneously reinforcing market infrastructure (hardware) and market exchange conditions (software). Targeted investments are needed in market infrastructure for efficient logistics. Also needed are targeted investments in human capital to build skills that enhance people's productivity and employability. And government interventions must reduce specific institutional deficiencies, such as a lack of information and knowledge about market standards.

Small-scale farmers, especially if they are resource-poor, face many obstacles to commercializing and diversifying their supply (CHAPTER 3). For instance, the opportunities of small-scale producers in India to diversify in response to an increasing demand for more nutritious foods, such as fruits, vegetables and pulses, met several major barriers, including the high cost of

access to inputs, information, capital and technology (Pingali et al., 2019). India's experience shows that producer organizations and cooperatives – in which smallholders organize themselves in groups to jointly access resources and market their produce – can reduce and mitigate market entry transaction costs for smallholders and help them form market linkages.

Trade can increase local food availability and improve food access by lowering prices – yet these changes do not necessarily benefit the people with the greatest need. In low-income food-deficit countries, where the livelihoods of poor people typically depend on low-productivity agriculture, the positive effects of better access to more food may be offset by the negative effects of higher imports of agricultural inputs and declining producer prices and farmer incomes. Among 52 developing countries, net food-importing countries with a large share of livelihoods in the agricultural sector had opened to food trade, effectively increasing food supply – but per capita GDP in the food sector declined, causing an overall rise in undernutrition (Mary, 2019).

Countries that face net negative welfare impacts from greater trade openness and food imports could potentially mitigate these effects by reforming food systems. Though often used, border measures – such as import tariffs and quotas – are not the best instrument for this purpose (Brooks and Matthews, 2015; Martin and Laborde, 2018). While tariffs may encourage farmers to increase production in response to a tariff-driven rise in prices, they can also make food more expensive for consumers. Moreover, protectionist trade measures, together with input subsidy programmes, tend to incentivize domestic production of staple foods such as rice and maize, often to the detriment of vitamin- and micronutrient-rich foods (fruits and vegetables), thus increasing the affordability of more nutritious foods (FAO et al., 2020). Support for one constituency thus comes at the expense of another – and smallholder families may be harmed too, if they are net buyers of food.

The choice of trade policy priorities thus has decisive implications for domestic income distribution and plays a key role in overcoming trade-offs between different food system transformation objectives (**BOX 5.2**). This choice is also highly dependent on the role of the domestic agricultural sector in the national economy.

BOX 5.2 GOING LOCAL FOR INCREASED FOOD SECURITY AND SUSTAINABLE PRODUCTION SYSTEMS?

The outbreak of COVID-19 and its spread around the world in early 2020 disrupted international food trade chains through travel and transportation restrictions. Concerns about sufficient food led several countries to close borders to ensure domestic food security. In many cases, this did not take long, mainly because global food supplies turned out to be sufficient and the major exporters of food staples imposed no restrictions (IFPRI, 2020; WTO, 2020). That the number of poor people with acute food insecurity is expected to have increased by about 270 million in 2020 is mainly a result of income drop due to spiralling unemployment and economic disruption caused by COVID-19, not because too little food is available (World Bank, 2021).

Even so, the pandemic fuels discussions about the advantages of local food production over dependence on international chains. Local food purchases in short food value chains tend to have a spillover

effect on the community that is generally positive. But food prices are often higher than when foreign competitors enter the market, and the diversity in diets that consumers want is often difficult to meet with only local produce. Trade restrictions to promote local production could therefore have a negative impact on food access and utilization.

Moreover, there is little evidence that locally produced foods have a lower ecological footprint or less negative ethical or social impact than imported food. Those impacts depend on how the food is grown, raised, caught and distributed (Edward-Jones et al., 2008; Vidergar, Perc and Lukman, 2021). Eating locally would have a significant positive environmental impact only if transport is responsible for a large share of food's final carbon footprint. For most foods, this is not the case (Dalin, 2016; Poore and Nemecek, 2018). To reduce the carbon footprint of food, the focus should be on what people eat, not on whether the food is local.

Stronger regional trade relations can increase regional specialization and food security

Across Africa, promising opportunities exist for boosting intraregional trade in agricultural and industrial products and services (World Bank, 2012; ODI, 2013; FAO, 2016; AGRA, 2019; Andam et al., 2019). Generally, regional trade agreements and market integration strategies can be an engine of growth, as in Europe, North America and South-East Asia. Yet regional trade within the Africa region is still fairly limited: less than 20 per cent of all exports. One reason may be that existing regional trade agreements, such as the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC) and the Southern Africa Development Community (SADC), frequently exclude free trade in foods, because their product portfolio is rather similar and countries consider each other competitors.

As population growth, income growth and urbanization drive rising food demand and dietary diversity in African countries, new initiatives to reduce intraregional trade barriers show great economic potential. The recently established African Continental Free Trade Area (AfCFTA) may stimulate intra-Africa trade, accelerate export diversification, and diversify export destinations and types of goods produced in the region (Brookings, 2019). It promises to increase intraregional trade in food products, which, if accompanied by the right measures, can greatly boost smallholder farmers' productivity growth and prospects for integrating into food value chains (AGRA, 2020; UNECA, 2020).

