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A framework to understand the social impacts of agricultural trade

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Abstract

While international trade in agricultural commodities can spur economic development especially where governance is strong, there are also concerns about the local impacts of commodity production and their distribution. Previous frameworks have primarily focused on trade effects on environmental conditions in production regions, as well as economic growth and food security. Instead, we develop a conceptual framework for understanding the impact of agricultural trade on multidimensional wellbeing and equity. The purpose of the framework is to guide the analysis of the impacts of trade on people, by identifying the core concepts and organising the complexity of the local social impacts of global value chains. The framework is supported by evidence from studies on trade in soy, coffee, cocoa, and palm oil.

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commodity production, global value chains, multidimensional wellbeing, sustainable development

1 | INTRODUCTION

Production and trade in agricultural commodities are highly relevant for global development and food security. Yet, the role of trade is often treated implicitly in global assessments of food security, with studies focusing mainly on the spatial distribution of production and closing yield gaps efficiently (Struik & Kuyper, 2017). The literature on sustainable agricultural intensification, for example, seeks to assess how global food demand can be met while remaining within planetary boundaries and reducing negative impacts on ecosystems (Chartres & Noble, 2015). However, these analyses tend to engage less strongly with the political economy of trade (Rockström et al., 2017), and impacts on equity and the multiple dimensions of human wellbeing (Liao & Brown, 2018; Martin et al., 2018). This raises the question whether the further social impacts of international trade in agricultural commodities are positive, or trade-offs between global food security and other societal benefits arise.

A major sustainable development issue is that poverty rates among the producers of commodities such as coffee and cocoa, predominantly smallholder farmers in the Global South, continue to be high. These smallholders have difficulty accessing sustainable global value chains (GVCs) (Asamoah et al., 2013; Garrett et al., 2021; Minh & Osei-Amponsah, 2021). A wide range of efforts to increase farmer prices and increase smallholder productivity and incomes exist (Birner & Resnick, 2010; Garrett & Rausch, 2016; Lima et al., 2011). Yet, the impacts on poverty reduction in all its dimensions often fail to impress (DeFries et al., 2017; Morgans et al., 2018; Oya et al., 2018) or lack evidence (Garrett et al., 2021). Many impact studies remain focused on income as a measure of wellbeing, disregarding the fact that wellbeing is multifaceted and determined by multiple factors, and - importantly - that higher income does not necessarily equate to higher wellbeing (Ahmed et al., 2019; Hirons, Robinson, et al., 2018). Moreover, assessments of positive impacts of agricultural trade (Garrett & Rausch, 2016; Lima et al., 2011; Weinhold et al., 2013) are countered by reports on human rights violations, modern slavery (Stringer & Michailova, 2018), expropriation of (traditional) lands (Daniel, 2012; Greenpeace, 2019; Ioris, 2017), displacement of people (Amanor, 2012), and social violence on agricultural frontiers (Sauer, 2018). Many of these issues are addressed in initiatives such as the UN Business and Human Rights and UN Global Compact, World Bank Operational Policies (OP 4.12, OP 4.10), ILO Agenda for decent work, sector-specific OECD guidelines and national-level legal initiatives such as the UK Modern Slavery Act (Arena, 2017).

A more comprehensive assessment of the social impacts of trade in agricultural commodities would go beyond a focus on global food security and economic growth, towards the explicit inclusion of multidimensional wellbeing and equity. These social impacts of trade are the outcomes of a complex and multi-level social-ecological system

(SES), and stem from the sustainability outcomes of dynamic interactions between socio-economic and institutional drivers and the environment at multiple scales.

We develop a conceptual framework to support the analysis of multidimensional wellbeing and equity outcomes of trade in agricultural commodities, by describing the components and underlying processes that lead to different social outcomes. The purpose of the framework is a first step towards the identification of potential trade interventions to improve wellbeing and equity outcomes, while recognising trade-offs (Kanter et al., 2018; Martin et al., 2018; Struik & Kuyper, 2017). Our conceptual framework identifies the core components of local production and trade in agricultural commodities and their effects. We demonstrate the applicability of this framework for trade in four major agricultural commodities: cocoa, soy, palm oil, and coffee.

2 | DEVELOPMENT OF THE FRAMEWORK

Figure 1 presents the conceptual framework representing the social impacts of agricultural trade (SIAT). The SIAT framework was developed to structure the empirical peer-reviewed literature that provides evidence of the social impacts associated with trade in cocoa, coffee, palm oil and soy in producing areas (See Section 3). The aim of these reviews was to analyse the social impacts and how these change as a result of GVC interventions, including institutions and policies, incentives and information and technology (Newton et al., 2013).

