# Inclusive Business Models in Ethiopia:
# The Impact of Value Chain Inclusion on Smallholder Farmers' Use of Land and Irrigation

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**Abstract**

Numerous studies have found that resource-poor farmers are often bypassed in inclusive business approaches, leading to worsened food security and exacerbated inequalities. However, the studies analysing the impact pathways of smallholder value chain inclusion have predominantly focused on outcomes in terms of income, productivity, or consumption effects. The impact on productive resources has received considerably less attention, yet the households' access to productive resources indicates long-term effects and holds a central role in food security and welfare. Therefore, an analysis from a resource-based view is required, as smallholder farmers in Ethiopia are highly dependent on land and water resources, in an environment that experiences increasing resource stress. The sustainable livelihood framework underpins the role of natural resources as critical assets that determine the farmers' livelihood strategies.

Although previous research has examined smallholder value chain inclusion, results have remained mixed and dispersed. Therefore, this study presents a systematic literature review that synthesises the patterns in Ethiopian smallholder farmers' land and irrigation use after value chain integration. Web of Science, Scopus, and Taylor & Francis databases were systematically reviewed for relevant academic literature, overarching concepts and themes were developed across the final set of articles (n=33) and subsequently explored in expert interviews (n=3).

The analysis identified positive effects of participation on input access, income and productivity gains, contrasted with adverse consequences of input dependence, intensified land and irrigation demand, crowding out, and monocropping practices. Most studies confirmed land size and access to irrigation as inclusion requirements, while few found a lack of effect. Better resource endowment facilitated inclusion and inclusion led to better access to and accumulation of productive resources. The higher resource demand of IB activities poses additional strains on the natural resources, potentially enhancing conflict and competition among the smallholders.

*Keywords:* inclusive business, value chain integration, smallholder farmers, Ethiopia, natural resource use

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## List of Abbreviations

| Abbreviation or Acronym | Definition |
|---|---|
| 4Ps | Public-Private Producer Partnership |
| AVCP | Agricultural Value Chains Project |
| AVCPO | Agricultural Value Chains Project in Oromia |
| BoP | Bottom of the Pyramid |
| ECX | Ethiopian Commodity Exchange |
| DFID | Department For International Development |
| FAO | Food and Agricultural Organization |
| FNS | Food and Nutrition Security |
| GVC | Global Value Chain |
| IB | Inclusive Business |
| IBM | Inclusive Business Model |
| ILO | International Labour Organisation |
| ITA | International Trade Administration |
| PO | Producer Organisation |
| PSALSAR | Protocol Search Appraisal Synthesis Analysis Report |
| SL | Sustainable Livelihoods |
| SDGs | Sustainable Development Goals |
| SLR | Systematic Literature Review |
| SNNP | Southern Nations, Nationalities, and Peoples |
| SNV | Netherlands Development Organisation |
| SSA | Sub-Saharan Africa |
| STC | Save the Children |
| SVCI | Smallholder Value Chain Inclusion |
| UNDP | United Nations Development Programme |
| USAID | United States Agency for International Development |
| VC | Value Chain |
| WB | World Bank |

# 1. Chapter - Introduction

Inclusive and sustainable agricultural development plays a crucial role in meeting poverty alleviation and food security, alongside goals of sustainable agriculture (Andaregie et al., 2021). The discussions on the land-water-energy-food nexus underline the intertwined nature of food and nutrition security, the growing population, poverty reduction, environmental pressures, and the overall frame of sustainable development (Siciliano et al., 2017). Especially the increasing use of resources is expected to exacerbate the competition for land and water resources, with an immediate effect on agriculture and the vast number of smallholder farmers (World Bank, 2020; Andaregie et al., 2021).

Albeit being the producers of an estimated 80% of food consumed in sub-Saharan Africa, smallholders are amongst the most vulnerable to these increasing pressures (Kamara et al., 2019). According to Kamara et al. (2019) and Vignola et al. (2015), smallholder farms should not just be defined by farm size, usually producing on less than 2-10ha, but similarly by their assets and income, as they depend on their farms as primary source of food security and income generation. Around 80% of smallholder farmers still produce at a subsistence level, but the consumption of self-produced food is estimated to cover only 20% of the food needs of households in SSA (Kim et al., 2021). Therefore, a key topic in inclusive and sustainable development has been poverty reduction and more responsible stewardship of resources, alongside agricultural productivity increases.

As a country that considerably relies on agriculture, commercialisation in Ethiopia is viewed as an essential pathway toward economic growth and development (Andaregie et al., 2021). Although the country's economy has been growing steadily, researchers and policymakers agree that a food-secure future which eradicates poverty is hinged on the commercialisation of smallholder agricultural production (Jaleta et al., 2009). Nonetheless, agriculture in Ethiopia continues to face constraints related to natural resources, the limited use of improved agricultural technologies, the predominance of subsistence agriculture, the lack of business-oriented agricultural production systems and limited or no access to market facilities (Andaregie et al., 2021). Ultimately, this has led to low participation of smallholder farmers in the value chain.

To foster market-oriented smallholder agriculture and agricultural growth, programmes such as the Agriculture-Led Development Initiative have been implemented (National Planning Commission, 2016). Small-scale farmers are encouraged to increasingly participate in output markets by selling their agricultural produce (Tabe Ojong et al., 2022).

This entails a continuous transition from subsistence to market-oriented production of crops and livestock (Tabe Ojong et al., 2021). Because smallholder commercialisation is viewed as a way to enhance agricultural profitability and increase household incomes, businesses have been encouraged to integrate small-scale local farmers into their value chains as producers (G20, 2018). In line with this, the current study is focused on the smallholder inclusion into value chains as producers, part of the so-called inclusive business approach.

Although the literature has identified smallholder value chain integration as a necessary stimulator, market participation remains highly heterogeneous in terms of the ability of individual farmers to participate in the market efficiently and effectively (Vabi Vamuloh et al., 2019). While offering a promising chance to reconcile food security, conservation, productivity, and welfare outcomes, inclusive business (IB) has been criticised for furthering the dynamics of exclusion among smallholder farmers (Ros-Tonen et al., 2019). Different smallholder characteristics have been identified as impacting participation in contract farming. Especially where the farmers 'capacities are deemed insufficient, poor farmers are likely excluded (Vabi Vamuloh et al., 2019). In an early study by Little and Watts (1994), the vital role of having a large-sized farm was emphasised, as inequalities between larger, rich, and smaller, poor farmers were exacerbated. Vabi Vamuloh et al. (2019) confirmed that, among others, factors such as the total land holding of the household, the volume of production, and the use of irrigation technologies significantly impact the livelihoods of smallholder producers. Repeatedly, as summarised by Tabe Ojong et al. (2022), different smallholder characteristics seem to create opportunities and obstacles to participation and heterogeneous dispersion of benefits.

In practice, numerous studies have found that especially (resource-) poor farmers are often bypassed in this process, leading to worsened food security and exacerbated inequalities. However, the studies analysing the impact pathways of smallholder value chain inclusion (SVCI) commonly discuss outcomes in terms of income, productivity gains or consumption effects (Tabe Ojong et al., 2022; Addisu, 2018; Meemken, 2020). Although this has provided valuable insights, the impact on productive resources represents a less studied, though equally important, aspect of welfare dynamics in rural economies (Tabe Ojong et al., 2022). The households' access to productive resources serves as a robust indicator of longerterm effects and holds a leading role in rural households' ability to remain productive, generate income, and maintain food security and welfare.

## 1.1 The Present Study

***Objective.*** This study focuses on the effects of smallholder value chain inclusion (SVCI) on land and irrigation use as vital productive resources for agricultural productivity, food security and poverty alleviation. Based on the identified need to better integrate vulnerable smallholder farmers in Ethiopia, the specific objectives of this study are (1) understanding the current role of land and irrigation that is relevant to the IB discussion, (2) analysing in which way agri-business impacts the productive resource use of smallholders and (3) formulating key propositions to be considered in moving toward more inclusive SVCI. The study wishes to contribute to understanding the impact of inclusive approaches to smallholder value chain integration and a more inclusive process sensitive to the (resource)heterogeneity of smallholder farmers.

***Research Questions.*** In line with this, the core question this study aims to answer is as follows: "What is the impact of inclusive business in the use of land and water resources of Ethiopian smallholder farmers?". The use of land and irrigation of smallholders included in agricultural value chains and those not included are explored. The critical stakeholders and social and economic impact as essential dimensions of sustainability will be considered. To answer this question, the following sub-questions will be addressed:

1. Who are the main stakeholders involved, and what is their role?
2. Which change can be observed in the use of land among smallholders?
    a. Who is able to use land and how much?
    b. To what purpose is land used?
3. Which change can be observed in water/irrigation use among smallholders?
    a. Who is able to use water resources and how much?
    b. To what purpose is water used?
4. What socio-economic changes among smallholders result from the IB impact on land and water use?

***Overview.*** The remainder of this report is organised as follows, separated into Part I which covers the research set up and Part II which discusses the findings. In Part I, Chapter 2 establishes the analytical and conceptual framework on which the analysis rests. Chapter 3 shows the regional framework, considering relevant aspects of the Ethiopian context. Chapter 4 describes the methodology employed to address the research objective, specifically, the

systematic literature review and interviews. The analysis and findings are presented in Part II in Chapters 5 to 9. This is followed by the discussion of the critical conclusions in Chapter 10. This chapter ends with the main insights and recommendations for future research.

# Part I – Conceptual, Analytical and Methodological Background

## 2. Chapter - Analytical and Conceptual Framework

This chapter establishes the analytical framework and key concepts on which this study is built. First, it discusses central themes relating to the livelihoods and resource use of smallholders and their food security which serve as a conceptual lens through which the topic is explored. It commences with the specificities and role of inclusive business therein and the current understanding of smallholder value chain integration. Lastly, it considers recent research on the realities of implementing inclusive business and culminates in the knowledge gap.

### 2.1 Food and Nutrition Security

As noted in the previous section, inclusive and sustainable development in the agricultural sector entails secure food and nutrition for smallholder farmers. Food security is considered a dynamic concept; new dimensions and levels of analysis have continuously been integrated over the years (Mohamed, 2017). Thereby, research and public policy acknowledge the evolving complexity of the issue (Mohamed, 2017). The evolution of approaches has brought forth diverse ways of understanding and analysing food security: Availability, income-based measurements, basic needs and capabilities and entitlements.

Each approach has drawn attention to various components of food security, constituting the extension of the definition over time. As the oldest, the *food availability approach* popularised by Thomas Malthus focuses on the imbalance between population and available food supply: food insecurity is described as lack of available food and the focus is shifted to increasing production and productive capacities (Malthus et al., 1992). The *incomebased approach* reflects food insecurity as an issue in the agricultural sector and national economy as a whole (Pawlak & Kołodziejczak, 2020). Food insecurity is described as lack of sufficient income to buy required food, shifting the focus to measures such as the Gross Domestic Product. The *basic needs approach* provided a new focus on non-economic dimensions constituting development: to satisfy the basic needs of all includes the satisfaction of adequate food consumption to lead a healthy life (ILO, 1976). The focus shifts to measures such as average calorie intake and observation of actual consumption. Driven by Amartya Sen, the *entitlement approach* attributed food insecurity to a failure to be entitled to enough food in terms of a) personal endowments as resources and b) commodities to access food

through trade or production (Burchi & de Muro, 2016). Food insecurity was understood as matter of access, as the poor lack purchasing power, rights, claims on land or other entitlements that could provide access, despite sufficient availability.

In line with the latest approach, food security in current discourse is commonly defined as 'all people, at all times, having physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life' (Food and Agriculture Organization (FAO), 1996). As determined in the World Food Summit of 1996, the most widely used conceptualisation differentiates between 4 dimensions of food security: I) availability as physical supply and production, II) how people get access to food through, e.g., growing or purchasing, III) utilisation as use of food products, specifically, preparation and consumption, and IV) stability related to sustainability and resilience over time.

Availability, access, use, and stability are instrumental to overcoming nutritional deprivation (Hwalla et al., 2016). However, the relationship between food and nutrition security is anything but straightforward and highly complex. Nutrition insecurity can occur despite abundant food products, and improved availability and access do not necessarily translate into improved nutrition (Hwalla et al., 2016; van Westen et al., 2019). Nonetheless, food security cannot be achieved without nutrition security, which similarly applies vice versa (Hwalla et al., 2016). As a result, the integral relationship is recognised in the deliberate choice of the term 'food and nutrition security'.

### 2.2 Sustainable Livelihood Approach

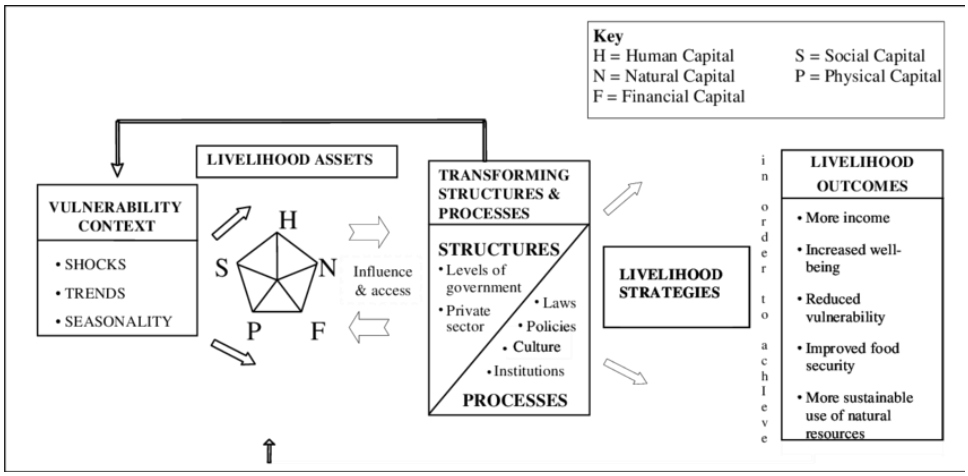
Food Security and Sustainable Livelihoods are inherently interconnected. As analytic lens, the Sustainable Livelihoods (SL) framework serves as tool for understanding how the farmers' livelihood is linked to their external environment, increasing the control over their natural resources and creating sustainable and equitable access to food. First, vulnerabilities in food security are linked to several stresses and households' adaptive capacity, which is reflected in their access to assets (Connolly-Boutin & Smit, 2016). Second, food security is one of the desired livelihood outcomes in IB (Ibid). This provides a framework for analysing a resource-based view of smallholders' livelihoods.

Chambers (1987) has introduced the elements that constitute the SL, focusing on rural development and poverty. The framework has since been adopted by many development organisations and practitioners, including non-governmental organisations, governmental

agencies, or agencies of the United Nations (Burchi & de Muro, 2016). The approach highlights the necessities of life and what constitutes a living: the means of securing this living hold a vital role as tangible and intangible assets at the disposal of a household (Tabares et al., 2022). These assets are laid out in 5 categories: natural capital, physical capital, financial capital, social capital, and human capital (Tabares et al., 2022). The pentagon of 5 assets constitutes the core of the SL framework, as illustrated in its full complexity in Figure 1.

**Figure 1.**

*Sustainable Livelihood Framework (Moser & Norton, 2001)*




The SL framework has two main advantages over previous approaches in understanding food security: first, its long-term perspective (sustainable) and, second, its context sensitivity (especially for agricultural activities and rural areas; Burchi & de Muro, 2016). As visible in Figure 1, the framework is a lot more comprehensive and has been widely used for measuring food security. Three concepts are central to the framework that previous approaches have not grasped:

I. Vulnerability: This covers risks and shocks that are experienced by the household, adverse trends, and seasonality. Vulnerability comprises how exposed (to external factors), or defenceless (based on internal factors) people are in terms of their means to cope (Brocklesby & Fisher, 2003).
II. Sustainability: Per definition, a livelihood is sustainable when it can cope with and bounce back from stress or shock, maintaining or even enhancing its capabilities in the present and into the future (DFID, 1999).

III. Coping strategies: The strategies summarise households' activities in response to external shocks. These are part of the broader livelihood strategies, as activities undertaken to pursue livelihood goals and emphasise people's active role and agency in coping with experienced challenges (Brocklesby & Fisher, 2003).

Natural resources are considered essential livelihood resources which, combined with other assets, impact the household's livelihood strategies. Especially in the case of agricultural households, this has long determined strategies such as agricultural intensification, livelihood diversification, or migration (Scoones, 1998). Thereby, the SL framework provides a flexible, holistic, and pragmatic approach, allowing for the analysis of income, vulnerability, food security, and resource access at household or community level.

### 2.3 Retro-Liberalism

In working towards the goal of food and nutrition security alongside sustainable agriculture (SDG 2), diverse strategies are at the disposal of donors. However, these donor approaches to bringing about improved FNS are changing and thereby impact policies on food security and agriculture (Stronge et al., 2020). In line with this, development assistance has experienced a shift toward private sector initiatives linked to development goals.

To understand this shift, Murray and Overton (2016) provide a theoretical foundation which they coined retro-liberalism. Focusing on the regulation of aid practice, the authors describe that, alongside the state, neoliberal principles have rejuvenated the role of private sector interests (Ibid). The new regime links principles of classical liberalism, neoliberalism but also the active part of the state along principles of modernisation (Murray & Overton, 2016). Positioning contract farming as a pillar of agricultural development policy, it has been increasingly promoted as development strategy by agribusiness, alongside states and donors (Vicol et al., 2021). This has brought a changing narrative of donor approaches, often framing a solution where everyone benefits due to the 'shared prosperity' in which a business case is united with development goals.

The authors underpin this with evidence in recent reforms of Western donors such as the United Kingdom or the Netherlands (Mawdsley et al., 2018). Led by the state, this serves the sustained accumulation of private capital and marks a return to initiatives driven by selfinterest of private sector trade and investment (Mawdsley et al., 2018). As this narrative impacts the framing of issues and desirable responses, the shift has significant consequences

for the disbursement of investments and the nature and outcomes of programmes in agriculture (Stronge et al., 2020). In line with this, much of the debate on agricultural policy has held a narrow focus on terminologies such as opportunities or competition, public-private partnership, and value chains (Wiggins, 2016). While research acknowledges contributions to poverty alleviation and food security (Stronge et al., 2020; Chang et al., 2015), the lack of critical perspective regarding inclusiveness of agricultural policy has been questioned.

### 2.4 Inclusive Business – A Business Approach to Development

Based on this shift toward private sector initiatives, the business approaches to inclusive and sustainable agricultural development have received much attention. Addressing the inclusion of smallholder farmers into agricultural value chains, the so-called Inclusive Business (IB) constitutes a central element of this research. The inclusive models were brought forth by the growing demand for innovative and market-based solutions to developmental objectives, driving inclusion and providing opportunities to the marginalised and vulnerable (Pouw et al., 2019). Composing an active development strategy, companies are increasingly supported by donor countries and Southern governments in including smallholders and communities in their business endeavours (Amanor, 2019).

***Financial Viability***. In theory, inclusive business rests on the assumption that social objectives can be integrated into business operations. The "inclusive" element of the IBM concept relates to the constraints of linking commodity-dependent smallholders and small enterprises to markets (FAO, 2015). The "business" element is mainstreaming business tools and private sector approaches into agricultural development (FAO, 2015). In an optimistic view, this promises a win-win situation where a) the company's profitability increases as more production is available to meet the market demand and b) farmers' livelihoods are improved through higher income (Hall et al., 2017). However, in contrast to philanthropy, the importance of business interests and profitability remains central to the inclusive business approach. This economic viability therefore dictates limits to the development objectives that are pursued. Overall, IBMs integrate smallholders into markets with the promise of mutual benefits for poor farmers and business partners.

***Value Chains.*** More specifically, inclusive business models have been promoted to integrate smallholders into commercial value chains. In contrast to social enterprises that focus on delivering services to the poor, IB highlights poverty reduction and decreased inequality (Danse et al., 2020). First, IB promotes more sustainable livelihoods and

development by assisting people to move out of poverty and contributing to improved food and nutrition security. Second, it wishes to target the most marginalised and vulnerable groups, seeing them as producers and business contributors rather than consumers (Danse et al., 2020). Therefore, they actively contribute to the supply of formal markets. Smallholders can be linked to agricultural value chains in numerous ways, ranging from trade, farmers' organizations, food processing, to contract farming with larger buyers (FAO, 2015). Due to the key priority of transforming agriculture and food systems, small-scale producers and entrepreneurs in the agri-business sectors are in the focus (Amanor, 2019).

***Engaging the Bottom of the Pyramid.*** Central to the concept of IB is the assumption that participating in pro-poor markets will stimulate local development and supports the 'bottom of the pyramid' (BoP) producers and consumers, which have previously been excluded (Blowfield & Dolan, 2014). BoP relates to the context of low-income socioeconomic population segments, the poorest yet largest socio-economic group. IB departs from the traditional use of the concept in so far that people are not incorporated as clients or consumers, but barriers are removed to integrate them as employees, business owners and producers (Danse et al., 2020). Taking the business perspective, a distinct line of IB scholars have emphasised the consideration of the different circumstances in low-income markets (BoP) as they influence the configuration of business models (Blowfield & Dolan, 2014). For instance, the lack of formal market institutions causes high transaction costs, and, as a result, models are often high-touch, high-cost, and small-scale (Danse et al., 2020). In the lowincome market, other factors such as quality of product and service, affordability, distribution strategies to link actors within the chain, and training to overcome institutional gaps come into play to increase the success of IB models (Danse et al., 2020). However, despite the challenging environment, the concept of BoP markets postulates a substantial potential among the poorest population, not only for companies but for society at large.

