



**THE RACE TO ZERO: EMISSION REDUCTION STRATEGIES IN THE  
SUGARCANE GROWING INDUSTRY IN SOUTHERN MALAWI**

Minor Dissertation in partial fulfillment of MPhil  
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## **Declaration**

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Date: 10 February 2023

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## **Abstract**

This research explores emission reduction agendas in the sugarcane growing industry in southern Malawi. In doing so, it describes the various actors and their emission reduction agendas, understands relevant drivers for these, interrogates the interaction and collaboration of different actors in attaining them, and explores the relevance of polycentric governance in the emission reduction agendas of the sugarcane growing industry in southern Malawi. The research used qualitative methods including semi-structured interviews and mixed media reviews (reports, policies, websites, and videos).

Findings suggest that governance within the sugarcane growing industry's emission reduction agenda has elements of polycentricity, and is characterised by the chaos and complexity of numerous actors working through self-governance with diffusion and linkages towards the achievement of a common goal but lacks coordination or collaboration between actors. Weaknesses were identified in the lack of consistency of focus areas, with divergence in areas for emission reduction including material inputs, electricity, and burning, and poor collaboration between actors.

In the context of Malawi, it is suggested that these weaknesses further underscore equity issues amongst actors at global and local scales. Malawi accounts only for 0.005% of the global greenhouse gas emission share, with national emissions in agriculture accounting for 30%. Adding further complexity, sugarcane has a long history in Malawi, with the sector playing an important role in social and economic development and contributing significantly to the country's gross domestic product. The sector is also characterised by political power plays between the state, the private sector and other actors. The research offers recommendations to enhance linkages and collaboration between actors which potentially allow for improved emission reduction strategies and consideration of local contexts and national needs, and equitable share of responsibility of the climate agenda.

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## Glossary and acronyms

Term/Abbreviation	Definition
Net Zero	Greenhouse gas emissions being emitted into the atmosphere – balanced by removal of greenhouse gas emissions out of the atmosphere (NetZeroClimate.org, n.d.)
BAU	Business as usual
CBDRRC	Common but Differentiate Responsibilities and Respective Capabilities
CDM	Clean Development Mechanism
EAD	Environmental Affairs Department (Malawian Government)
FOLU	Forestry and other land use
GHG	Greenhouse gas emissions
Growers	Outgrowers (either smallholder farmer association, or single owned entities) supplying sugarcane to the production mill.
NDC	Nationally Determined Contribution
Non-Annex I	Developing countries as per the UNFCCC
UNFCCC	United Nations Framework Convention on Climate Change

# Chapter 1

## Introduction

### 1 Introduction

Against the backdrop of low development levels and a global greenhouse gas (GHG) emission<sup>1</sup> contribution of 0.005% (2017), Malawi has committed to reducing emissions by 51% against business as usual (BAU) by 2040 (Republic of Malawi, 2021). Malawi's commitment is in line with those undertaken across the globe.

To date, 160 countries have ratified the United Nations (UN) Framework Convention on Climate Change (UNFCCC) Paris Agreement. This requires them to have developed Nationally Determined Contributions (NDC) to undertake climate mitigation programmes in order to reduce GHG emissions. Upon ratifying this agreement, countries were required to develop goals and targets to limit global warming to below 2 °C, and preferably 1.5°C compared to pre-industrial levels to reach carbon neutrality by 2050 in the form of an NDC (Muigua, 2021). NDCs are simply action plans to reduce GHG emissions and adapt to climate change, including specific targets and implementation requirements. These 160 countries contribute to 91.4% of global carbon emissions, and comprise 72.6% of the global population (Climate Action Tracker, 2022).

Preceding these country-level commitments, non-national government and non-state actors had begun committing to their own climate mitigation strategies. This saw 1,049 cities, 67 regions, 5,235 businesses, 441 investors, and 1,039 higher education institutions, covering c25% global carbon emissions and c50% of global emissions committing to net zero emissions

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<sup>1</sup> Reference to 'emissions' is made throughout the research, instead of GHG emissions, carbon or CO<sub>2</sub> emissions as different actors use different terminology. As such, where there is explicit mention of GHG emissions or carbon emissions, it is because of the specific commitments an actor has made.

by 2050 (United Nations Climate Change, 2022). The aim of these ambitious emissions reduction strategies enabled national governments to recognise the momentum of the shift to a decarbonised, inclusive, and resilient economy, as well as ultimately strengthen their own contributions to the Paris Agreement (United Nations Climate Change, 2022).

In addition, as emissions and economies are transboundary in nature, the interactions between non-national government and non-state actors in setting emission reduction strategies (including targets) have become non-linear, complex, and power dominated. The climate agenda has historically been underpinned by social inequality relating to questions about who causes and who suffers from climate change, which has led to difficulty in reaching global climate agreements (Sovacool, 2021).

Further, in the transition to a low-carbon economy, it has been found that the exclusion of minorities in market and other activities is a common outcome. This is due to unfairness in planning, and policymaking, as well as a lack of representation, recognition, and due processes. This exclusion allows for the appropriation or consolidation of resources by national governments, private firms, or social elites (Sovacool, 2021).

These complexities are relevant for a country like Malawi. Malawi's 51% GHG emission reduction target against BAU, while only contributing to 0.005% global GHG emissions, is ambitious, especially given the country's need for economic development. Currently, agriculture in Malawi contributes 54% of national GHG emissions, with 15% being a result of managed soils (i.e., crop production), while the remaining 39% is contributed by livestock (Republic of Malawi, 2021). As the largest source of emissions, agriculture is undoubtedly a key focus area of the country's NDC.

Malawi's agricultural sector currently contributes to 80% of national jobs, and 33% of the national gross domestic product (GDP) (The World Bank, 2022). The sector has historically been characterised by the production of cash crops including tobacco, cotton, tea and sugarcane. The transformation of the sector has historically seen a diversion from tobacco to sugarcane through the use of estate and outgrower scheme models. In the future, this is expected to see an additional increase in the pooling of smallholder land into outgrower

schemes growing diversified export crops, while at the same time increasing mechanisation. This is underpinned by the country's most recent strategy document, Malawi 2063, of which agricultural commercialisation features as one of its three key pillars. This pillar aims to drive commercialised agricultural development servicing local and international markets (National Planning Commission, 2020).

This is against the backdrop of the country's socio-economic development status. The country has an estimated population of 19.65 million, which is expected to double by 2038. It ranked 170 of 180 countries on the UNDP's Human Development Index (HDI), and had a national poverty rate of 50.7% in 2020 (The World Bank, 2022; De Janvry, et al., 2018). About 70% of the country live below the international absolute poverty line of US\$ 1.90 per person per day in 2016 (De Janvry, Duquennois & Sadoulet, 2018).

The interplay of agriculture as a key economic driver in Malawi, and the largest GHG emitter and focus of the country's NDC, highlights the complexity of emission reduction programmes. Given this context, there is a need for research to understand Malawi's response to emission reductions within the agricultural sector, taking into account the sector's pressures to expand, provide livelihood and reduce emission contributions.

In order to understand Malawi's response to emission reduction in the agricultural sector, this research is focused on the sugarcane growing industry in southern Malawi. Through this focus, the research aims to understand and explore the actors, agendas, and drivers of emission reduction strategies, as well as relevant collaborations. The sugarcane sector was chosen as it is the second largest export revenue earner in the country, behind tobacco (FAO, 2015), and is seen as a developmental crop.

The sugarcane growing industry is characterised by local, multinational, and foreign actors including the following:

- Illovo Sugar Malawi, a subsidiary of South African and United Kingdom-domiciled holding companies (Illovo Sugar Africa, AB Sugar, and Associated British Foods);

- sugarcane outgrower schemes, comprising a management company overseeing cane production (these schemes are referred to as Growers throughout);
- financiers of the Growers and sustainability certification bodies; and
- the Malawian Government.

Two key actors, Illovo Sugar Malawi (through their holding companies) and the Malawian Government, have their own GHG targets of 30% and 51% reductions respectively, which have varying degrees of commonality.

The complexities of country-level NDCs and their interactions with multinational businesses and their emissions and emission reduction targets are important to understand. This is because various emission reduction strategies are working toward the same goal, through similar means, and with similar outcomes. As such, the extent to which local contexts, capacities, and interests are considered in emission strategies at both a local country and company level are important to consider.

This research uses the concept of governance to explore responses to emission reduction strategies in the sugarcane growing industry in southern Malawi. A specific focus is placed on polycentric governance, which gives focus to the autonomy of societal actors, such as businesses, non-governmental organisations, citizens, and to site-specific and decentralised arenas (Wurzel et al., 2019). The concept claims that widespread self-coordination within market-like structures results in a multitude of decision making at subnational or firm level (ibid.).

## 1.1 Rationale

Greenhouse gas emissions are considered to be the most significant contributor to one of the biggest threats to the 21<sup>st</sup> century – climate change. The responsibility to reduce emissions has, historically, been under question by both developing and developed countries. COP agreements, originating at COP21 through the Paris Agreement, have determined that all countries should be responsible for reducing carbon emissions, but to their own specific, nationally determined emission reduction targets, as included in their NDCs. Companies are

simultaneously setting more ambitious targets to achieve an overall reduction of GHG emissions. Complexity arises where multinational companies with international net zero emissions agendas operate in countries where there is differentiated need, capacity, or interest in achieving the same reduction outcome.

Observations show that the governance architecture for emission reduction and associated net zero emissions is evolving into polycentricity (Tan, Kong, Gu, Zeng & Niu, 2022). However, Tan et al. (2022) argue that there is a lack of research on the governance of net zero emissions under a polycentric system. This research looks to contribute towards closing this gap.

Research is needed to understand the actors, agendas, drivers, and collaborations of the internationally determined net zero emissions agenda being set and implemented at national and local scales in the global South by state and non-state (i.e., company) actors. Having this understanding can help to proactively assist development and sustainability professionals who develop and implement global sustainability agendas at a local level. Thinking and incorporating local contexts and nuances into their specific agendas – as well as understanding potential implications of these agendas at local, national, and global scales – is necessary to assist in informing climate and developmental agendas.

## 1.2 Aim and objectives

This research aims to explore the nature of the governance of emission reduction programmes in the sugarcane growing industry in southern Malawi. To do so, the research has the following objectives.

1. To describe the various actors and their emission reduction agendas;
2. To understand relevant drivers for emissions reduction agendas;
3. To interrogate the interaction and collaboration of different actors in attaining their emission reduction agendas; and
4. To explore the relevance of polycentric governance in the emission reduction agendas of the sugarcane growing industry in southern Malawi.

### 1.3 Dissertation outline

This section offers an introduction to the outline of the dissertation.

Chapter 2 provides a review of literature relating to the history of international climate mitigation requirements, and introduces the concept of polycentricity. Polycentricity delves into the characteristics of climate governance, including leaders and pioneership, diffusion of policies to different actors in different spheres of governance (and what drives this), linkages and collaboration between actors. In addition, it provides a brief overview of the sugar sector through a political economy lens.

Chapter 3 provides the methodological approach to the study, which was qualitative, using mixed media review and interviews. Ethical considerations and limitations are described.

Chapter 4 provides an overview of the case study of sugarcane production in southern Malawi. This includes an overview of how sugarcane is produced, including its emission sources. Sugarcane is described as a developmental crop, and an overview of the sector nationally and in the southern region is provided.

Chapter 5 presents the findings of the research. This includes a review and analysis of the actors and their agendas, including key actors in the sugarcane growing sector in southern Malawi and their requirements in terms of GHG emissions. Thereafter, the findings delve into the drivers of the various reduction strategies by the actors. Finally, the chapter looks at the collaboration between each actor on their agenda and potential implications.

Chapter 6 discusses how actors interact with one another on their emission reduction strategies and potential implications. This chapter characterises the sugarcane growing industry in southern Malawi as showing early signs of being polycentric in nature.

## Chapter 2

### Literature review and theoretical framework

#### 2 Literature review and theoretical framework

This chapter introduces the historical context of the global climate mitigation agenda, and thereafter presents literature supporting the conceptual framework of polycentric governance and closes by providing an overview of the sugar industry in southern Africa through a political economy lens.

The literature review focuses on polycentricity through four key themes. The first theme includes leadership and pioneership in policy innovation. The second theme relates to diffusion of policy innovation; this is supported by additional literature relating to general drivers of emission reduction strategies. The third theme relates to linkages, outlining how collaboration and interaction is undertaken between actors. The fourth theme provides insight into equity and justice arguments through polycentricity.