Our SIAT framework links *outcomes* to *outputs* of activities, for which *actors* and *stakeholders* pursue *actions* using *resources*, and behave following *rules and regulations* and other *conditions* provided by the wider *social-ecological-political systems* at multiple levels. This conceptualisation is an adaptation of the broader SES framework by (MGO) McGinnis and Ostrom (2014), which is widely used as a diagnostic approach to identify variables and interactions that influence sustainability outcomes and solve governance challenges (Partelow, 2018). We chose to build on Ostrom's work, because its focus is on actors and their ability to influence outcomes as well as rules and regulations that govern transactions and interactions (Neimark et al., 2019), rather than a more a-political assessment of the flows of goods or funds. We thereby put emphasis on access and control over resources, which is crucial to understand poverty (Fisher et al., 2014). The MGO framework focuses on common pool resource management but has also been used in agricultural studies, for example on cocoa (Castañeda-Ccori et al., 2020). SES frameworks are increasingly used including in the context of trade (De Vos et al., 2019; Herrero-Jáuregui et al., 2018), but not to conceptualise the multidimensional wellbeing and equity issues resulting from commodity trade. The SIAT framework includes both direct impacts of trade and trade

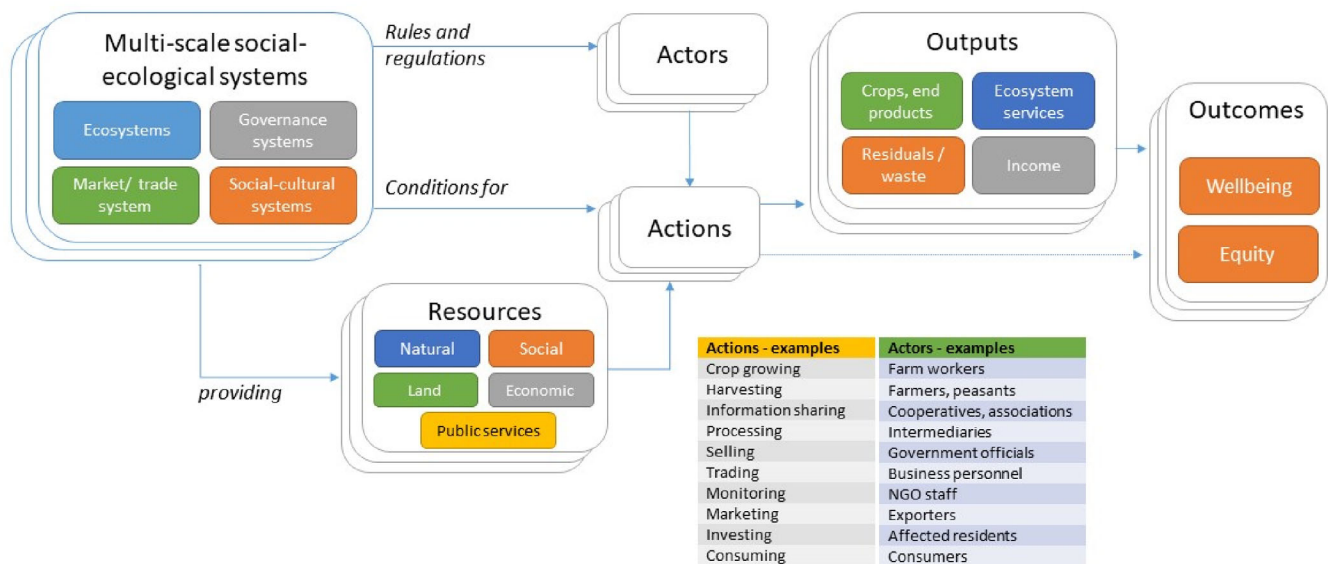


FIGURE 1 Framework for understanding the multidimensional wellbeing and equity outcomes of commodity trade in social-ecological systems. The framework describes how systemic settings provide resources, set conditions for actions and rules and regulations for actors undertaking actions, which result in outputs and ultimately in outcomes for wellbeing and equity. The different layers represent different spatial scales (local, national, and international) at which trade operates, which are connected in global value chains. We recognise bidirectional relationships and feedback loops, but have not depicted this to keep the diagram simple [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1002/sd.2379)]

interventions on multidimensional wellbeing (Alkire & Foster, 2011; Cummins, 1995), as well as indirect effects through changes in ecosystem services (Egoh et al., 2020; Fisher et al., 2014; Hausknot et al., 2017). Another motivation for using the MGO framework is its consideration of multiple scales, because local outcomes are not only influenced by local resources but also by regulations and contexts at higher scales (Giller et al., 2008; Huynen et al., 2005).

2.1 | Outcomes: Social impacts of trade

The core social impacts in our SIAT framework are wellbeing and (in) equity, which are included as outcomes. The various actors are expected to value the outcomes differently, and their values motivate their actions.

2.1.1 | Multidimensional wellbeing

Wellbeing is increasingly conceptualised as a multi-dimensional concept, defined differently in different places (Cavender-Bares et al., 2015; Helne & Hirvilammi, 2015; Schleicher et al., 2018). We build on earlier work (Schaafsma & Gross-Camp, 2021; Schleicher et al., 2018; Watts et al., 2019), which has identified and tested broad categories or dimensions of wellbeing (see Table 1) that are commonly assessed in studies on the wellbeing of people living in rural areas of commodity producing countries. These wellbeing dimensions correspond to a large extent to the Millennium Ecosystem Assessment (2005), life satisfaction domains (Cummins, 1995), and the Capabilities

Approach by Sen (1999) and Nussbaum (1992). Some of this previous work, as well as Schaafsma and Gross-Camp (2021), provide indicators for these dimensions.

The dimensions are interdependent, for example, good living conditions often relate to good health and nutritional status. Agricultural trade can also lead to trade-offs between these dimensions. Previous studies have revealed that farmers involved in the production of traded commodities sometimes experience positive effects in one dimension, but zero/negative results in another (Ahmed et al., 2019; Hirons, Robinson, et al., 2018).