As the inclusive and business elements often involve opposing forces, IBMs have a tendency for trade-offs. While inclusive toward small actors, generating profits and growth as company remain central objectives (FAO, 2015). By implementing business models in which companies work together with smallholder farmers, the private sector is assumed to hold a significant role in transforming the agriculture and food systems, addressing food and nutrition security (FAO, 2015). Especially the removal of barriers is considered crucial to unfold this potential. The main target is to incorporate smallholder farmers into value chains which is thought to alleviate the hurdles faced in accomplishing food security (Mangnus,

2019; van Westen et al., 2019). Access is assumed to be facilitated through improved household income, while availability is facilitated through increased production and, hence, food products (Ibid). As a result, the investment in food production alongside improved market opportunities and income is supposed to impact food and nutrition security positively.

### 2.6 Assessing Inclusive Business - From Value Chains to Food System

The integration of smallholders with markets and agribusiness has often been linked to the concept of global value chains (GVCs). More specifically, through contract farming and other arrangements, the smallholder farmers participate in the GVCs. Initially introduced in Gereffi (1994), academic research on GVCs has substantially grown, with Henderson et al. (2002) and Gereffi et al. (2005) as two of the most influential theoretical outlines. Providing a theoretical perspective on global value chains, these papers specifically analyse governance structures in supply chains (Gereffi & Lee, 2012). As they shift the level of analysis towards a firm-centred conceptualisation, this extends the investigation of inclusive business in this research. This also addresses whether these chains are inclusive or exclusive in facilitating the upgrading of lower-level actors in the chain (Gereffi & Lee, 2012). The GVC approach by Gereffi (2011) provides two contrasting starting points of either the top-down view of *governance* or bottom-up *upgrading.* Governance concentrates on the role of lead firms, whereas upgrading relates to strategies by other actors to improve their position in the economy (Gereffi, 2011).

Gereffi's (2005) framework focuses on power in the chain: the investigation of sources of power and ways in which it is used are central to the GVC theorizing. Governance and the institutional framework are integral factors in explaining the forces that enable or limit capabilities of chain actors (Gereffi, 2005). Where value chain integration failed to meet its objectives, this has frequently been attributed to asymmetrical power relations along the chain (Neimark et al., 2019). This includes institutional actors, ranging from states to multilateral institutions, as they shape GVCs through enforcement of laws and international agreements, or lack thereof (Henderson et al., 2002). Setting the rules within which firms operate and to which they have to adapt, institutions significantly shape the functioning of markets and relations between actors (Henderson et al., 2002). Overall, the power struggles include structural inequalities and social relations of the different actors and constitute a key dimension for understanding sustainability outcomes (Neimark et al., 2019). Notably, effects of power and lack thereof can be uncovered at any level of analysis.

The concept of governance conveys the corporate power of specific actors and how it shapes profit and risk distribution (Gereffi & Lee, 2012). This power is exerted by so-called lead firms in the chain; depending on the chain structure, these are the manufacturers, retailers, or marketers of products (Ibid). To identify the governance of chains, this theory considers three main variables: I) transaction complexity, ii) codification ability in transactions, iii) the extent of suppliers' capability to meet the buyers' requirements (Ibid). Based on these, five different albeit dynamic types of governance are established on a continuous scale of explicit coordination and asymmetric power.

Among the five distinct categories, three are defined as network forms of governance in which the lead firm exercises varying degrees of power in the coordination of suppliers (Gereffi & Lee, 2012). The network forms of modular, relational, and captive governance lie between the extremes of market and hierarchical governance, describing simple transactions and vertical integration, respectively (for more information, see Gereffi & Lee, 2012). The captive governance seems of particular interest as it applies to a group of small suppliers that are dependent on either one or only a few buyers in terms of resources and market access. These suppliers produce under conditions that are set by the buyers (Gereffi & Lee, 2012). Thereby, the small suppliers are transactionally dependent on the much larger buyers as dominant parties and face a high degree of monitoring and control through the firm (Gereffi et al., 2005).

The theoretical perspective provided by Henderson et al. (2002) confirms the importance of power in the chain. Specifically, power is accumulated and wielded at firm level by the various actors in the chain, commonly differentiating between lead firms and suppliers. The lead firms wield purchasing power to the extent that they have agency to choose and replace suppliers, thereby coordinating activities of the supply chain and holding the potential to pressure lower costs, higher quality, certain techniques or processes, and investment in specific localities (Henderson et al., 2002). To conclude, these theoretical notions underpin the importance of mapping governance structures of supply chains and understanding the impact of power asymmetry between different chain actors.

However, especially partial and potentially biased studies have been a problem in assessing whether and how poor populations benefit from IB (Wach, 2012). This can create uncertainty for businesses regarding the potential of contributing positively to development and limits the opportunities for viable business cases or change of operations (Wach, 2012). Commonly, inclusive agri-business has been evaluated along outcome indicators that centre

around income and productivity increases (Blowfield & Dolan, 2014). In the value chains, impact on non-participants and other members of the community has rarely been considered in business evaluations (Van Westen et al., 2019). Mangnus (2019) criticizes further aspects of current analysis, such as overlooking farm diversity among suppliers, whereby companies risk the reproduction of existing inequalities. As the local agricultural development is largely framed in value chains, a more comprehensive picture and food systems perspectives are obscured.

According to Mangnus (2019), IB needs to consider the long-term agro-ecological effects of their activities and the great diversity among the previously homogeneously labelled smallholders. In doing so, the food systems approach can provide a broader understanding of the IB impact on the food system across scale and time (Mangnus, 2019). The food systems approach links the different sub-systems relevant to food security, including the economic, environmental, social, and political system (Burchi & de Muro, 2016). This opens important dimensions not necessarily captured in value chain analysis, which inform a more comprehensive understanding of IB impact in this research.

### 2.7 IBMs on the Ground

To extend the scope of assessment, this research is informed by a critical perspective of impact IB has on the livelihoods of smallholder farmers on the ground. The concept of inclusive business has been met with widespread optimism due to the potential to address development challenges more effectively and efficiently (Mangnus, 2019). However, IB has also become a contested concept, owing to the numerous research evaluating the impact of the IB models on local communities' livelihood on the ground. Research has put into question under which conditions farmers are included and whether IB has realised the promised outcome or resulted in unintended impact.

A first key consideration outlines the differential outcomes between those who are included in agribusiness as so-called beneficiaries and those who are not. The evidence shows that most IB models work with a narrow minority of farmers and play little role in improving the lives of the wider poor and marginalized part of the society (Amanor, 2019). A second consideration is the wider impact of IB on livelihoods of the local communities, as business schemes often have a narrow consideration of factors and outcomes that are evaluated (Fernandez-Stark & Bamber, 2012). These two key considerations are outlined in detail in the following sections.

### *2.7.1 Selectivity*

In terms of inclusion of the marginalized and vulnerable, the main point of criticism has been the high level of selectivity that the supposedly inclusive business approach has (Van Westen et al., 2019; Mangnus, 2019). Within the agriculture-focused World Development Report 2008, two groups were differentiated and distinguished among smallholders, namely, farmers with commercial potential and those in subsistence farming (World Bank, 2007). It was highlighted that different agricultural support is required by each. However, food security programmes have been shown to primarily focus on the first group of farmers, largely due to the minimum requirements that farmers need to fulfil in order to participate in the business arrangements (Gebru, 2019). More specifically, next to factors such as age, gender, literacy, land size, irrigation access, and access to credit and market information have consistently been described to significantly influence inclusion (Gebru, 2019). As a result, the benefits of IB models are often reserved for small-scale and mediumsized commercial farmers who are already better off compared to the poorest and marginalized farmer population.

However, it is important to note that the binary between participants and nonparticipants is not as clear-cut in practice as it is in theory. The inclusion into value chains is often assumed to be desired but neglects that farmers may deliberately choose to disengage (Ros-Tonen et al., 2019). Even if included, farmers benefit differentially from their participation. As most programmes have a definitive endpoint - in terms of time and outcome - at which resource input is terminated, marginal participants are commonly the first to drop out (van Westen et al., 2019). Similar to the initial selectivity, this is linked to resource constraints in terms of land and water access and other economic resources (Vicol et al., 2021). While some farmers benefit from being enabled to transition into commercial farming, for the often most vulnerable and marginalised, subsistence farming, livelihood diversification and off-farm employment remain the only or preferable options (Manda et al., 2020). As a result, many smallholder households remain in an adverse position that is unfavourable to effective participation in inclusive business activities (Mathenge et al., 2020). In addition, where better alternatives are available, inclusion might not be desired, and exclusion not necessarily a disadvantage (Manda et al., 2020). As a result, numerous research (Xu, 2018; Gebru et al., 2022) have provided smallholder inclusion typologies to extend this binary.

Nonetheless, the lack of access to necessary productive resources has been repeated as one of the key constraints across literature. Groups of farmers organize to overcome the high entry requirements and generate collective action, in which costs and risks are shared and bargaining power increases (Kaminski et al., 2020). Most importantly, smallholders can pool their resources together in a formal organizational structure, of which cooperatives are the main example (Mojo et al., 2017). However, empirical evidence regarding the benefits of such organization remains mixed. On the positive side, cooperatives can facilitate the collective achievement of initial entry requirements and thereby allow farmers to upgrade their production through increased horizontal coordination (Ibid). Farmers can serve new markets, achieve better prices, stabilize their position, potentially supply a larger volume, and gain improved access to inputs and services (Kaminksi et al., 2020). Nonetheless, cooperatives have also been attributed with certain weaknesses in relation to their management and organization due to great differences in performance. Mojo et al. (2017) summarized several studies in the Ethiopian context that criticized the weak leadership and management capacity, limited modern technology capacity, lack of transparency, limited budget, and issues in cooperative governance. Overall, cooperatives hold the potential to facilitate participation in value chains but hold limited capacity to counteract the high degree of power that is concentrated up- and downstream from production.

To conclude, in the narrow frame that is applied, IB primarily focuses on farmers with commercial potential and frames livelihood improvement as an increase in household income (Fernandez-Stark & Bamber, 2012). Due to the high level of selectivity, 'inclusive' agribusiness development seems to exacerbate the existing inequalities, favouring commercially oriented farmers that are better off and hence meet the requirements. Therefore, the poorest rural households are not benefitting from this opportunity to potentially improve their livelihoods (Mathenge, Sonneveld, & Broerse, 2020). The most food insecure tend to be resource-poor and less organised farmers that are consequently systematically excluded.

### *2.7.2 Impact*

Fundamental to this research, the conditions related to inclusion or exclusion dynamics and links within the value chain can create divergent outcomes across heterogeneous farmer groups. In terms of economic and social development objectives, the question remains whether IB effectively addresses the root causes of poverty and food insecurity. Especially the marketization of poverty has been criticized, as it sees the poor only

in terms of their relationship to the market and obscures social, political, and moral determinants of poverty (Pouw et al., 2019). To provide a more comprehensive picture, current research has investigated the wider impact of IB presence.

**Direct Outcomes.** In practice, for those farmers commercially oriented, a focus on increased income and market-based strategies can indeed prove useful (Wangu et al., 2020). Agricultural households can generate income by selling their surplus production, and income effects on participating farmers have been shown to generally be positive (Achterbosch et al., 2014). Livelihoods of participating farmers are improved by the integration into the commercial value chains through the subsequent access to the market, inputs, and required services (Van Westen et al., 2019). The integration of poor producers into the market requires training, inputs, credit, and the like to be able to meet market requirements and improve productivity (Norell & Brand, 2014). This is even more so the case for higher-value cash crops. Therefore, participants commonly benefit from support packages provided by the company and participation in the inclusive agribusiness approaches has repeatedly been shown to bear positive income effects on those participating in the programmes (Norell & Brand, 2014). In addition, the inclusive model provides family farms with more autonomy and dignity than their commercial counterparts (Gebru, 2019; Van Westen et al., 2019). The steadier flow of income has been positively linked to food and nutrition security, although evidence remains mixed (van Westen et al., 2019). In consequence, the IB model can be able to promote the development of commercial smallholders who are able to fulfil the set requirements.

However, with the integration into value chains, smallholders face new challenges such as market volatility (Norell & Brand, 2014). The business arrangements between agribusiness companies and small-scale farmers tend to entail only one product (Mangnus, 2019). As the farmers are commonly engaged in multiple crops, the intensified production of one crop can come at the cost of land and time that would have been allocated to other activities (Ibid). In addition, due to the necessary requirements, small-scale farmers can become dependent on the agri-business in terms of credit, access to markets or inputs (Mangnus, 2019). Cash crops tend to require more investment and lead to increased exposure to fluctuations in price (Fernandez-Stark & Bamber, 2014). At worst, this can lead to so-called adverse incorporation in which participants face increased poverty and disadvantage due to their inclusion into an exploitative and dependent system (Xu, 2019). Assessing the impact of these trade-offs among farmers becomes increasingly difficult (Fernandez-Stark &

Bamber, 2012). Due to their already vulnerable and often marginalized position, the smallholder producers are generally not well positioned to respond to such challenges.

Unravelling the assumed link to food and nutrition security, a key finding has been that economic empowerment that comes with improved income does not necessarily translate into improved nutrition (Gebru, 2019). While the positive income effect initially implies the achievement of food security objectives, the observed increase in income among participants does not necessarily translate into improved food and nutrition security for most of the vulnerable populations (van Westen et al., 2019). This seems to be due to the complex and interacting priorities and needs at household level, which lead to a lack of coherence between food availability, access, food variety, diet diversity and consumption (Gebru, 2019). Therefore, even among IB participants, more insight is needed into the decision-making at household level to shed light on the inconclusive evidence regarding food security objectives.

**Indirect Impact.** More recent research has considered the impact of IB models on non-participants and the wider local communities, pointing toward critical changes in the use and allocation of resources. Environmental consequences have received attention in terms of ecological impact and sustainability, yet less so in terms of socio-economic consequences for farmers themselves. Schoneveld (2020) draws attention to the unintended consequences of these business activities with the aim to put in place safety nets that mitigate these adverse impacts.

First, the link to food and nutrition security and hence availability of and access to food has been extensively explored in literature. The evidence of whether inclusive business brings about the expected benefits to food security has remained highly inconclusive (Gebru, 2019). While some food chains have shown improvements in food availability in access, lower levels of food variety and diet diversity were found (Ibid). The impact on per capita kilocalorie consumption has often been missing but was also found to be positive in certain crop chains (Gebru, 2019). Van Westen et al. (2019) note that the increasing specialization in cash cropping affects the availability of local food and decreases food variety. As the demand for these products remains relatively reliable, farmers can be motivated to allocate more land and resources to the production thereof (Siobhan et al., 2015). As the wider community is exposed to price fluctuations of increasing consumer prices and decreased food variety, effects take place beyond the contracted participants.

Second, the expected income increase of participants brings about increased capital accumulation. These are indirect negative impacts that result from the business model

implementation that can be much more difficult to anticipate (Schoneveld, 2020). For instance, with the additional income, households might wish to build their assets and therefore invest in land. The better-off farmers who benefit from their participation can wish to expand their production by renting more land from, for instance, less resource-endowed farmers (Worku, 2022). In other words, the participating farmers are in a better position to increasingly accumulate land as more land is allocated to the marketed crops (Worku, 2022). This can exacerbate conflict in the already land-scarce context and put increasing pressure on the ecosystem (Schoneveld, 2020).

However, not only land but also the ability to irrigate such land is of key importance. In commercial farming in general, the competing access to water and varying use thereof among the different stakeholders holds much potential for conflict (Kuusaana & Bukari, 2015). The agricultural production by far consumes the largest portion of water in Ethiopia (an estimate of 93% of water withdrawals) which means any change in water use can be highly consequential (USAID, 2022b). As irrigation consumes much of the extracted water, efficient water use and management are critical concerns (Eshete et al., 2020). However, more water-intensive vegetables require the commercial farmers and IB participants to withdraw more irrigation water and hence exacerbate the competition. This yields the possibility for participating farmers to monopolise the available irrigation water (Worku, 2022). As a result, the water use of the wider population is affected and potentially compromised (Schoneveld, 2020).

In consequence, interventions and inclusive business activities need to be implemented under sufficient guidance and sensitively developed policies that carefully consider these impacts. The key objective of market development must be to not adversely impact the food security of the already vulnerable groups and ensure to maintain the farmers' ability to access productive resources that are required to secure a sustainable livelihood.

### 2.8 Knowledge Gap

The understanding of smallholders' opportunities and constraints has been criticized, as current IB models often fail to be sensitive to the farmers' needs and only achieve selective benefits. Often, false assumptions have been outlined surrounding the entrepreneurial motivations and opportunities of the marginalised (Pouw, Bush & Mangnus, 2019). Research has shown that the impact of IB spans much wider than immediate outcomes for participants, moving beyond the business assessments in terms of income and productivity (Tabe Ojong et

al., 2022). Even among participants, the assumption that improved income will materialize into improved FNS has been challenged (Van Westen et al., 2019). Although research on food and nutrition security and sustainable livelihood perspectives stresses the importance of farmers' productive resources, the impact on land and irrigation access has not sufficiently been considered. While inclusiveness in selection has extensively been addressed, the role of productive resources in the wider impact has brought forth scattered evidence. Recent literature diving into the complexities of these impacts has pointed toward critical changes in the use and allocation of resources, specifically land and irrigation water, among smallholder farmers, in areas in which inclusive agribusinesses operate (Schoneveld, 2020; Worku, 2022). Therefore, the key knowledge gap points toward a lack of understanding of these wider and indirect processes of changing productive resource use which is set in motion by the IB involvement and its direct outcomes.

# 3. Chapter - Regional Framework: Ethiopia

This study is focused on the country Ethiopia, which is a land-locked country in the Horn of Africa (WB, 2021c). With a land mass of 1,104,300 km², it shares borders with 6 African countries: Eritrea, Djibouti, Somalia, Sudan, South Sudan, and Kenya (WB, 2021). In the following, a brief overview of the demographics, economy, climate and geography, agricultural development, land tenure system, and food security status is provided.

## 3.1 Demographics

Posing an additional challenge to food security, Ethiopia is Africa's second most populous country, after Nigeria. In 2019, the population was over 112 million people, with an annual growth of 2.6% (World Bank, 2021). By 2030, projections forecast a population of 140 million people and, by 2050, 190 million (WB, 2021). The life expectancy has improved by more than 18 years since 1990, standing at an average of 67 years in 2019 (WB, 2021a). The high economic growth that was sustained between 2010 and 2020 brought about positive trends of poverty reduction, both in urban and rural areas (WB, 2021). However, while human development indicators improved over time (0.38 in 2021), the 10% of the population at the bottom has not been able to increase their consumption, distinctly so in the rural areas, with increasing inequalities in the rural-urban disparity (WB, 2021).

### 3.2 Economy

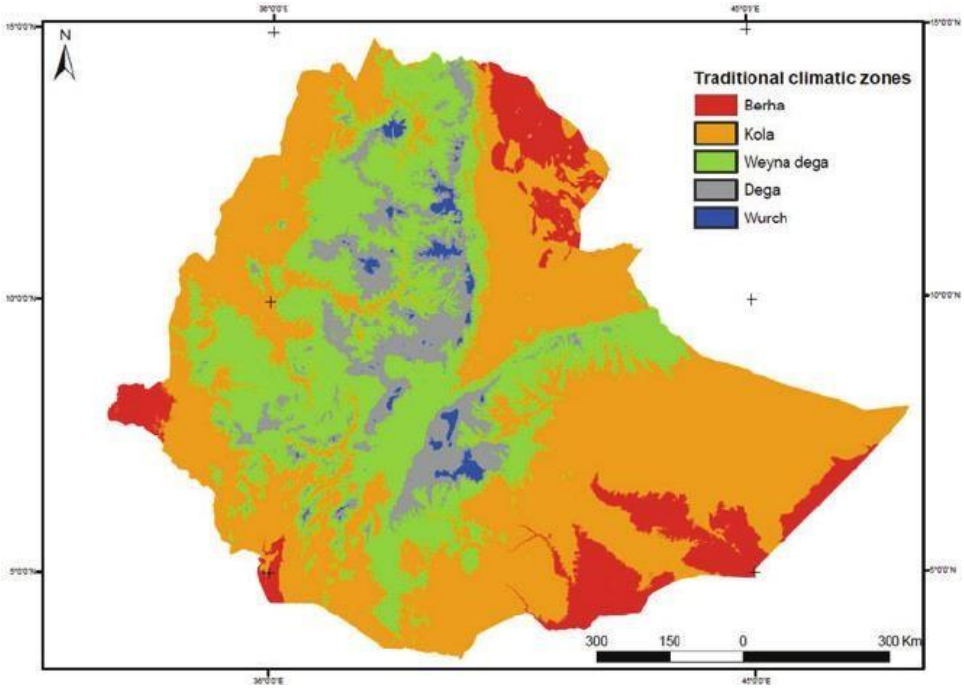
Essential to the attractiveness of international business, Ethiopia is among the fastest growing economies of the African countries. Since 2004, a high annual growth rate has been sustained, with around 6.1% in 2019/20 (World Bank, 2021b). Still, Ethiopia remains one of the poorest African countries, with a per capita gross national income of around 890 USD (WB, 2021b). The Ethiopian economy remains dependent on agriculture: In 2017, it accounts for 40% of the GDP, 80% of the exports, and just under 70% of the workforce (Mohamed, 2017). A 10-year development plan has been launched to run from 2020 to 2030 (WB, 2021b). The key goal is to sustain the growth that has been achieved under the growth and transformation plans of the previous decade, simultaneously shifting towards a more privatesector-driven economy (WB, 2021b). In line with this, the business climate experiences significant changes through policy reforms, determining the environment in which inclusive business is conducted (International Trade Administration (ITA), 2021). In theory, environmental conservation holds a vital place in the sustainable development of Ethiopia, with a vision for a green economy articulated in the Climate Resilient Green Economy policy document (UNDP, 2021). In general, a signal has been sent toward market-based reforms, providing new flexibility for economic policymaking.