#### 2.1 Historical context to the emissions agenda

International climate policy has been a focal point in policymaking regimes since the late 1980s as a result of growing awareness of environmental issues (Held & Roger, 2018). In 1992, the Rio Earth Summit agreed on the terms of the United Nations Framework Convention on Climate Change (UNFCCC) establishing key principles, basic commitments, and a platform for future negotiation (Held & Roger, 2018).

The first milestone of emission reductions was reached through the Kyoto Protocol in 1997. The Kyoto Protocol set an overall emission reduction target of 5% below 1990 levels between 2008-2012, including negotiated targets for individual countries (Held & Roger, 2018). Developing countries, under the UNFCCC's Common but Differentiated Responsibilities and Respective Capabilities (CBDRRC) at the time, were exempt from new commitments, including

voluntary commitments (Held & Roger, 2018). These CDRRC principles included the distinction between developed and developing countries and their responsibilities to overall carbon emissions in the form of Annex I (developed/wealthier countries) and non-Annex I (developing countries) listings. The idea of developing countries setting voluntary commitments was raised through the Kyoto negotiations.

However, this has been met with resistance from developing countries, activists, and scholars who argue that historical injustices and global warming are a result of wealthier, developed countries (Held & Roger, 2018). Held and Roger (2018) highlight two key points on the outcomes of this Protocol. First, at this time, states were assumed to play a dominant role in climate change, rather than local governments or private actors. Second, the differentiated responsibilities between Annex I and non-Annex I countries allowed for what critics termed 'leakage', where polluting firms would be encouraged to migrate from regulated states (Annex I) to unregulated states (non-Annex I) (ibid.). Held and Roger (2018) argued that this 'leakage' would only exacerbate the transboundary nature of GHG emissions that extended beyond jurisdictions.

The second milestone of emission reduction came through the Copenhagen Accord in 2009, where an agreement was negotiated of a long-term target of global temperatures limited to 2°C above pre-industrial levels (Held & Roger, 2018). Significantly, the Copenhagen Accord saw the dynamics of CDRRC evolve towards a more voluntary governance model with more participation from non-Annex I states, resulting in an 'enhanced status quo' between parties (ibid.). This voluntary governance model was notably a non-binding pledge of varied commitments (unlike the Kyoto Protocol) that eventually saw 42 Annex I states and 44 non-Annex I states committing to voluntary pledges (ibid.). Reflecting that of the Kyoto Protocol, non-state actors were not actively included in negotiations (ibid.).

Between these commitments, immature socio-technical strategies arose. These included carbon capture and storage; Reducing Emissions from Deforestation and Degradation (REDD+); biofuels; solar radiation management; carbon dioxide removal; and short-lived climate pollutants (Low & Boettcher, 2020).

Following the Copenhagen Accord, the Paris Agreement saw near universal commitments from Annex I and non-Annex I parties with soft differentiation between responsibilities (Held & Roger, 2018). The Paris Agreement binds participating countries to two goals. First, to limit global warming to below 2°C, and preferably 1.5°C compared to pre-industrial levels in order to reach carbon neutrality by 2050 (Muigua, 2021). Second, for emissions to peak as soon as possible in the near-term, followed by major GHG reductions in the long-term to achieve a downward trajectory of emissions to net zero (Held & Roger, 2018).

In line with participating countries' national circumstances, in order to achieve net zero emissions by or around 2050, the move toward low-carbon economies should also be done in a manner that protected the futures of workers and communities, otherwise known as a 'just transition' (Levin, Fransen, Schumer, Davis & Boehm, 2019). Upon ratifying this agreement, countries were required to develop goals and targets to be externally reviewed every five years in the form of a NDC. The Paris Agreement does not include a distinction between developed and developing countries, however, it is still implied through the UNFCCC's framework. Notably, the soft differentiation between Annex I and non-Annex I countries has not resulted in stronger relations between parties, which remain weak (Jacquet & Jamieson, 2016).

In signing up to the Paris Agreement, developing countries were motivated to become signatories through the promise of US\$100 billion in available climate finance per year by 2020 (Jacquet & Jamieson, 2016). It is noteworthy that this finance does not include or provide a basis for any loss, liability, or compensation from sudden on-set events, such as climate disasters, or slow-onset processes, such as sea level rise (Kempa, 2021).

Hale's (2016), as well as Held and Roger's (2018) arguments of leakages and non-linearity are key to understanding the power relations of country-specific NDCs and non-state actor commitments to achieving reduced GHG emissions and ultimately net zero emissions. Determining who is required to take specific action to reduce GHG emissions is dependent on context, different distributions of capacity, and interest (Hale, 2016). In addition, actions

undertaken in one location will likely affect the strategies pursued by actors in another jurisdiction (Hale, 2016).

## 2.2 Non-state actor's involvement in international sustainability agendas in the context of agriculture

Van Westen et al. (2019) and Mawdsley, et al. (2018) argue that private business is presented as a leading agent in development policy. This role moves private business beyond the traditional role of creating wealth and economic change to include the pursuit of development goals that go beyond business performance. This is as a result of the private sector being seen as more effective and efficient in its raising of investment capital and targeting goals than their public sector and civil society counterparts (ibid.).

Van Westen et al. (2019) argue that this is a form of neoliberal and retro-liberal reform. This reform involves the state being active in enabling business opportunities for domestic firms as an actor promoting development (ibid.). Van Westen et al. (2019) state that inclusive businesses off-taking criteria (i.e., what standards they require to purchase certain requirements) are in favour of resource-rich farmers. This results in smallholder farmers being unable to meet participation criteria which usually include product and process standards, and certification costs (ibid.).

Product and process standards have increasingly become interrelated with achieving socio-economic development in pursuit of sustainable development goals (SDGs). Sustainability agendas in land-based commodities have historically addressed environmental factors, such as deforestation and land degradation; fertiliser and pesticide run-off; inadequate waste disposal; as well as waterbody and ecosystem pollution. What's more, biodiversity loss and social factors, such as working conditions and occupational health and safety. Also, economic development, such as unlocking value for smallholder farmers to access a more sustainable production system (Grabs & Carodenuto, 2021).

To manage these risks, companies are increasingly deploying third-party certification schemes, such as Rainforest Alliance and Fairtrade, or through multistakeholder roundtables, such as the Roundtable on Sustainable Palm Oil or other inhouse certification schemes (ibid.).

However, despite these initiatives, research has found that the success of corporate-related supply chain initiatives continues to remain uncertain (ibid.).

Other than the disclosure and accounting of emissions, there is not much research available that specifically focuses on the private sector's involvement in emission reduction agendas, how these collaborate or interact with emission reduction strategies of countries in the global South, and what local considerations are made. However, there is a wealth of information relating to the role of private businesses (i.e., non-state actors) in socio-economic development and the pursuit of the SDGs.

In the agricultural sector, there is also literature available relating to private governance schemes working on sustainability issues in land-based commodities, such as coffee, tea, soy, cattle, and palm oil, as well as the interconnections with NGOs and private sector actors in multistakeholder arenas (Grabs & Carodenuto, 2021). This literature can be used to identify the role non-state actors play in implementing UNFCCC agendas.

Agriculture is a complex sector, deep-rooted in culture, history, and politics, and seen as a fundamental basis for development and food security. The agricultural sector exists within a complicated set of interactions between actors and their activities with the larger provision of food or commodity systems in local, regional, and global markets. The intricacy of these systems and unanticipated feedback results in challenges for governance and policy as most policies are not designed to be met with surprises (Pereira, 2013).

The complexity of the agricultural sector is driven by historical commercialisation, globalisation, as well as land legacy and power dynamics which have led to an array of outcomes both upstream and downstream of the value chain. De Schutter (2017) argues that trade liberalisation has accelerated the bio-regionality and uniformity of certain types of production rather than ensuring each region satisfies its food needs. For example, agricultural production benefits are skewed toward large production units and land holders at the expense of small-scale producers and workers who are landless (ibid.). Monoculture-type operations allow for the reward of economies of scale and ease of mechanisation and in some cases reduced labour costs (ibid.).

This finding is supported by Martiniello et al. (2021) who found a complex social, economic, and political diversity in the expansion of outgrower schemes across Africa. This diversity is argued to be characterised by dependencies (new and old) and power relationships, as is seen through land access; shifts from broad-based to narrower livelihoods; differential and adverse incorporation of producers to vertically structured chains; the gendered nature of production; as well as differential health implications of the work (Martiniello, Owor, Bahati & Branch, 2021). The outcome of the move towards large-scale smallholder production and its characteristics as a result of social, economic, and political diversity is argued by Martiniello et al. (2021) to have resulted in multiscale transformations. These multiscale transformations have resulted through unexpected routes that have rearranged actors and alliances, driving historically contingent and unpredictable reorganisations of power, authority, status and wealth.

Von Maltitz et al. (2019) share the views of Martiniello et al. (2019) and argue that the sugarcane industry also has issues relating to land access and food insecurity, but is also characterised by low employment conditions compared to conventional agriculture, seasonal work. Von Maltitz et al. (2019) do, however, argue that the above criticisms may be mitigated if projects are undertaken in a socially responsible manner. They further add that, contrary to the criticisms, sugarcane provides positive developmental pathways, reduces poverty, increases food security, and provides developmental opportunity to local economies across the cane value chain (von Maltitz, et al., 2019).

These environmental and social responsibility aspects that are driven and experienced in the private and agricultural sectors now extend to aspects of climate governance, including emission reductions.

### 2.3 Climate governance and polycentricity

Climate governance scholarship has put increased focus on a wider range of actors and levels in governance, including those of international, supranational, transnational, and subnational (Wurzel, Liefferink & Torney, 2019). This increased focus is a result of calls for governance scholarship to shift away from state-centred governance – where the sovereign state has sole

authority – to recognise the diversity and multi-level nature of governance (Rayner, 2010; Dorsch & Flaschland, 2017; Jordan, Huitema, Schoenefeld, Van Asselt & Forster, 2018). Scholars therefore increasingly explore multi-level governance and polycentric governance in their analysis of climate governance (Jordan et al., 2018).

The multi-level governance concept assumes a less hierarchical governance where non-state actors co-govern together with state actors to provide collective goods and adopt roles that were historically the sole authority of a sovereign state (Wurzel, Liefferink & Torney, 2019). This model assumes that networks of governmental actors (including supranational) are important to correct negative market externalities (ibid.).

Polycentric governance is defined by Morrison et al. (2017:2) as “made up of many autonomous units that are formally independent of one another, but which choose to act in ways that take account of others through self-organised processes of cooperation and conflict resolution”. Similarly, Ostrom (2010:552) remarks that “polycentric systems are characterised by multiple governing authorities at different scales rather than a monocratic unit [...]. Each unit within a polycentric system exercises considerable independence to make norms and rules within a specific domain”.

The polycentric governance concept places a high degree of autonomy on societal actors, such as businesses, non-governmental organisations, as well as citizens in site-specific and decentralised arenas (Wurzel, Liefferink & Torney, 2019). The concept claims that widespread self-coordination within market-like structures results in a multitude of decision making at subnational or firm level (ibid.). Self-coordination is conceptualised as societal actors having leadership or pioneership within autonomous policy realms to ensure successful and functioning climate governance at a global scale (Merino et al., 2012; Jordan et al., 2018; Wurzel et al., 2019).

Ostrom (2010; 2012) argues that there are several weaknesses of polycentric systems. These include inconsistent policies, fragmentation, poor coordination, and free-riding (ibid.). To mitigate these risks, long-term solutions to climate issues need to be hierarchical and decentralised simultaneously (Ostrom, 2010). The concept of polycentricity is critiqued for

being ‘power-free’ due to its ignorance of different types of power at play, as well as how their distribution may impact governance processes and environmental outcomes (Morrison et al., 2017; Wurzel et al., 2019). Examples of positive and negative features of the concept are highlighted in Table 1.

*Table 1: Polycentric governance – examples of positive and negative features*

<b>Positive features</b>	<b>Negative features</b>
The ability to innovate and learn: units experiment with new approaches and learn from one another.	Bias towards incremental change arises from the mutual adjustment amongst units (a ‘race to the bottom’).
Engenders greater trust by tailoring governance to specific circumstances.	Lower trust: actors ‘shop’ amongst domains, provoking a race to the bottom (e.g., carbon leakage).
More robust: if one element or domain fails, others can step in.	Less robust: greater vulnerability to external changes, e.g., reductions in funding or political support.
Enhanced accountability and legitimacy: acting locally facilitates direct participation.	More contested accountability and weaker legitimacy (‘who is in charge?’).
More inclusive and equitable: by ‘overproviding’ services, polycentric systems ensure that no one is left behind	Easily dominated by powerful actors who ‘game’ the system and are unaccountable.
The ability to address big challenges through the steady accumulation of marginal changes by each domain.	The inability to deliver significant changes (because of free-riding) or address issues that span domains.