The SIAT framework moves away from income-focused poverty assessments, and does not require, or focus on, a single metric for measuring wellbeing. Agricultural production can both be used directly by farmers for their domestic consumption, or be sold to generate income that can in turn be used for other wellbeing aspects (Lyon et al., 2017; Meier zu Selhausen, 2016). We also diverge from rights-based approaches that emphasise human rights as well as de jure or de facto rights to own or use resources; we take these rights as conditions for creating human wellbeing and equity.

2.1.2 | Equity and distributional justice

The second outcome concept of the SIAT framework is equity. We use the term to refer to the distribution of costs and benefits, burdens and gains, of the trade.¹ One of the recurrent themes in international commodity trade is the inequity along the supply chain, associated with the distribution of costs and benefits of production, onwards processing and sales, and consumption of commodities. Inequities

TABLE 1 Wellbeing dimensions based on Schaafsma and Gross-Camp (2021)

Wellbeing dimensions	Description and examples
Food/nutrition	The ability to provide in your personal and household's food and nutritional needs throughout the year, including food that you buy, produce yourself or collect in the area.
Health (physical)	Feeling strong and well; able bodied; and your ability to maintain your health and prevent disease, for example through acquiring medication or doctor assistance
Education	The ability to obtain the schooling you want personally, to send your children to school, including the required materials (e.g., books, uniforms, materials, fees)
Living standards	Shelter (adequate flooring, roofing and walls, sanitation, electricity); motorcycles or bicycles; mobile phones; farming/fishing equipment; livestock; safe drinking water; fuel.
Social relations	Your ability to have meaningful relationships with your family and friends, to have family cohesion and respect within families, communities and external actors, and your ability to help or rely on others in times of need. This includes for example your ability to care for, raise, marry and settle children, and to participate fully in society and social events such as celebrations, weddings and festivities.
Security, safety from other people	Safety and confidence in the future; peace and harmony – free from harm inflicted by other people, such as crime, mugging, physical violence (incl. rape), lack of protection from police, and lack of justice.
Living in safety from risk inflicted by nature, and in a clean, healthy environment	Your ability to live in safety from extensive harm or psychological stress created by exposure to climate and environmental risk. Your ability to feel that your life is safe from droughts, floods, heatwaves, mudslides, storms, tsunamis, earthquakes, so forth. Your ability to live surrounded by clean water in rivers and lakes, breathe clean air, that is, live in a safe and healthy environment free from pollution. Your ability to live without suffering crop losses, killings (by elephants, hippos, lions, etc.)
Cultural value	Your freedom to conduct traditional, cultural, tribal and religious practices, and spiritual values, including those attached to nature.
Freedom of choice and action	Your ability to live in freedom to carry out and perform functionings that one values. Your ability to live the life you want, with a sense of power to control and agency over your own life; according to your values and norms; being independent from the goodwill of others; including your livelihood such as a self-sustaining farmer/fisher; the ability to choose and achieve your goals in life; and your ability to influence decisions that are made by others in your community and beyond that affect your life; to be empowered; a life without discrimination (race, ethnicity, gender, sex, class, disability, nationality, etc.)

exist along various axes, including gender, wealth, culture and race (and their intersections), as well as time (intergenerational equity) and space.

Distributional inequities inevitably raise questions about the origin of such inequities, which are usually related to power and influence that create procedural injustices (Sikor, 2013). Within GVCs of commodities, power differences between stakeholders may increase inequities in wellbeing through procedural injustice (Hausknot et al., 2017). Examples of indicators for environmental justice can be found in Boillat et al. (2018) and Zepharovich et al. (2021). Alternatively, qualitative analysis such as in Dawson et al. (2017) can be used, and adjusted to fit the context of agricultural commodity production.

Gender equity in trade is of major importance for improving the sustainability of GVCs (Danso-Abbeam et al., 2020). Outcome differences in wellbeing between men and women can originate in differences in access to resources, income and other outputs, as well as social and political rules and regulations that determine access and ownership (Lyon et al., 2010). This includes intra-household rules, which for example may allocate more farm work to women while men keep the revenues (Austin, 2017). To fully understand the gendered impacts of agricultural trade, one must analyse the gendered differences in systems, outputs, sources and rules and regulations. Some GVC interventions, such as certification schemes, seek to increase women's empowerment through access and control over resources or

participation in organisations, in markets and in decision-making (Lyon et al., 2019). This can help increase their control over household resources and income (Danso-Abbeam et al., 2020; Foundjem-Tita et al., 2016), but the social and economic costs of complying with the norms of such schemes are often too high for many women (Bullock et al., 2018; Lyon et al., 2010). At the same time, agricultural trade may increase off-farm employment opportunities specifically for women (Maertens & Swinnen, 2012).

2.2 | Outputs

Our framework expands on MGO by separating outputs and outcomes, which allows us to include the traded commodities and ecosystem services as outputs,² and analyse their trade-offs and impacts on outcomes (Brandi, 2017; Martin et al., 2018; Schaafsma & Bartkowski, 2021). Outputs at local levels include the traded commodities and the income generated by selling these commodities; higher up the GVC, intermediate and end products are produced. Other outputs of the land include ecosystem services, which play an important role in the production of agricultural commodities. Ecosystem services (as defined by Smith et al., 2017) are the flows (material and immaterial) generated by the stocks of natural capital or resources through action by people (Bateman & Mace, 2020). Negative impacts

of trade and production on the environment can be included under waste (as pollution) or under ecosystem services (as disservices, a result of a decline or deterioration in ecosystems).