### 3.3 Climate, Vegetation, Geography

Especially in the realm of agriculture, suitable climatic conditions are of key importance. The climate and landscape in the region are diverse, covering rainforests with high levels of rainfall and humidity, Afro-Alpine mountainous regions, desert-like landscapes, and lowlands (see Figure 2; Berhanu et al., 2014).

**Figure 2.**

*The 5 Traditional Climatic Zones of Ethiopia (Berhanu et al., 2014)*



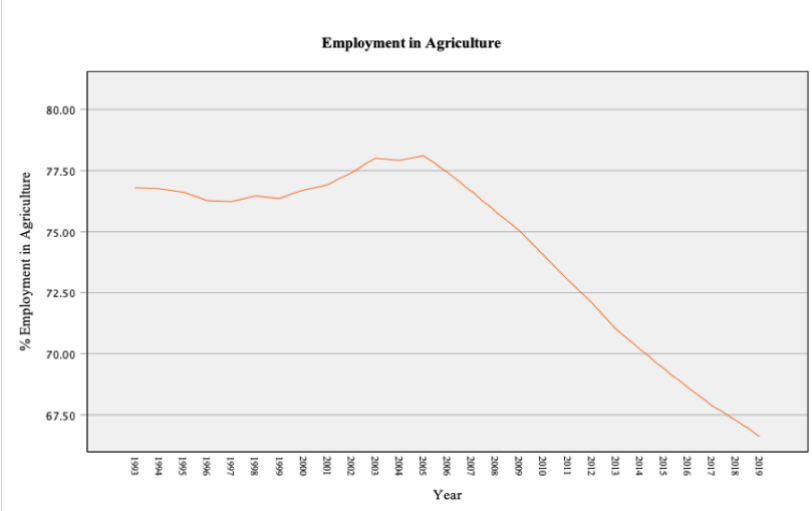

Adaptation to the changing climate and building resilience have become key priorities for Ethiopia (WB, 2021). This is particularly relevant for the agricultural sector, which relies heavily on land, water, and other natural resources (WB, 2021). The country is largely considered arid, but rainfall has a high variability which provides a challenge for estimating agricultural produce under rain-fed irrigation. The natural variability in rainfall together with extreme climatic events and shortage of water-related infrastructure has exacerbated extreme water scarcity in many regions (USAID, 2022b). While the country holds relatively abundant water resources, rapid population growth has led to 'water stress' (USAID, 2022b).

### 3.4 Agriculture

Agricultural growth has been postulated as main driver for falling poverty, linked to improved livelihoods and nutrition security (USAID, 2018). Therefore, it remains the main priority in Ethiopia's fight against chronic poverty and food and nutrition insecurity (Mohamed, 2017). As seen in Figure 3, the percentage of total population employed in agriculture has been steadily decreasing (World Bank, 2021a). While in 2014/15, 75% were employed in agriculture, agricultural employment dropped to 67.5% in 2019/20 (Abebaw, 2020). However, the growing population increases the demand for food, as availability and access have remained highly insecure, which requires sufficient agricultural labour.

**Figure 3.**

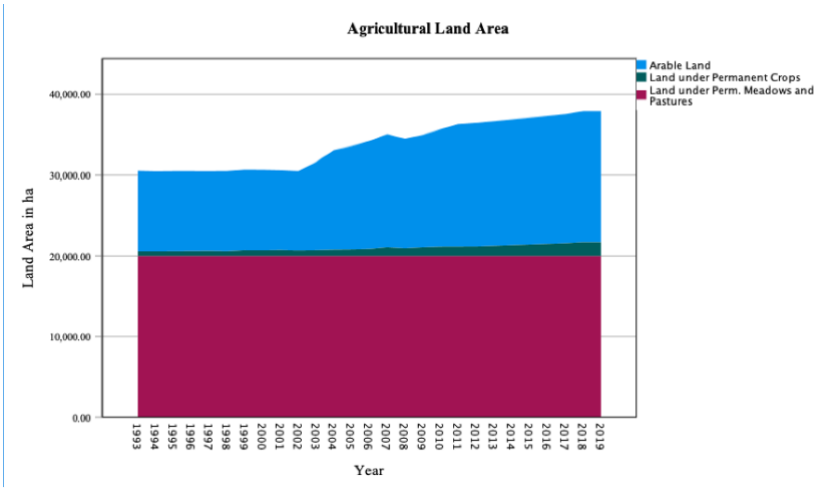
*Percentage of Total Employment in Agriculture (World Bank, 2021a)*




The World Bank reported the sum of arable land (in hectares) in Ethiopia at 16187000 ha in 2018 (WB, 2021a). With decreasing employment in agriculture, more arable land has become available (see Figure 4). However, available arable land remains limited.

**Figure 4.**

*Land Area (ha) for Agricultural Use in Ethiopia (World Bank, 2021a)*




Ethiopian agribusiness was driven by the government's Agricultural Growth Program, which wished to increase agricultural productivity as well as market opportunities for smallholders (USAID, 2022a). The most widely grown crop, ranging from lowland to

highland agro-ecologies, has been maize (Gebru et al., 2019). Thereby, it accounts for the largest share of the Ethiopian crop production and has been grown more than any other crop (Gebru et al., 2019). However, a mere 5% of Ethiopian land is under irrigation, with crop yields from smaller farms falling below the regional averages (Mohamed, 2017). Key struggles are weak linkages to markets, restricted use of improved seeds, pesticides, or fertilizers (Mohamed, 2017). Rain-fed agriculture accounts for 85% of employment in agriculture, making many of the agriculture-dependent populations extremely vulnerable to disasters (STC, 2020). Agricultural activity by far consumes the largest portion of water in Ethiopia, using an estimate of 93% of all water withdrawals (USAID, 2022a). As the production of agriculture and livestock largely depends on unpredictable rainfall, low yields and losses after harvest have remained high and led to extensive food insecurity (STC, 2020). Key problems such as droughts, declining soil fertility and low productivity prevent the building of stockpiles to alleviate shocks (STC, 2020). Poor market opportunities decrease the ability to seek alternative income, so that a large part of households has been left to adverse coping mechanisms (STC, 2020). This is particularly a particularly vicious cycle as smallholder farmers are important drivers of food and nutrition security, reduction of poverty, and generally livelihoods.

### 3.5 The Ethiopian Land Tenure System

Land remains a major asset in economic and agricultural development, as tenure rights and control over land (production and management decisions) are found critical for productivity (Melesse & Awel, 2020). Oftentimes, shortage of land and population pressures have been described as main obstacles to increasing agricultural production (Tenaw et al., 2009). However, the structure of land tenure plays a similarly critical role in improving agricultural productivity, which has remained a predominant problem in Ethiopia (Tenaw et al., 2009).

Land tenure policy and subsequent property rights of farmers were largely influenced by the three regimes Ethiopia moved through since the onset of the 20th century: an imperial (pre-1975), Derg (post-1975), and the current regime (Tenaw et al., 2009). The tenure right to land is regulated either by the formal legal system or through customary law (Melesse & Awel, 2020). For many decades, in the earlier (pre-1975) period, land was primarily governed under customary law, in a complex tenure system with much regional variation (Melesse & Awel, 2020). Post 1975 attempts of modernization (post 1975) provided titles to farmers

tilling the plots or large-scale programmes. However, this created use rights rather than full title certification, as the ownership lies with the state who distributes land usage rights to its citizens. In this period, land tenure was linked to land redistributions that aimed at accommodating new farmer generations, which led to improved equality but also higher tenure insecurity (Holden et al., 2011).

Assuming power in 1991, the Ethiopian Peoples' Revolutionary Democratic front curtailed this land redistribution and started the implementation of a land certification reform in which farmers received documents that confirmed their titles (Holden et al., 2011). In the following decades, rather than moving toward privatization, the constitution (1995) confirmed the state ownership of land in Ethiopia. Therefore, land property rights have remained vested in the state and farmers were provided with "usufruct rights" granting use and attainment of profit (Crewett et al., 2008). This state ownership has been validated across regional policies leaving farmers with the usufruct rights without transfer rights, for instance, sale or mortgage (Crewett et al., 2008). Alongside the "holding" rights, this constitution allows the leasing out of land, hiring of labour, and a maximal land holding beyond 10ha (Ibid). Notably, regional differences remained in terms of tenure security, inheritance and lease rights, and the right of regional governments to redistribute land (Ibid).

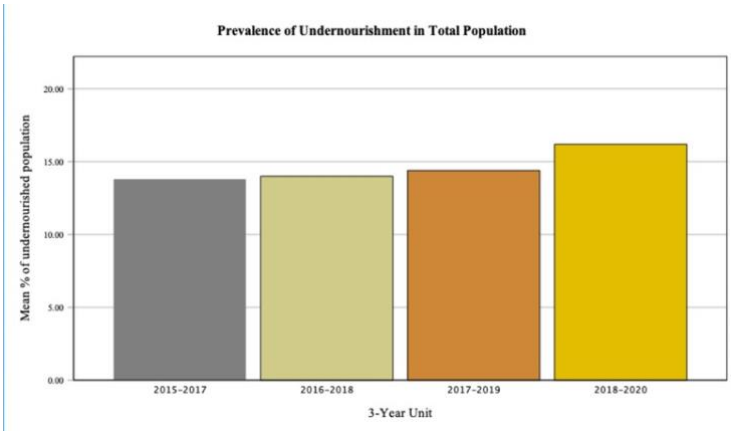
The state ownership has continued into the present Ethiopian government, bestowing landholders with these use rights (Tenaw et al., 2009). Land certification programmes have been implemented in specific regional states (Tigray, Amhara, Oromia, and Southern Nations, Nationalities, and Peoples' Region; Melesse & Awel, 2020). However, granting these formal land certifications to rural smallholders acknowledges and represents use rights only. Across 3500 (nationally representative) agricultural households, the World Bank's Living Standards Measurement Studies of 2010-2015 found 49% to hold land certificates (Melesse & Awel, 2020). However, in addition to gender-based differences, differing regional legislation brings with it variations in tenure security across Ethiopian regions. Regarding the questions of redistribution of land plots and how user rights and certification are received (Crewett et al., 2008). Research has questioned the successes of widely implemented certification programmes as they created new problems: young farmers tend to farm rented land under high tenure insecurity and conflicts, especially regarding inheritance rights, have been increasing (Ege, 2017).

### 3.6 Food Security Status

Food insecurity has remained an enduring challenge in Ethiopia. In 2014, Ethiopia ranked first in highest number of undernourished people, with a total of 32.1 million people affected (STC, 2020). Chronic malnutrition and its long-term effects were found to cost approximately 16.5% of the Ethiopian GDP each year (World Food Program, 2016). Although moderate and severe food insecurity has been moderately stable in Ethiopia over the past 7 years, the prevalence of undernourishment has been increasing steadily (see Figure 5; FAO, 2021). In 2020, 44% of children were stunted and 29% underweight (STC, 2020). However, across the regions of Ethiopia, large disparities remain. Key sources for food insecurity are drought, land degradation and population pressures, armed conflict, and instability (Mohamed, 2017). In addition, attempts of livelihood improvements have been restricted by significant climatic challenges such as substantial deforestation, erosion of soil, and severe flooding (STC, 2020).

**Figure 5.**

*Prevalence of Undernourishment in Total Population in Ethiopia (FAO, 2021)*




As retail prices of important food products such as cereals, sugar and cooking oil rose considerably in recent years, especially rural and pastoralist families have been affected by increasing food insecurity (STC, 2020). Nigussie et al. (2021) have pointed toward increasing food insecurity in urban areas of Ethiopia that accompanies the rising food prices. The shocks of drought have substantially decreased productive capacities of smallholder and pastoral farmers, which created high dependency on humanitarian support.

The capacity of farmlands for crops and vegetables has grown in importance as food supply and locations for urban and peri-urban agriculture are required (Nigussie et al., 2021).

However, as weather conditions show increasing variability, the frequency, as well as severity of floodings and droughts, has been aggravated, accompanied by uncertainty regarding seasonal rainfall (STC, 2020). As a result, many of the vulnerable populations had little time to recover from shocks and rebuild produce stocks between droughts (STC, 2020). As additional challenge, degradation of natural resources and environment alongside the changing climate and a high level of population growth have reduced the average size of farmland and food production per capita significantly (STC, 2020).

# 4. Chapter – Methodology

This research investigates the impact of smallholder farmers' inclusion into agri-food value chains from a livelihoods-based perspective on smallholders' resource use and access. As chosen methodological approach, this chapter describes the systematic literature review (SLR) and expert interviews used to address the research questions.

## 4.1 Research Design

A systematic literature review methodology was selected as most appropriate research protocol for identifying the relevant body of scholarly literature and synthesising the emerging yet already diverse research area of the inclusiveness of smallholder value chain integration (Paterson et al., 2001). According to Lopez-Morales et al. (2020), the systematic literature review is neither meta-analysis nor in-depth review of literature but entails three main features: the applied methodology is systematic and organized, it is transparent and hence replicable and updated, and it combines evidence corresponding to the questions at the centre of the review. Previous research has examined questions of smallholder participation in contract farming and dispersion of benefits, but results are mixed and remain dispersed (Siciliano et al., 2017). Therefore, a broader evidence base is thought to synthesise the potential contributions of SVCI to develop a structured understanding of the phenomenon based on previous data and studies (Paterson et al., 2001).

During and following the analysis, an unstructured interview guide was developed that contained the exhaustive areas of interest to cover with the experts. This was aligned with the structure of research questions and addressed background information of the expert, relevant stakeholders, inclusive business activities of smallholders and the role of land and irrigation therein. In addition, this was supplemented with specific key findings of this research that experts (n=3) were asked to provide their views on. The rationale was to either

confirm, nuance, or possibly question findings derived from the literature review. The specific interview data can be retrieved from the researcher upon consultation.

The advantages of this methodology have been acknowledged and described in multiple studies such as (Antwi-Agyei et al., 2015; Candel, 2014; Poulsen et al., 2015; Warren et al., 2015) and are therefore not restated here. The numerous publications have resulted in increasing recognition of the contribution that systematic reviews can have to food security debates.

### 4.2 Operationalization of Key Concepts

To clearly define the scope of the review, precise research questions were formulated (as discussed in Chapter 1) and subsequently the constituting elements were operationalized. The following variables relevant to the research objective required further specification: inclusive business, the specific agricultural production, and resource use of land and water.

First, *inclusive business* entails the "smallholder involvement in commercial (food) crop value chains" (Gebru et al., 2019). The goal of value chain inclusion is to link smallholder farmers as producers to the corporate supply chain. As organizer and controlling party of authority in the chain, agri-business is involved as formal business and outside party.

Second, in terms of *agricultural production,* any production of high-input crops or production systems relevant to the inclusive business are considered. A large part of agricultural commodities centres around the principal crops grown in Ethiopia such as coffee, pulses, cereals, sugarcane, and vegetables. However, the review is open to insights from other production systems such as the dairy industry, although sensitivity is required toward the different product requirements such as seasonality in production, input demand, or area size. As smallholder farmers are in the focus, this links to production in the realm of small-scale farming, rain-fed agriculture, and small-scale irrigated plots.

Third, the *resource use* is linked to the allocation of resources to a specific stakeholder and agricultural use. This entails the access to and specific management of the resource, as well as the distribution of the resource among stakeholders. In agricultural production, land and water resources are strongly interrelated, however, an attempt of a separate operationalization is provided. *Land use entails* the management of modification of land (here, productive land and hence arable fields) toward a specific purpose (here, the productive activities conducted on that land). Changes include the re-allocation to other

stakeholders, the assignment of land to a specific crop or changing cropping patterns, reduced or intensified cultivation and hence output, expansion of cropland with possible land conversion, and changes in land treatment in terms of agronomic practice or input. *Water use* entails the allocation or distribution of water supplies among stakeholders for specific use and the extraction of irrigation water and purpose thereof. Changes occur in water demand and expansion of irrigated areas, water supply for instance through technological improvement and access to water due to specificities of the water-related infrastructure, irrigation systems, and a limited supply. The irrigated areas and intensively cultivated lands are especially relevant, as changes therein have a large impact on the area's water resources (Jansen et al., 2007).

### 4.3 Systematic Data Collection

To review the scientific literature on the impact of IB on land and water use, the standard systematic review guidelines as outlined in the PRISMA statement were used alongside the PSALSAR framework established by (Mengist et al., 2020). To guarantee rigour and quality, the review was limited to peer-reviewed scholarly articles.

The SLR (Systematic Literature Review) methodology ensures a comprehensive exploration of literature to analyse and synthesise the existing studies on the topic of interest based on pre-defined criteria (Vabi Vamuloh et al., 2019). Specifically, the approach consists of a) identification of studies, b) selection of studies, c) extraction of data, and d) analysis and synthesis of data. While grey literature provides valuable observations, the limited scope of this review led to a focus on academic literature. After having defined the characteristics for inclusion, the peer-reviewed literature was searched for studies meeting the criteria, data were extracted from each study, and qualitative synthesis of results will follow. In the following, a more detailed outline of these steps is provided.

#### *4.3.1 Protocol*

As a first step, a detailed search protocol was built that allows for a transparent and replicable process. First, the key elements were determined following the domaindeterminant-outcome framework, to set a clear research scope: Domain = Ethiopia, Determinant = Inclusive Business, Outcome = Resource Use. Second, appropriate search terms were linked to each of the key elements (see Table 1). An initial assessment of the literature was performed in Scopus to develop a suitable query. Key papers were used to establish the key

search terms and phrases. Especially for "inclusive business," concepts that were more common in other academic communities were included, such as value chain participation or company-smallholder partnership, following the conceptualization of RosTonen et al. (2019).

**Table 1.**

*Determining the Search Terms fitting to each Element*

| Search Element | Search Terms |
|---|---|
| Ethiopia | Ethiopia* |
| Inclusiveness | Inclusi* |
| Inclusive Business | Inclusive business, IB, IBM |
| | Value chain |
| | (integration/participation/collaboration/engagement/inclusion), VC, Public-private-producer partnerships, 4Ps, Company-smallholder partnership, contract farming |
| Resource use | Resource allocation, use |
| | Land, Property, Water, irrigation |
| Agriculture | Agri, agri-business, smallholder, farm |

Third, from the collection of search terms a search string was developed. In accordance with the Cochrane Handbook, too many search concepts were avoided but a wide variety of search terms combined with OR within each concept were included (Higgins et al., 2002). The key search terms were divided into multiple search strings, allowing for the database's protocols of using Boolean operators AND and OR, and necessary truncations (*) to identify relevant studies that used adapted versions of each search term. From this, a standardized search string was developed to include the words relevant to inclusive business, smallholder agriculture, and resources, in Ethiopia.

A pilot search was conducted in February and March 2022, to test for the balance of sensitivity and preciseness of the search string (Higgins et al., 2022). Initially, land and water were included in the search string. However, as the initial selection of articles covers a search of only the title, abstract, and keywords, this resulted in the exclusion of too many relevant articles that did not discuss resources as primary focus but in the full text. Therefore, after the pilot run of the search string, land, and water (or resources) were excluded from the search

string and used as inclusion criteria during the subsequent screening in which the full text was considered. To conclude, the final search string of "TITLE-ABS-KEY ethiopia* AND ("inclusive business" OR "IBM" OR ("value chain" AND (participation OR collaboration OR integration OR engagement OR inclusion)) OR "public-private-producer partnerships" OR "4Ps" OR "company-smallholder partnership" OR "contract farming") AND (agri* OR smallhold* OR farm*)" was employed.

#### *4.3.2 Search*

After the appropriate breadth for the review was established, databases to be included in the search were determined. Starting from the Utrecht University website's collection of databases, Web of Science, Scopus, Taylor & Francis, JSTOR and ScienceDirect were deemed most relevant. However, the latter two were excluded, as the search string contained too many search terms, falling outside the database limit. Therefore, the search strategy was applied to three databases: Tandfonline, Web of science, and Scopus. No restrictions were set on publication dates, to ensure a broad set of data could be captured.