Source: Van Asselt & Zelli, 2018:13

To apply the polycentric model to varying scenarios, Bruns (2018) provides principles of polycentricity that allow for decision centres and linkages across scales to empower actors to

self-govern by crafting institutions for specific situations and sharing learning from their experiences and experiments. These practical principles are outlined in Table 2.

Table 2: Principles for practicing polycentric governance

Principle	Detail
Organise at multiple scales	<p>Consider linking horizontally and across scales. This could be through federations, compacts, co-management agreements, and other overarching institutions for cooperation, regulation, conflict resolution, and competitive service provision. Consider not just government jurisdictions but also resource boundaries, the stakeholders involved, and “problem sheds” around a particular issue.</p>
Embrace self-governance	<p>Accept and work with the necessary messiness, time consuming processes, contestation, compromises, and trial-and-error of how self-governance with meaningful autonomy happens in practical politics among public and private actors. Acknowledge the importance of the consent of the governed, the distribution of power through checks-and-balances, and the challenges and opportunities these bring. Empower organisations to work together in solving problems. Enable institutional artisans to make agreements and put them into operation, for example, through customary local governance practices, special districts, devolution of authority, contracts with service providers, court backing for binding agreements, and other mechanisms.</p>
Customise solutions	<p>Don’t pursue or impose oversimplified standard solutions. There is no “one best way” or unique set of “best practices” that is ideal everywhere. Appreciate the benefits and complexity of institutional diversity and adaptation. Consider ways to increase flexibility, choice, and competition among alternative service providers. Analyse specific action situations to diagnose problems and identify opportunities. Encourage pragmatic innovation in crafting customised solutions.</p>
Learn together	<p>Polycentric governance can offer the opportunity to learn from multiple experiences, for example, different communities, states, or other organisations trying different things to discover what may work and learning from each other as they proceed. Convene meetings, workshops, and other forums, as well as facilitating networks of communication, formal and informal, that promote social learning.</p>

Source: Bruns, 2018:3

## 2.4 Leadership or pioneership

As there are multiple actors in climate governance, and within a polycentric system, all exploring the same or similar complex issue and how to manage it, leadership or pioneership is important to understand how agendas are set and implemented. Leadership or pioneership refers to actors who are first movers or first to introduce and/or determine a specific policy measure, or actors who showcase a high level or the highest level of ambition (Wurzel, Liefferink & Torney, 2019).

Leadership is characterised by Wurzel et al. (2019) in four different ways, including structural, entrepreneurial, cognitive, and exemplary as highlighted in Table 3. Leaders have the ability to combine different leadership types. Wurzel et al. (2019:11) suggest that this can be done by exerting “entrepreneurial leadership through coalition-building around a particular issue, cognitive leadership by supporting these efforts with scientific evidence, and exemplary leadership by acting as a model for others”. The different leadership types may evolve over time or as they interact across on different issues (ibid.).

Table 3: Leadership types in polycentric governance

Type of leadership	Detail
Structural leadership	Linked to military and/or economic power; and/or relative contribution to an environmental problem; and/or ability to offer solution. This can exist in state and non-state actors (businesses through jobs, NGOs through large membership base, consumers through purchasing power).
Entrepreneurial leadership	An agenda setter and populariser. Involves the use of diplomatic and/or negotiating skills to broker compromise and agreement. This can exist in state and non-state actors (businesses, NGOs).
Cognitive leadership	Defining or redefining the ideas and concepts that promote ambitious environmental and climatic measures that also benefit the economy (i.e., a green or low carbon economy). This can exist in state and non-state actors (businesses, NGOs, research institutes) who have the ability to form networks and epistemic communities.
Exemplary or directional leadership	Intentional setting of example or pushing of policies for others. This can exist in state and non-state actors (businesses, NGOs).

Source: Wurzel et al., 2019

## 2.5 Diffusion

Where one or a group of leaders and pioneers have set a climate governance agenda, polycentric governance could be argued to be an outcome of diffusion, but at the same time polycentricity itself may have facilitated diffusion (Tosun, 2018). Diffusion is concerned with how policy innovations spread from one institution or entity or another resulting in policy change in the adopting institution or entity (Dobbin et al., 2007; Tosun, 2018). Policy innovation refers to the spread of a policy idea (Tosun, 2018).

Berry and Berry (2018) argue that most studies highlight two explanations for the adoption of a new policy by a government, internal and external (highlighted in Table 4). The first explanations are the internal political, economic or social characteristics of a jurisdiction that is innovating. Political characteristics comprise national government partisan views. Economic characteristics refer to a country's economic strength, the industries that are dominant in the local economy and the degree to which the local economy is integrated into regional and international markets. Social characteristics refer to the availability and strength of civil society groups with a mandate associated with the policy (Tosun, 2018).

The second explanation refers to the external factors of the jurisdiction that is innovating. This explanation relates to national governments emulating policy decisions taken by other governments. Four drivers are identified, social acceptance, learning, coercion and competitive pressure. Firstly, social acceptance is demonstrated through conformity (Meyer et al., 1997; Tosun, 2018). Learning refers to a government adopting a policy in place in another jurisdiction as it is seen to be an appropriate response to a specific problem and avoids costs associated with finding a solution. Coercion refers to the constraint of policy choices. For example, powerful countries may require other countries to adopt certain rules indirectly or directly by acting through international institutions (such as United Nations, North Atlantic Treaty Organisation, etc.) (Tosun, 2018). In some instances, powerful states may not intentionally influence decisions taken by weak states but influence them through the alteration of the status quo being faced (Gruber, 2000; Tosun, 2018). Competitive pressure (or economic competition) refers to the competition of trade and investment incentivising policymakers to adopt specific policy prescriptions. Generally, countries are found to adapt their standards to key export markets (Prakash & Potoski, 2006; Tosun, 2018).

Table 4: Internal and external factors resulting in policy diffusion in polycentric systems

<b>Internal Factor</b>	<b>Description</b>
Political	Governmental mandates driving a certain agenda.
Economic	The strength of industry and its contribution to local, regional and international markets.
Social	Civil society groups pushing certain agendas.
<b>External Factor</b>	<b>Description</b>
Social acceptance	Conforming with other actors and their actions.
Learning	Adopting what others have adopted as it seems to be appropriate. Costs can be avoided as own research is not undertaken.
Coercion	Constraints put on one actor by another.
Competitive pressure	Competition to access specific markets (i.e. adopting standards to access key markets).

Source: Authors own research

Some critics have argued that there are ‘anarchic inefficiencies’ as a result of the diversity of actors working in an uncoordinated way with one another (Dorsch & Flaschland, 2017). Specifically concerning ‘carbon footprint’ reduction or ‘carbon neutrality’, Paterson’s (2010:359) research found that these agendas were driven by philanthropic and marketing motives, as well as pressure “from peers, from shareholders, from the NGOs ... and ... staff”.

To understand these factors in more detail, literature relating to drivers of state and private sector actors adopting or reporting on emission reductions was explored. Although little

literature relating to the drivers of developing countries in committing to emission reduction, was found, Dash and Gimm's (2019) study on the drivers of developing countries' adoption of NDCs provides some useful guidance. They identify economic factors; civil society; politicians' viewpoints; pre-existing legislation; ethics; international negotiations and international image; and vulnerability as drivers of developing countries adopting NDCs.

Prado-Lorenzo et al.'s (2009) study on factors influencing the disclosure of GHG emissions in companies globally provides a good foundation for the core drivers of the private sector. While disclosure does not necessarily mean that a company has the commitment to reduce emissions, the study assumes that they are easily correlated as some actors have both publically available commitments and high-level GHG emission reduction disclosures. Carbon accounting and its subsequent disclosure may be seen as an 'enabler' of key responses to climate change, including mitigation commitments and the performance of climate commitments (Ascui & Lovell, 2011). The literature highlights the following drivers of adopting and reporting on the environment, sustainability, and GHG emissions including a firm's size; a firm's leverage; corporate performance; and international climate agreements. These are described in Table 5.

Table 5: Overview of drivers of state and private sector actors in adopting emission reduction strategies

Driver	Detail	Reference
<b>Developing countries</b>		
Economic factors	A country and its required actions are constrained by the available resources. These resources are either sourced by domestic national budgets or international aid. The former arise from the national tax base, and the latter through wealthy countries.	Dash and Gimm, 2019
Civil society	Civil society actors, which include but are not limited to businesses and environmental NGOs, contribute to national discourse and influence decision making.	Dash and Gimm, 2019
Political mandates	Personal views from politicians may be aligned with environmental concerns and may advocate for mitigation targets.	Dash and Gimm, 2019
Pre-existing legislation	Existing domestic environmental-related legislation before NDCs are established has been seen to allow for more ambitious reduction targets to be made.	Dash and Gimm, 2019
Ethics	Ethical concerns have generally not been a significant factor in a country's formulation of an NDC, even though they are a significant topic during climate negotiations to date. NDCs and associated policies are likely to be driven by the appeasement of the international community and concerned civil citizens.	Dash and Gimm, 2019

International negotiations and image	Pressure from international negotiations through the form of facilitation dialogue is seen as a driver of increased ambition in the country's NDC. In addition to this, countries are seen to care about their image in international spheres.	Dash and Gimm, 2019
Vulnerability	A higher climate vulnerability is seen to be linked to more ambitious climate mitigation commitments.	Dash and Gimm, 2019
<b>Private sector</b>		
Firm size	A firm's size is a common variable explaining the reasoning for the publication of environmental information. Large companies are expected to receive more attention from mass media, public opinion, and governmental organisations, resulting in higher levels of disclosure of environmental information. This disclosure aims to avoid conflict and public scrutiny.	Prado-Lorenzo et al., 2009; Cordova et al., 2021
Exposure to foreign investment	International firms experience direct or indirect pressure to ensure environmentally responsible business practices due to their international exposure. Whereas smaller firms without much 'internationalisation' often experience direct pressure to undertake responsible business practices where they have an investment from foreign civil law firms.	Doring et al., 2021.
Legal requirements	Companies based in civil law countries are usually more open to disclosing information about responsible business practices than those not in these countries.	Cubilla-Montilla, Galindo-Villardón, Nieto-Librero, Vicente Galindo & García-Sánchez, 2020

Leverage	Companies that have more leverage with their financiers are expected to disclose a higher volume of GHG information compared to those with less leverage.	Prado-Lorenzo et al., 2009
Corporate performance	Companies with greater profitability are more likely to disclose a higher volume of information on GHG emissions compared to those who have lower profitability.	Prado-Lorenzo et al., 2009
International climate agreements	Companies domiciled in countries that have ratified the Kyoto Protocol are likely to disclose more information relating to GHG emissions than companies domiciled in countries that have not ratified it.	Hickmann 2017; Prado-Lorenzo et al., 2009.
Market	Purchasing companies are becoming more concerned about the GHG emissions of their inputs as consumers are increasingly having the choice to purchase carbon-labelled products in the marketplace.	Bartocci, 2016

## 2.6 Linkages

Examining linkages is useful to understand where diffusion may occur (Pattberg, Chan, Sanderink & Widerberg, 2018). Linkages may be “material, functional, biophysical, or ‘fact of life’” interactions between different state and non-state actors (ibid.). Linkages between state and non-state actors in polycentric governance are important to understand due to their non-hierarchical nature and layered landscape which may result in mutual adjustments in improving the overall governance landscape (Pattberg, Chan, Sanderink & Widerberg, 2018). This research focuses on the institutional linkages from direct or indirect, intentional or unintentional interactions.

To understand institutional linkages, one needs to look at the ‘interaction structure’ (Widerberg, et al., 2016). The interaction structure suggests that where two institutions share a member or organisation this will result in ease of movement of knowledge, information, ideas and norms (ibid.). Pattberg et al. (2018) determine four types of applicable institutional linkages, including: cognitive linkages, linkages through commitment, behavioural linkages, and impact-level linkages (refer to Table 6 for a summary).