Trade-offs may exist between the outputs of trade-related actions, for example, where agricultural expansion results in higher production but also the loss of forested area leading to a decline in other beneficial ecosystem services from forests (Struik & Kuyper, 2017). For example, increasing commodity production, whilst leading to higher income, may come at the expense of food crops and thereby of nutrition (Le et al., 2020), or, in the case of forest conversion for example, at the expense of cultural values, protection against hazards or fuelwood provision. The outputs may arise in different locations: for example, areas of high production may be located elsewhere from areas where monetary income increases, especially when business owners do not reside in the production regions.

2.3 | Actions

Actions include (sets of) activities that *actors* in the core supply chain undertake to appropriate and use *resources* as inputs to produce, process, distribute, negotiate, market, sell and trade products, thereby generating *outputs*. Actions also include strategies and activities that enable this trade, such as projects to stimulate production, investing, sharing information, lobbying, certifying and monitoring. The actions are guided by prevailing *institutions*, and often involve processes and interactions between actors. Trade fits in the SIAT framework as the interaction between buyers and sellers, resulting in an agreed price, where the action (the transfer of money and goods) is sometimes formalised in a contract specifying various conditions (time and location of delivery, quality, payment arrangements, etc.). For GVCs of agricultural commodities, the production stage includes farmers producing crops by using ecosystems, land or other resources. They can adopt different types of farming techniques and other land use practices, such as organic farming, agroforestry or high-input monoculture farming.

2.4 | Actors and stakeholders

Actors can be individuals, representatives of organisations (government, companies), or collective entities (a company, a cooperative, a network), who generate demand for products and *resources*, and undertake *actions*. Trade actors include those directly involved in the supply chain: from farmers³ and farm workers, to producers, to intermediaries, to processors, to distributors, large international buyers and retailers, to consumers. Another set of relevant actors (from the state, market or civil society) influence the GVC by shaping the enabling environment (i.e., market and policy conditions for trade) and developing actions (interventions). Farmer associations and cooperatives are also actors, which for example provide training to improve the resource base available to farmers. A final set of stakeholders includes those who are affected by trade and impacted by economic,

environmental or social change but not directly involved in the GVC. The actors interact, and such collaboration may enhance outcomes (for instance where cooperatives assist farmers in marketing coffee and adopting certification schemes). The interactions between actors can also generate conflict (for example in the appropriation of land), especially where actors do not abide by official or implicit rules and regulations.

Actors are characterised by aspects of their socio-economic background and location, but also their culture (history, religion), personal values and norms, knowledge, perceptions, and preferences. These characteristics often determine an actor's conditions or opportunities for involvement in GVCs, and sometimes also their wellbeing outcomes. For example, some cocoa and coffee certification schemes have put increased involvement of women in certification interventions on their agendas, creating a rule/regulation directly aiming to increase gender equity (Snider et al., 2017; UTZ, 2010). In the operationalisation of the SIAT framework, it is useful to collect data on these characteristics.

2.5 | Resources

Resources are provided by *systems*, and include the natural resources and land, as well as the social and economic *capitals* required for actions and as inputs to production. We separate land and natural resources because of the importance of land in crop production; indeed, land may be less important for actors higher up the GVC, but often very important at local levels. Skills and knowledge are grouped under economic resources that actors can employ to undertake economic activities, together with (access to) financial capital such as savings, subsidies, remittances, credit and insurance markets, and physical capital such as technologies and equipment. Social capital includes the ability to influence decisions, and (access to) networks of actors, for example, for support or care or farmer associations or community groups, as well as trust, commitment and satisfaction, which enable good social relationships between actors. We include (access to) public services, such as infrastructure, education and health services. Public services are sometimes built to facilitate production and trade, such as local health centres or schools for plantation workers, and some cooperatives invest (part of the price premium) in community facilities. They may also include other aspects of the enabling environment, such as business-development services that increase entrepreneurship.

These capitals enable actors to undertake *actions*, and engage in trade. Access to resources is mediated by the *rules and regulations* set by institutions and organisations as part of the wider governance systems (Scoones, 2015). For example, the effects of coffee and cocoa certification are often expressed in terms of changes in capitals (Haggar et al., 2017; Ingram, Van Rijn, Waarts, & Gilhuis, 2018; Luna & Wilson, 2015; Middendorp et al., 2020; Morel et al., 2019). Resources are often unequally distributed both geographically as well as socio-economically through rules and regulations, including social norms (Foundjem-Tita et al., 2016; Martinelli et al., 2017).

The specific resources relevant to trade in agricultural commodities relate to ‘capitals’ under the Sustainable Livelihoods Framework (Scoones, 2015), and to ‘endowments and entitlements’ (Fisher et al., 2014) which regulate access to resources. We somewhat deviate from Bourdieu (2002) and Bebbington (1999) as we included cultural values, sometimes conceptualised as capital, as components of wellbeing and thus as an outcome, for example linked to the ability to maintain and uphold cultural values, traditions and spirituality. Some concepts of multidimensional wellbeing include resource and asset ownership or wealth as a wellbeing dimension in itself,⁴ but in general, we see wellbeing as a ‘flow’ concept, being generated by using resources. The corollary would be wealth (capital, stock), classified as a resource, versus income which is classified as a flow concept and hence an output.