This resulted in a total set of 113 articles (Taylor & Francis, n=12; Web of Science, n=44; Scopus, n=57). All articles were exported into Mendeley to screen for duplicates. After removal of duplicates, the remaining set of 67 articles was screened in accordance with the inclusion criteria in Table 2. Conducting a full-text search, 1 article did not focus on Ethiopia, all studies discussed relevant agricultural production, and 12 articles did not contain any link to the natural resources, leaving 54 articles included for the next step of the screening process.

**Table 2.**

*Selection Criteria for Inclusion of Studies*

| Criteria | Decision | Justification |
|---|---|---|
| Geographic location | Ethiopia | Although some areas are more dominant in production, agricultural activities are not contained to one specific region. As studies are expected to select diverse areas of agricultural activity, the whole of Ethiopia was considered. |

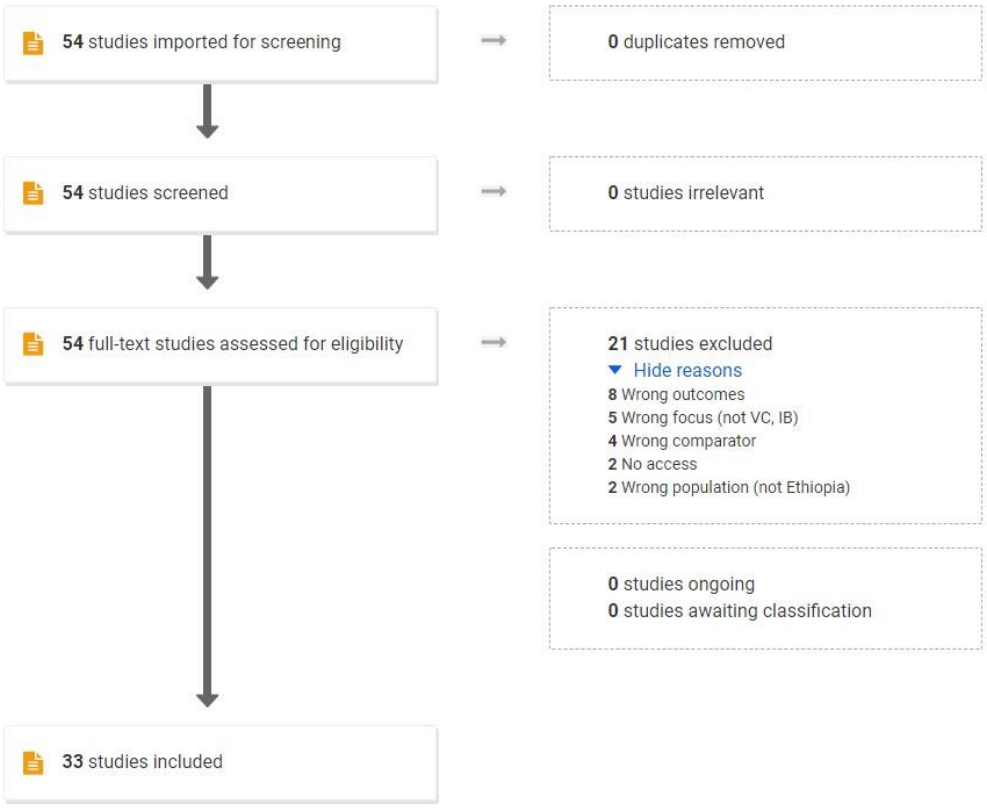
| | | |
|---|---|---|
| Sector | Agricultural Production | While contract farming exists in several sectors, smallholder farmer participation in agriculture was considered. |
| Focus | Land and Water Resources | Although the dominant focus is often sustainability or food and nutrition security, relevant links to the productive resources of land and irrigation are expected. |

### *4.3.3 Appraisal*

Based on the search, 54 articles were imported into Covidence, free software for systematic literature review that incorporates Prisma requirements. To make the results more precise, the goal was to narrow down the number of screened items as much as possible without losing valuable content (Siemieniako et al., 2021). The articles were screened for A) a specific focus on Ethiopia as at least a case study B) the value chain involvement of smallholders and C) the discussion of land or water resources. Due to the relatively small number of retrieved articles, no further exclusion based on journals or study methodology was considered (Siemieniako et al., 2021). In this step, 2 articles were excluded for not studying Ethiopia, 5 articles for not discussing any form of value chain integration, 8 for not discussing either land or water, 4 articles for not discussing any form of agricultural production (e.g., aquaculture such as fisheries) and 2 further because they could not be accessed via any common platform. Finally, 8 articles were tagged as ambiguous value chain integration, but not excluded.

**Figure 6.**

*Literature Search Process to Final Dataset*




*Note.* All databases are shown in one. Duplicates were already removed in Mendeley before the import.

The application of the exclusion and inclusion criteria identified records that showed evidence of potential relevance to the review objectives (Siemieniako et al., 2021). When evidence was inconclusive, as was the case for the 8 ambiguous "inclusive business" discussions, the record was included for further analysis, following the protocols of Leonidou et al. (2020). As a result of this process, a final set of 33 articles was identified for data extraction, analysis, and synthesis (see Dataset Bibliography).

### *4.3.4 Data Extraction*

To extract data from the final set of 33 articles, a data extraction form was developed including the broad set of information relevant to this study's research questions and analysis. As an approach of content analysis, this condenses the lengthy studies into fewer contentrelated categories (Barnett-Page & Thomas, 2009). The *Covidence* template was adjusted to the purpose of this research, addressing the IB, requirements, specific ways in which farmers are integrated, stakeholders, and resources. This included, for example, year of publication, regional focus, the specific format of IB or project/company that is mentioned,

but also stakeholders and their role, in which way land is discussed, whether resources are discussed as requirement for IB participation, and how irrigation is assumed to play a role.

### 4.4 Data Analysis

Following the data extraction, the method for analysing is identified and described. Historically, the analysis of included studies contained relatively descriptive data on study characteristics. However, it is now recognized that more in-depth information on study content is a useful product in its own way, as it provides insights in what has been studied and what is yet to be considered (University College London, 2022). Therefore, this study employs an approach to synthesis developed by Thomas and Harden (2008) that allows for answering content-related research questions while not compromising the methodical systematicity.

If the systematic review addresses a social phenomenon, an iterative process of analysing can be employed to develop overarching concepts and themes from the studies' findings (Barnett-Page & Thomas, 2009). Especially the consideration of the role of land and irrigation took an explorative and inductive approach. This was done to i) avoid being restricted by previously developed notions and structures and ii) since the inclusive business and resource considerations were very fragmented across studies. The identified body of relevant literature proved highly fragmented and, therefore, per Siemieniako et al. (2021), the initial approach was to create an inductive thematic analysis, that allows the specific resource impact groupings to emerge from the analysed studies.

Employing a method of 'constant comparison', the relevant information was first gathered in qualitative codes found across multiple studies. Noblit and Hare (1988) brought forth the notion of reciprocal translational analysis as concepts are translated from one study into another to evolve overarching concepts. Exploring and analysing contradictions between individual studies was described as refutational synthesis. This study is sensitive to both these elements, as the information across studies was rather fragmented so that commonalities as well as contrasting findings were considered. This synthesis provided an arrangement of the main concepts from individual studies which serve as 'meta' concepts for understanding the phenomena under consideration (Barnett-Page & Thomas, 2009). The codes of findings were sorted into descriptive themes which are subsequently interpreted to provide analytical themes (Ibid). In line with this, this process of developing inductive and iterative themes is labelled conceptual or thematic synthesis (Ibid).

### 4.5 Quality and Bias

To minimize potential bias, the methodological approach was described transparently and systematically before the search of databases was conducted. In accordance with prominent guidelines such as the Cochrane Handbook and Prisma tool, as well as studies such as Gaur and Kumar (2018), this specified the method of searching, screening of articles, eligibility in terms of inclusion and exclusion, the procedure of data extraction, and method of analysis.

However, as recommended by numerous studies such as Dehkordi et al. (2021), a systematic review should consider further elements of the search. Therefore, to ensure the quality of information and employed methodology, the 'six components of literature review' as discussed by Callahan (2014) are outlined in this section. To determine the congruence of reviews, this approach was employed by other studies such as Gaur and Kumar (2018) who reviewed the content analysis of 25 years of IB research or in related social scientific disciplines such as Jeong et al. (2018) and Caputo et al. (2019). These questions serve as basis to reflect on an appropriate procedure and methodical approach to the research. Specified in Table 3, 6 questions are considered, noting 1) the researcher 2) search period 3) search location 4) search method 5) search result, and 6) basis for study selection (LopezMorales et al., 2020).

**Table 3.**

*Components of the Systematic Literature Review and the Related Answers*

| Question | Answer |
|---|---|
| Who conducted the research? | This systematic literature review was conducted and planned by the author of this thesis, as individual work. To further decrease bias, two authors commonly extract data independently and compare the results (Dehkordi et al., 2021). To account for this, the methodical approach was outlined transparently and in detail. |

| | |
|---|---|
| When was the search conducted? | The search was conducted in March, April, and May of 2022. Although no specific review period was selected, it contains articles from 2013 to 2021, possibly due to specific terminology used in the search string. |
| Where was the search conducted? | The search was conducted through Scopus, Taylor & Francis database, and Web of Science. |
| How was it conducted? | The search terms are outlined in detail in Section 4.3, specifically addressing inclusive business. |
| What was found? | From initially 113 articles, a final set of 33 studies was included. |
| Why were studies chosen? | Academic articles were included as they were peer-reviewed and considered high quality. Books or chapters did not appear in the search. Further inclusion criteria are specified under Section 4.3. |

*Note.* Adapted from Lopez-Morales et al. (2020).

In examining the research process, reflexivity provides important input for acknowledging and incorporating the influence that one's positionality has on the research (Noh, 2019). Thereby, it grants an insight into the way in which the researcher views each situation from their own point of view and influences each situation with their own presence (Noh, 2019). Due to the study remaining a distance or desk research, the role of cultural context and positionality might take a different shape than primary data collection in the field.

During the initial review of existing literature, the reliance on google scholar and hence the application of the google scholar algorithm skewed the findings toward an article sample of largely researchers with Dutch affiliation and connections among each other. For instance, by employing terminology such as "inclusive business", findings were biased towards other research from a similar perspective or position that uses the same labels. As this initially resulted in a very homogeneous set of background literature, the following

research process actively confronted the chosen terminology to avoid systematic bias. Especially during the step of defining search elements and building the search string, various existing literature was selected carefully and from diverse contexts to overcome this bias as reasonably and transparently as possible and use a multitude of possible labels from different academic perspectives.

The limited knowledge and experience of the Ethiopian context potentially influence the interpretation of information. Therefore, to avoid bias in the analysis and validate interpretations, the findings were discussed with relevant experts who are experienced and knowledgeable about the Ethiopian context. Selecting respondents was pragmatic to the extent that respondents were primarily found by contacting larger and smaller organizations and businesses that emerged during the research. Although the small number of respondents is not assumed to be generally representative, a balance of expertise was maintained consulting a business, organizational, and research perspective. Therefore, the systematic and transparent approach and expert interviews contributed valuably to the validation of the research.

# Part II – Findings and Discussion

The following section develops the main findings of this systematic literature review. Information is synthesised and reported in three groups: a general map of the body of included literature, descriptive findings, and thematic findings that address the research questions. Following the approach of Lopez-Morales et al. (2020), the results are presented from two perspectives: the first chapter covers the description of the selected articles, while in chapter 2 to 5 the analytical view answers the sub-questions of the central research question *"What is the impact of inclusive business in the land and water use of Ethiopian smallholder farmers?".*

## 5. Chapter – Descriptive Findings

### 5.1 Mapping the Body of Literature

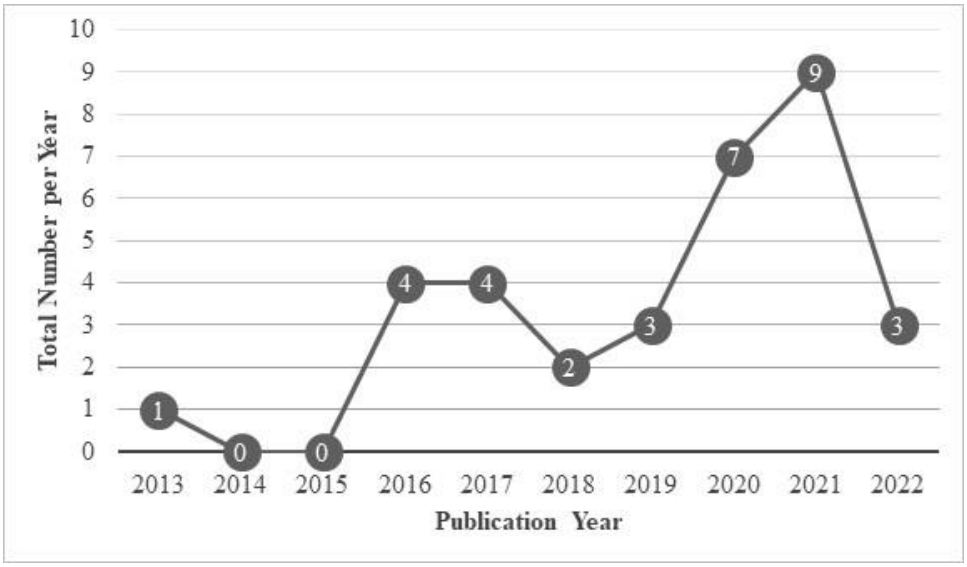
The first section presents the mapping of the body of literature that has been included in the analysis, as inspired by Candel (2014). Therefore, articles are categorized along several characteristics, including year of publication, journal, and discipline.

#### *Timeline*

Regarding the years in which studies were published, an upward trend can be seen from 2016 onwards (see Figure 7). This observation confirms the notion that studies on the impact of inclusive business have gained traction. Warren et al. (2015) emphasized the role that recent food crises have in increasing research into food security in general. In addition, Ros-Tonen et al. (2019) note that smallholder value chain participation has emerged as a new strategy in response to the changing agri-food sector. Therefore, many inclusive business projects seem to be of a rather recent nature, with a growing set of critical literature questioning inclusiveness.

**Figure 7.**

*Timeline of Study Publications*




***Journal Publication***

Of all the journals (n=24), only 5 journals included more than 2 articles (*Agricultural Economics (United Kingdom), n=2; Cogent Food and Agriculture, n=5; Cogent Economics and Finance, n=2; Food Policy, n=3; Sustainability, n=2).* Taking the journals and disciplines together indicates a spread of academic attention across various communities (see Table 4).

As important research impact metric, the Hirsch Index of each publisher provides a sense of how impactful the published research is among the target audience. According to Elsevier (2022), publication in a high H-index journal maximizes the chance of being cited by other authors. In line with this, the average h-index of 47 across studies shows a relatively

high impact, ranging from the lowest of 7 for the Sri Lankan Water Management Institute to 175 for the English Pergamont-Elsevier. To conclude, this h-index value shows a relatively high productivity and citation impact of the publications.

In terms of publishers, the *SJR Scimago Journal and Country Rank* indicates that the various journals (n=24) in which the 33 included academic articles were published cover a range of disciplines within the natural and social sciences. Among these are Food Science & Technology (n=4), inter-/multidisciplinary Social Sciences (n=3), Development Studies (n=3), Economics (n=6), Agriculture/ Agricultural Sciences (n=9), and Environmental Science (n= 6).

**Table 4**

*Journal and Discipline Distribution of Studies*

| | Journal | Number of Studies | Journal Focus | Publisher |
|---|---|---|---|---|
| 1 | African Journal of Food, Agriculture, Nutrition and Development | 1 | Food and Nutrition Security in Africa (since 2001), Food Security Outreach Program (H-Index 11) | Kenya, Rural Technology |
| 2 | African Journal of Science, Technology, Innovation and Development | 1 | Social Sciences – multidisciplinary journal covering economics, science, engineering, and technology | UK, Taylor & Francis (H-Index 11) |
| 3 | Agrekon -- Published by Agrekon (Routledge) | 1 | Agricultural Economics & Policy - Science AL ECON | AGRICULTUR ASSOC SOUTH AFRICA |
| 4 | Agricultural and Food Economics | 1 | Agricultural Sciences, Economics | UK, Taylor & Francis (H-Index 24) |
| 5 | Agriculture & Food Security | 1 | Environmental Science, Agricultural Science, (Food Security) | England, Springer (H-Index 17) |
| 6 | Agricultural Economics (United Kingdom) | **2** | Agricultural Sciences, Economics | UK, BioMed Central (H-Index 27) |
| 7 | Cogent Food & Agriculture, (11) | **5** | Agricultural Sciences, Economics | UK, Wiley & Blackwell (H-Index 82) |
| | | | Multidisciplinary | England Taylor & Francis |

| | | | | | |
|---|---|---|---|---|---|
| 8 | Cogent Economics and Finance | **2** | Economics | UK, Taylor & Francis (16) | |
| 9 | Cogent Social Sciences | 1 | Social Sciences, interdisciplinary | England, Taylor & Francis (11) | |
| 10 | Development in Practice | 1 | Development Studies | England, Routledge (H = 42) | |
| 11 | Environmental Research Letters | 1 | Environmental Sciences | England, IOP PUBLISHING LTD (H-Index 124) | |
| 12 | Environment, Development and | 1 | Environmental Sciences Springer (HSustainability | Netherlands, Index = 56) | |
| 13 | European Journal of Development Research | 1 | Development Studies | England, PALGRAVE MACMILLAN LTD (H = 47) | |
| 14 | Food Policy | **3** | Economics, Nutrition, Agriculture & Food Science and Technology | England, Elsevier (H=102) | |
| 15 | Food Security | 1 | FOOD SCIENCE & TECHNOLOGY | Netherlands, Springer (H=49) | |
| 16 | International Journal of Fruit Science | 1 | Horticulture – Science | USA, Taylor & Francis (H=18) | |
| 17 | IWMI Research Report | 1 | Environmental Science | Sri Lanka, International Water Management Institute (H=7) | |
| 18 | Journal of Agricultural Education and Extension | 1 | Environmental Studies | England, Routledge (H=25) | |
| 19 | Journal of the Institute of Brewing | 1 | Food Science & Technology | England, Institute of Brewing (H=51) | |
| 20 | Outlook on Agriculture | 1 | AGRICULTURE, MULTIDISCIPLINARY | England, Sage (H=30) | |
| 21 | PeerJ | 1 | Multidisciplinary Sciences | England, PeerJ Inc (H=70) | |
| 22 | Review of Social Economy (Routledge) | 1 | Economics | England, Routledge (H=35) | |
| 23 | Sustainability | **2** | Environmental Studies | Switzerland, MDPI (H=85) 24 | |
| | World Development | 1 | Economics, Development Studies | England, Pergamont- | |

Elsevier (H=175)

## 5.2 Descriptive Findings

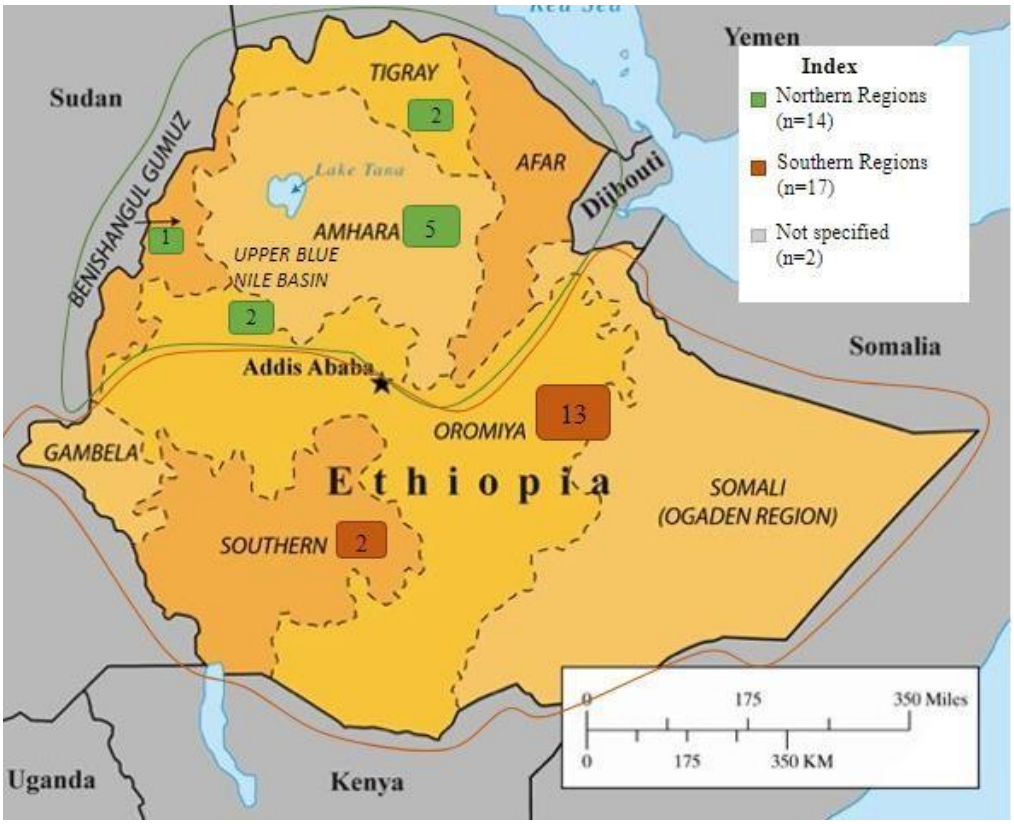
As the next step of the descriptive analysis, the articles were tagged for the region, crop production, and type of inclusive business they focus on. This descriptive assessment leaves the first impression that the body of literature is rather vast, complex, and heterogeneous to discuss.