Cognitive linkages are the most commonly identified (ibid.). Pattberg et al. (2018) identify this through the Renewable Energy Policy Network for the 21<sup>st</sup> century (REN21) which connects a range of key actors in climate governance to facilitate the exchange of knowledge. The network facilitates the cognitive linkage between international organisations (International Renewable Energy Agency, International Energy Agency), NGOs (World Council on Renewable Energy), and multistakeholder partnerships (Renewable Energy and Energy Efficiency Partnership) (ibid.). In addition, cognitive linkages may also be created where a specific and intentional request for assistance is made. Pattberg et al. (2018) highlight this in the signing of a memorandum of understanding between two institutions to commit themselves to closer and more active information exchanges.

Linkages through commitment can be interpreted flexibly. Commitment does not refer solely to imposed rules, but it includes voluntary principles, objectives, norms, and goals (Pattberg, Chan, Sanderink & Widerberg, 2018). Pattberg et al. (2018) explain this through the example

of the linkage between UNFCCC and Sustainable Energy for All (SE4All). SE4All was established with the objective of addressing both carbon intensity reduction and expanding global energy access. This objective was framed by the Paris Agreement, which influenced the development and performance of the initiative (ibid.).

Behavioural linkages have been described by Pattberg et al. (2018) through the example of Friends of Fossil Fuel Subsidy Reform and RE100. Friends of Fossil Fuel Subsidy Reform is an informal group of countries that have the aim of building political consensus on phasing out fossil fuel subsidies. If this is successful, it would trigger a behavioural change toward renewable energy. Where this is triggered, the effectiveness of RE100, an initiative of businesses collaborating to increase renewable energy demand and supply, may be seen (ibid.).

Impact level linkages refer to the side effects or trade-offs as a result of activities by the source institution to unintentionally affect the performance of the target institution (Pattberg et al., 2018). These are difficult and complex to identify as they refer specifically to biophysical or scientific links and not social ones (Oberthür & Gehring, 2006). Pattberg et al. (2018) provide examples through the Kyoto Protocol’s Clean Development Mechanism (CDM) projects and the Global Network on Energy for Sustainable Development. CDM projects for developed countries are a way to generate carbon credits in projects in developing countries (to achieve SDGs) to achieve compliance with emission limitations and reduction targets (Pattberg et al., 2018).

The four linkages are summarised in Table 6 below.

*Table 6: Types of linkages in polycentric systems*

<b>Type of institutional linkage</b>	<b>Description</b>	<b>Causal mechanism</b>
Cognitive linkage	Governance units are linked through the exchange of knowledge, information, and ideas.	Learning process

Linkage through commitment	The (voluntary) commitments of a governance unit influence or enter into those of another governance unit.	Norms, commitments, principles, objectives, or goals
Behavioural linkage	The behavioural change triggered by a governance unit influences the performance of another governance unit.	Behavioural change
Impact level linkage	The ultimate targets of governance units intersect.	Impacts of activities

Source: Stokke, 2001; Oberthur & Gering, 2006

## 2.7 Equity and justice

Numerous actors are involved in setting the agenda of climate governance, each of which has different historical, economic and cultural contexts and variable powers. Equity and justice are important aspects to consider within this context. Climate justice is broadly concerned with “the equitable distribution of rights, benefits, burdens and responsibilities associated with climate change, as well as the fair involvement of all stakeholders in the effort to address the challenge” (Okereke, 2018:321).

Equity and fairness have played important roles in shaping the structure, mandate, and functions of the UNFCCC (Mintzer, 1994; Grubb, 1995; Patterson, 1996; Okereke, 2007; 2010). The UNFCCC has historically been the primary structure and process in the international response to climate change. However, climate governance itself has a polycentric nature and has involved numerous actors that exercise agency and authority in non-hierarchical forms (Okereke, Bulkeley & Schroeder, 2009). The equity and polycentricity relationship is complex and paradoxical. Considerations of equity assist in the creation of multiple sites of governance which are necessary to allow for more actors, issues and interests. However, it is unclear whether the existence of multiple sites of governance results in increased climate justice (Okereke, 2018).

In the international regime, climate justice is found in what scholars define as three dimensions of asymmetries (summarised in Table 7) (Okereke, 2010; 2018). These relate to contributions, impacts, and participation, and apply to dimensions of governance (international, national, local, etc.), as well as between generations and genders (Howarth, 1992; Page, 1999; Terry, 2009; Okereke, 2018). The asymmetry in contributions (1) recognises the significant differences in contributions of countries towards climate change historically and currently.

The asymmetry in impact (2) focuses on the notion that negative impacts of climate change will disproportionately be felt amongst countries, with poorer countries who have contributed the least to the issue feeling it the most. The asymmetry of participation (3) relates to a country’s ability to participate in international decision making forums, with countries with limited resources unable to attend or have effective participation without the appropriate technical capabilities or skills (Okereke, 2018).

*Table 7: Three dimensions of asymmetries in climate regimes*

<b>Asymmetries</b>	<b>Characteristics</b>
Contributions	Countries have varied historical and current contributions to climate change.
Impacts	Climate change disproportionately affects poorer countries that have contributed the least to it.
Participation	Poorer countries have fewer resources, in terms of skills and technical capabilities, to effectively participate in international forums.

Source: Okereke, 2010; 2018

In the arrangement of climate governance outside of the UNFCCC, justice contestation has been a key feature, although there has been significantly less attention and analysis compared

to that of the UNFCCC and the international regime (Okereke, 2018). However, there are five notable dimensions of climate equity outside of the international regime. These include:

1. justice in adaptation at local scales given diversity and variation;
2. equity implications at the subnational level and transnational climate governance initiatives, which allow for agenda setting, diffusion of norms, and standard setting;
3. the role of businesses (specifically global corporations) in causing climate change and contributing to their share in tackling climate change in terms of mitigation and adaptation;
4. climate justice contestations in resource politics; and
5. procedural justice and participation in decision making and the broader public engagement of citizens, Indigenous people, local communities and civil society groups (Okereke, 2018).

## 2.8 The sugar industry in southern Africa

As a major food commodity, global production of sugar amounts to 172 million tonnes, with over 30 million hectares grown across 120 countries (Hashem, et al., 2015). The outcomes of the expansion of the sugar industry in southern Africa can be argued through three political economic processes. These include the operation of capital and investment; state politics; and local conditions and livelihoods (Dubb, et al., 2017).

The southern African sugar industry is embedded with international capital, all with varying state political and financial relationships. The southern African market is dominated by three key South African corporates, Illovo, Tongaat Hulett and TSB who at the end of Apartheid expanded into neighbouring countries where structural adjustment programmes were seeing privatisation of state assets (Dubb, et al., 2017). The sector has preferential access to the European market and is underpinned by the political imperative of incorporating smallholders through outgrower schemes (Dubb, et al., 2017). Profits are derived from three key avenues including the refining of sugar, distilling of ethanol and electricity generation (Dubb, et al., 2017). The European market historically offered price security and subsidies to southern African producers, but this has slowly reduced over the years with growing international

competition from the likes of Brazil and India (Dubb, et al., 2017). As such, incentives to minimise cost, expand production and seek alternative markets have been significant (Dubb, et al., 2017). In addition, market reform has led to European companies buying stakes in southern African businesses, as was seen in ABF's purchase of Illovo, and Teros rehabilitating Sena Sugar (Dubb, et al., 2017). Market risk is expected to continue to evolve. Moreover, global sugar consumption has been predicted to fall, resulting in the need for diversification of the businesses (Dubb, et al., 2017). This diversification has seen businesses expand product lines and market to include ethanol production to be used for gasoline fuels, as well as electricity generation (Dubb, et al., 2017).

Playing a strategic role in national economies, the sugar industry represents a significant proportion of national economic activity (Dubb, et al., 2017). These require long-term investments while being risk prone to market and weather. Some argue that the industry in some countries is 'too big to fail' resulting in the state playing a critical economic and political support role (Dubb, 2015; Dubb, et al., 2017). Support from government is seen through the private sector's ability to acquire land (i.e., through outgrower models), water and engage with workers (James & Woodhouse, 2017; Scoones, et al., 2017).

Across southern Africa, there is a clear distinction between outgrowers as owners of production and farm labour employed to conduct primary activities like weeding, irrigation or harvesting (Dubb, et al., 2017). Labour employed may include family labour, resident workforces or migrants (Dubb, et al., 2017; Scoones, et al., 2017). However with increased competition and forced efficiencies, increased mechanization is driving a reduction in permanent jobs (Dubb, et al., 2017). Jobs are being casualised or displaced to external contractors who are not subject to the same corporate labour standards (Dubb, et al., 2017).

The production of sugar globally is seen to have severe environmental consequences (Hashem, et al., 2015). These consequences include destruction of natural habitats, intensive use of water and agro-chemicals, fertiliser run-off into waterbodies, soil erosion and air pollution (ibid.). Loss of natural habitats and biodiversity are a result of historic and ongoing expansion of cane fields, as well as through infrastructural upgrades such as damming (ibid.). Intensive usage of water defaults the crop to being a 'thirsty crop' whereby one kilogram of

cane uses about 1,500 litres of water (ibid.). Burning of cane as a preharvest mechanism emits significant amount of particles and toxic gas (monoxide and ozone – Chapter 4 provides more context on GHG emissions) into the atmosphere, this also adds to human health issues including irritation of airways, lower lung function heart attacks and so on (ibid.).

## 2.9 Synthesis of literature

As described throughout this chapter, climate governance is increasingly being characterised as polycentric in nature. This characterisation is a result of the numerous autonomous actors self-organising and working towards a common goal. This is described through principles of leadership or pioneership, diffusion, and linkages, which provide coordination between all actors. Issues of equity and justice are cross-cutting and need to be considered, especially when considering the southern African sugar industry.

## Chapter 3

### Methods

#### 3 Methods

This research is based on a case study of the sugarcane growing industry in southern Malawi and used qualitative methods in its design. All research was undertaken through mixed media review (reports, policies, websites, and videos), as well as interviews with selected actors. This section provides detail on the research methodology, including the use of a case study and the undertaking of the qualitative review, as well as ethical considerations and limitations.

##### 3.1 Use of a case study – sugarcane growing in southern Malawi

To explore the research objective of who influences emission reduction strategies and how local context is incorporated, a case study of the sugarcane growing industry in southern Malawi was used. The use of a case study allowed the research to investigate the contemporary phenomena of climate justice within climate mitigation within a real-life context where boundaries between the phenomenon and context are not explicitly clear (Rowley, 2002). The real-life context could be organisations, communities, cities, countries, regions, or cultures (Ragin, 1997). For this study, the real-life context is considered to be the activity of sugarcane growing in southern Malawi and the phenomenon is the application of GHG emission reduction strategies.

The southern region was chosen as the Shire Valley accounts for the highest incidence of extreme poverty in Malawi (African Development Bank Group, 2018; Government of Malawi, 2013), is characterised by smallholder sugarcane farming and is vulnerable to extreme climatic events (e.g., Storm Ana in 2022 and Cyclone Freddy in 2023). Figure 1 and Figure 2 indicate the location of sugarcane estates and the mill in southern Malawi.

The case study is analysed through a qualitative review. Using qualitative review methods allowed for a degree of flexibility to use a working hypothesis. This enabled the ability to sift through cases and stories as they emerged with broadened guiding concepts and themes emerging (Ragin, 1997). Once data was obtained, these concepts were then categorised and conceptualised within the real-life context of southern Malawi (ibid.).

Using a single case study for this research may be seen to provide individual case data at the expense of knowledge of cross-case patterns (Ragin, 1999). However, it is intended that the aim and objectives of this research can be applied to other cases globally to allow for cross-case patterns to emerge. As such, this research may be seen as a preliminary or pilot, or as a basis for further research into the effects of emission reduction strategies both up and down the sugar value chain.

The case study drew on multiple sources of information as evidence (Rowley, 2002). In this case, qualitative methods through both mixed media review and interviews were used. These two sources provided a means to triangulate responses and understanding between the actors, their agendas, drivers, and collaboration with one another. The combination of mixed media review and interviews also allowed for deeper insight into what is happening on the ground. Using multiple sources of information allowed for the representation and legitimisation (trustworthiness and dependability) of the issue (Onwuegbuzi, Leech & Collins, 2012).

To provide for representation, the combination of these sources provided three key factors to the research. Firstly, it enabled corroboration and convergence between mixed media sources and from interviews (also referred to as between-source triangulation). Secondly, interviews allowed for elaboration, illustration, and enhancement of understanding from the mixed media. Thirdly, it allowed for the range and breadth of information to be expanded where one source provided alternative information pieces (also referred to as between-source expansion) (Onwuegbuzi, Leech & Collins, 2012).