To make the most of these new opportunities, governments in Africa will need to reduce transaction costs by improving trade facilitation – such as import customs clearance procedures and port handling at the border – and to invest in physical infrastructure, including roads, railway tracks and harbour facilities.

Formulating market and trade policies

One way for countries to build resilience to external food market shocks is to make their agriculture and food sectors more competitive. Such efforts depend on four factors:

- Markets must function properly with low barriers to entry and reduced risks.
- Market prices and margins should permit smallholders to remain active in trade.
- Trade policy instruments (such as tariffs and other trade-facilitating measures) must be conducive to smallholder farmers participating in the market and become part of modern supply chains.
- Supportive policies should guarantee that market engagement also improves welfare.

Generally, poor countries have fewer opportunities and more limited resources to make market competition and trade facilitation policies feasible.

Ensuring sufficient competition in agricultural markets

Competition in food and agricultural markets is crucial to food security, determining the possibilities for smallholder farmers' participation in food value chains and markets, and heavily influencing the formation of prices and the distribution of rents. That is why governments pursue competition and market entry policies – to support the position of farmers and middlemen in domestic food value chains, to safeguard the public interest in food security and to promote a more equitable distribution of wealth (**BOX 5.3**).

Competitiveness in agricultural markets can provide incentives for smallholders to modernize and invest, and it shapes the space for value chain interventions to support poor but efficient producers (CHAPTER 6). Conversely, a lack of competition can lead to monopoly rents that substantially reduce the welfare of consumers, the income of farmers and the effectiveness of government policies (FAO, 2016; Bellmann, Lee and Hepburn, 2019; Mooney, 2018).

BOX 5.3 SUPPORTING FOOD SECURITY IN NIGER

The Maradi district in Niger has a predominantly rural population (86 per cent), most of whom live in poverty (the poverty rate in the district is 87 per cent). Severe chronic malnutrition, experienced by 54 per cent of children under the age of 5 years in the district, is a by-product of several factors leading to food insecurity. Part of the issue can be linked to improperly functioning markets and low accessibility to markets. To ensure market efficiency and healthy trade, investments and policy in rural Niger must create an environment for markets to thrive.

The Project to Support Food Security in the Region of Maradi (PASADEM) prioritized increased access to rural markets and market resilience strategies by reducing the risk posed by participation and providing clear pricing

Source: IFAD project completion reports and impact assessments.

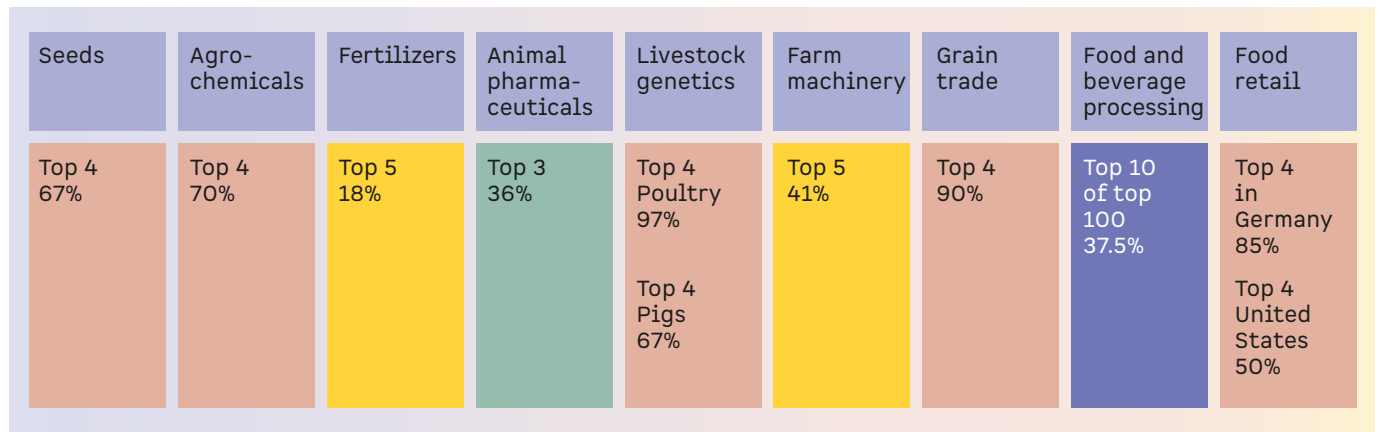
information for market participants. More available markets would benefit producers from higher traffic while simultaneously allowing consumers to achieve greater food security through the increased access to food in markets. The project aimed to support local and national policy to ensure maintenance and sustainability of its market investments.

The construction of three semi-wholesale markets, 11 satellite collection centres and 88.42 kilometres of rural feeder roads all contributed to market access and increased trade. Publicly displayed pricing information created healthy competition among producers, with both producers and consumers benefiting from the resulting reduction in transaction costs.