### *Studied Areas*

Out of the total of 33 articles covering the area of interest, 14 targeted the Northern and North-West regions of Ethiopia and 17 the South or South-East (see Figure 8). Out of the 9 National Regional states, at least 5 states are represented (Benishangul-Gumuz, n=1; Amhara, n=5; Tigray, n=2; Oromia, n=13; Southern Nations, Nationalities and Peoples, n=2). Several articles did not contain their study to specific regions, covering broadly southern Ethiopia (n=2), broadly northern or north-west Ethiopia (n=4) and the Upper Blue Nile Basin (n=2).

**Figure 8.**

*Regional Distribution of Included Studies*



*Note.* For each region, the number of studies is shown. Those covering the general Northern or Southern Regions are added to the count in the Index.

### *Product Type*

The cultivation covered fruits (n=6) including banana, mango, and apples; vegetables (n=2) such as onions; seeds (n=3) ranging from linseed, castor oilseed, to sesame; a wide array of products within the grass family (n=19) including sugarcane, the most often discussed malt barley, wheat, and coffee; dairy (n=2); beekeeping (n=1); and eucalyptus wood (n=1).

### *Value Chain Inclusion*

Numerous studies have established the broad spectrum of contract farming and value chain integration (Ros-Tonen, 2019, Schoneveld, 2020). Therefore, the different labels designated to inclusive in each study, i.e., names that inform about the conceptualization, were identified. The studies have applied diverse labels which were considered as value chain integration: certification schemes (n=1), smallholder commercialization (n=3), contract farming (n=6), outgrower schemes (n=2), inclusive business (n=4), land contracts (n=1), value chain integration (n=11), or no label (n=7). These categories are not exclusive as several studies applied multiple labels especially when defining the value chain activities. For example, studies discussed the malt barley value-chain development through cooperative based contract farming (Alemu et al., 2021) or the sugarcane outgrower scheme through contract farming (Bati Fedi et al., 2022). Therefore, the business labels that were applied reflect the heterogeneous nature of conceptualizing smallholder value chain integration rather than a uniform operationalization.

To elaborate on the heterogeneous labels, *inclusion into the value chain* from the business perspective was commonly labelled value chain integration, contract farming, or outgrower schemes. In contrast to this, articles discussing the farmers' perspective labelled the value chain integration as smallholder commercialization or market orientation. The latter was the focus of multiple studies that discussed the factors relevant to the market participation decision of farmers. In line with this, the different perspectives emphasized different modes of analysis, either a) along the business value chain analysis, integrating income but also consumption effects, or b) the smallholder perspective, discussing their

perceived obstacles and opportunities that push or hinder commercialization and market participation as livelihood strategies.

# 6. Chapter - Stakeholder Mapping: Who Makes Up the Value Chain?

After the descriptive consideration of studies, the actors that contribute to the commercialization of smallholders were collected across the studies and summarised in terms of their role and contribution to the value chain. Therefore, this chapter addresses the first sub-question *"Who are the main stakeholders involved and what is their role?"*.

## 6.1 Primary Actors

The primary actors are involved in the direct commercial activity of the respective value chain and product. This includes the smallholder farmers as producers, primary cooperatives, unions and farmer associations, processors, input suppliers and, on the business side, the agro-industry, agro-processing company, or factory. While smallholder farmers are included into the chain to locally source production, the power relations remain highly asymmetrical: the buyers (company or factory) assume the controlling role, hold the decisionmaking power and thereby set the requirements and conditions, as outlined in Section 2.6.

### *6.1.1 The Smallholder Farmers*

On the producer side, the smallholder farmers are the main actors that produce on farmland and are the target of inclusive business. For the farm households, the employment of family labour for farm management as well as use of hired labour is common (Schuit et al., 2021). These farmers perform various functions ranging from land preparation; the growing, planting or protection of the crop; harvesting to transportation to the roadside (Gebre et al., 2020). The post-harvest handling that the farmer is responsible for depends on the particularities of the contract. The hired labour typically assists the land preparation, planting, weeding, watering, and harvesting process (Gebre et al., 2020). Among the smallholder farmers, a key differentiation is between contract-participating or non-participating households. For non-contract farmers, the produce is often sold on the farm through collectors (e.g., 87% of apple farmers in Mossie et al., 2021a) or on the nearest local market roadsides (32% of mango producers in Mossie et al., 2021a). They are usually confined to the

local market due to the difficulties of reaching more distant commercial markets or clients (Jebesa, 2019).

The contract farmers, farmers involved in outgrower schemes, support the production of larger facilities or companies. Therefore, they remain responsible for activities in relation to the production, such as assisting the infield irrigation, weeding, applying fertilizer, planting, and harvesting, while being incorporated into the commercial production (Kassaw et al., 2021). Starting from land preparation and passing through the different agronomic practices, they are the main actor performing most of the value-adding functions (e.g., 54% in malt barley, Kassaw et al., 2021). The surplus is provided to the market, whereby the frequency of product supply depends on the specific crop or product and, hence, contractual arrangements (ranging from malt barley once a year in rainy season in Kassaw et al., 2021 to regular sale of dairy produce in Ruben et al., 2017). In general, the farmers receive all necessary inputs including fertiliser, herbicides, or technical assistance and, in return, allocate part of their land for the crop production (Riera & Swinnen, 2016). However, as they are relatively easy to replace and do not have a specific market dominance, smallholder farmers do neither yield supplier nor competence power (Henderson et al., 2002). The dependence on the buyer further limits the power of farmers. Notably, Sako and Zylberberg (2019) pointed out the challenging and necessary conditions under which suppliers can be able to tip the scale in their favour, impacting and shifting power dynamics toward their favour. The role of this input provision and high level of control through the buyer is discussed within Chapter 7.

### *6.1.2 Farmer Organizations and Cooperatives*

Farmers are organized into marketing groups, associations, and cooperatives, that tend to coordinate the contract farming or outgrower schemes (Ruben et al., 2017). The primary cooperatives, unions, and associations have a bridging role in the sale to factories and companies, with limited capacities and decision-making or bargaining power. In the malt barley case, for instance, the producer deals with primary cooperatives who deal with the union, who deals with the factory, who deals with the brewery (Kassaw et al., 2021). In the supply of raw milk (Ruben et al., 2017), the milk is similarly supplied through cooperatives (75% marketed through cooperatives), linked to intermediaries, milk collectors, processing companies, and then consumers. In large parts, the schemes rely on cooperative-based contract farming. Thereby, the cooperatives buy and sell numerous crops (multi-purpose cooperatives; Chagwiza et al., 2017). In addition, cooperatives hold a strategic role in linking

farmers to the market. They assist farmers in overcoming the minimum quantity, quality, and frequency constraints to participation, which are common in higher-value markets and contract farming schemes. In the banana marketing, they help overcoming marketing problems as the current marketing would not be strong enough to compete at national level (Tarekegn et al., 2020). Even if they have limited capacity, primary cooperatives have been outlined as key to successful integration of smallholder producers as they organize them for successful participation and help protect against illegal traders (Kassaw et al., 2021). Certain government projects such as the AVCPO (Agricultural Value Chains Project in Oromia) predominantly include farmers via cooperatives into their, e.g., durum wheat production (Biggeri et al., 2018). Therefore, cooperatives are not only key stakeholders, but the membership therein can play a crucial role in smallholders' market participation.

In general, producer organizations can reduce the transaction costs that occur in the contracting between agribusiness firms and dispersedly located smallholders. They can facilitate the supply of input to the contracted farmers or improve the farmers' bargaining power (Tefera & Bijman, 2021). Often, contracts are between the processor and the producer organization, meaning that farmers as members of the PO can enter the contract farming arrangement (Tefera & Bijman, 2021). In return, the POs have to ensure the timely delivery of a certain quality and quantity.

Although they are generally known for linking farmers to large agro-processing companies, this does not apply equally to all study areas. In the case of malt barley production in Oromia, the cooperatives are poorly organized and weak, meaning they cannot support farmers with material or technological support or information (Watabaji et al., 2016a). If cooperatives are not strong enough to compete with private traders, the preference of non-contract farmers can go to the latter, as the cooperatives do not benefit their members as much as expected (Gebre et al., 2020). If farmers are dispersedly located, a lack of quality uniformity has been shown which can be a key constraint for the business supply (Watabaji et al., 2016a). This was confirmed by the development expert stating they commonly negotiate better imbursement for those farmers able to provide a higher quality. Especially regarding the latter point, POs can become selective in achieving this business objective, ultimately excluding resource-poor (and therefore riskier) farmers from their membership.

### *6.1.3 Cooperative Unions*

At the next higher level of organization follow the cooperative unions, which are unions that comprise multiple primary cooperatives. For instance, the SNV collaboration with Didaa as a cooperative union (linseed production in Oromia; Chagwiza et al., 2017), the Ras Gayint Union with its primary cooperatives (malt barley in Amhara; Gebru et al., 2019), Sorgeba Union (coffee production in Oromi; Schuit et al., 2021) or Wonji Area Sugarcane Growers Union (sugarcane production in Oromia; Watabaji et al., 2016b). These stand between the associations and factory. Similar to individual cooperatives, unions can contract farmers to produce certain crops that are later distributed by the union to, for instance, the barley producers (Gebru et al., 2019). Emphasizing the asymmetrical power relations, the respective Ras Gayint Union has unwritten/oral agreements with malt barley farmers that specify quantity, quality, and price of produce, as well as time and place of delivery. As soon as the produce is collected, suppliers are paid (payment is made to the cooperatives; Gebru et al., 2019). This seems to conflict with the FAO (2015) suggested guideline of providing flexible arrangements. As contracts are signed by the Union and factory manager, the Ras Gayint Union is the only interface that brings all actors together (Gebru et al., 2019). However, for contract farm households, the relationship is primarily with representatives of the unions or associations. In Kassaw et al. (2021), 82.2% of malt barley product in Amhara was supplied to the market with almost all produce being passed from producer to factory through primary cooperatives. The cooperatives in turn export their produce through the Unions. To conclude, the product passes from the producer to the factory through primary cooperatives and the union serves as major marketing channel.

### *6.1.4 Agro-Industry/ Agro-Processing Companies*

On the agro-industry side, the key actors are factories, companies or other buyer parties that would be described as the private-sector partner. They are the main contractual provider and party that is linked to the farmers through the contract scheme (Bati Fedi et al., 2022; Watabaji et al., 2016b). Commonly, it is the factories' task to provide access to the production inputs such as agro-chemicals and other inputs such as credit, or technical assistance, while providing a guaranteed market for the produce. The factory signs the contract with a cooperative or union, which in turn makes unwritten/oral agreements with farmers (Gebru et al., 2019). In general, the use of contracts positively relates to value chain integration (Watabaji et al., 2016a). In the case of malt, international brewers drive the chain

as they source malt barley from smallholders (Tefera & Bijman, 2021). The multinational beer companies designed the malt barley local souring schemes to produce the desired quality and volume of malt barley from smallholder farmers through contract farming (Bezabeh et al., 2020). This emphasizes the involvement of buyers as lead party in the chain – including traders, exporters, or domestic and/or foreign retailers – who tend to define the governance structure and set the conditions of engagement.

While the FAO (2015) cautioned the overdependence on single buyers or marketing channels, producers are linked to an individual company. Therefore, the chain is largely governed by the factories with the assistance of primary cooperatives and cooperative unions (Kassaw et al., 2021). In the example of breweries in northern Ethiopia, much government support has been received to develop the barley value chain and procure crops locally through smallholder contract farming (Rashid et al., 2013). In the case of sugarcane production in Oromia, this even took the form of a monopsony relationship, making producers vastly dependent on the buyer (Wendimu et al., 2016). The articles relating to sugarcane outgrower schemes determined that obligatory incorporation into outgrower schemes had more negative than positive effects on the smallholders' level of income (Wendimu et al., 2017; Williams et al., 2021). This was due to unequal power relations which led to a lack of decision-making power over changing to alternative crops that had higher yields and produce and lack of negotiation power over pricing mechanisms. While most of the profit is generated on the buyers' side, this concept of governance distributes the risk unequally as most power is exerted by the lead companies (further discussed in Chapter 7, Gereffi & Lee, 2012). In line with this, literature such as Vicol et al. (2022) has conceptualized contract farming as form of captive chain coordination, as the lead firms exercise control over produce characteristics and practices.

#### *6.1.5 Relations to the Farmers*

The support to the farmers is commonly provided through third parties, that assist the enforcement of contracts. These are the managers, field supervisors, or operators with agricultural expertise that engage with the farmers' input provision, training, and pre- or postharvest activities. In the castor contracts, these intermediaries are labelled extension agents and provide technical assistance in the implementation (Riera & Swinnen, 2016). The firm's extension workers at the village level deliver the training, facilitate the formation of groups, distribute input, and follow up the cultivation and output collection (Ibid). The

extension agents that are hired by the company are also the main promoters of the crop (83%), followed by government extension workers (Riera & Swinnen, 2016). This farm-level support can also be delivered through non-governmental organisations and public agencies. As noted in the next section, the public actors and local authorities in Ethiopia often play an overriding role in access to inputs, services, and land (Van der Lee et al., 2018). The impact of these services is outlined more specifically in Chapter 7.

Factories can designate their own supervisors to overlook the production activities of outgrowers, such as labour and inputs. These intermediaries are involved in the planning and management of production activities, bridging the association and factory (Watabaji et al., 2016b). For instance, the malt factory organizes training programs for model farmers on best agricultural practices, technologies, and market linkages, that are facilitated by these intermediaries (Watabaji et al., 2016a). The outgrower manager confirmed that the smallholders tend to seek a contact person to address when problems such as shortage in fertilizer or irrigation arise. However, this is not considered part of the company's responsibility but attributed to local authorities and development workers, underlining the company's powerful role in risk distribution and attribution.

### 6.2 Secondary Actors

The secondary actors are not directly involved in the production activities but play a role either supporting or influencing the primary actors. This means, they participate in activities of second order, for instance, providing financial support, extension services, capacity building, or information. Thereby, they contribute to linking smallholder farmers to the formal market and business development services. As determined by Thompson et al. (2011), stakeholders are relevant at local, national, and international levels.

First, at the local level, the government extension workers, credit facilities such as the Amhara Credit and Saving Institute, and research and development structures were considered most important (Gebru et al., 2019; Negasi & Mebrahatom, 2019). The Ethiopian agricultural extension system entails research-based services provided to farming communities. The government workers representing extension services are the extension agents providing the service. The frequency of engagement with these agents has repeatedly been stated as holding a positive effect on farmers' productivity and the farmers' decision to participate in the market (Molla et al., 2022; Gebru et al., 2022; Tarekegn et al., 2020; Mossie et al., 2020). For instance, in the case of onion production, the extension agents help farmers

to improve their production through improved conservation and farm management, through improved seed varieties, integrated water, nutrient, and pest management (Tarekegn et al., 2020). In this way, the access to the extension service enhances productivity as it promotes good agronomic practice (Tarekegn et al., 2020). Similarly, the irrigated onion production in Oromia benefited from the access to extension services, as farmers received information regarding technological improvements and could thereby enhance the marketable surplus (Abrha et al., 2020). In general, this integrated agricultural marketing information system has been shown to strengthen the link between the producers and other value chain actors (Tarekegn et al., 2020). For instance, in the malt barley contracts, the access to extension services significantly decreased the likelihood of farmers to engage in side-selling (Alemu et al., 2021). Importantly, together with the membership in local cooperatives, these extension contacts increase the likelihood of value chain participation and increase the intensity of participation (Mossie et al., 2020). Specifically, the number of extension contacts was repeatedly related to improved productivity and better market choices. As noted by Gebru et al. (2019) and Negasi and Mebrahatom (2019), local research and development structures can assist with impact assessments and corporations have collaborated with the agricultural and rural development offices to understand positive effects and barriers to market participation.

At national scale, governance and the government, foreign governments as donors, and international development organisations were noted as key actors. The list of other international development actors involved in projects ranges from national donors to the FAO, SNV to many more actors. The government and policymakers, agricultural research institutes, and development organizations seem to set the agenda and contribute to the frame in which smallholders are linked to the market (Ruben et al., 2017). Thereby, much effort was dedicated to providing farmers with necessary market information, organizing them into associations and cooperatives, and coordinating the contract farming and outgrower schemes (Ruben et al., 2017). In addition, the level of trade liberalization, privatization, and favourable investment policies determine the climate for attracting multinational corporations (Bezabeh et al., 2020). For instance, in malt barley production, the government was able to attract two large European brewing companies that subsequently set up their brewing plants in Ethiopia (Rashid et al., 2013). Next to the private sector efforts, the government is involved in important public sector investment projects. The AVCP is one such public sector project that has been implemented through the Ministry of Agriculture, Animal Industry Fisheries with support from the African Development Bank. Linking smallholders to the industry via

cooperatives, these are important projects targeting livelihood improvements among smallholders. The national scale project is then implemented through smaller rural development projects, determining the specific implementation zones. Overall, the state is involved by controlling key productive assets or providing the enabling environment to contractors (e.g., infrastructure, services, or irrigation).

Mentioned in several articles and by the expert, the Ethiopian Commodity Exchange (ECX) is the national multi-commodity exchange that has been established in 2008. Since the introduction of the ECX, certain buyers and exporters are no longer allowed to sell directly to international markets but must do so via the ECX, for instance, in the case of coffee. In contrast, the commercial private as well as state farmers, and cooperatives, are permitted to sell directly to the international buyers supposedly benefitting the vertical integration. A main objective of the ECX was to better link smallholder farmers to the markets, as trading relationships and market information become more reliable, and the ECX prices can be used as reference prices for sale (Vasu, 2018). While Gelo (2020) note the potential for improving the farmers' standard of living beyond income increases, other studies such as Vasu (2018) have criticised that this main objective has not been achieved.

Multiple other roles were briefly introduced. The role of transnational companies in 'seizing land' and controlling local resources was noted on the side, as the companies look for and capture new agricultural lands. In the case of sugarcane in Oromia, the opportunity of large-scale land acquisition contract farming was described as reorienting the large-scale acquisition to support smallholder land rights and FNS more effectively (Williams et al., 2021). The role of donors in development projects was noted across articles and experts. In Rashid et al. (2013), the government of Japan has supported the promotion of rice which subsequently led to a large increase of irrigated land. In another case, the expert noted the involvement of the government of Israel in a large irrigation project.

## 7. Chapter - The Changing Use of Land

After considering the relevant stakeholders in the value chain, this chapter turns to developing overarching themes. In total, a set of 24 codes was established of which some have major importance across at least 4-10 articles (n=13), whereas others only came up in 1-3 articles (n=11). Connecting the different articles in codes, the types of IB and resource relationships that were discussed were mapped out and consolidated across the literature, by identifying the dominant ways in which land or irrigation play a role (Siemieniako et al., 2021). Some points

were mentioned in the literature without detail and, where possible, are supplemented with the interview insights.

In line with this, this chapter provides a thematic synthesis of the studies to address the second sub-question regarding *the change that can be observed in the smallholders' use of land*. To understand the role of land as productive resource, the findings were iteratively analysed to develop concepts and themes, more specifically, a qualitative or conceptual synthesis. The literature review yielded a vast number of ways in which farmers engage with productive land resources to secure a livelihood and consumption. To illustrate the farmers' changing use of land, this section first discusses the farmers, then the purpose of land use, and lastly the major changes.

## 7.1 The Farmers as Users of Land

As noted under section 1, land is considered a key wealth indicator and productive resource for farmers to secure their livelihood in a sustainable manner. Therefore, it is important to consider *who can make use of land and to what extent,* looking at the group of 'farmers' in more detail.

### *7.1.1 Heterogeneity Among Farmers*

The overarching grouping of smallholder farmers across studies shows a wide heterogeneity in terms of resource-endowment so that the land at the farmers' disposal varies markedly. For vegetables in Tigray, land was emphasized as main productive asset of farmers and measure of wealth in the study area (Abrha et al., 2020). While farmers used either own land or rented farmland for the crop production, the average land holding was around 1.04 hectares, ranging from 0.13 to 1.5 hectares (Abrha et al., 2020). In Oromia, the study on malt production similarly confirmed farm size and livestock numbers as main resources for the farmers (Alemu et al., 2021). However, the average total farm size operated by the household was estimated to be 2.71 hectares, a lot more than in the first study. Among sugarcane outgrowers, farm size was markedly larger, ranging from 5 to 9 hectares (Wendimu et al., 2017). Therefore, these differences can partly be linked to the diverse crop requirements, e.g., sugarcane grown as plantation crop.