To provide legitimisation, the combination of these sources provided two key enhancements to the research. Firstly, the corroboration of different sources through between-source

triangulation allows for the rigour of understanding and clarity of information. Secondly, using the two sources of mixed media and interviews allowed for paradoxes and contradictions to be identified resulting in the reframing of issues (also referred to as between-source initiation) (Onwuegbuzi, Leech & Collins, 2012).

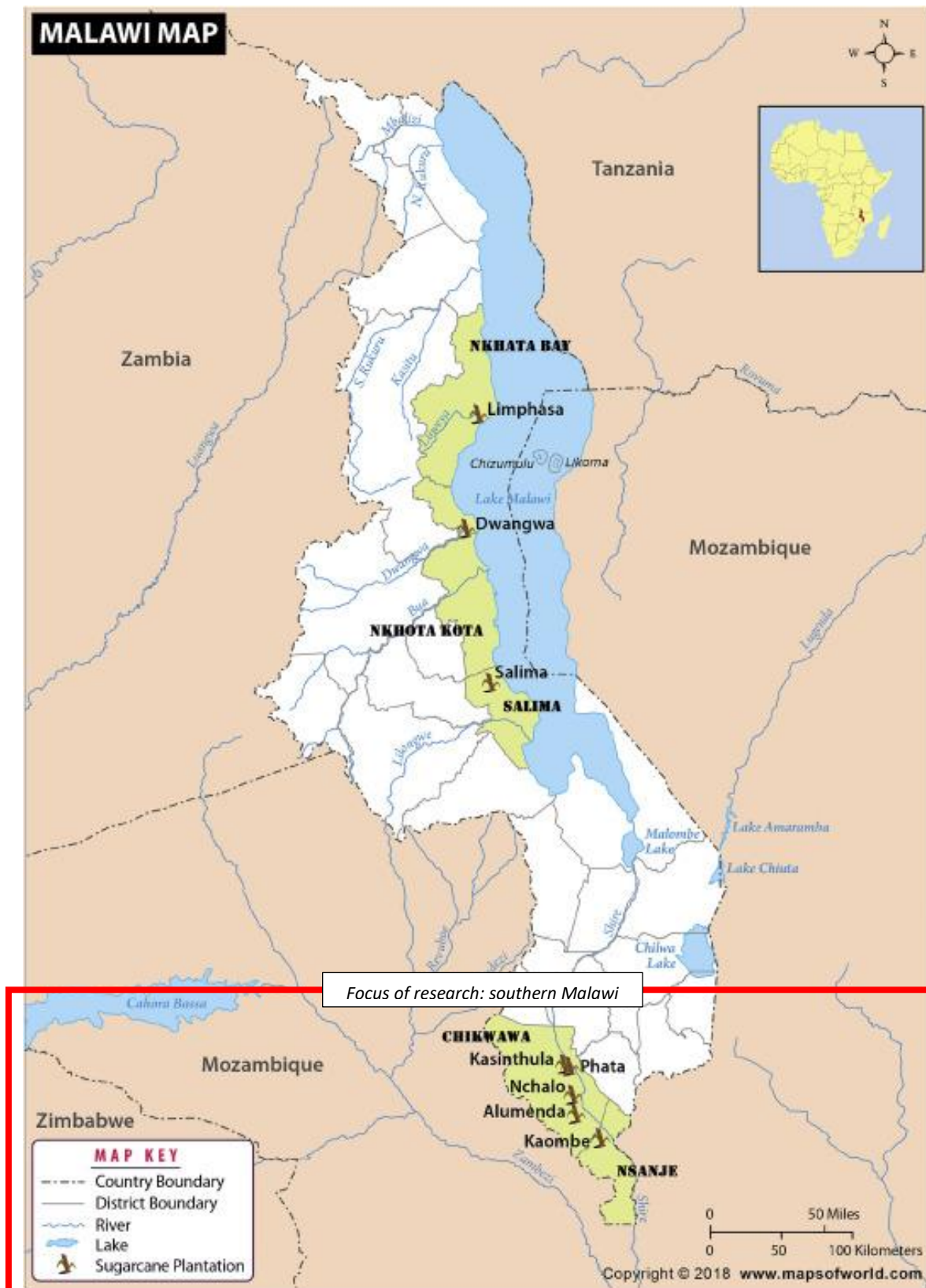


Figure 1: Map of location of sugarcane estates in Malawi (source: Dong & Eklo, 2018)

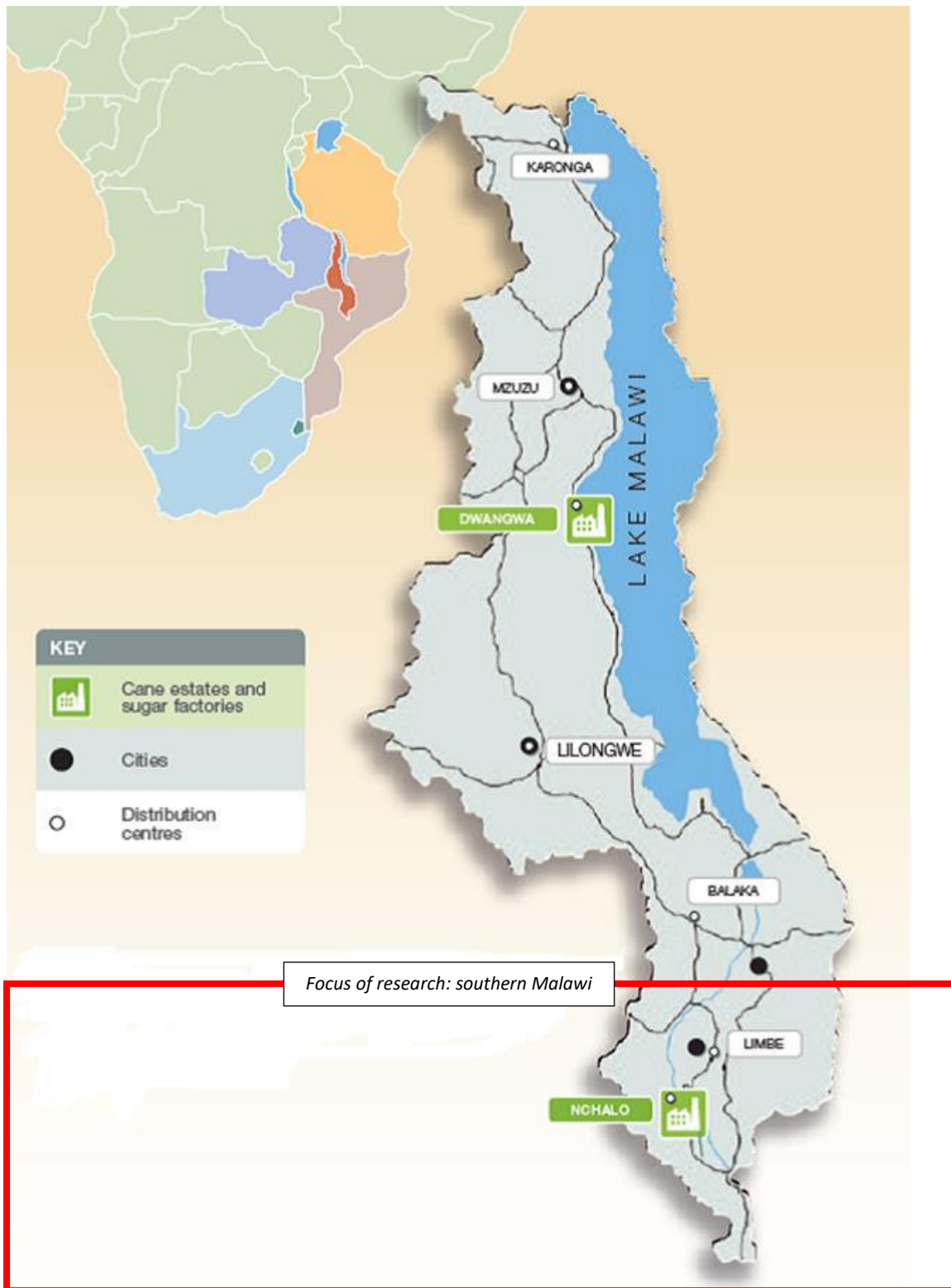


Figure 2: Map of main production areas for sugarcane in Malawi (source: FAO, 2015)

### 3.2 Qualitative data collection – mixed media review

A desktop review of publicly available information, including commitments, policies, procedures, plans, strategic, and progress reports, as well as website reports, case studies, and videos available of relevant actors was undertaken. This allowed for familiarisation of the data to enable an initial purposeful understanding of the data available (Goldsmith, 2021). This initial understanding provided insights into the targets, programmes, and status of GHG emission reduction strategies across the actors; in some cases it also highlighted drivers of these strategies.

Information used in the desktop review was initially specifically targeted through internet searches of actors and their commitments. This targeted process included a review of information available from the Malawian government (specifically the Environmental Affairs Department [EAD]); key companies (Illovo Sugar Africa, AB Sugar, and Associated British Foods [ABF]); as well as other sector sustainability and technical agronomic information, for example, South African Cane Growers Association, Bonsucro, and the SAI platform.

The Malawian government's NDC (2022) was reviewed. This was a key document in determining the overarching commitments and plan to achieve carbon reductions. The NDC was supplemented by the review of applicable (to the agricultural sector) GHG Inventory Standard Operating Procedures (2019) for managed agricultural soils, land use change, as well as fuel wood, also developed by the Malawian government. Together, these documents provided an understanding of the commitments and plans for the implementation of carbon reduction strategies.

As Chapter 5 outlines in the findings, the group of companies within the ABF umbrella company is seen largely in consolidation (i.e., seen as one organisation) as legal requirements at the ABF level are required to be fulfilled within each subsidiary company. These companies included ABF, AB Sugar, Illovo Sugar Africa, and Illovo Sugar Malawi. The ABF commitments to carbon reduction are highlighted in numerous documents, these include the following:

- ABF Climate Disclosure Project (CDP) (2021), the company’s annual report on climate disclosure based on the set methodology of the CDP;
- ABF Climate Change Environmental, Social and Governance (ESG) Insights Report (2021), an overview of the company’s approach to and performance of carbon emissions and climate risks;
- ABF Responsibility Update (2021), the company’s annual sustainability and ESG aligned report;
- ABF ESG Investor Update videos on the Task Force on Climate-Related Financial Disclosures (TCFD) and carbon emissions reduction strategies (these are presented as part of an investor debrief and are available on their website); and
- AB Sugar Socio-Economic Study (2018), the company’s latest sustainability report, superseded in later years by the overarching ABF Responsibility Update.

Reviews of these documents and videos provided a foundational understanding of particular narratives used by the company, as well as key commitments and focus areas for their work and achievements to date. This information assisted in having a broad understanding of commitments that would likely be applied at a local Malawian level in the absence of Illovo Sugar reporting, which reports as part of AB Sugar. Initially, it was thought that these documents may indicate implementation mechanisms for achieving carbon reduction targets, but this was not apparent. At a high-level, understanding the targets and associated implementation programmes assisted in understanding correlation with Malawian government targets and implementation programmes. This provided a basis for interviews, as well as a key data point for the research findings.

Other information from the sector included reviews of publicly available information from sustainability certification bodies, Bonsucro, and the SAI Platform. Bonsucro’s sustainability guidelines are the most widely adopted sugarcane sustainability standards globally as the only certification body with a sole focus on sugarcane (Bonsucro, 2022). However, through interviews, it was found that this certification is not a requirement of Illovo. As such, this source was used going forward in the document review as good practice guidance, as well as general background information to the sector globally.

Through interviews, it was found that the SAI Platform's Farm Sustainability Assessment (FSA) tool and general membership (which includes collaborative working groups on key sectoral sustainability issues) is the basis of Illovo's sustainability programme. The SAI Platform is a sustainable agricultural platform that provides a forum for engagement across member bodies, with the FSA being a standardised sustainability assessment tool. As such, publicly available information from the SAI platform's website was reviewed to understand focus areas. This provided the ability to understand intentions and discourse related to Illovo's operations and subsequent carbon reduction targets.

### 3.3 Qualitative data collection – interviews

Interviews with key informants were undertaken. Interviews are seen as 'extendable conversations' between informants, providing in-depth information on a specific topic for which a phenomenon may be interpreted through the meanings that they may bring to it (Alshenqeeti, 2014). These informants were identified through early discussions with industry players in Malawi, as well as through a desktop review of annual reports, institutional structures, and the history of the region and sector. In addition, snowballing was used, whereby interviews with initially identified informants assisted with the introduction of new informants not initially noted through desktop review.