Monopoly rents are an outcome of concentrated market power, where food value chains lack competitiveness. Generally, market configurations and competitiveness vary considerably within and across countries and regions. Despite pervasive expressions of concern about insufficient competition in food and agricultural markets within developing countries, scarce evidence exists for non-competitive pricing in these countries (FAO, 2016; OECD, 2019). Focusing on grain markets in sub-Saharan Africa, Dillon and Dambro (2017) find that food markets in these countries are generally quite competitive.

Food value chains are more likely to suffer from non-competitiveness across countries – at the global level – than within developing countries. Because agriculture is at the base of a food value chain that includes processing and retailing, market power may exist at either or both of these stages. Market power can be difficult to measure because of conceptual and data issues. Still, export firms have many ways to charge non-competitive rents, especially when markets are concentrated globally: three notable examples are cocoa grinding (Gaji and Tsowou, 2015), coffee exports (Grabs, 2017) and banana export (FAO, 2014).

Four transnational companies have an estimated two thirds of the global market share in seeds (**FIGURE 5.5**). Three of them also have the largest stakes in the globally operating chemical input (pesticide) industry – in which the top five companies control 70 per cent of the global market.

FIGURE 5.5 WORLDWIDE MARKET SHARES OF THE LARGEST COMPANIES

Source: IPES Food, 2017; Mooney, 2018.

Because of the importance of competitiveness generally, and because of the extreme concentration and market power in global food value chains, food security policies that target farmers or consumers through trade policies need to reflect the extent of competition throughout the supply chain and the bargaining power of relevant stakeholders. Such policies also need to ensure dialogue with local and globally operating food firms. In other words – over and above the investments in food market infrastructure and knowledge outlined earlier – trade policies require inclusive governance regimes as organization-like entities, simply to balance interests among key parties.

Making domestic agriculture more efficient and competitive

Most developing countries have room for policy manoeuvring within the internationally agreed World Trade Organization (WTO) framework and trade rules, because most current tariffs fall short of bound tariffs – that is, they are below the upper limits on tariffs (Laroche-Dupraz and Postolle, 2013; Matthews, 2014). For many less economically developed countries, import tariffs are usually the only policy tool available, because these countries cannot afford to subsidize their farmers.

As noted, raising tariffs can generate significant costs and may not improve food security, reduce consumer prices or facilitate trade flows. Even so, tariff hikes – if only temporary – may be worth looking into as a strategic choice to protect the most fragile producers during the food system transition. In particular, countries may consider this strategy when they face trade-offs between using limited public resources for agricultural subsidies and using them to invest in rural infrastructure, education and social protection.

When the 1995 WTO Agreement on Agriculture set spending ceilings on agricultural support, it distinguished between price and income support measures. To date, developing countries scarcely use the domestic subsidies

defined by the agreement as “more than minimally” trade-distorting yet still fall below its permitted upper limit (Matthews, 2014). In addition, developing countries, in pursuing their food security goals, are entitled to unrestricted use of domestic funding for:

- “Green box” subsidies – government-funded direct payments to farmers for environmental service delivery that are assumed not to distort trade (WTO Agreement on Agriculture, annex 2).
- Investment subsidies to support innovation and competitiveness that are generally available to agriculture in developing country members, and agricultural input subsidies that are generally available to low-income or resource-poor producers (WTO Agreement on Agriculture, article 2).

Assuming that financial sums spent under agricultural support practices will not “more than minimally” affect other countries’ production and trade, developing countries should consider using the investment and input subsidies allowed under WTO rules to the greatest extent possible – though with a format significantly different from that of current subsidies. As subsidies are now formulated, they often reduce overall economic efficiency, lead to overproduction and create perverse health, environmental and equity outcomes. For the most fragile poor countries, if they enact tariffs to protect their agriculture (as contemplated here), the revenues from those tariffs could help fund agricultural subsidies. However, there is a trade-off between using limited public resources for agricultural subsidies and using them to invest in rural infrastructure, education and social protection. It is important to recognize the complex questions around the use and targeting of subsidies and to ask who really benefits.

The COVID-19 pandemic has reignited the global conversation on food self-sufficiency. It is possible to promote greater food self-sufficiency by adding border protections against competitive foreign supply. But raising trade barriers can also entail huge costs – including for the poorest.

Adopting trade and market facilitation policies

To make the best use of export market opportunities, governments can align sanitary and phytosanitary (SPS) measures – and other non-tariff measures affecting trade – with regional standards and global (WTO) standards. As cross-border movement of foods continues to increase, the potential for contaminant spread is high, prompting a global focus on safety and quality. The WTO SPS Agreement sets out the basic rules for food safety and animal and plant health standards. The Technical Barriers to Trade Agreement concerns standards and technical regulation in areas other than health and safety: these areas include quality, the environment and social welfare.

Many countries aspiring to enter global agrifood trade need international assistance with food safety and quality investments. Because trade in agrifood products is increasingly affected by the domestic food safety and quality regulations of destination countries, investing in these areas is a precondition

for benefiting from such trade (OECD, 2019, 2020). Setting up and managing a food safety system is a broad challenge: it encompasses regulations, infrastructure such as laboratories, cold storage facilities, management systems and ICT networks, and requires risk assessment organizations such as inspection services and accreditation bodies. Many developing countries lack the human capacity and resources to set up such a system in accordance with international standards (UNECA, 2018; AGRA, 2020).