2.6 | Rules and regulations

The social-economic-governance *systems/settings* set *rules and regulations* for actors, set *conditions* for actions and interventions, and *provide, secure or facilitate access to resources* to produce traded goods, thereby generating outputs and outcomes (Lenou Nkouedjo et al., 2020). Studies on the impacts of agricultural trade have revealed that these impacts vary across stakeholder groups, and are mediated by rules, regulations and other institutions (e.g., cooperatives, norms, rights, entitlements, contracts). Trade is influenced by rules and regulations at multiple scales (Giller et al., 2008). Global commodity markets are regulated by international trade agreements, (Aid-for-) trade policies, including international subsidies and tariffs, developed by institutions such as IMF and WTO, but also international environmental and human rights agreements, and sectoral moratoria.

At national level, policies include trade policy, commodity and labour markets, socio-economic policies (health, food, social, economic, education, etc.), and environmental policies (water, climate, land, forest). Rules and regulations may also include property-right systems, monitoring and sanctioning rules, access rules, but also incentives such as (labour, food, forest) standards, certification schemes, as well as initiatives that provide information and technology. Land tenure and rights (use, transfer, ...) are important for sustainable production and can lead to actions of conflict (encroachment, land appropriation, expropriation, involuntary resettlement) and inequality. For some commodities, for example, soy in Brazil, local markets for commodities are as important as international markets. Such multi-level governance of commodity production and trade creates complexities.

Rules – as institutions – carry power and have the capacity to benefit some actors at the expense of others (Epstein et al., 2014). Groups whose interests are reflected in operational rules, who participate in rule-making processes, who monitor rule conformity, and who hold enforceable property rights hold higher power (ibid.). Rather than depicting power in the framework, we follow Epstein et al. (2014), and Ostrom (2005), in that power is a combination of the control (as per rules) and the value of an opportunity, in this case in

commodity trade included under *Outputs*. Clearly, power and added value vary along the GVC.

2.7 | Multi-scale systems and dynamics

Trade occurs through interlinked multiscale systems of governance (including government, media, NGO organisations), social-cultural settings (demography, culture, history, social infrastructure), economy (markets, technologies, tax systems), and climate and ecosystems. These scales are depicted by different layers in Figure 1. Local systems can include livelihood systems. These systems are characterised by conditions and structures (settings). Departing from MGO, we include social, economic and political settings, as well as related ecosystems (our label for resource systems in MGO), as part of the social-ecological systems rather than as external settings.

The scales are connected, interact and may overlap; *actions* at one scale affect decisions at other scales, including who is empowered to act and decide on production and trade. This creates a ‘web of relations’ (Rocheleau, 2008). Ideally, national states would facilitate meso and micro-level institutions that help producers and communities to get organised and achieve their aspirations and take away barriers at higher levels in the GVC (Giller et al., 2008; Stoian et al., 2016). But in reality, power differences often dictate that downward pressure (such as the drive of multinationals to maximise shareholder value) is stronger than upward influence on international commodity markets (Giller et al., 2008). Developments such as consolidation and vertical integration (contract-farming, preferred suppliers) in value chains change cross-scale interactions, and lead for example to the out-competition of meso-scale actors or smallholders, redundancy of intermediaries, creation of monopolies, and barriers towards market entry. In extrema, this leads to low wellbeing, where farmers either are unable to enter GVCs or continue to produce commodities in absence of viable alternatives, but are caught in poverty traps (Barrett & Constan, 2014; Dorward et al., 2009).

This multi-scalar conceptualisation fits GVCs, where internationally traded goods ‘move through’ multiple scales, from local production to national and international markets, back to national and local markets, to arrive at local consumers. In this trade, the raw commodity serves as a resource for higher levels and may be processed along the GVC, into a final product. Conceptual frameworks from the tele-coupling literature (e.g., Schröter et al., 2018) emphasise the multi-local impacts of trade. Processing and consumption of a commodity in one location may be associated with production waste and pollution in another location. Lower production in one producing country may shift traders to other producing countries.

The systems are dynamic. One important dynamic in trade and market systems are price trends and volatility. Under international trade and cooperation agreements, the protection of producers subjected to price volatility is discouraged, given plausible adverse effects on both agricultural-exporting and importing countries (Anderson & Nelgen, 2012; Gouel, 2016). Price volatility at macro-level in international commodity markets and financial (currency) markets may affect local buyer and seller prices. For traded commodities, this volatility

may affect producer income directly, and will create a response action to cope with the reduction in income ex-post (e.g., selling assets), or an ex-ante risk management strategy (e.g., diversification, insurance, savings) (Distefano et al., 2018). Ultimately, such drivers in the trade system affect the outcomes (wellbeing, equity) at different levels.

3 | EXAMPLES

The SIAT framework was used to structure the available academic literature on the social impacts of soy (Dreoni, Matthews, & Schaafsma, 2021), palm oil (Ayompe et al., 2020), coffee (Watts et al., 2021) and cocoa (Dreoni, Schaafsma, & Matthews, 2021 and Ngouhou-Poufoun et al., 2021, in prep.) trade. The examples demonstrate how the elements of the framework combine and determine wellbeing and equity outcomes.