This method of snowballing also allowed for the consideration of different interpretations or understandings between informants to be explored as they were identified (Rowley, 2002). It should be noted that snowballing sampling has a selection bias as it is initiated through the researcher's personal contacts and networks, as well as that of the respondent's contacts and networks (Parker, et al., 2019).

All interviews were semi-structured and largely open-ended, but were thematically structured to ensure coherence. This structure was more beneficial than using structured or unstructured interviews, which either permits no freedom or too much freedom in response (Alshenqeeti, 2014). Semi-structured interviews provide flexibility for small-scale research and are used where the research benefits from a fairly open framework but still within the parameters of the aim of the study (Pathak, 2012; Alshenqeeti, 2014).

Questions (refer to Annex 2

Interview questions) were tailored to the informant based on desktop review and their assumed (based on initial document review) position within the local context; they were also submitted to respondents before interviews. This format allowed for considered and constructive responses from interviewees with the ability to obtain information conversationally and allow for connections to be made to other informants. As the conversation progressed and the need emerged, more detailed questions were asked. This allowed for flexibility and freedom for the informant to choose what needed more description or detail, and how much explanation was required (Pathak, 2012).

All informants that were targeted for interviews and those who were actually interviewed are outlined in Table 8. Informants targeted came from eight different actor groups (multinationals, growers, financiers, governmental, donor agencies, sustainability certification bodies, industry associations, and researchers), as well as 20 actors across these groups. The scope of informants selected for interviews was expected to provide a representative sample of actors across the sugarcane growing industry, as well as those who could provide background and supplement the socio-economic contextual understanding of agriculture and sugarcane growing in Malawi.

It should be noted that, throughout the research, it was difficult to obtain a response from some informants, with some not responding to initial emails and others not responding after the receipt of questions. This issue is further addressed in section 3.4.

Table 8: Identified potential participants and status of engagement

#	Actor	Referred to as in findings	Role in sector	Status	Format	Date interviewed	Benefit to research
Multinational actors							
1	Illovo Sugar Africa	Respondent 1	One of the leading sugarcane growing and processing companies across Africa.	Conducted	Virtual	13/09/2022	Undertakes day-to-day operations of sugar estates in South Africa, and manages/oversees Malawi operations.
2	Illovo Sugar Malawi	N/A	The leading sugarcane growing and processing company in Malawi.	No response	N/A	N/A	Undertakes day-to-day operations of sugar estates in Malawi.
3	Associated British Foods (ABF)	N/A	The umbrella company of AB Sugar.	No response	N/A	N/A	Sets overall GHG reduction requirements across all subsidiary companies.
4	AB Sugar	Respondent 2	The umbrella company of Illovo Sugar Africa.	Conducted	Virtual	10/07/2022	Drives GHG reduction programmes across its subsidiary companies and engages with other stakeholders in the sector at global and national levels.
Growers							
5	Kasinthula Cane Growers Association	Respondent 3	Contracting estate to Illovo's Nchalo Mill, southern Malawi.	Conducted	Virtual	31/10/2022	Undertakes day-to-day operations of sugar estates in Malawi.

6	Cattle Farming Company	N/A	Contracting estate to Illovo's Nchalo Mill, southern Malawi.	No response	N/A	N/A	Undertakes day-to-day operations of sugar estates in Malawi.
7	Phata Canegrowers	N/A	Contracting estate to Illovo's Nchalo Mill, southern Malawi.	No response	N/A	N/A	Undertakes day-to-day operations of sugar estates in Malawi.
8	Agricane	N/A	A company that provides operating services to sugarcane estates, as well as consulting to the wider agricultural sector across Malawi.	No response	N/A	N/A	Undertakes day-to-day operations of sugar estates in Malawi.
Financiers							
9	AgDevCo	Respondent 4 Respondent 5	Investor into sugarcane growing estates in southern Malawi.	Conducted x2	Virtual x2	11/10/2022 17/10/2022	History in investing into agriculture across Africa and in sugarcane.
10	British International Investment	N/A	Prior investor into sugarcane growing estates in southern Malawi. Major agricultural investor across sub-Saharan Africa.	No response	N/A	N/A	History in investing into agriculture across Africa and in sugarcane.

Governmental actors							
11	Environmental Affairs Department	N/A	Mandated to coordinate and manage all aspects of environmental management across Malawi. Oversee implementation of the NDC.	No response	N/A	N/A	Responsible for GHG emissions and cross coordination between governmental departments.
Donor agencies (or their partners)							
12	TetraTech	Respondent 6	USAID's consulting lead on GHG inventory in Malawi.	Conducted	Virtual	06/10/2022	Day-to-day working and understanding of the EAD and their GHG inventory.
Industry associations							
13	Sugarcane Growers Association of Malawi	N/A	The sugarcane growers association of Malawi.	No response	N/A	N/A	Operational, technical, and political viewpoint on sugarcane in Malawi.
14	South African Canegrowers Association	Respondent 7	The sugarcane growers association of South Africa also consults with other sugarcane companies across Africa.	Conducted	Virtual	11/08/2022	Operational, technical, and political viewpoint on sugarcane in Africa.
15	NASFAM	N/A	Smallholders farming association in Malawi.	No response	N/A	N/A	Understanding of the sector and socio-economic value of the agricultural industry.

Sustainability certifications							
16	Bonsucro	Respondent 8	Leading certification body in sugarcane sustainability	Conducted	Virtual	19/09/2022	Global view of sugarcane sustainability, including the politics and technicality of it.
17	SAI Platform	Respondent 9 Respondent 10	Illovo's sustainability certification body	Conducted x2	Virtual x2	20/10/2022	Global view of agricultural sustainability, including the politics and technicality of it.
Researchers							
18	Researcher	Respondent 11	Researcher on decent work in sugarcane in Malawi.	Conducted	Virtual	25/10/2022	Deep knowledge and understanding of day-to-day lives of employees within sugarcane industry in Malawi.
19	Researcher	N/A	Sociology researchers in Malawi focussed on agrarian systems.	No response	N/A	N/A	Knowledge and understanding of agricultural sociological history in Malawi.

### 3.4 Data analysis

Data was analysed using two approaches. The research commenced with a framework analysis on the mixed media review that was undertaken. Thereafter, a thematic analysis was undertaken on the data obtained through interviews.

Framework analysis was used in the mixed media review to obtain targeted answers about the specific actors involved. This method of analysis is comparative in practice and is used to identify, describe and interpret the key patterns of information found within and interpreted in the data set (Goldsmith, 2021). Specifically, once documents were reviewed and familiarised a thematic framework was identified, data was indexed against the framework, and then charted to summarise the data and mapped and interpreted.

To provide further depth of data found through interviews and triangulation, thematic analysis was used to identify and analyse themes of patterns emerging from the dataset obtained through interviews. Thematic analysis is used to identify and analyse patterns of meaning in a data set (Joffe, 2012). Specifically, the thematic analysis deployed both (i) understood themes as summaries of topics or categories that became apparent, and (ii) captured core ideas or meanings of a theme that became apparent through interviews (Braun & Clarke, 2023).

### 3.5 Ethical considerations

Ethics clearance was applied for and obtained from the University of Cape Town (UCT) Science Faculty Ethics Committee before conducting interviews (approval number: 26979353). Participants were only engaged based on prior informed consent and were guaranteed anonymity throughout the process. Before the interviews, each participant received by email the informed consent form and an overview of questions that were used in the interviews. There was no need to translate the informed consent forms as all participants were able to speak, read, and write in English. The informed consent form was signed by both the researcher and participant before the commencement of the interview.

Audio recordings of the interviews were undertaken for transcription purposes to enable accurate understanding and documentation of participant responses. Permission for recording was included in the informed consent forms. Following interviews, recordings were transcribed. All audio files and transcriptions have been stored on the researcher's laptop and are password protected.

No risks of legal, physical, psychological, social harm or suffering to participants, and/or the environment were foreseen. Each participant was provided with the opportunity to remove themselves from the research at any point and were guaranteed the opportunity to provide additional comments, feedback, or statements on their views throughout the process. Data was de-identified, with all participant names removed from the study. However, due to the specificity of the project case study, there may still be a risk in the identification of participants due to the difficulties in presenting information from each institution anonymously.

Feedback will be provided to participants through a synopsis of the results of the study and suggested recommendations on the synergies and potential gaps or trade-offs resulting from the different institutions. This will be done following submission and receipt and close out of all comments on the dissertation.

### 3.6 Limitations

Three limitations were initially determined before undertaking the research. This included (i) the objectivity and bias of the researcher, (ii) the availability and desire to be interviewed, and (iii) that not all participants may be able to understand spoken and written English.

While an effort was made for the research to be undertaken objectively throughout the data collection process, there is acknowledged potential bias held by the researcher. Any bias is a result of previous or current working relationships with interviewees or being employed in the wider commercial industrial agricultural sector. Bias may have resulted in a skewed representation of actors in the industry chosen to be analysed, interviewed, or through interpretation of their views and commitments, including their significance in shaping the agenda. In addressing this bias interviews with all known involved stakeholders were sought

after, and document review was undertaken with conscious effort in acknowledging personal positionality.

No single entity or individual declined an interview. However, a lack of desire or availability was expressed by prospective participants by not responding to initial emails or not responding after initial engagements and the provision of questions. Lack of response led to interviews not being undertaken for ten informants, most notably the Environmental Affairs Department (EAD), as noted in Table 8. As the EAD did not respond to an interview, the research relies solely on documentation available and third-party views from other informants. This did not allow for any rebuttal or perspective from the EAD. However, documentation available was deemed to be robust enough to provide understanding of actors and agendas associated with the Malawian government.

The need for translation was not encountered. Initially, it was deemed that in the case that there was a need to translate written information into Chichewa or provide for spoken translation, these provisions were to be made using a local translator. All participants were able and willing to participate using written and spoken English.

## Chapter 4

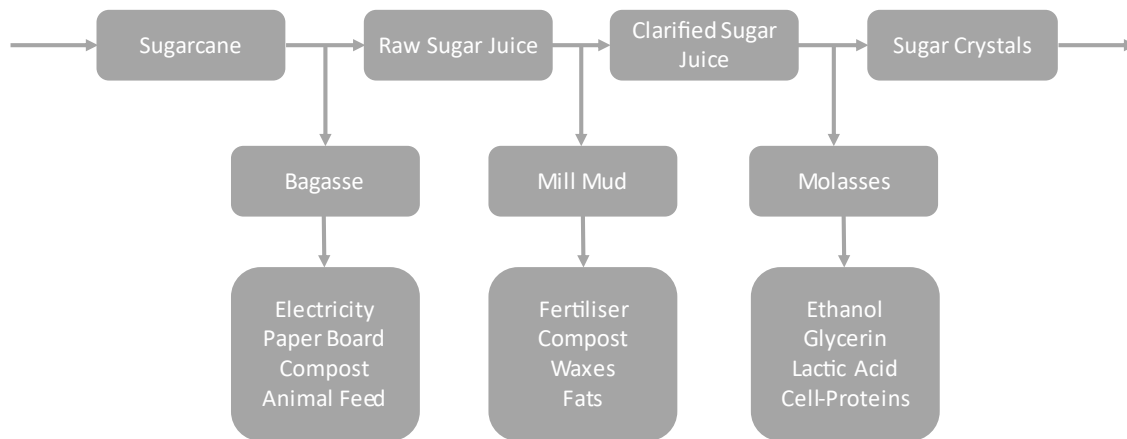
### Case study

#### 4 Case study

The research is situated within the sugarcane growing industry in southern Malawi. An overview is provided of the sugarcane growing process, the agricultural (and sugarcane) history and socio-economic position in Malawi (concerning southern Malawi), as well as an overview of Malawi's response to climate mitigation to date. While this research is focused on southern Malawi, there is minimal research that has been undertaken on the socio-economics of sugarcane growing in southern Malawi (referred to through reference to Nchalo or Shire Valley within the case study), as opposed to northern Malawi (a reference to Dwangwa within the case study).

#### 4.1 Sugarcane growing

Sugarcane, along with sugar beet and other crops with sugar content are the sources of sugar, one of the oldest commodities globally (Sahu, 2018). Going beyond sugar, sugarcane by-products, such as bagasse, mill mud, and molasses are also key sources of energy and chemical synthesis as illustrated in Figure 3 (Sahu, 2018). In addition to the diverse use of the crop, it has also been seen as a key means for developing rural communities through wage provision or smallholder/outgrower schemes in the primary production of cane, but also up the value chain through processing (Future Agricultures, 2012). Sugarcane is produced in about 65 countries worldwide (Sahu, 2018).