Investment in trade facilitation policies is key to reaping the benefits of trade: these mainly concern customs procedures, taxes, permits and administrative trade costs. Poor trade facilitation is a significant driver of food insecurity in Africa, where interregional trade suffers greatly under complex and burdensome import and export procedures. Food availability and food access are significantly reduced by higher documentation requirements and long export and import times (Bonuedi, Kamasa and Evans Osei Opoku, 2020). The most effective trade facilitation reforms to increase food security in Africa are those that reduce delays caused by documentary and border compliance procedures. In particular, infrastructure improvements and digitized trade procedures significantly reduce trade costs (Duval et al., 2018).

Reinforcing standards compliance

Public and private standards, spread through trade and foreign direct investment (FDI), are increasingly important for regulating international trade. To enter and benefit from these markets, low-income countries must invest in raising domestic production and consumption standards and in reinforcing compliance. Including smallholder farmers in food value chains subject to international standards poses multiple challenges: poor farmers lack the resources to invest in standards compliance, and local institutions are not equipped to guarantee surveillance. So innovative strategies are required to involve key stakeholders in designing, implementing and ensuring compliance with food safety and quality standards.

Ensuring that standards benefit small-scale farmers

In recent years, developing countries in Africa and Asia have realized strong growth in food market sectors with rapidly spreading standards. Examples include high-value food products such as fruits, vegetables, seafood, fish, poultry and dairy products. These standards support food exports and contribute to domestic food market upgrading.

Although standards can promote trade, they may not always support inclusive food markets. What determines how the gains from such trade are divided between domestic and foreign populations, and between consumers and producers? The answer depends on particular aspects of a given standard – for example, whether it covers product attributes related strictly to safety, quality and health or also covers other attributes related to production systems,

such as fairness and sustainability. A further determining factor is how these aspects are implemented: publicly, privately or voluntarily (Swinnen, 2016).

Smallholders are more likely to participate in value chains when the farm sector is more homogeneous and when the region contains mostly small-scale farms (Vandermoortele et al., 2012). In contrast, when local production structures are more mixed, sourcing from smallholders occurs only when it is less expensive than sourcing from large farms.

Policies to enhance smallholders' integration into supply chains focus on reducing transaction costs for smaller, less resourceful producers as they enter more modern value chains. One example is managing FDI to integrate smallholders (see below). Another is investing in rural infrastructure (roads, storage facilities, energy, ICT networks) to connect small-scale farmers in remote areas with markets. Exporting traders and firms have often used contract systems – including technology transfers and provisions of inputs – to ensure that farmers can comply with food safety, quality and other standards (**BOX 5.4**).

BOX 5.4 CONTRACT FARMING TO HELP FARMERS COMPLY WITH STANDARDS

Studies of horticultural export chains in Africa show the benefits of providing farmers with specific inputs, such as seeds and fertilizers, as well as with technical advice and extension services. Minten, Randrianarison and Swinnen (2009) find that access to technology and inputs motivated smallholder vegetable farmers in Ethiopia to sign contracts with exporting companies. Bellemare and Novak (2016) show that in other African value chains, such as those for cotton, rice and barley, contract systems with extensive inputs and technology transfers are common for exporters and processors.

Describing the growth of high-value agriculture in Asia, with examples from Bangladesh, India, Indonesia, Pakistan, the Philippines, Thailand and Viet Nam, Gulati et al. (2007) identify important positive effects on farmers' productivity from the rapid rise of their vertical linkages with retailers, processors, and traders and exporters in various forms of contract farming. These forms include input provisions and technology and knowledge transfers.

Dries et al. (2009) and van Berkum (2007) summarize the evidence on dairy contracting systems from various countries, showing that providing essential inputs such as credit and animal feed, together with technical advice (on hygiene and breeding, for example), had a major impact on milk quality. Similar contract systems are used in Uganda's dairy sector (van Campenhout, Minten and Swinnen, 2019). Several studies documenting value chain contracting systems in Eastern Europe and Central Asia in the early 2000s, in sectors such as sugar and dairy, are discussed and analysed in Swinnen (2006).

While most pertinent studies focus on export supply chains, some have looked at contract farming systems in chains with mostly domestic operations. Local smallholder suppliers – with limited access to capital and technology – can be integrated into high-value, high-standard sectors through value chain governance based on contracting and on hybrid forms of vertical integration involving technology and input transfers (Ton et al., 2017; Swinnen and Kuijpers, 2020).