3.1 | Social impacts of soybean

Soybean trade has a variety of negative and positive socio-economic impacts on wellbeing in producing countries (Dreoni, Matthews, & Schaafsma, 2021). A review of the empirical literature shows a general positive effect on average individual income (*output*) and an overall reduction in income poverty rate (Choi & Kim, 2016; Lima et al., 2011). However, these results differ across space, suggesting that the impact of soy production on income equality (*outcome*) is negative (Martinelli et al., 2017; Weinhold et al., 2013), and this income inequality is stronger for soy than for other monocultures such as maize and beans. The unequal income distribution may be due to the unequal distribution of land (*resources*), where a handful of farmers (*actors*) own most of the cultivated land. The unequal land distribution may be due to land appropriation (*action*), mainly driven by transnational land investments (*market system*) and multiple *actors* such as agribusiness companies, local and national governments and international aid organisations (Busscher et al., 2020; Steward, 2007).

Land appropriation is partly facilitated by the lack of formal rights of smallholder farmers and traditional communities in producing areas (*governance system*). Possible solutions include providing financial and legal resources to smallholder farmers, as well as supporting negotiations between 'displaced' farmers and new farm owners to reduce conflicts (*economic resources*) (Busscher et al., 2020). For example, in Paraguay, indigenous communities that grow soy on indigenous land seem to have benefitted from a partnership with agribusiness companies where community members are considered partner-labourers of the agribusiness company through a benefit sharing agreement (Cardozo et al., 2016). Sjaww-Koen-Fa et al. (2017) demonstrate how these types of collaborative agreements can increase the profitability of smallholder farmers involved in soybean production due to increased access to farming capital as well as better market access through the creation of cooperatives and contract farming. However, these agreements may not always be beneficial for smallholder farmers and guarantee equitable benefit sharing. In this regard, it must be noted that,

although soybean expansion in South America may generate an increase in income and poverty reduction, it has been found to be associated with increasing inequalities (Weinhold et al., 2013). In response, efforts to implement market-driven interventions, primarily standard setting schemes, have increased (Macdonald, 2020). These schemes interact with, and can be incentivised by, national government policies and trade regulations (*governance system* and *trade system*). Examples include the Consumer Goods Forum on deforestation-free supply chains which involves both private and public sector actors, or the Round Table for Responsible Soy (RTRS) and Proterra certification programmes (Virah-Sawmy et al., 2019).

3.2 | Social impacts of palm oil

Palm oil is an important commodity contributing to the incomes of many households, GDP of governments (Li, 2015; McCarthy, 2010), poverty reduction, food security and employment (Bennett et al., 2018; Yusoff, 2006). However, its cultivation and continuous expansion by smallholders and agro-industries (*actors*) due to high and increasing demand have led to many negative effects and subsequent calls to make production sustainable. Sustainability in palm oil trade entails having a global supply chain (*trade system*) based on environmentally friendly and socially acceptable production and sourcing. Palm oil trade has both direct (social-economic) and indirect (through ecosystem services) positive and negative impacts on human wellbeing. However, the indirect impacts of palm oil trade are predominantly negative (Santika et al., 2019). In addition, the negative social impacts are overwhelming and ongoing. A review of literature revealed that the most frequently studied direct negative impacts are conflicts (*action*), housing conditions and land grabbing (*action*). The most frequently studied direct positive impacts are income generation (*output*) and employment (*outcome*) (Ayompe et al., 2020). In addition, most large agro-industries build roads (*resources*) for transportation of their produce, hospitals (*resources*) for their workers and schools for children (Bunyamin, 2008). The benefits are particularly important in least developed countries where oil palm is grown (Basiron, 2007). These benefits in most cases are part of rural development (*outcome*) that would otherwise not have happened. Ongoing initiatives to make palm oil trade sustainable such as the RSPO (*governance system*) are mainly focused on the environment but need to pay more attention to (related) social impacts. To make palm oil production sustainable and to meet SDGs such as ensuring healthy lives and promoting wellbeing as well as responsible consumption and production, negative social impacts of palm oil trade need to be urgently addressed through certification standards (*governance system*) (Santika et al., 2021), with a focus on equitable outcomes and multidimensional wellbeing.

3.3 | Social impacts of coffee

International price volatility in coffee markets lead to low coffee prices in local markets. Moreover, due to climate change and

variability, coffee yields are increasingly affected by pests (*international systems driving local system conditions*) (Juju et al., 2018). As a result, coffee farmers (actors) see their yields and incomes (*outputs*) decline (Austin, 2017; Hausermann, 2014). This in turn leads to a lower ability to buy farm inputs (*resources*) (Bacon, 2005), as well as lack of income for nutrition, schooling and other wellbeing dimensions (Bacon, 2005). Moreover, gender norms (*local social system*) dictate that women are mainly excluded from coffee business (Snider et al., 2017). Thanks to the cultural value (*outcome*) of coffee production, and other crops that farmers produce, coffee farming continues (Bravo-Monroy et al., 2016; Hausermann, 2014).