*Figure 3: Diagram of sugarcane by-products through the processing cycle (adapted from Sahu, 2018:392)*

Sugarcane production is undertaken on large estates and medium to small farms, generally in close vicinity to sugar mills to ensure short travel time between harvesting and processing (FAO, 2015). Sugarcane is a semi-perennial crop with an average yield of 60-100 tonnes of cane stalks per hectare (ha) per annum (Cardoso et al., 2017). The average replanting cycle is about five to six years. Production generally runs over two years through eight phases, from land preparation, planting setts, fertilising and weed control, growth, harvesting, and transportation, to mill and ratooning, as illustrated in Figure 4. Cardoso et al. (2017) outline that production is differentiated into semi-mechanised and mechanised, with general variations as outlined in Table 9.

The general banner of 'semi-mechanised' operations include manual planting, distribution in the furrow (a type of irrigation system), cutting off stalks, and harvest, while furrow opening and closing are mechanised. Under the general banner of 'mechanised', all operations are undertaken mechanically (Cardoso et al., 2017).

Table 9: Methods of sugarcane growing production

Method	1	2	3	4	5	6	7
<b>Planting</b>	Semi-mechanised	Semi-mechanised	Semi-mechanised	Mechanised	Mechanised	Mechanised	Mechanised
<b>Pre-harvesting</b>	Burned	Green cane	Green cane	Burned	Green cane	Green cane	Green cane
<b>Harvesting</b>	Manual	Manual	Manual	Mechanised	Mechanised	Mechanised	Mechanised
<b>Straw recovery</b>	No	No	Bailing system	No	No	Bailing system	Integral harvesting system

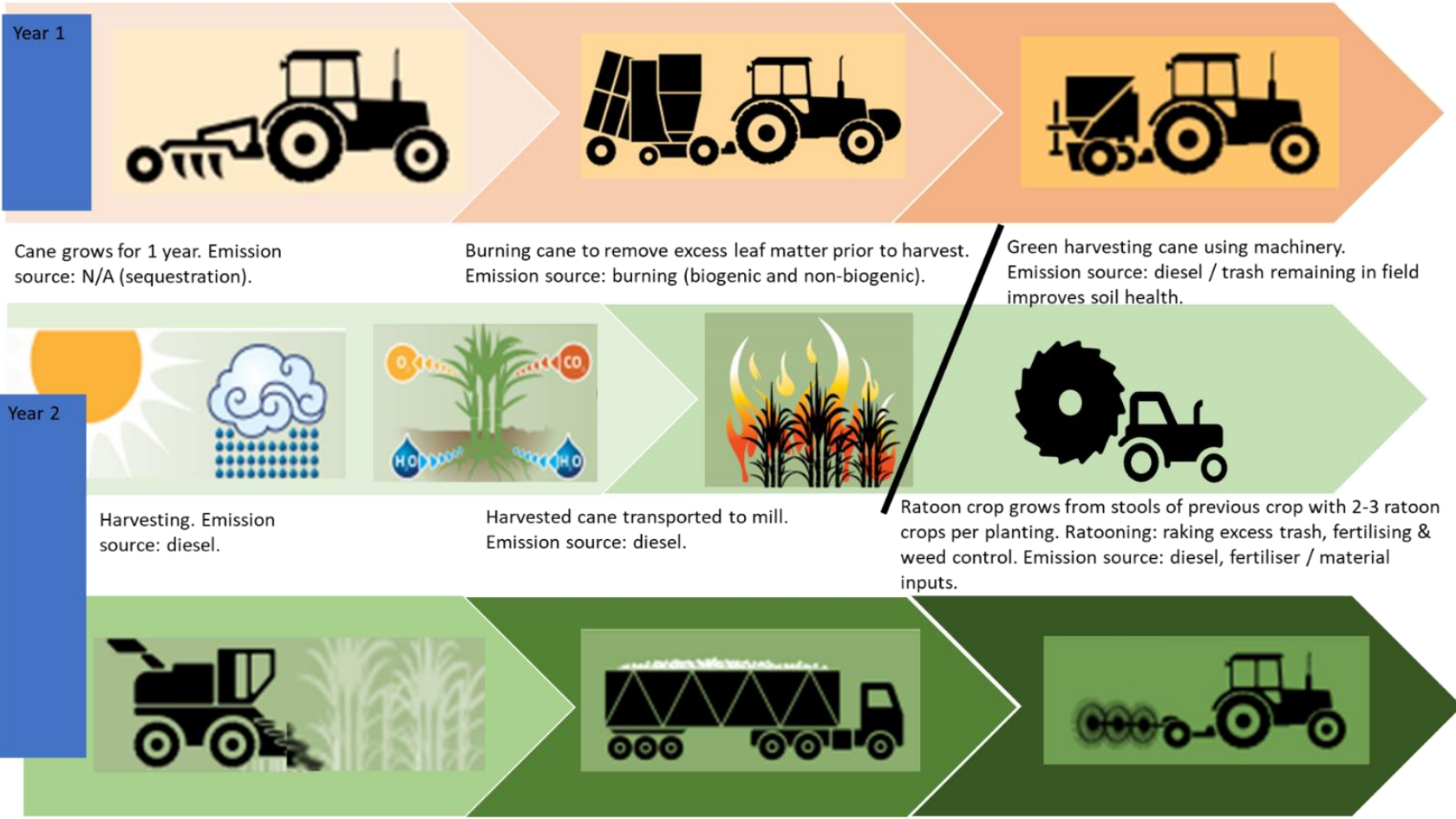
Source: Adapted from Cardoso et al., 2017

As indicated in Table 9, sugarcane is either harvested manually through pre-burning, called burned harvest, or mechanically without burning, called green harvest (Bordonal et al., 2013). Through the practice of pre-harvest burning, the sugarcane industry is recognised as a high-carbon emitter within the agricultural sector. Bordonal et al. (2013) found that pre-harvest burning contributes to 30% of the total GHG emissions from sugarcane production, with the remaining 70% of emission sources comprising conventional agricultural practices (tillage), synthetic fertilisers, lime application, and fossil fuel use (diesel, petrol, etc.) through mechanical activities. Figure 4 illustrates these emission sources across the production cycle.

Preparing the ground with tractor and tillage equipment. Emission source: diesel, land use change.

Planting the setts in rows. Emission source: diesel.

Fertilising & weed control occurs up to 4 months growth. Emission source: diesel, fertiliser / material inputs.



Year 1

Cane grows for 1 year. Emission source: N/A (sequestration).

Burning cane to remove excess leaf matter prior to harvest. Emission source: burning (biogenic and non-biogenic).

Green harvesting cane using machinery. Emission source: diesel / trash remaining in field improves soil health.

Year 2

Harvesting. Emission source: diesel.

Harvested cane transported to mill. Emission source: diesel.

Ratoon crop grows from stools of previous crop with 2-3 ratoon crops per planting. Ratooning: raking excess trash, fertilising & weed control. Emission source: diesel, fertiliser / material inputs.

Figure 4: Sugarcane growing process including GHG emissions (adapted from Sunshine sugar, n.d.)

## 4.2 Malawi and sugarcane production

Sugar is the second largest export revenue earner in the country, following tobacco (FAO, 2015). Currently, there is no data to understand the total contribution of jobs sugarcane production to national employment figures. However, Illovo employs about 11,800 staff across the production cycle (growing and processing) and contracts about 1,888 outgrowers in Malawi (Illovo Sugar Africa, 2022; FAO, 2015). The unknown detail to these numbers includes seasonal and casual staff contracted by Illovo, staff employed by outgrowers, or other contracting companies (cane haulage, cane cutting, crop management services) within the production cycle.

The country's agro-climatic conditions are ideal for sugarcane growing and comprise warm rainy summers and cold dry winters, allowing for a high annual cane yield and level of sucrose content (FAO, 2015).

### *4.2.1 Recent Government initiatives supporting sugarcane production*

The Malawian government has historically developed several agricultural initiatives to bolster agriculture to reduce poverty and increase food security while diversifying and scaling up the production of key export crops (FAO, 2015). The most recent initiative includes the Green Belt Initiative (GBI) introduced in 2009. The GBI aims to use available water resources to ensure increased and diversified agricultural production, productivity, incomes, and food security at household and national levels, as well as catalysing development and economic growth (Future Agricultures, 2012). In doing this, the government aims to offer local and international investors about 1 million hectares (ha) of land for irrigated agriculture 20km within the proximity of the national lakes and 13 perennial rivers (Future Agricultures, 2012).

The GBI has increasingly been focused on sugarcane production, which some argue to be the government's response to seek alternative foreign exchange due to the retreat of tobacco in the national economy's export market (Chisinga, 2017). The aim is to alleviate rural poverty through the increase in smallholder farmers' income through outgrower sugarcane schemes (Chisinga, 2017).

#### *4.2.2 History of sugarcane cultivation in Malawi*

Sugarcane cultivation was formalised in Malawi in the 1960s as part of the Lonhro International Corporation (Chisinga, 2017). This was done through the formation of the Sugar Corporation of Malawi (SUCOMA) in collaboration with the government and the Commonwealth Development Corporation (CDC) (now British International Investment [BII]). SUCOMA opened the first sugar estate at Nchalo in the Shire Valley in 1968. In 1978, the Dwanga Sugar Corporation (DWASCO) was opened with a majority governmental shareholding – Smallholder Sugar Authority (SSA) (Chisinga, 2017). The increase in estates was led through presidential sanctioning orders in 1969 and 1975, allowing for an increase in cropping areas in both Nchalo and Dwanga. Dwanga accounted for 48,750 ha on the lake shore, and Nchalo had an area of 8,788 ha (Chisinga, 2017). In 1998, the sugar industry was privatised by Illovo Sugar Malawi (with a majority controlling stake); in the same growing season (1998-99), total sugarcane area accounted for 16,800 ha with a combined production of 1.68 million tonnes of cane in the year.

In 2011, the total area harvested amounted to about 19,521 ha from 1,888 outgrowers – 13,102 ha was produced in Dwanga and 6,491 ha in Nchalo (Chisinga, 2017). Today, these areas make up numerous estates as is illustrated in Figure 1, some as a result of the GBI. From sugarcane estates, the cane is hauled to the mill (FAO, 2015). These mills have become the epicentre of sugarcane growing as illustrated in Figure 1 and 2.

#### *4.2.3 Current status of sugarcane cultivation in Malawi*

Illovo Sugar Malawi is the only sugar processing company in Malawi (FAO, 2015). The company supplies 60% of its sugar to the domestic consumer market, with a portion to regional markets, and the remaining amount through exports to the USA and EU markets (Illovo Sugar Africa, 2022). Of the export market, about 50% is sold to the EU under a preferential agreement (FAO, 2015). The company produces raw, brown, refined, and speciality sugar, and co-generates renewable electricity (bagasse fuels boilers in mills). The company cultivates about 1.8 million tons of cane annually, with about 350,000 tons of cane

grown by about 1,800 Malawian smallholder farmers (also referred to as outgrowers) (Illovo Sugar Africa, 2022; FAO, 2015).

The institutions governing smallholder and outgrower activities and affairs are the Dwangwa Cane Growers Trust (DCGT) and the Shire Valley Cane Growers Trust (SVCCT). Several associations operate under the Trusts as mediators between the Trusts and the small-scale growers; medium to large-scale cane growers often deal directly with the Trusts and Illovo (FAO, 2015). Illovo estimates that its outgrowers earn about 99% of their income from selling cane to the company. FAO (2015) argues that it is difficult for outgrowers to allocate land to crops other than sugarcane as land is ultimately owned by Trusts and is relegated to sugarcane cultivation only. This dynamic has the potential to exacerbate food insecurity with farmers unable to grow their food crops; however, it allows for purchasing power. Increasingly, exceptions are becoming apparent with Phata outgrower scheme in Nchalo dedicating 10% of its land under cultivation to food crops, and the same for Kasinthula (FAO, 2015).

### 4.3 Southern Malawi

The Nchalo Mill and sugarcane farming estates are located in the Chikwawa district, in the Shire Valley, southern Malawi as illustrated in Figure 1. The valley is characterised by a low elevation with a relief profile of between 60m to 150m above sea level (asl). Temperatures range from 28-35°C in summer and 20-35°C in winter. Droughts and floods have become more frequent and intense in the region, posing a continuous threat of food insecurity (African Development Bank Group, 2018). This is against a national backdrop, where the country is experiencing a variety of climate hazards, including increased frequency and intensity of rainfall, floods, seasonal droughts, and heatwaves, amongst others (Nkomwa, Joshua, Ngongondo, Monjerezi & Chipungu, 2014). This is further evidenced in the latest climatic events, seen through Storm Ana which severely impacted the region in January 2022, as well as Cyclone Freddy in March 2023.