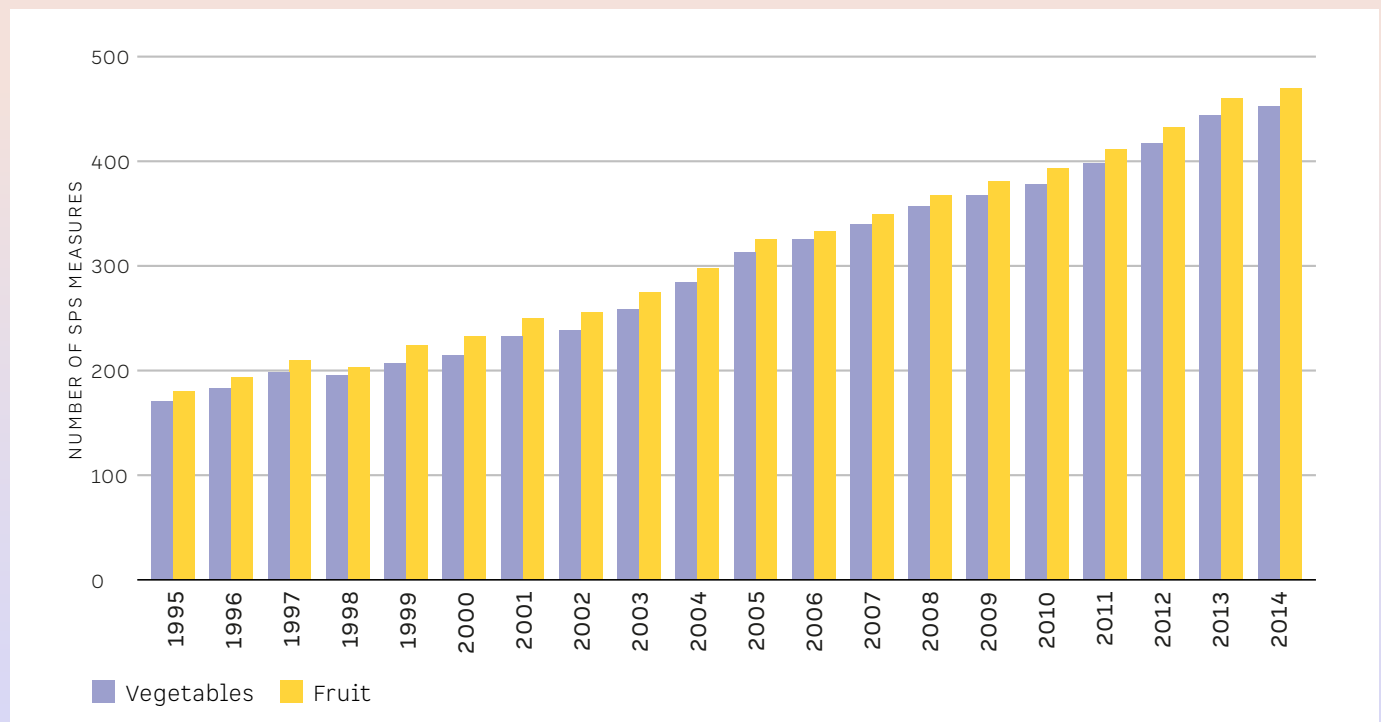
Smallholder farmers also need to be empowered to obtain a better bargaining position in the supply chain. Government policies can support the establishment of producer organizations with proper legislation, and with information and knowledge transfers, enabling them to operate such organizations; financial support measures (such as tax exemptions) are sometimes used. Also helpful for integrating smallholders into value chains are policies that invest in institutions for independent quality and food safety control, certification, public extension and market information services (Reardon et al., 2009; Ton et al., 2017; Swinnen and Kuijpers, 2020). The examples presented in **BOX 5.5** highlight the need for more effective domestic institutions in low- and middle-income countries to meet international food safety and quality standards.

BOX 5.5 NON-TARIFF MEASURES IN DEVELOPED COUNTRIES ARE RISING – AND HITTING FOOD EXPORTS FROM AFRICA

Non-tariff measures have a profound impact on global trade structures and on countries' participation in them. In the European Union (EU), the precautionary motive has resulted in a sharp

rise in the number of sanitary and phytosanitary (SPS) measures on agricultural products (see figure below). This rise has affected agricultural exports from Africa to the EU.

NUMBER OF SPS MEASURES IMPOSED BY THE EUROPEAN UNION, 1995-2014



Source: Kareem and Rau, 2018.

BOX 5.5 (CONT.)

Two studies explore the effects of SPS measures on African countries' ability to export to the EU market:

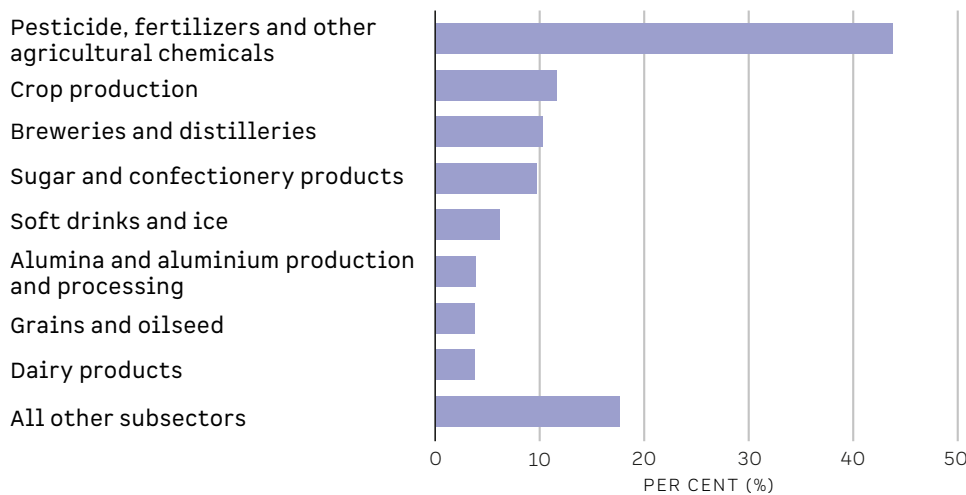
- Kareem and Rau (2018) estimate the impact of EU SPS measures on African exports of fruits and vegetables. Their results suggest that the SPS regulations limit new entrants to markets, even though the regulations have only limited effects on established trade flows. These conclusions are in line with findings that developing countries remain constrained in their exports to the EU by their inability to comply with product and process regulations, including social, environmental and food safety (hygiene) standards. The SPS measures thus create barriers to entry, while tariff protections have become very low for imports to the EU originating from developing countries. For example, under the EU's Everything But Arms initiative, the 50 poorest countries can access the EU market without duties and quotas (ITC, 2015; Bureau and Swinnen, 2018; Kornher and von Braun, 2020).
 - Using product relatedness measures, Idsardi and Viviers (2018) study the diversification patterns of exports from Cameroon, the Democratic Republic of the Congo, Kenya and South Africa. Their findings indicate that the regulatory framework of the EU is important – though the main constraints on African export and export diversification continue to be supply capacity and overall trade costs.
- Overall, these findings indicate the need for more effective domestic institutions so that African exporters can comply with SPS measures – and with other product and process standards adopted by the EU and by other developed countries.

Using FDI to modernize agrifood systems

FDI in the agrifood supply chain brings in new technologies, relationships and knowledge. It also improves access to high-quality inputs and market information. And it plays a key role in introducing private standards for food quality and food safety – and can reduce the costs of compliance (Swinnen and Kuijpers, 2020).

Whereas FDI was initially focused on primary production, more recent investments have been mostly in input services (seeds, fertilizers), food processing, and retail and food services (**FIGURE 5.6**).

Between 2003 and 2017, foreign private investors invested US\$48.737 billion in the African food and agriculture sector. FDI inflows peaked after the 2008/2009 agricultural commodity shocks, when international investors rushed to capitalize on high food prices. More typically, critical factors for attracting agrifood FDI include population size, land availability, infrastructure and institutional capacity. Some initiatives – such as Grow Africa and the New Alliance for Food Security and Nutrition – aim to create a conducive environment for agrifood FDI. Local employment and income effects seem to be biased towards better-off households (Wall, Nyamai and Asubonteng, 2018; Husmann and Kubik, 2019).

FIGURE 5.6 SHARE OF GREENFIELD FDI IN THE AFRICAN AGRIFOOD SECTORS

Source: Husmann and Kubik, 2019, based on FDI data from www.fdimarkets.com.

Low-income countries can use FDI to support inclusive agricultural modernization. One approach is to require agroprocessing firms to increase their purchasing and use of domestically produced commodities – a requirement that can be combined with requests to international firms to develop extension support to local farmer-suppliers. Beyond agroprocessing firms, foreign supermarket chains could also be induced to increase their domestic sourcing, a strategy that entails careful analysis of opportunities for backward linkages, including effects on consumers, along with transparent policies to engage, facilitate and enforce commitments among key sector players (BERF, 2018). A Nigerian government policy that sought to induce foreign beer-brewing companies to use local raw material created a conducive environment that boosted the quality of local barley production (Akinyoada, Ekumankama and Uche, 2016). Several other African countries have put ceilings on milk powder imports to encourage local sourcing.

Incorporating environmental externalities and reinforcing non-market values

Improving the environmental and nutritional impacts of food systems is a key objective of transforming food systems, and managing food trade is central to meeting this objective. Current trade systems – focused on market values and economic efficiency – fail to integrate externalities into market prices. To support environmentally sustainable, nutritionally dense and safe food systems, a global system of trade arrangements can enshrine these non-market values at the heart of global trade. A vital condition of success is for domestic food systems to incorporate contracts and regulations that protect non-market values.

Environmental challenges

Trade may induce greater reliance on more input-intensive production methods, which can harm the environment through soil degradation, nutrient depletion, deforestation, erosion, waterlogging and climate change (Balogh and Jambor, 2020).

There are three broad policy approaches to these trade-related negative environmental externalities (Balogh and Jambor, 2020):

- Consumers, mainly in developed countries, should be incentivized to reduce consumption of livestock products – specifically beef – because demand for these products is an important factor in the trade-environment nexus (Poore and Nemecek, 2018; Duku et al., 2021) (CHAPTER 2).
- Environmental harm can be reduced or mitigated by adopting sustainable technologies (such as precision agriculture and drought-resistant seeds) and improved natural resource management practices (for nutrients, pests, water and soil management) – both of which require investments in knowledge and technologies for the agricultural sector.
- Trade-related policies and regulations can help limit environmental degradation – but they must be harmonized at the international level, not only for environmental reasons but also to reduce compliance costs for exporters. While environmental provisions have increasingly figured in regional trade agreements (OECD, 2020), they generally lack specific environmental targets.