Other factors that impact the resource access of farmers and determine the farmers' market participation were age, gender, education, and experience. In Belay et al. (2017), around 76% of the landless farmers in the study region were young farmers under the age of

35. Therefore, young people seemed over proportionally affected by land poverty in the area which confirmed the national trend (Bezu & Holden, 2014). A majority of youth live in rural areas and experience limited access to agricultural land, potentially contributing to the low interest in maintaining an agricultural livelihood. Abrha et al. (2020) emphasized the female households' resource constraint in Tigray. Most of the female household heads were resource-constrained in so far that they did not own critical resources for cash and food crop production or vegetable marketing (Gebre et al., 2019). As male household heads seemed to have more resources to supply the market, the high start-up cost of some production types can hurt female farmers more than males. Although not discussed in the studies, education and literacy play an important role in facilitating farmers' access to market opportunities and technology (Kirui, 2019). In the business assessments, this farm diversity among suppliers is often overlooked and fundamentally contributes to the reproduction of existing inequalities.

### *7.1.2 Land Determining Inclusion?*

To become a beneficiary of the inclusive value chain, farmers are expected to allocate a minimum amount of their land to the required production. While this differs between contractual arrangement and type of production, a minimum land size needs to be available, and the farmer must be willing to allocate sufficient land to the specific production. In addition, the business expert pointed out farmers need to have a commitment and willingness to cooperate. A key reason for this is the adoption of new technical methods on the land which requires farmer compliance. The expert additionally noted that a certain security of tenure needs to be given, i.e., land needs to be formally recognized. This is deemed necessary to avoid disputes or conflicts during later stages of production; insecure land rights are described to reduce the feasibility and attractiveness of contract farming (Negasi & Mebrahatom, 2019). For example, land tenure in the Tigray study area was distributed amongst 74% owning their land, 25% leasing, and less than 1% holding their land under diverging forms of tenure (Negasi & Mebrahatom, 2019). In line with this, the required tenure security was not described as problem or challenge in any of the studies or interviews.

The noted minimum farm size has been criticized as the basis for systematic exclusion of less resource-endowed farmers. In many of the studies (n=13), land size was investigated as possible driver (in its abundance) or obstacle (in its absence) of market participation. In 10 of these studies, differences between participants and non-participants in terms of land endowment were established. Therefore, resource endowment was determined to have an

important impact on the level of inclusion. However, in 3 of the studies, participants were not shown to differ from non-participants in terms of available land size. Specifically, differences were found for malt and sugarcane in Tigray, apple, mangos and malt in Amhara, and dairy and sugarcane in Oromia. In contrast, no differences were found in two studies of the malt production in Oromia, and castor production in the SNNP.

First, in several studies, farm size was clearly determined as differing between participants and non-participants. In the malt barley value chain of northern Ethiopia, increasing land size similarly drove the decision to participate in the market (Gebru et al., 2019). In Tigray, it was confirmed that asset endowment (essential productive resources) can generate an enhanced level of inclusion (Abrha et al., 2020). The same was confirmed in Amhara where resource endowment had an impact on the level of inclusion in the malt chain, specifically defining inclusion as a function of wealth (Gebru et al., 2019). Comparatively, the apple and mango value chain participants in Amhara were found to own significantly larger plots than non-participants (Mossie et al., 2020). In the dairy arrangements in Oromia, resource endowment was found to drive the upgrading and transition of farmers (Van der Lee et al., 2018). In its absence, the resource endowment was considered as hindering bottleneck. For the sugarcane outgrowers in Oromia, the total land owned by outgrowers was significantly greater than that owned by non-outgrower farmers (Wendimu et al., 2016). However, this could be an anomaly in so far that farmers were incorporated into the company's supply chain by obligation. For sugarcane outgrowers in Tigray, farmers willing to participate in contract farming were contrasted with those not willing to (Negasi & Mebrahatom, 2019). Thereby, it was found that willing participants had a significantly higher cultivated land (9.2 ha versus 5.8 ha) than those not willing to. However, rather than a business requirement, this emphasized the impact that land size has on farmers' willingness to participate, as elaborated in the next section. In the wheat production in northern Ethiopia, an increase of 1 hectare of land allocated increased the market participation by over 40% (Abate et al., 2021). This was largely based on the smallholders' decision-making, as an increase in land provided a greater willingness to participate in the market. In the mango market participation in Benishangul-Gumuz, households with a large land size allocated to mango production had a higher market participation (Hagos et al., 2020). Specifically, an increase of 1 hectare of land allocation led to a 92% probability increase in mango quantity sold to the market (Hagos et al., 2020). In the banana value chain in southern Ethiopia, the area allocated for banana production was determining the market participation (Tarekegn et al., 2020). A 1

hectare increase under banana cultivation led to a probability increase of 11.5%, as the more land was allocated more quantity could be supplied. With increasing the area, the banana volume to be harvested increased, providing a higher yield, and ultimately driving the decision for market participation (Tarekegn et al., 2020). The decision to participate in the market seems to be due to the boost in total production level and sales of surplus produce that the increase in farm size and hence allocation of land brings (Bezabeh et al., 2020). The smaller land had an adversarial effect in so far that land would need further dividing and ultimately a decreased output per product (Gebru et al., 2019). With larger farm size, participants were more willing to participate, allocated more land, and were more likely to be included into the IBM activities. This confirms an important connection of market participation and land size, as the more area allocated to production, the higher the yield and quantity supplied to the market, the greater the probability that farmers decide to participate in the market.

In contrast, several other studies considered differences and found the farm size of non-participants not to statistically differ from participants. In the malt barley outgrower contract in Oromia, farm size was not found to be a restriction for joining the contract farming (Bezabeh et al., 2020). This means no statistical difference was found between participants and non-participants in terms of land size. The study which noted differences in the malt chain found the opposite evidence for the vegetable chain (Gebru et al., 2022). With larger land size, farmers were less likely to be included in the vegetable business. Another study on the malt contracts in Oromia confirmed this (Tefera & Bijman, 2021). Farm size and area allocated to malt barley did not determine the contract farming arrangement participation. In this case, both small and large farms had equal opportunity to participate (Tefera & Bijman, 2021). As a result, in the included studies, the assumption that farm size determines value chain inclusion cannot be confirmed homogeneously; while it seems to play an important role, this does not apply to all study areas and value chains.

### 7.2 The Objectives of Agricultural Production

The key consideration for smallholder farmers in their use of land are the objective of their agricultural production. Across the studies, the focus was on the farmers' navigation of subsistence and for-market production, subsequently impacting the decision to be involved in contract farming arrangements.

### *7.2.1 From Subsistence to the Market*

How much land is allocated to the IB production or market produce depends on the farmers' decision whether and when to move from subsistence to market production. If farmers decide to engage in the market, the move beyond subsistence means farmers start to sell their excess produce to the market, commonly after securing their own consumption (expert interview). In line with the SL framework, livelihood strategies are highly diverse so that for some farmers it can be more desirable to secure their own consumption and diversify their livelihoods in other forms of employment.

For those becoming involved as commercial farmers, the extent or intensity of participation is determined by the company's minimum commitment requirements but also the farmers' subsistence production. In the case of irrigated onion production in Tigray, an average of 30% of the land holding was allocated to the IB vegetable production (Abrha et al., 2020). The rainfed agriculture and cereal crop production sustained the farm households' own consumption (Ibid). In contrast, the IB onion were largely produced under irrigation (Ibid). To the onion production, farmers allocated around 16% of the whole land (Ibid). This shows that a lot less land was allocated to the onion production (.01ha to .5ha, an average of .16ha) than to cereals (Abrha et al., 2020). The advantage of a larger farm size was emphasized for the malt barley contract farming in Oromia (Bezabeh et al., 2020). With a larger farm size, farmers were able to allocate land partly to food crop production and partly to cash crop, thereby providing them with a better position to participate in the contract farming (Bezabeh et al., 2020). As noted under the previous section, the risk aversion of resource-poor farmers is often based on the objective to first secure the households' own consumption (Van der Lee et al., 2018). In other words, the poorer households with more household members tend to lack the necessary land for commercial allocation and are more careful about risking their own consumption. The minimum commitments required in the commercial production are not always compatible with farmers' navigation of subsistence production, emphasizing the restricted resource access to land and irrigation, as picked up in the next Chapter. Therefore, in the absence of sufficient productive resources, this hinders market participation decisions, as subsistence and commercial production are not necessarily compatible.

### *7.2.2 Resource-Based Willingness to Bear Risks*

The company retains the position of power in determining whether farmers are considered fit for participation, often wishing to reduce risks on their part and securing a reliable and predictable flow of produce. However, farmer willingness to participate is affected by complex factors especially surrounding the capability to take risks related to the market. In line with the Sustainable Livelihood Framework, productive resources serve as important safety net of assets. For the more resource-endowed farmers this means they can intensify their crop and livestock activities, upgrade service arrangements, benefit from better access to land, labour, credit, and information (Van der Lee et al., 2018). Similarly, looking at inclusive business across vegetables, sesame, or barley, Gebru et al. (2022) emphasized that the link of larger farm size and willingness to allocate more land to the IBM activities was mediated by the farmers willingness to bear risks, alongside access to input and credit. Those farmers with less land often seek out off-farm income to become less dependent and thereby diversify their livelihoods (Williams et al., 2021). In the case of obligatory sugarcane production, lack of better livelihood strategies and access to farmland outside the scheme area drove the farmers decision to remain in the outgrower scheme where they could benefit from the resource endowment (Wendimu et al., 2016). From the farmers' perspective, risk aversion is an extremely important consideration as they risk losing secure consumption and their livelihood basis. In anticipation of the changes they risk, many of the resource-poor farmers would not be willing to participate.

Risk aversion in this case means that farmers avoided the risks associated with market participation and instead first secured their own consumption. Next to resource endowment, risk aversion was determined by household size, as the increasing number of dependents in the household impacted farmers' willingness to take risks. In the case of the mango chain, it was noted that the larger households seemed to be more risk averse and therefore less likely to participate in the market (Hagos et al., 2020). In the sugarcane production in Tigray, 67% of farmers not willing to participate in the scheme justified this with a fear of risk, for instance, a decrease in production or earnings (Negasi & Mebrahatom, 2019). As a result, they had reduced external outputs and service use, and were more likely involved in informal service arrangements (Negasi & Mebrahatom, 2019). Underpinning this point, it was established that side-selling activities differed between farmers depending on area of land under their operation in the malt chain of Oromia (Alemu et al., 2021). The farmers who accessed and operated larger areas of land (1.03 hectares on average) were less likely

engaged in side-selling, compared to those owning less land (0.55 hectares to 0.63 hectares) who were partly or fully engaged in side-selling (Alemu et al., 2021). Those farmers more dependent on the production were expected to explore other markets and market actors to reduce risks, which created the opportunity of side selling. In this way, the resource endowment drove the risk aversion and determined the use of land and access to services.

The business expert noted the opportunity to access land through other farmers. This requires resource-rich farmers who are sharing or leasing out their land and thereby generate access for others. Thereby, through sharing in, the constraints of lacking resources can be overcome. This means, to be able to access land through other resource-rich farmers, farmers need to be willing to rent out land and the receiving farmer needs to be willing to pursue a sharing in agreement. The expert noted that this often means generated income is split equally between the parties. This would specifically encourage an outgrower mechanism with more resource-endowed farmers: the larger farmer provides the inputs on a credit basis and buys the product in return (Expert interview). However, this presupposes that land is available in the area, and the farmer resides in a locality in which land can be accessed through others and more resource-endowed farmers are willing to share out. Belay et al. (2017) established that owning large plots of land encouraged farmers in Amhara to share out to other landless farmers. Notably, a greater proportion of women was inclined to lease out their lands. In Amhara, around 45% of farmers accessed land by renting in, and around 15% were renting out (Belay et al., 2017). However, to afford to rent land under the current land use policy, households require non-farm income (Tesfaw et al., 2021). In some cases, the above discussed sharecropping or sharing in with other farmers can be a more feasible livelihood strategy.

To conclude, the resource endowment seems to serve as important protection against shocks and subsequently impacts the smallholder's ability and willingness to participate in IBMs and, hence, access to resources. The resource-poor households were less willing to risk the basic food supply and, due to their lower resource endowment, they are more vulnerable and exposed to risks and shocks. As a result, these farmers are more risk averse and focus on other strategies to cope and remain protected. The diversity of strategies employed by the resource-poor farmers underpins the active coping of smallholder farmers and how these differential positions impact their choices and outcomes thereof.

## 7.3 The Changing Dynamics of Land Use

Based on the contractual arrangements, patterns of important changes in the use of land emerged across the studies. The changes discussed most often related to i) the intercropping versus mono cropping system, ii) the benefit of improved input for beneficiaries and iii) the enhanced productivity of beneficiaries, iv) general intensification and upgrading pressures v) farm size impacting the distribution of benefits, vi) a farm-level spillover effect, and v) the crowding out through cash crops.

### *7.3.1 To Intercrop or Not to Intercrop*

The decision of either *single cropping versus inter-cropping practice* has a major impact on the farmers' livelihoods in terms of stable food produce and income generation. In the study on apple and mango value chains by Mossie et al. (2020), intercropping on the land was a value-addition practice employed by many farmers. The main reason was to more efficiently use the farmland (Mossie et al., 2020). However, as outlined in the study on malt contracting, single cropping was determined as a participation requirement due to production of other crop grains not being allowed (Gebru et al., 2019). As referenced in Gebru et al. (2019), the specific contract clauses required that not a single seed of another crop was found in the products supplied to the company. However, as smallholders criticized, engagement in inter-cropping makes adherence to this clause impossible, as farmers cannot control for these minor impacts when growing in proximity. As stated by an involved farmer: "the cooperative does not buy if they find a single particle of another crop's grain or straw, or of soil, sand or insect, in a sack of the crop after harvest. For me, this is difficult to control, as I grow different crops on one plot." (Gebru et al., 2019). While the FAO (2015) guidelines for IB outline that trading arrangements should be flexible to support smallholders, this only targets support in the supply of the buyer and is therefore focused on what is beneficial to the buyer.

As the majority of farmers confirmed the intercropping practice, this forced single cropping excluded a large portion of households from participation (Gebru et al., 2019). Intercropping serves as main coping strategy for many of the farmers who remain engaged in agriculture. As discussed in detail in a later section, intercropping has been shown to result in improved food crop income and production in calories per hectare (Riera & Swinnen, 2016). In addition, the monocropping system tends to have adverse impact on environmental issues such as exhaustion of the fertile land and reliance on chemicals (Gebru, 2015). This was confirmed in the expert interview: the farmers were required to participate in crop rotation as

the business' attempt to re-vitalize the soil which is gradually depleted of certain nutrients and retain productive capacity.

Overall, the importance of the smallholders' level of agency and autonomy when participating in value chain inclusion was established. This agency over the farming practice and control over decisions regarding land allocation holds a central role in the articles of Wendimu et al. (2017), Wendimu et al. (2016), and Williams et al. (2021). The strategic choice over which crop to grow and whether to engage in inter-cropping has remained an essential livelihood strategy to most farmers, although not considered desirable in contractual agreements. Examining this in more depth, particularly the poorer households would strategically decide to not participate to averse this risk. Therefore, the incorporation into the value chain needs to rest on schemes that retain the farmers' autonomy and agency over cropping practice.

### *7.3.2 Input as Key Advantage of Participants*

As highlighted within the stakeholder mapping, contractual agreements are heterogeneous and depend on the circumstances and involved parties. However, a common factor is the *input provision as contractual agreement.* Specifically, the farmers are provided with all necessary inputs such as fertilizer, or herbicides, as well as 'training' (Riera & Swinnen, 2016). This training can take different forms, ranging from technical assistance to best agronomic practice training. The latter is often done through the employment of model farmers that serve as example for others to view in action. This was confirmed as common practice in an expert interview with a large development agency. Farmers have been shown to have a strong preference for contracts that provide all necessary inputs and only ask land and labour in return (Riera & Swinnen, 2016). In a study on outgrower schemes, out of those willing to participate in contract farming, all households had a strong preference for total provision of inputs, meaning farmers only supply land and labour (Negasi & Mebrahatom, 2019). Farmers can additionally receive assistance in the land preparation and infield irrigation. In the study on sugarcane outgrowers by Wendimu et al. (2017), all production activities from land preparation to harvesting were jointly planned and managed by the outgrower association's management committees, union and factory representatives. In the case of castor contracts, labour remained similar, but quantity of fertiliser doubled for the castor plots, which led to an increase in plot productivity (Riera & Swinnen, 2016). This

increased input and training was shown to be the key determinant for the increased productivity and ultimately positive income effect.

While the FAO (2015) guidelines dictate to avoid overdependence in the supplierbuyer relationship, this creates strong reliance on part of the farmer. Gereffi et al. (2005) relates this strong dependence of farmers on buyers in terms of resources to a captive form of governance. As noted, the input is the key determinant for improved productivity and income. In consequence, in the provision of produce to the buying company, the farmers can become dependent on this input. In the case of sugarcane outgrowers, input was not adequately supplied which led to smallholder dissatisfaction and struggles to fulfil production in line with the agreement (Bati Fedi et al., 2022). As noted by Gereffi et al. (2005), the transactional dependence on buyers comes with a high level of monitoring and control through the company. This is illustrated in the case of sugarcane outgrowers in Oromia, in which all production activities are jointly managed with agronomists and outgrower managers supplied by the factory (Wendimu et al., 2017). In addition, as noted by the development organization's expert, the projects are temporarily limited and the government has to take over at some point, meaning that actors other than the business have to provide the (technical) support to the farmers. As the farmers produce under conditions that are set by the buying company, sensitivity toward the dependence in this imbalanced power system is required.

### *7.3.3 Productivity Enhancement of Participants*

As a result of the improved input, participants tend to improve plot- and farm-level productivity of the contracted crop. Due to the output-dependence on input, the extent of land allocation, irrigation, and fertiliser use were determined as most important contributions to productivity in terms of output volume but also quality. For the business objectives productivity enhancement holds a key role: the companies wish to procure produce locally but this expanded production takes place within limited farmland supply. In line with the noted trade-offs that apply to inclusive business, the emphasis is placed on enhancing productivity.

In the case of irrigated onion production in Tigray, the improved production methods of participants led to increased output (Abrha et al., 2020). In Benishangul-Gumuz, the increase in land allocated to mango led to a subsequent increase in quantity sold (Hagos et al., 2020). However, the level of land fragmentation seemed to impact this quantity. Regarding castor contracts, contrasting different produce within a farm, a productivity difference was

found between plots where castor was grown and plots where it was not (Riera & Swinnen, 2016). In the apple mango value chain, allocation of more land led to more intense participation in the output market (Mossie et al., 2021a). Even in contrast to large-scale plantation, sugarcane outgrowers outperformed in terms of productivity (Wendimu et al., 2016). Similarly, the amount of land allocated for malt barley production positively determined the quantity supplied to the market (Kassaw et al., 2021). In this case, the positive effect of land allocation on quantity supply led to a recommendation of intensification on part of the farmers.

The pressures of intensification are intrinsically linked to the input provision. The study on dairy production in Oromia noted that it is commonly assumed that farmers need market incentives to enhance efforts of intensification (Ruben et al., 2017). However, following the market-based development approach which includes inclusive business, these incentives might be captured by only the rich farmers as assets are required to benefit from market opportunities (Ruben et al., 2017). In the dairy sector chain inclusion, the farmers' declining livelihood that resulted from diminishing farm size was shown to be the key driver for upgrading. In line with Gereffi (2011), upgrading is the key strategy employed by actors other than the lead firms to improve their economic position. In turn, the upgrading required farmers to intensify their productive activities, specifically increased use of inputs and services to increase their output, which subsequently intensifies the land use (Ruben et al., 2017). Therefore, intensification is directly linked to the external inputs and services required to increase the output. The business expert noted that a main complaint of farmers was the shortage of fertiliser. However, this is not considered company responsibility, but needs to be solved by cooperatives or other secondary actors, for instance, District Offices of Agriculture. This gives an important insight into the power imbalance in the chain and attribution of responsibility.

However, productivity benefits that result from increased input are largely reserved to participants. Studies (n=3) discussing obstacles to higher yield drew a direct link to lack of inputs and ineffective agronomic practices. For non-participants, the study on apple and mango value chains found that intercropping of the two fruits, ineffective land preparation, and only minor use of pesticides had a negative impact on the farms' productivity (Mossie et al., 2021a). Similarly, in the malt value chain inclusion, small land size, the lack of proper inputs, modern practices, and specialization led to a decrease in quantity and inferior quality of produce (Watabaji et al., 2016a). Noting the land size, the coffee value chain analysis

(Minten et al., 2019) showed that richer farmers with larger plots had a higher adoption rate of improved practices. For irrigated onion production in Medebay Zana, lack of proper inputs (seeds, agrochemicals), damage by pests, the limited knowledge of improved techniques and poor access to information were found to be the main reasons for low yield of onion (Abrha et al., 2020). Similarly, alongside disease, lack of access to improved propagation techniques and generally poor agronomic practice led to low banana productivity (Tarekegn et al., 2020). The agronomic practice was specified to poor management of soil and weed and absence of irrigation. Studying the malt value chain, it was confirmed that poor quality and decreased quantity are a result of lack of proper inputs, small land size, and traditional farming practices (Watabaji et al., 2016a). Overall, the effect of method, input, and land size on output and yield was repeatedly shown across studies, leading to improved productivity among participants and lack thereof for non-involved farmers.