A dominant intervention in this supply chain is the certification schemes introduced by global actors such as Rainforest Alliance (now merged with UTZ) and Fairtrade International (*trade system*). They provide price premiums through collaborating with meso-level cooperatives that engage with local producers. They sometimes invest in local *resources*, through training, access to credit and community services (Hagggar et al., 2017; Ibnu et al., 2018; Luna & Wilson, 2015). Where the interaction between farmers and cooperatives is beneficial, mutual trust and commitment is built (Mojo et al., 2015). The premiums increase producer incomes (*outputs*) (Loconto et al., 2019), and wider community members may benefit from the public services in terms of health and education (*outcomes*) (Possinger & Klier, 2012; UTZ, 2010). Higher revenues are re-invested in inputs such as pesticides. Some cooperatives actively and successfully encourage women participation, and thereby increase women's freedom and self-determination (Lyon et al., 2017; Meier zu Selhausen, 2016). However, evidence also suggests that not all coffee farmers are able to benefit, with low certification adoption especially among less wealthy and educated farmers, so that certification schemes can lead to increased inequalities (*outcomes*) (Austin, 2017; Jena & Grote, 2017; Mojo et al., 2017). Moreover, certification schemes also channel down global human rights treaties that aim to stop child labour in coffee farms and plantations (Meemken et al., 2017; UTZ, 2010). While these in principle would relieve children from farm work allowing them to attend school, the treaties also imply that smallholder farmers observe increased labour costs and/or lower yields (Bray & Neilson, 2018; Mitiku et al., 2017), leading to lower income available for household needs (Ruben & Fort, 2012).

3.4 | Social impacts of West-African cocoa

Cocoa is mainly produced in areas where tropical rainforests (*ecosystem*) are found. Most cocoa is produced by an estimated two million smallholder farmers (*actors*) in West Africa (Weilligmann et al., 2010). Cocoa production has been associated with deforestation, and therefore loss of ecosystem services, such as carbon sequestration and soil fertility (Akrofi-Atitianti et al., 2018; Tondoh et al., 2015) as well as biodiversity (Asigbaase et al., 2019; Bennett et al., 2021). Cacao is a major income source (*output*) in cocoa-producing areas, yet more than 30% of the farmers in the two major cocoa producing countries, Cote d'Ivoire and Ghana, live below the \$1.90 poverty line and more than

70% have incomes per capita below living income standards (Tyszler et al., 2018; Waarts et al., 2019). This income poverty is associated with differences in multidimensional wellbeing between social groups (*outcome*), mediated by local governance, tenure arrangements and gender norms (Bymolt et al., 2018; Hiron, Robinson, et al., 2018; Knöbldorfer et al., 2021). Other inequities lie in farmers' ability to cope with shocks such as droughts (Hiron, Boyd, et al., 2018). Differences in *resource* endowments, such as education, create gendered differences in cocoa production efficiency and thus in their income (*output*) (Danso-Abbeam et al., 2020).

Since the liberalisation of cocoa markets in the 1980–1990s (*market system*), farmers sell to small traders, at buying stations or through cooperatives to exporter's agents or to local or international traders and brokers (*actors*). Concentration of cocoa trading among a few large players gives these traders considerable market power over scattered smallholder farmers (Gayi & Tsowou, 2017), where farmers receive only 4%–6% of the final consumer price (Abdulsamad et al., 2015). Cocoa production has been associated with child labour (Gockowski et al., 2006; Ingram, van Rijn, Waarts, Dekkers, et al., 2018). In response to this violation of international human rights agreements (rules and regulations), certification schemes such as Fair-Trade have been set up (*actions*) by supply chain *actors*. Other initiatives, including voluntary standards and corporate initiatives, are often implemented through public-private-civil society partnerships, and focus on environmental sustainability, with mixed effects on income, productivity and the environment (*outputs*) (Brandi, 2017; Ingram, van Rijn, Waarts, Dekkers, et al., 2018). In 2020, Ghana and Cote d'Ivoire introduced the 'living income differential' (*rules*) to address poverty among cocoa farmers, in effect adding a premium to the prevailing market price (*market system*). But as a result, farmers are incentivised to grow more whilst demand for cocoa from international buyers has decreased (or they have simply refused to pay the premium). Farm gate prices have already been decreased in Cote d'Ivoire as a response, cancelling out any benefits for farmers (Boysen et al., 2021).

4 | DISCUSSION

Our framework has been useful in analysing and structuring the literature reviews on social impacts on the four commodities as described in the previous section. We acknowledge some limitations. The literature reviews were not a comprehensive application of the framework, so testing the full breadth of this framework will require further empirical studies. The framework itself is broad, so that a comprehensive empirical assessment of all concepts within one study is likely to be infeasible. At the same time, this broad scope helps to identify the limitations (or necessary assumptions) of analyses that cover only part of the framework. The framework may require further specification of variables and indicators applicable in different agricultural trade contexts (Partelow, 2018).

We also acknowledge that the SIAT framework is primarily based on examples of the impact for stakeholders in producing areas at

subnational level. Though, macro-level assessment of revenue generation by the government and aggregate estimates of social welfare impacts or total economic productivity are also included in the framework. Our paper does not describe outcomes for actors in importing countries, such as health and nutritional impacts, consumer preferences for certified products, or welfare gains to importing countries or multinationals.

Nonetheless, we argue that bringing together the broad range of concepts in this framework provides a starting point for structuring research and generating hypotheses to identify and test causal pathways through which agricultural trade can affect multidimensional wellbeing. Beyond the generic observations that more research on multidimensional wellbeing and equity impacts of trade interventions is required, we outline some major avenues for future research. The avenues are based on the notion that sustainable trade will require actors to cooperate and institutions to foster long-term and equitable resource availability.