To better integrate sustainable production standards into trade agreements, exporting and importing countries will need to embrace more commonly established sustainability standards, declare these standards binding and include them in bilateral or regional trade agreements. Greater policy space is needed in the WTO multilateral trade context for sustainable and inclusive production methods, especially where the environmental costs of production can be assigned monetary values (see Aspenson [2020] and TEEBAgrifood [2019] for examples of true-cost accounting methods for agricultural production). To meet sustainability requirements in trade agreements, developing countries need help with financial resources and with policy and technical advice.

Food safety and nutrition challenges

Trade rules generally do not include objectives for the provision of healthy diets. To improve nutrition outcomes through trade agreements and instruments, developing countries currently can only frame and adopt trade-compliant policies that align with SPS standards (for which the WTO SPS Agreement refers to the joint FAO/WHO Codex Alimentarius as the relevant standard-setting organization) and that support safe food without discriminating against either domestic or foreign products (**BOX 5.6**).

BOX 5.6 TRADE-COMPLIANT POLICIES TO SUPPORT HEALTHY DIETS

The GLOPAN (2020) report cites a study of 151 countries at different income levels (Dithmer and Abdulai, 2017) that found trade openness beneficial for diet energy supply, diet diversity and diet quality. Two recommendations emerge from the report: countries should align their nutrition focus with WTO rules and make policies non-discriminatory for domestic and foreign products, and they should use domestic policies rather than

trade policies to address some diet quality issues.

The report also advocates for more research on how current trade patterns affect diet quality and nutrition and on how diet quality is affected by existing policies in areas other than trade. Such assessments will increase coherence between particular trade policies and goals related to health and nutrition – and suggest how new trade policies can support improvements in diet quality.

Trade can contribute to protecting consumer safety and promoting healthy diets only if the standards and regulations applied to food trade are reflected in domestic food systems. Transparent measures are needed to counter allegations of disguised protection. The need for interventions must be clear, and a comprehensive approach must incorporate both imported and domestically produced products, ensuring that policy measures do not discriminate against either.

The main source of food safety and health risks within developing countries is the informal traditional market, where most poor people buy their fresh and nutritious foods, such as eggs, fish and green leafy vegetables (Grace, 2015). Because formal regulation is difficult to enforce in this context, better results are achieved through broader interventions for clean water and sanitation, combined with awareness-raising among producers and value chain participants.

Living wages and social inclusion

In response to civil society concerns in developed countries – which are, for the most part, importers of food rather than exporters – voluntary certification schemes have emerged that attach a price premium to more sustainable and socially responsible value chain practices. The effects of these schemes on food system outcomes are mixed (**BOX 5.7**). Ostensible benefits for income, inclusion and the environment are not always realized and, when they are, the successes are highly context-specific (Alho et al., 2021; Ruben, 2020; Waarts et al., 2021).

Beyond certification schemes, additional measures are needed to enable smallholders to earn living incomes and to ensure that the schemes have no negative effects. Especially important are policies to enable the adoption of farm management practices for engagement in competitive markets. Among the key bottlenecks to be tackled are improved access to good-quality inputs, credit and extension, and a sound business environment that helps farmers manage production, finance and legal risks.

BOX 5.7 CERTIFICATION SCHEMES IN THE BANANA AND COCOA SECTORS HAVE LIMITED IMPACTS ON SMALLHOLDERS' INCOME

Many certification schemes have been adopted in the banana and cocoa export sectors to endorse more sustainable practices and promote socio-economic change. But in Costa Rica's banana sector and Côte d'Ivoire's cocoa sector, the benefits for workers' livelihoods are unclear and at best modest.

In Costa Rica, the Sustainable Trade Initiative estimated that more than 50 per cent of its banana workers now earn more than a living wage benchmark, while the remaining workers receive wages 10 per cent less than the benchmark. But the extent to which certification schemes were responsible for addressing the living wage gap was

Source: Alho et al., 2020.

unclear – these benefits are commonly correlated with environmental improvements and reduction in pesticide usage.

In Côte d'Ivoire, premiums paid by cocoa certification schemes were found to have negligible impacts on smallholder incomes: the average premium paid was insufficient to lift smallholders to a living income. The cocoa boards of Côte d'Ivoire and Ghana have recently joined forces, coordinating production and market volumes, and are considering building warehouses and grinding facilities that may lead to higher value addition in the producer countries.

Incorporating externalities into food prices: trade-offs or synergies?

Food production involves environmental and diet-related health costs that are not factored into prices. If these costs were accounted for, agricultural production costs and food prices would likely be higher. A tension thus exists between incorporating externalities into food prices and keeping food affordable, especially for the poor. Moreover, farmers are likely to incur added production costs for compliance with environmental regulations – and if consumers do not cover these costs, the farmers' profit margins and income will suffer.