### *7.3.4 The Spillover Effect*

Due to the increased input, an important spillover effect of contract farming for food crops on non-contracted food crops has been shown in the literature. This was pointed out as very positive effect at farm-level in which improved fertiliser and training lead to productivity increases, labelled spillover effect.

The study on castor contracts found contracted intercropping with castor to have a significantly positive effect on farmers' overall productivity and income (Riera & Swinnen, 2016). While this was the focus of only study, a reason for this could have been the absence of inter-cropping in most of the IB cases. In the castor production, the income per hectare (without castor) was 79% and food production (without castor) 112% higher in calories per hectare (Ibid). An important spillover effect to other crops that are produced was thereby established, which is argued to result from differences in input provision (Riera & Swinnen, 2016). Riera and Swinnen (2016) determined that the quantity of fertilizer used doubled for castor plots, showing that participants had better access to fertilizer through the contract scheme and used it appropriately on the plots where castor is grown. The study corrected for land differences and highlighted that the difference did not result from a difference in irrigation practice (Ibid). While spillover effects of contract farming for food crops on noncontracted food crops have been shown in the literature, this specifically establishes the key role of better access to fertilizers and inputs in the way land is treated due to contract farming. As a result, the improved input (even if on less fertile land) led to a spillover to

other plots which led to improved productivity on contracted and non-contracted crops and subsequently higher income. Thereby, this spillover effect seems to constitute an important productivity increase, when intercropping at farm-level is possible.

### *7.3.5 Crowding Out*

As literature has generally acknowledged crowding out to be a key issue, several studies (n=7) addressed the effect. Crowding out describes the change in production from food to cash crops (allocating and using land for specific production) that results from the perceived benefits of producing the commercial crops. Within the limited land, this results in competition of produce in the land allocation or pushes forth the change in land use.

In the expert interview, it was claimed that farmers first secure their own consumption before they sell to the market. The development expert confirmed the importance of, first, increasing productivity to, secondly, secure the farmers' own consumption before they sell to the market. However, the pattern of production is conditional on resource-endowment and affects the local markets, if farmers move to one specific commercial crop favoured by the business. As noted above, the privilege of allocating land partly to food crop production and to cash crop is reserved to farmers who hold a sufficiently large farm size (Bezabeh et al., 2020). Only given the sufficient land size and allocation to the specific production can farmers generate a volume that allows them to sell a surplus to the market (Bezabeh et al., 2020). In the eucalyptus value chain (Tesfaw et al., 2021), farmers made the strategic decision to convert their crop lands to plantation as eucalyptus held a comparative economic advantage. As a result, the eucalyptus brought a change in land use and land use conflicts in the area (Tesfaw et al., 2021). In the Oromia wheat value chain, the AVCPO project had a strong effect on the land use in the area: the bread wheat as previously most common cash crop in the area was partially crowded out (Biggeri et al., 2018). This means, the AVCPO participation has significantly reduced the amount of land used for bread wheat production and other cereals. The expansion of production occurs in a place of resource scarcity, meaning that new land for cultivation is extremely limited (Biggeri et al., 2018). Therefore, it would not be possible to expand the area under durum wheat cultivation without having effects on other land uses. Overall, the more profitable crops might encourage forms of land use that are less sustainable and crowd out the traditional crops such as emmer wheat, barley or teff.

Similarly, the study on the dairy arrangements, noted the competition for land in the study area, between different breeders, flower farmers, and urban developments (Van der Lee et al., 2018). Especially the pressure of land use intensification requires farmers to specialise in their production, for instance, high-value crops or livestock (Ibid). Within the ongoing pressure on the land, the farmers reported to strategically decide to engage in livestock types and cash crops that have shorter maturation time and a higher margin per hectare, to offset the rising land cost (Van der Lee et al., 2018). To upgrade their production, the farmers intensified either in the dairy feeding system or through cash cropping. As a result, the intensive dairy farming competed with other high-value cash crops which the resourceendowed farmers specialized in.

However, in the study by Williams et al. (2021), maize, teff, and beans were targeted with the contract farming but are grown both for subsistence and sale to the market. In the malt barley value chain, the malt barley produced in the study area would have sufficed to meet the total requirement of the Amhara malt factory if it was 'properly collected' (Watabaji et al., 2016a). A large portion of malt barley was consumed by the farmers themselves or was sold through competing channels. Therefore, depending on the land size allocated to produce the crop and volume of production, the factory often struggled to meet its demand (Watabaji et al., 2016a). While this was displayed as a complication on the company side, for farmers securing their own consumption remains an essential livelihood strategy. Especially when producing under rain-fed agriculture, estimating the production per year can be difficult due to fluctuations in rainfall. In line with this, farmers who do not feel able to meet the minimum commitment in terms of quantity supplied to the market, without risking their own consumption, are often not willing to attempt participation.

In the case of castor contracts, the larger amount of land was allocated to castor. However, this was only considered extra land, as the castor was added as extra crop to the plot and did not reduce the number of other crops grown by the farm (Riera & Swinnen, 2016). In addition, it was particularly the less fertile land that was allocated to castor, reserving the more fertile share of plots for other crops (Riera & Swinnen, 2016). In other quality aspects such as soil type or slope the plots were relatively similar, meaning that farmers did not decide to grow castor on more fertile plots. Depending on the context conditions, the crowding out is both a strategic decision on part of the farmer and undesired effect of the business activities, especially in terms of how much land is allocated to food or

cash crop production. Notably, the production of high-value cash crops is largely conducive to resource-endowed farmers.

## 8. Chapter – The Changing Use of Irrigation

This next chapter is dedicated to answering the second sub-question of *the change that can be observed in smallholders' use of irrigation.* Considering the number of times that land or irrigation was discussed, water predominantly received attention as irrigated land and irrigation projects.

### 8.1 The Farmer as User of Irrigation

Alongside land, water is a key productive resource for farmers to irrigate their fields. Therefore, it is important to consider *who can make use of irrigation water and to what extent*, looking at the farmers' use of water in more detail.

#### *8.1.1 Heterogeneity in Water Availability*

The availability of water in the area is a key factor for the supply of and hence frequency of watering. Despite Ethiopia's significant groundwater and surface water resources, water shortages or lack of access to water depend on the area in which farmers are located, impacted by proximity to water sources such as rivers or lakes, droughts, infrastructure, but also political conditions (USAID, 2022b). The use of, for example, groundwater for irrigation is often limited by financial, technological, and technical requirements. The study on wheat in northern Ethiopia noted that watering frequency differed from kebele to kebele based on the availability of water (Abate et al., 2021).

Noting irrigation as key method for increasing agricultural production, significant investments have been allocated to irrigation infrastructure development. The business expert noted the proximity, meaning incorporation, of farmers into irrigation projects as highly beneficial to their farms' productivity. As a result of new dams and the introduction of largescale irrigation schemes, agricultural systems and landscapes have undergone vast changes (Asres, 2016). The business expert noted the horticultural agri-business' involvement in the Koga Irrigation project, located in the Koga River Valley in Amhara. This serves as interesting example of water development projects as it was one of the first large-scale irrigation schemes in the Blue Nile River basin since the 1970s (Asres, 2016). As suggested

by research, it resulted in vast changes in the landscape and livelihood of the population (Asres, 2016).

A question not answered by the included studies is whether inclusive business actively selects areas in which irrigation projects are implemented or whether projects are more likely implemented in areas in which more business is engaged but expectations would suggest so. Facilitated through farmer training, the aim of the irrigation was increased production (Asres, 2016). Especially in the face of drought and food shortages, the irrigation projects are thought to bring improvements to the country's food insecurity (Asres, 2016). Within the Koga irrigation project, insufficient food provision was attributed to the reliance on rainfed farming and small-scale irrigation practices which did not provide enough produce. In turn, unexpected changes could be justified with this need for higher agricultural productivity (Asres, 2016). However, as noted by the business expert, the companies primarily engage with farmers and cooperatives, so that control over as well as responsibility for implementing irrigation is attributed to the cooperatives and local authorities. As noted in the theoretical framework on food security, availability is similarly a matter of access and not a neutral factor by itself.

### *8.1.2 Heterogeneity in Water Access*

As factor to be viewed more critically, the access to irrigation water reflects the farmers' ability to make use of available water. The access to water creates differential positions among farmers, impacted by intersecting factors such as gender and resourceendowment.

In the case of vegetable production in Tigray, gender was found to play an important role in the access to irrigation water (Abrha et al., 2020). In general, male-headed households were found to have better access to the market and productive resources. The participation in irrigated onion production was less attractive to females than to males, largely due to the fact that female households were more resource-constrained in terms of food crop production and marketing (Abrha et al., 2020).

As strategy, the farmers who held access to irrigated land were leasing out to others at least partially to cultivate crops (Gebru et al., 2022). For the resource-poor farmers, irrigation practice (involvement in irrigating the crops) was determined as a main livelihood strategy, alongside sharecropping (Belay et al., 2017). In the study area of Amhara, where most contracted plots were used for eucalyptus trees, it was confirmed that farmers who shared-out

land held a larger irrigated plot size than those farmers sharing-in land (Belay et al., 2017). Generally, in the case of the sugarcane outgrowers, it was established that outgrowers whose land benefitted from access to irrigation prior to participation in the scheme had a higher potential for income generation (Wendimu et al., 2016). As main insight, those farmers holding land under irrigation could increase both income and assets while those engaged in rain-fed agriculture could only benefit from income increases through IB involvement.

## 8.2 Diverging Purposes of Water Use

The key consideration for smallholder farmers in their use of water are the main objective of their agricultural production, differentiating between rain-fed and irrigated agricultural production. Across the studies, the focus was on the farmers' navigation of subsistence and for-market production, impacted by the water demand of crops.

### *8.2.1 Rainfed to Irrigated Production*

Due to its promise of increasing productivity and volume of production, presence of irrigation practice is highly attractive to the inclusive business endeavours. In the banana value chain, it was confirmed that the absence of irrigation was a key factor of poor agronomic practice that led to low levels of productivity in Southern Ethiopia (Tarekegn et al., 2020). Similarly addressing banana value chain development, the low yield on land was largely attributed to inefficient application of irrigation water (Gebre et al., 2020). Kassaw et al. (2021) underpins that malt barley in Amhara was largely grown as summer crop during the rainy season in the highland areas. Due to the contracting, where irrigation was available, malt barley has been introduced as winter crop to the low land areas and thereby provides additional income for smallholder farmers. In the case of castor contracting, the plots under castor production were shown to be more irrigated than those without, despite the generally small number of plots with an irrigation system (Riera & Swinnen, 2016). The development expert confirmed that efforts are aimed at including irrigation rather than only focusing on rain-fed production, to increase productivity.

While farmers can use irrigation to secure or maintain the subsistence farming, in the inclusive business activities it was primarily used to expand production and increase the income. In the case of irrigated onion production in Tigray, an average of 30% of the land holding was allocated to the IB vegetable production (Abrha et al., 2020). The rainfed agriculture and cereal crop production sustained the farm households' own consumption (Abrha et al., 2020). In contrast, the contracted onions were produced mainly under irrigation.

To the onion production, farmers allocated around 16% of the whole land. This shows that a lot less land was allocated to the onion production (.01ha to .5ha, an average of .16ha) than to cereals, prioritizing the farmers' subsistence farming. This also means that, during the rainy season, farmers will plant and produce the grains but switch to onion crop after the rainy season is over (Abrha et al., 2020). Generally confirmed by research, irrigation can raise the yield of specific crops, prolongs the effective production period into the dry season and hence permits multiple cropping (Balarane & Oladele, 2014). Thereby, for commercially oriented farmers, irrigation becomes a critical strategy to increase frequency of harvest and increase the supply to market while securing the households' own consumption.

## 8.3 Changing Dynamics of Using Irrigation

Based on the increase in growing frequency and productivity attributed to irrigation, essential changes in the use of water among farmers emerged in the relation to market participation. The changes predominantly relate to i) changes in the demand for water and ii) competition around access to irrigation water.

### *8.3.1 Demand*

The IB's desired productivity and income increase is strongly linked to the need for more land and other increased inputs such as fertiliser and irrigation (Schuit et al., 2021). This underpins the idea that irrigated plots or proximity to irrigation projects are more attractive to IB. Although irrigation projects aimed at improving the country's food insecurity struggles, IB often drives the production of export crops under irrigation and hence intensification thereof. Thereby, the intensification of irrigation promises enhanced production levels. In the presence of irrigation schemes, the sugarcane outgrower scheme notes that the large capacity of quality irrigation water seems to drive the successful implementation of outgrowing schemes (Negasi & Mebrahatom, 2019). This confirms the strong dependence on input that is created, in terms of sufficient land allocation, use of fertiliser and irrigation. Especially for those farmers who are supported in moving from rainfed agriculture to irrigated production, this results in an increase in water demand. Notably, the type of crop that is grown impacts the demand and required frequency of watering.

The business expert confirmed that before the implementation of the IB, farmers were growing cereals once a year during summer months under rain-fed irrigation. After the contracting, participating farmers moved to produce under irrigation which increased the

frequency to 3 to 4 times a year for vegetables. Importantly, this increase in water demand - as irrigation is necessary to maintain productivity - can be linked to increased dependence of farmers. When infield irrigation water was not readily accessible, farmers were least satisfied with contract farming arrangements and fulfilment of contract terms (Bati Fedi et al., 2022). While rain-fed production depends on adequate precipitation, the irrigation practice is dependent on sufficient access to irrigation schemes and infrastructure to maintain plot-level productivity (Wendimu et al., 2017). Within the limited availability of irrigation water, this increased demand poses a strain on the general water supply and distribution thereof.

### *8.3.2 Competition*

The increase in water demand becomes an especially critical component in the context of an imbalance between water supply and crop water demand. In the assessment of the Koga irrigation project, insufficient water supply led to underirrigation during the peak period of water demand (Asres, 2016). As a result, productivity decreased due to the deficit in irrigation. Notably, depending on their position and the incorporation into value chain, farmers hold different power in this competition.

In the case of the Koga irrigation project, the business expert claimed that all farmers in the area have equal access to the irrigation water. However, the business expert noted that farmers periodically complain about problems with the irrigation, specifically shortage of water. As the water is supplied around 8 to 10 hours each day, shortages are assumed to result from incorrect use, e.g., collecting water or watering dry land to make ploughing easier. While the company claims to discuss shortages informally, the government body and Bureau of agriculture are described as responsible bodies. Therefore, the company does not consider themselves responsible party, suggesting that the farmers address government officers or irrigation scheme representatives who are tasked to solve the problems.

Another key issue across irrigation projects are the upper and lower stream conflicts. Irrigation projects that take place in upper streams decrease water supply to lower streams, which leads to dissatisfaction among farmers in that area. The development expert outlines that, when faced with ongoing complaints, they bring together the beneficiaries at kebele or regional level to establish water user associations, in some cases supported by government development agents. Within the associations, farmers identify their chair and representatives, to negotiate on their behalf and resolve their challenges. However, the extent to which this

has been constructive and had positive impact has not been assessed and this issue has pertained across Ethiopia.

When farmers change from rain-fed agriculture toward more intense irrigation farming, studies have pointed to social destabilisation and changes in the relations between households (Asres, 2016). Similarly, in the case of sugarcane production, the rapid increase in land area under the respective production has led to massive competition for land and water among smallholders but also with other actors such as large-scale plantations or factories (Wendimu et al., 2017). Much sugarcane production, for instance, strategically takes place in the Awash River Basin, which is among the most intensively utilised basins (Wendimu et al., 2016). Beyond the intense competition among farmers, the large amount of water that is drawn from the river brings with it drastic environmental changes that have imbalanced the basin and impact human livelihood (Adeba et al., 2015). As confirmed in the expert interview, water is not equally accessible to all as the high demand of irrigation water leads to an accumulation of water among IB participants.

## 9. Chapter – The Changing Socio-Economic Landscape

After having considered the changes in land and irrigation use, this section considers the changing socio-economic dynamics among smallholder farmers.

### 9.1 The Privilege of Participation?

For the so-called beneficiaries, the direct socio-economic changes in income due to their productivity increases are extensively highlighted. Farmers who meet the requirements of IB activities tend to benefit through productivity increases which yield an income increase (e.g., Riera & Swinnen, 2016; Ruben et al., 2017; Schuit et al., 2021). This was confirmed across the studies, as the improved access to services, input, methods, led farmers to supply a higher quantity to the market and thereby improve their income (e.g., Kassaw et al., 2021). Due to the improved conditions that resource endowment yields, farmers are in a better position to participate in IB activities.

However, the impact of these changes is not only linked to whether farmers participate but also their intensity of participation, meaning how much of their land is allocated to the production and which quantity and quality is supplied to the market (Hagos et al., 2020). Among participants, those who are more resource-endowed are therefore able to generate higher returns (Hagos et al., 2020). Intensifying their production, the study on dairy

production in Oromia confirms that benefits are captured by only the resource-rich farmers as assets are the key requirement to benefit from market participation (Ruben et al., 2017). Therefore, based on the smallholder farmers' position, whether increased income is obtained from participation and maintained, is unequally distributed.

To further nuance these effects, Gebru et al. (2022) suggest a four-type differentiation of farmers, rather than the binary of included versus excluded: self-imposed and externally imposed inclusion, and beneficial or adverse inclusion. This reflects the inherent exclusiveness of the business initiatives in their attempt to be inclusiveness yet maintaining the business case and growing their profits. The extent to which farmers benefit from their participation is directly linked to their level of resource endowment, specifically land size and access to irrigation (Abrha et al., 2020; Ruben et al., 2017). Gebru et al. (2022) showed that involvement in government installed irrigation by itself, if not accompanied by sufficient resource endowment, does not yield the expected benefits in terms of income and productivity increase. This means that the expected direct and positive economic outcomes of participation seem to be mediated by the farmers' resource-endowment.

Especially the diversity in stakeholders and differences between interest groups among local farmers are not sufficiently acknowledged. Even though only a part of the farmer population participates in the business activities, other local farmers (predominantly in close vicinity to the projects) are affected. Therefore, the rhetoric of farmers as beneficiaries has been questioned in the previous sections, as benefits are unequally distributed, and commercial production does not yield the same benefit across the farmer population. Farmers who do not hold sufficient access to resources can be faced with an increase in poverty. Landlessness, social marginalization, or loss of assets have often been outlined as key factors triggering impoverishment which is linked to elevated levels of food insecurity (Asres, 2016). Therefore, the nuances of economic outcomes for the different interest groups need to be viewed critically, in the light of different levels of resource access.

### 9.2 Diverse Resource-Based Capabilities of Farmers

As farmers differ in their level of resource endowment, they adjust their socioeconomic livelihood strategies. As introduced by Dorward et al. (2009), farmers who hold sufficient productive resources can *step up* which means they can upgrade or intensify their production, increase their resource access, and accumulate capital. Inclusive business can be one way in which these farmers can be integrated into the commercial value chains.

Farmers who are either not chosen or willing to participate are often *hanging in* which means they focus on subsistence farming and, while working on securing their consumption, cannot benefit from opportunities of commercial agriculture but also do not suffer the accompanied risks (i.e., market-related risks or adverse incorporation). The resource-poor households are often less willing to risk their secure food supply as they are more vulnerable and exposed to the risks. Next, many of the young rural population are not interested in staying in agricultural production and therefore *step out* by migrating elsewhere, moving out of farming, and seeking other livelihood options (Bezu & Holden, 2014). The expert interviews noted the farmers who do not wish to continue participation and, for instance, *step down* in a period of crop rotation. They might move back to subsistence farming only or sell their surplus to the market via other channels. Lastly, farmers who are not able to deliver the necessary resources or cannot maintain the commercial production even though they would be willing to can be pushed to *drop out* in different stages of the inclusive business activities. It should be noted that the latter group does not drop out by their own choice: as the farmers produce under conditions set by the buying company, adverse inclusion can yield negative welfare effects.

### 9.3 Asset Accumulation

The improved productivity and subsequent income increase are linked to greater resource access among farmers. As noted by the business expert, farmers who perform well under the IB activities start renting other farmers' land, especially those not in irrigation schemes or poor farmers. The better off farmers can rent land and, in the practice of sharecropping, split income benefits with the landholder. The expert sees this as "contribution to the community, the social system".

However, especially the effects on non-participants need to be viewed critically. As market participants were shown to benefit from the improved access to services and land, this means the lesser resource endowment leads to risk aversion that further excludes the marginalized and vulnerable from resource access. In the case of irrigation schemes, the improved access to the water is often unequally distributed so that resource-endowed farmers can commercialize or upgrade their production while less resource-endowed farmers suffer higher impoverishment risk (Asres, 2016). With the increasing inequality, the development expert described the importance of providing other livelihood opportunities, especially the generation of off-farm income for the resource-poor rural populations. However, in practice, this is often not the case due to the limited (financial and temporal) possibilities of

organisations. It is important to emphasize that the changes in the physical landscape that result from the increasing accumulation have an immediate effect on the social landscape, most considerably between participating and benefiting and non-participating households.

# 10. Chapter – Discussion

As a next step, a more structured framework of the nuances in land and irrigation use will be established. To answer the main research question, the study addressed the changes in land use, irrigation use, and socio-economic standing of smallholder farmers in relation to the value chain inclusion. Based on these, a framework of the most important findings is provided, followed by the study's limitation, theoretical and practical implications, concluding summary and future research recommendations.