Firstly, the SIAT framework allows for analysing conflicts and trade-offs between desirable outcomes as a result of supply chain interventions. For example, certification schemes may rule out child labour in order to protect children or impose minimum wages. But farmers faced with such restrictions may see a reduction in labour and therefore in lower yield, higher production costs and ultimately lower incomes, with expected ramifications for wellbeing (Gockowski et al., 2006; Ingram, van Rijn, Waarts, Dekkers, et al., 2018).

Secondly, while the current literature linking interventions to wellbeing and equity impacts tends to focus on standards, further research is necessary to assess whether other types of trade interventions (e.g., multi- or bi-lateral trade agreements, tariffs, subsidies and taxes, non-tariff measures, rules of origin) as well as initiatives targeting smallholders directly (Terlau et al., 2019) or newly designed value chains (Minh & Osei-Amponsah, 2021.) lead to different outcomes. Moreover, the interactions between different policies, whether at different scales or by different actors, remain a key knowledge gap. Policies can be complementary, such as the combination of cooperative strengthening and certification (Newton et al., 2013).

Thirdly, the SIAT framework takes temporal dynamics as an important characteristic of the systems and all they encompass. If trade is seen as a vehicle for development, assessing the impacts of trade requires both a short-term and a mid- to long-term lens. The interactions between market dynamics and ecosystem dynamics must be understood in order to define, for example, sustainable irrigation schemes. However, the inter-temporal dynamics of SES in general, and for trade in particular, are poorly understood (Martin et al., 2018).

Fourthly, although feedbacks are not included in the framework figure explicitly, we highlight these as another important area for further research. The SIAT framework depicts trade as a continuous process, where actors take action depending on anticipated or experienced wellbeing outcomes, where sequences of events and changes are inherently messy. For example, cooperatives interact with coffee producers which increases producers' access to capitals and public services, that are sometimes accessible to other community members too. The resulting outputs (income, crops) and outcomes

(wellbeing, inequality) feed back into resources and actions, and thereby over time perpetuate or aggravate existing inequalities. Another example is that trade may increase poverty in the long run if it leads to environmental degradation where poorer groups are more dependent on the environment or more vulnerable to environmental change (Dearing et al., 2014).

Finally, the framework may help to highlight issues of attribution of wellbeing impacts to interventions or external drivers of change. It is often hard to attribute positive or negative changes in wellbeing to particular production sites or interventions (Newton et al., 2013).

5 | CONCLUSIONS

Trade in commodities has a myriad of impacts on equity and multidimensional wellbeing. Our conceptual framework provides a way to structure these, and helps guide research on how interventions targeting social-ecological systems, rules and regulations, and the management of resources can help improve outcomes. Thereby, the SIAT framework aims to fill a gap in the assessment of social impacts in producing areas, and primarily for the most vulnerable actors in supply chains, as well as the distribution of economic benefits of commodity production (Gardner et al., 2019).

Our SIAT framework may help actors at various levels to develop impact pathways. This includes national governments, as well as other value chain actors, such as cooperatives, who seek to evaluate their processes and impacts. The framework may have relevance beyond agricultural commodities, for example, for timber, mining, and other natural resources, with similarly complex GVC and resource extraction from the Global South. Our framework can support analyses of the impacts of international trade and trade interventions on local wellbeing and equity outcomes, but the revealed complexity also signals that identifying and quantifying the effect of individual factors on final outcomes in terms of wellbeing and equity may be difficult. Institutions, and in particular broad and plural coalitions of actors, forming and governing inclusive institutions (Acemoglu & Robinson, 2012), may play a central role in generating wellbeing through trade. Such actor coalitions can gather the assets to change the rules and regulations or maintain beneficial institutions (Berdegue et al., 2015).

The SIAT framework aims to shift the focus of the academic literature from income to the wider multidimensional impacts and equity outcomes of the production of traded commodities, for farmers and rural workers and the wider community members who may also be affected. An important unexplored impact in the literature on the social impacts of traded agricultural commodities is the impact on cultural values, including the disappearance of indigenous crops, effects on culturally important landscape features, and the social effects of stronger engagement with international markets. Escobar (2011) has long called for development actions to be appreciative of cultural, ecological and economic differences. Therefore, definitions of wellbeing such as those presented in Table 1 may require adjustment to study context to recognise the values of stakeholders in situ.

International trade has a crucial role in sustainability transitions, and sustainable trade can deliver on issues enabling farmers to engage and benefit from the SDGs (Terlau et al., 2019). We argue that trade should be understood as a 'means to and end', and not as a sustainable development proxy for achieving positive social impacts for all, that is, for 'leaving no one behind'. Indeed, alternative pathways towards sustainability could be primarily based on cooperation and partnerships (SDG 17), and should be directed at the eradication of poverty (SDG 1) and quality education and learning opportunities for all (SDG 4) to also benefit other SDGs (Laumann et al., 2021).

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ENDNOTES

¹ The inclusion of this term does not 'prescribe' that trade is only fair if all stakeholders gain (in the net) exactly the same, but highlights that justice is put forward as an important societal goal and social impact, without prescribing a distributional rule or criterion (Sikor, 2013).

² Commodities are also provisioning ecosystem services. To avoid double counting, assessments should not include commodities in both output categories.

³ We use the term 'farmers' here, but recognise the preference for the term 'peasants' among some groups.

⁴ In the wellbeing dimension 'living standards', some assets are included (motorcycles or bicycles; mobile phones; farming/fishing equipment; livestock).

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