How to approach these apparent trade-offs? In recent decades, a range of economic tools have been developed to internalize agricultural sector externalities, from payments for ecosystem services to taxes and subsidies. Voluntary market-driven certification schemes are widely recognized as mechanisms for internalizing the environmental costs of agricultural production – and smallholders' diets and health can be targeted for improvement through schemes to pay them fair prices, enabling them to earn a living income (Waarts et al., 2020). Generally, however, environmental and health costs are scarcely reflected in agricultural prices or incorporated through direct payment measures today, simply because the current market and trade model has emphasized economic efficiency (Clapp, 2016).

Now that environmental sustainability and nutritious food are being embraced more widely as desired food system outcomes, trade rules need to shift as well. Future trade agreements should expand the policy space for ensuring environmental protection and healthy food. Open trade may need to be restricted to reduce stress on water resources, to slow deforestation and to keep greenhouse gas (GHG) emissions within countries' commitments for

reduction (MacDonald et al., 2015). Such a rethinking of the contribution of trade to sustainable and inclusive agriculture requires a reappraisal of the full range of products and services from agriculture – including ecosystem services. Food system transformation policies need to move beyond ensuring tradable products to providing essential ecological services, supporting culture and improving livelihoods.

The risk remains that greater attention to the ecological costs of production could lead to higher food prices – that upward pressure on farmers' production costs will not be contained or covered by more sustainable technology or practices. Such price increases could seriously harm poorer smallholders. For the most vulnerable population groups, the most effective instruments for increasing access to affordable food are social safety net policies and targeted food programmes (conditional cash transfers, nutritional programmes for women and youth, school lunch programmes, food-for-work programmes [Diaz-Bonilla, 2017]). But because internalizing ecological costs will raise food prices for everyone, the best way to enhance food security is through rising incomes and better livelihood opportunities (especially off-farm employment).

Policy priorities for trade and markets

To overcome the potential trade-offs between trade openness and desired food system outcomes, policies should focus on four priorities:

Enhance resilience to external shocks through the diversification of production and of markets. Various strategies can reduce the negative impact of food trade on macroeconomic stability and increase the potential contributions of food trade to greater resilience against external (weather or price) shocks (**TABLE 5.1**). Two strategies for increasing resilience to external trade shocks are:

- Diversify food production and the composition of trade – a strategy that is more available to countries with greater agricultural potential.
 - Integrate regional markets to develop comparative advantages in food production – a useful strategy when domestic resources are constrained.
5. **Enhance competitiveness and improve market access for local farmers and SMEs.** The options for public intervention to align food systems with regional and international trade opportunities differ widely for small and large countries – and vary with the degree of food system development and integration. The competitiveness policy toolbox includes:
- Using WTO rules to make domestic agriculture more efficient and competitive.
 - Managing exchange rates.
 - Facilitating trade and market engagement.

TABLE 5.1 TRADE STRATEGIES FOR THREE COUNTRY TYPES

	COMMODITY-EXPORTING AND FOOD-IMPORTING	FOOD-IMPORTING BUT NOT COMMODITY-EXPORTING	COMMODITY-EXPORTING BUT NOT FOOD-IMPORTING
Good potential for expanding domestic agrifood production	Diversify and expand domestic food production and focus on value added	Diversify and expand domestic food supply	Diversify the agrifood economy
Limited potential for expanding domestic agrifood production	Diversify the economy and suppliers of food	Diversify the supplier network	Diversify into non-agricultural sectors

Source: Authors.

Small countries – and countries with less transparent governance – have fewer options and can thus easily face local monopolies due to higher entry costs. Larger and wealthier countries have more opportunities to invest in innovation and production at scale, improving long-term trade opportunities.

6. **Develop grades and standards, which are critical to support inclusive food systems.** Domestic production and international trade are increasingly regulated by grades and standards – either voluntary or compulsory – that aim to safeguard food quality and safety while reducing transaction costs and risks. Low-income countries must comply with these standards to reap the benefits of trade. If they do not, grades and standards can easily impede trade and reduce access to foreign markets. Substantial investments in infrastructure, vocational training and support services are likely to be necessary before compliance can be enforced.
7. **Incorporate social and environmental externalities and reinforce non-market values in trade policies.** The environmental impact of food trade is considerable, and agricultural commodities are responsible for a substantial part of GHG emissions. Greater integration of sustainable production criteria into trade practices will require both exporting and importing countries to embrace more commonly established sustainability standards, to declare the standards binding and to include them in bilateral or regional trade agreements. Climate finance facilities can then be used to balance regional differences in emission impacts and biodiversity – an increasingly favoured potential adaptation mechanism (Janssens et al., 2020). Social standards, such as living wage and fair pricing standards, may become more enforceable with novel technologies.

Simulation 5 in annex 1 illustrates how increasing import tariffs to promote food self-sufficiency, against a business-as-usual scenario, reduces nutrition security among the poorest people in low- and middle-income countries, at the expense of sustainability.

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