## 10.1 Comprehensive Framework of Empirical Findings

Drawing from the insights derived from the sub-questions, the main research question "What is the impact of IB on farmers' use of land and irrigation?" is addressed. In essence, the IB activities seem to exacerbate the differentiation or hierarchies among farmers in accordance with their level of resource-endowment. This specifically takes place at three different stages: i) the selectivity at the onset of the inclusive business, ii) the distribution of benefits of IB participation, and iii) the ability to accumulate or access resources following IB activities. These three stages are inherently interrelated since, progressing through the first, second, and third stages, the more vulnerable and less resource-endowed farmers are systematically and increasingly marginalized and excluded from resource access.

### *10.1.1 Selectivity at the Onset of Inclusive Business*

The factors contributing to the inclusion in inclusive business have excessively been explored across literature. However, it is important to highlight that the farmers are competent agents who are not passive to the role of resource-endowment. They strategically decide to enter the value chain or extract themselves, depending on whether they feel capable of coping with the risks of market participation. Notably, market or value chain participation remains one of several livelihood strategies, which can be subordinate to other more desirable livelihood alternatives. Especially young people were affected most by landlessness and offfarm/non-agricultural employment in rural areas might be more attractive. The question of how attractive these schemes are across the diverse farmer groups opens important insights

into the smallholders' perception of opportunities and constraints. Especially the poorer households were driven by risk aversion and first attempted to secure their own consumption. As many farmers are primarily subsistence farmers, the ability to produce enough surplus to participate in the market is highly dependent on their land size, access to irrigation, and ability to allocate enough land to the specific commercial, contracted crop. Even if they participated in the IB, they were more prone to engage in other coping strategies such as sideselling. To cope, these farmers are more likely to rely on alternatives such as accessing local markets or off-farm activities, and therefore require alternative livelihood and support strategies (Hall et al., 2017.) However, the resource rich farmers engage in diverse strategies of their own: sharing out or renting out land.

While land size has repeatedly been shown to determine inclusion, some of the included studies explored this factor and yielded mixed evidence. Specifically, while part of the evidence confirmed the role of land size, other studies showed that participants and nonparticipants did not differ based on their available land size. For instance, in the wheat value chain, irrespective of whether farmers were land-rich or land-poor, the participation in the value chain yielded equal benefits (Biggeri et al., 2018). Where farmers had smaller land size, cooperatives were strengthened to overcome this constraint (Biggeri et al., 2018). In some cases, it was a matter of land allocation rather than land size, emphasizing that farmers must be willing to allocate a large enough portion of their land. Related to the risk aversion of resource-poorer households, this is often a more critical consideration for those farmers who struggle with securing their own consumption. Studies on the malt chain or sugarcane outgrowers confirmed the important role of resources in ability to participate and benefit from improved food access (Gebru et al., 2019; Wendimu et al., 2017). Therefore, land as input remained highly relevant in terms of land area or plot size. In the assessment of IB across Northern Ethiopia and including products ranging from vegetables to sesame, and barley, productive resources endowment was found to be the key determinant of inclusive business participation (Gebru et al., 2022). However, while initially attributing this to land size, the study specified that access to irrigation technology was the more important explanatory factor for inclusion. This makes irrigation projects increasingly relevant, although studies have noted that these development projects should be more sensitive toward their impact on the broader rural population, as benefits are distributed unequally (Asres, 2016). Therefore, the important role of irrigation access alongside land allocation needs to be highlighted.

### *10.1.2 Distribution of Benefits of IB Participation*

As farmers are highly heterogeneous in terms of their resource-endowment and socioeconomic standing prior to the IB activities, they naturally remain a heterogeneous group after the involvement. However, as repeatedly criticised across studies (e.g., Abrha et al., 2020; Mossie et al., 2020), this heterogeneity is fundamental to their ability to participate in the IB and favours the resource rich farmers. As a result, IB has been shown to exacerbate the existing inequalities rather than decrease the gap. These inequalities are commonly outlined in terms of economic position based on income and productivity, as participants tend to economically benefit from participation. However, productive resources are essential wealth indicators especially for rural agricultural producers.

In terms of social progress, IB activities tend to improve the position of farmers that participate in the value chain. However, as the activities tend to favour resource-rich farmers with higher levels of education, male-headed households, and with more experience, the social dimensions of economic development require more attention. While the assumed benefits in economic development have often been achieved, i.e., improving productivity and income, the link to accompanied social change has been missing. The majority of studies focused the attention on participating farmers' productivity gains and income increase. Notably, projects such as the irrigation schemes are thought to improve farmers' productivity with an immediate impact on their food security, without sensitivity to matters of access and social dynamics. The effects have not trickled down to those at the bottom, the most vulnerable and marginalized. Opposing the expected benefit for food security, the increase in productivity and income that is oftentimes achieved through IB participation are largely economic benefits that can be accompanied by even a decrease in nutrition and consumption diversity.

The IB activities have been shown to exacerbate hierarchies among farmers based on wealth, specifically linked to resources or assets as discussed in the Sustainable Livelihoods. First, even among participants, hierarchies emerge depending on the resource-based (i.e., asset endowment) position relative to others. Whether and the extent to which farmers benefit from their participation is not just a question of if they participate but also the intensity of participation. The more land farmers allocate to the contract crop the higher the quantity supplied to the market and hence the higher the income gain. As illustrated by the effect of crowding out, the economic gain that is expected can drive farmers to allocate a majority of land to the commercial crop at the expense of traditional crops often linked to consumption.

While this was only superficially addressed in the studies, it is also not just the amount of land but also the kind of land that is reserved for the contracted crop: the irrigation of land was considered highly relevant, but also factors such as the fragmentation of land were shown to impact the IB outcomes negatively. Additionally, the more degraded land makes it difficult for farmers to intensify agricultural production, which underlines the detrimental effects that the less sustainable practice of mono-cropping systems can have.

#### *10.1.3 Ability to Accumulate or Access Resources Following IB Activities*

Second, the IB activities play into this differentiation of farmers based on their resource-endowment, as participants can benefit from considerable income gains relative to others in the same area. Farmers who are, based on their less endowed position, not willing or able to participate, are not able to accumulate the same capital and will find it much more challenging to expand their operations. As effects do not trickle down to the bottom, the less resource-endowed or resource-poor farmers are in a more vulnerable position to suffer from adverse consequences. Due to the better access to irrigation water, farmers have a greater chance of participating in the market and ultimately require and use a larger amount of water (Worku, 2022). Similarly, as confirmed in the expert interview, the farmers with larger plots of land are able to produce in higher quantity, more likely to upgrade and intensify their production and hence are in a better position to access more land. This creates an important spiral in which the access to productive resources, specifically irrigation technology, led to a higher likelihood of IB inclusion which led to improved access to productive resources. However, in an environment of limited resources, this creates new or exacerbates existing tensions. As a result, the poorest and least resource-endowed farmers who were much less likely to benefit from IB activities are in a worsened position to compete around resources. In other words, greater resource access facilitates participation facilitates greater resource access.

### 10.2 Reflection on Bias

While the quality and bias in the methodological approach were discussed in Chapter 4, the role of potential bias in the findings needs to be acknowledged. Two key points for consideration are the review of academic literature only and the largely qualitative methodological approach of included studies. First, the inclusion of academic literature can only serve as a starting point shedding light on important patterns. The review of gray literature (including practitioner literature, project and policy reports or statistical data)

provides an additional elaboration of observations and findings. Due to the limited scope of this review such documentation was not included but is nonetheless considered highly relevant: gray literature often provides a more critical perspective and has the tendency to report more negative outcomes. Thereby, including grey literature can substantially reduce publication bias (Adams et al., 2016). Second, the final set of studies largely relied on qualitative research methods which yielded in-depth insights into the smallholders' resource use. However, larger scale quantitative investigations could provide an overview of the patterns that have emerged across the different products and regions, to substantiate the trends. Nonetheless, several of the included studies produced overviews of the most relevant policy developments or retrieved statistical data as provided by the Ethiopian Central Statistical Agency, which subsequently contributed to the findings of this review.

## 10.3 Contribution to Theory, Literature, and Policy Implications

Despite the discussed limitations, this systematic literature review was able to provide a comprehensive and structured overview of the existing evidence surrounding the inclusive business impact in focus. The specific strength of this method is the rigorous systematic approach to generate an overview of information in an unbiased manner. This review has highlighted that IB has positive yet also unanticipated and adverse impact, especially on the most vulnerable farmer groups. However, it also noted the diverse strategies employed by smallholders in coping with the distinct risks of lacking resources and livelihood outcome of securing one's consumption.

### *10.3.1 FNS Focus on Income and Productivity*

As outlined in Chapter 2, this research was attentive to the diverse theoretical understandings of food security. The Malthusian approach is focused on availability, describing the lack of food only as a matter of imbalance in supply (Malthus et al, 1992). This heavily emphasizes the role of increasing production and productivity capacities to meet the population's food demand (Burchi & de Muro, 2016). Next, the income-based approach emphasized income as the means to secure the necessary amount of food (Ibid). Throughout the studies, the aim of inclusive business was repeatedly formulated in terms of productivity enhancement and increase of income. Through these increases, an improvement in food security is expected. However, from the business perspective, this serves the sustained accumulation of private capital and follows the self-interest of the private sector trade (Mawdsley et al., 2018).

Where inclusive business was investigated beyond economic determinants, sustainability in terms of environmental impact on soil or water quality was considered. However, surprisingly, the focus on social dimensions in terms of resource competition, power imbalances, or accumulation of assets received less attention than expected. The crowding out of traditional food crops to the benefit of cash crop production has been noted, but with few studies providing a critical reflection of the impact thereof. For instance, in the study on apple and mango farmers, it was noted that the more farmers joined the value chain, the higher the consumption expenditure becomes (Mossie et al., 2021b). As beneficially included farmers improve their income and can thereby secure their consumption, other farmers need to either access sufficient productive resources or find other means of employment. Therefore, a greater link between the advancements in understanding FNS and IB assessments seem necessary, as a strong emphasis on income and productivity prevailed within the research. Although repeatedly confirmed across literature, the inequalities, or increased difficulties in accessing food supplies have received minor attention across the studies.

### *10.3.2 Power-Resource-Relationship in the Chain*

As outlined in Chapter 2, the key role of power in the value chain was noted as actors differ in terms of their ability to influence chain activities and maintain control over the resource use. As important actor that stands between smallholder farmers and the businesses, cooperatives differ vastly in terms of their position to facilitate improved value chain inclusion. Across the studies, mixed evidence was found for both cooperatives that managed to negotiate better outcomes for farmers and those that were too weak to effectively improve the farmers' position. Ultimately, the negotiation and decision-making power rests with the company, especially in terms of minimum land contribution, minimum quantity, and conditions of input supply. The company's provision of inputs was a key reason for farmers to favour contract farming above other arrangements, however, this also creates new dependencies. The contractual conditions often oblige farmers into a monocropping system or high level of fertiliser use. As shown, the increase in inputs can be highly beneficial to the farmers production, not only of contracted crops but also of other produce when intercropping is possible. However, the increase in productivity is the key factor for improving income, farmers can become dependent on these input supplies. As the greater amount of land allocated and irrigated area enhances productivity, this also increases the farmers' demand for

resources. When difficulties arise on part of participating farmers, i.e., shortage of irrigation water or fertilizer, the responsibility was attributed to other actors in the chain, for instance, government development agents or cooperatives.

As producers, the smallholder farmers have limited participation and voice in the governance structure (Gereffi et al., 2012). While the Ethiopian agriculture and economy benefits from production of high value crops, the farmers share the least in this supposed shared prosperity. As pointed out by Ponte (2002), this imbalance is due to the farmers' limited influence in the value chain relative to the business or company as the more powerful actor. The lead firm traditionally wields the purchasing power and holds agency over choosing suppliers. In the objective to increase profit, the companies set conditions that bias the selection and outcomes toward resource rich farmers. In the vertical linkage, the smallholder farmers' autonomy is intricately linked to their access to diverse resources such as land or financial resources, which impacts the dependency on the upstream actors, e.g., input provision, and downstream actors, e.g., processors (Xu, 2019). Even though the business and farmers are involved in the same chain, competing interests in the outgrower schemes remain. Therefore, a focus on productive resource endowment and chain governance is crucial to facilitate more inclusive engagement of smallholders in the value chain.

### 10.4 Practical Implications

In addition to contributing to the theoretical debate, this review bears several main implications for development practice and policy.

Especially the farmers' *navigation of subsistence and commercial production* requires more attention. As established in Chapter 7 and 8, sensitivity to the level of resourceendowment is required in projects, as farmers employ diverse coping strategies. The productive resources remain fundamental to the ability to secure appropriate consumption in the future and therefore yield diverse outcomes for the farmers. While the commercial production does tend to improve income and productivity, wider effects such as crowding out through re-allocation or increased resource demand and competition have more important and detrimental effects on farmers' ability to remain or become food secure. To promote food security alongside agricultural development, donors have to support initiatives that foster both production for commercial sale and local consumption – it is essential that farmers are enabled to navigate the mix of subsistence and commercial production. In addition, for other farmers, livelihood diversification alongside subsistence production might be more desirable.

*The spillover in productivity* created through the increased input and improved agronomic practice was found to be an important positive effect. When farmers are enabled to intercrop or maintain the intercropping practice, the improved input provision of inclusive business activities can have a positive effect on the farmers' production of other food crops and thereby benefit consumption. The encouragement of inclusive business to not restrict the intercropping practice should therefore receive more attention, remaining sensitive to the role of input dependence. This would simultaneously contribute to minimizing the adverse effects of the monocropping system, maintaining a more environmentally sustainable local production (Gebru, 2015).

Related to this, th*e positive role of extension services* was noted in most studies. Therefore, policy should promote agricultural development through increased investments in such services, to further improve the farmers' access to information and practical knowledge. Depending on their experience, literacy, and education background, farmers are not equally able to evaluate the benefits and risks of participation if they lack important information or foresight to anticipate consequences (Wach, 2012). As this can result in adverse outcomes especially for the resource-poorer farmers if they are unable or unwilling to fulfill requirements, the provision of information and options for farmers to exit the schemes should be facilitated (Schoneveld, 2020).

As noted in the theoretical debate, the manner in which private sector initiatives are assessed and measured requires adjustment: even among research a focus was placed on measures of income increase and productivity. However, a pro-poor and positive approach to social development needs to consider the underlying factors of resource access that fundamentally determine economic development (Wach, 2012). Rather than a top-down assessment of production measures, the inclusive business needs to consider the bottom-up perspective of farmers in terms of perceived opportunities but also reasons for aversion toward participation. In the management of water resources, for instance, this relates to a livelihood-centred assessment of irrigation benefits and costs, beyond food production objectives.

To support the smallholder sector, this review has shown that in practice initiatives need to be sensitive to the diversity of production practice and farmers' resource endowment. Enabling the multitude of strategies and providing alternative options holds much potential in creating a more resilient and inclusive food and nutrition security. Considering the farmers' willingness to participate in inclusive business has yielded important insight into the

perceived opportunities and constraints that need to be considered in development projects. In line with this, practitioners should consider the quality of market inclusion and impact on poverty reduction, as the inclusive business initiatives strongly affect the farmers' resource use and access. Ultimately, this is hoped to strengthen policies and investments in a direction that improve value chain impact across the diverse social groups of farmers, beyond market imperatives related to production, to acknowledge the important social and resource-related dynamics.

### 10.5 Conclusion

To understand the impact that inclusive business has on smallholder livelihoods, an investigation beyond income or productivity gains is key. While consumption effects have received attention, the impact on productive resources constitutes an essential aspect of the smallholder farmers' welfare and long-term capability to sustain their livelihood (Tabe Ojong et al., 2022). Ultimately, to remain productive, generate income and secure their consumption, households need to be able to access resources, especially land and irrigation.

The numerous studies included in this review have confirmed that inclusive agribusiness generally relates to contract farming arrangements: to improve their livelihoods, farmers are linked to commercial agricultural value chains and production for the market. The contract farming ranges across a wide spectrum of arrangements, from inflexible contracts binding the farmers to a monopsony company (in the case of sugarcane production in Wendimu et al., 2016) to more flexible arrangements in which the smallholders engage in intercropping, side-selling, or sharecropping practices (e.g., Belay et al., 2017; Alemu et al., 2021). Similar to Hall et al. (2017) who reviewed contract farming across sub-Saharan Africa, the outgrowing arrangements in Ethiopia differ in the extent to which farmers have to allocate their land to a single cash crop (e.g., Gebru et al., 2019) or can maintain more diversified practices in which other (consumption or sale) crops are grown alongside the contracted crop (e.g., Riera & Swinnen, 2016). Notably, it was shown that farmers employ diverse coping strategies depending on their level of resource-endowment. As a result, not all involved smallholders cultivate their own land but, in absence of sufficient productive resources, gain access via sharing-in to more resource-endowed farmers. Where farmers participated in inclusive business activities, contracts were not directly arranged with the individual but facilitated via cooperatives and unions. These differed in terms of their ability to negotiate on behalf of the farmers and whether they served as efficient (e.g., Biggeri et al., 2018) or weak,

inefficient links (e.g., Watabaji et al., 2016a) in the chain. As outlined in a later section, the power imbalances within the value chain strongly leaning toward the business need to be acknowledged (Gereffi et al., 2012; Henderson et al., 2002). In consequence, the livelihood outcomes and impact on smallholder farmers resulting from the contract farming and value chain inclusion remain diverse, especially due to the wide heterogeneity of resource-endowment.

The farmers' different capabilities in choosing livelihood strategies based on their resource-endowment were emphasized. Important hierarchies in the smallholder farmers' position in using land and irrigation emerged: Who can take the risks involved in value chain participation? Who can access enough land and water to meet production requirements? Who can intensify or upgrade to secure their livelihood and meet the demand? Who can afford to specialize on a single crop? Approaches should be sensitive toward the power imbalances in the chain and strengthen the position of the vulnerable, often less resource-endowed smallholders. The terms and conditions set by the inclusive business party can vastly determine the impact on resource use and divergent livelihood outcomes for the farmers. While selection for inclusive business participation has received much attention in current literature, the wider impact that the business models have on smallholder farmers' livelihoods needs to be understood better in the respective context.

As key livelihood asset for smallholder farmers in Ethiopia, this study has questioned the inclusiveness of agricultural private sector initiatives based on resource endowment and access. Thereby, the integration of farmers into value chains has been shown to affect resource use and access which in turn impacts the livelihood outcomes for farmers in the area. Beyond the dichotomy of inclusion or exclusion from the chain, this creates diverse smallholder hierarchies (Gebru et al., 2022). Among the participant group, it is highly relevant not just whether farmers participate but also in which intensity they join the commercial production. Studies have braced upon the smallholders' positions in the value chains and factors that constitute these differential positions: this research has emphasized the important role of resource access, in terms of land size, allocation, and irrigation access, in the distribution of outcomes and coping strategies of farmers. Thereby, impact was considered beyond productivity or income and highlighted important dimensions of social and resource-related sustainability.

### 10.6 Recommendations for Future Research

Several gaps or only superficially noted points in the literature emerged, that could serve as important starting points for future research. While these points were briefly mentioned in section 5-9, the following factors should be subject to further exploration, as they could extend the current understanding of smallholder engagement in value chains.

i. While literature has established land size as a key factor that determines inclusive business participation, this study yielded mixed evidence. In certain cases (malt barley and vegetable production in Oromia), land size was found to not differ statistically between participants and non-participants. This would be an important point to further explore, specifically, the drivers of whether land has an impact or not on inclusion should be investigated.

ii. The included studies have not just differentiated between participants and nonparticipants, but also willing to participate but cannot meet requirements, unwilling to participate even though they can, or adversely incorporated (Gebru et al., 2022). Especially further exploring the willingness of farmers to engage in the value chain and the benefits or costs they anticipate yields important insights into what inclusive business has to offer. That certain farmers actively choose not to participate in the inclusive business even with sufficient productive resources shows that a better understanding of local outcomes is needed, and more attention should be paid to studying the perceived benefits and bottlenecks of IB in terms of farmers' resource use.

iii. IB holds only limited interest in understanding the impact beyond immediate outcomes of income or productivity. However, further strains are placed on land and water resources, as commercial production increases the land allocated to the commercial crop and often requires more intensified irrigation, to increase yield and quantity of production. The subsequent competition around limited resources should be explored further, across case studies and including gray or practitioner literature, to determine the extent to which inclusive business can be sensitive to this or becomes harmful in the long-term.

iv. The interaction with environmental outcomes was only braced upon in this study. However, as shown in Chapter 7, certain conditions or practices that are exacerbated by inclusive business might be highly incompatible with environmental sustainability goals. Contract farming, for instance, often dictates a monocropping practice which

crowds out the (potentially more sustainable) intercropping employed by a majority of farmers. In addition, certain changes in land use due to preference for producing more profitable commercial crops were linked to harmful environmental impact such as

decreased soil fertility or water pollution. Thus, the interaction of environmental and social sustainability yields itself to further investigation.

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Final Set of Articles (n=33) Included in the SLR


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