Malawi is further set to experience a mean annual temperature increase of 0.21°C per decade, with increases already of 0.9°C between 1960 and 2006 (ibid.). This is expected to be adversely felt in the agricultural sector, with small-scale farmers being the most vulnerable and anticipated to experience widespread poverty and food insecurity (ibid.).

There is no clear data outlining the demographics of the Chikwawa district. However, as one of two districts in the Shire Valley (the only other major town in the area is Nsanje), Shire Valley demographics provide some context to the area of study. The Shire Valley has an estimated population of 270,000 people and about 62,790 households, and accounts for the highest incidence of extreme poverty in Malawi (African Development Bank Group, 2018; Government of Malawi, 2013). The area is occupied by smallholder farmers engaging in crop and livestock production under rainfed irrigation. Farmers generally rely on natural resources, including woodlands, forests, and the Shire River for fuelwood, cash income generation (from charcoal), and protein supply (fisheries) (African Development Bank Group, 2018). The Chikwawa district is characterised by its sugarcane production, deemed a single-industry town.

Chikwawa will be one of two sites (the other Nsanje) of the Shire Valley Transformation Programme (SVTP), in alignment with the GBI. The SVTP is a World Bank-funded project – along with the African Development Bank, French Development Bank, and others – with the objective of “increasing agricultural productivity and commercialization for targeted households in the Shire Valley, and to improve the sustainable management and utilization of natural resources” (African Development Bank Group, 2018:iii). The project is being implemented between 2018 and 2031, and is expected to benefit about 56,000 smallholder farm families, with successful farmer cooperatives/Trusts to link with established agro-food companies (African Development Bank Group, 2018).

The first phase of the project has the purpose of enabling an environment to scale up the deployment of agricultural technologies and will see the implementation of gravity-fed irrigation and drainage services and secure land tenure for smallholders while strengthening the management of wetlands and protected areas (African Development Bank Group, 2018). The second phase of the project will seek to obtain agricultural investment, support from the private sector and value chain, as well as additional investment into bulk infrastructure. The third and last phase of the project will see a mass scale-up of investments in the area (African Development Bank Group, 2018). The project is expected to diversify into crops other than sugarcane (African Development Bank Group, 2018).

#### 4.4 Malawi and climate mitigation

In 2017, Malawi contributed 0.005% to the global GHG share (~9.33 million tCO<sub>2</sub>e, excluding forestry and other land use) (Republic of Malawi, 2021). Of this, agriculture accounted for 54% of total emissions (5.07 million tCO<sub>2</sub>e), with livestock contributing to 39% and managed soils in crop production 15% (Republic of Malawi, 2021). As a party to the Paris Agreement, Malawi has committed to limiting temperature rise to 2°C, with an extended aim to reach 1.5°C (Republic of Malawi, 2021). Specifically, the country, through unconditional and conditional commitments, aims to reduce carbon emissions by 51% relative to business as usual (BAU) by 2040 (Republic of Malawi, 2021).

This commitment is established through the country's first NDC to reduce greenhouse gas emissions and enhance adaptation actions, revised in 2021 (Republic of Malawi, 2021). The revised NDC outlines Malawi's climate change priorities between 2015 and 2040, including strategies for addressing climate change causes and responses to adverse effects and impacts in line with provisions agreed in the Paris Agreement. To implement the NDC, Malawi has developed a National Climate Change Management Policy (2016); Nationally Appropriate Mitigation Actions (NAMAs); a National Climate Change Response Framework (NCCRF); and National Adaptation Plans (NAPs); as well as legislative sectoral frameworks and strategies integrating environment and climate change development activities (Republic of Malawi, 2021). These initiatives are coordinated and driven by the Malawian Environmental Affairs Department (EAD) who is mandated with the agenda, with input from various ministries including Department of Agriculture on specialist technical areas.

Mitigation opportunities proposed by the NDC in the agricultural sector include conservation agriculture comprising zero tillage and crop residue, rotation practices, and efficient fertiliser use, as well as reductions in livestock enteric fermentation emissions, improved husbandry, and introduction of new species (Republic of Malawi, 2021). Forestry and other land use are not accounted for within the country's GHG inventory. However, they are noted to be significant drivers of deforestation and forest degradation as a result of agricultural and human settlements expansion, as well as unsustainable fuel wood extraction destroying their carbon sinks (Republic of Malawi, 2021).

The NDC also identifies and outlines opportunities to maximise the carbon sink potential. The NDC proposes to maximise potential emissions by both reducing deforestation and forest degradation at the same time as enhancing carbon stocks through afforestation through their REDD+ programmes (Republic of Malawi, 2021). Benefits from these programmes include increased food security, agricultural resilience as a result of increased soil fertility, crop stability, and reduced soil erosion, as well as cleaner water as a result of reduced nutrient and soil runoff (Republic of Malawi, 2021).

In addition, reforestation opportunities are expected to provide reduced soil erosion and run off, cleaner water, as well as co-benefits of income and improved livelihood (does not mention how), landscape restoration, and biodiversity improvements (Republic of Malawi, 2021). Adaptation programmes, amongst many others, included in the NDC comprise increased mechanisation in agricultural production with smallholder targeted support (Republic of Malawi, 2021).

## Chapter 5

### Findings

#### 5 Findings

##### 5.1 Understanding the actors and emission reduction agendas

Globally, the sugarcane value chain is highly complex as it is characterised by a long history and numerous multiscale actors in domestic and international spheres. In Malawi, sugar is the second highest export revenue earner in the country. It significantly contributes to the country's 33% agricultural attribution to the national GDP. In the domestic realm, this is not only a crop producing sugar for domestic consumption but also a tool used for socio-economic development.

Nationally, the sugarcane market is dominated by Illovo Sugar Malawi, a multinational actor with ultimate ownership by a London Stock Exchange (LSE) holding company (Associated British Foods), with operational ties to the United Kingdom and South African-domiciled entities (AB Sugar and Illovo Sugar Africa).

Illovo Sugar Malawi's model is centred around two mills, with the Nchalo Mill located in southern Malawi. Growers, in some cases comprising pooled smallholder farms consolidated into outgrower schemes managed by a single management company or a standalone corporate entity, supply cane to the mill according to their specificity and instruction on cane quality but also in terms of sustainability, including health and safety requirements. Relations between Illovo Sugar Malawi and the Growers are undertaken through Millers Groups, as well as directly through Growers Trusts or Associations.

Growers are financed through foreign direct investment from United Kingdom-aligned funding in the form of debt and equity contributions. This financing has generally been provided to outgrower models that have in the past failed and required patient capital (i.e.

long pay back periods on loans) with low-interest rates and those willing to take a high risk of failure to ensure business turnaround. Illovo Sugar Malawi relies on this financing stream to ensure their Growers can supply cane to the mill. At the same time, the Malawian Government through initiatives such as the Green Belt Initiative, a development initiative using available water resources to ensure increased and diversified agricultural production, productivity, incomes, and food security at household and national levels, has promoted the structure of outgrower models, with continued development envisaged with the ongoing Shire Valley Transformation Project.

Four key groups of actors were identified through this research. These included: (1) the group of companies within Associated British Foods, comprising AB Sugar, Illovo Sugar Africa, and Illovo Sugar Malawi; (2) the sugarcane growers (referred to as the 'Growers'); (3) foreign investment firms (referred to as the Financiers); and (4) the Malawian Government. The Malawian Government's agricultural and planning departments were not primary actors in this research as both focus on sugarcane as a developmental crop rather than the GHG emissions of the sector.

As such, focus was placed on the Environmental Affairs Department (EAD) as the mandated body for environmental issues and programmes. The Malawian Government and Associated British Foods (ABF) – and its group of companies – are seen in this research as key actors (leaders) who define the mandate within the agricultural sector in southern Malawi. Other actors (followers) identified in the research work on instruction or will adopt policies already developed. Further peripheral actors included other government authorities, donor agencies, non-governmental organisations, industry associations (including South African Canegrowers), Sugarcane Growers Association of Malawi (SUGAM), sustainability certification bodies, the market or customer, and of course employees. Each of these actors participate in varied diffusion and linkages among themselves.

These actors and their connections to one another are illustrated in Figure 5. Each of the actors' mandates and agendas are detailed throughout this Chapter.

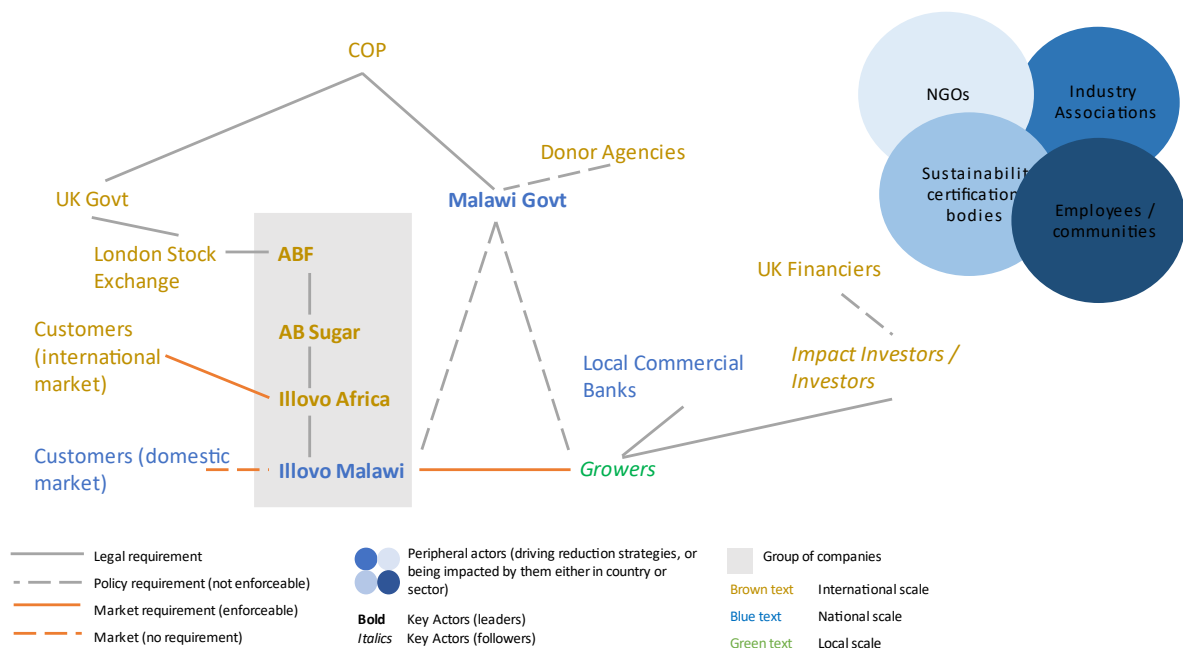


Figure 5: Overview of actors and their connections to one another

### 5.1.1 Malawian Government (Environmental Affairs Department)

“They are the focal institution [the Environmental Affairs Department] for all UN-centred agreements, so the UN Framework Convention on Climate Change, the UN Convention on Biodiversity Conservation, the UN Convention on Desertification [...]” (Respondent 6, 2022).

The Malawian Environmental Affairs Department (EAD) is mandated to monitor, oversee and coordinate all environmental, climate change, and natural resource management compliance matters in sectoral policies, plans and programmes to achieve sustainable development (EAD, 2020). In fulfilling this mandate, the EAD promotes the protection, sustainable use, and conservation of the environment and natural resources in line with SDGs and Malawi Growth and Development Strategy (MGDs), amongst others (EAD, 2020).

The Malawian Government, through their NDC (2021), has committed to reducing GHG emissions relative to the country’s BAU emissions baseline by 2040 (Republic of Malawi,

2021). The total reduction the country seeks is 51% (17.7 million tCO<sub>2</sub>e) relative to BAU by 2040. To achieve this, the NDC commits to two types of contributions:

- “Unconditional contribution: **A reduction of 6 percent relative to BAU by the year 2040**; equivalent to an estimated mitigation level of 2.1 million tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) in that year. This is an unconditional target, based on **domestically supported and implemented mitigation measures and policies.**” (Republic of Malawi, 2021:13).
- Conditional contribution: **An additional reduction of 45 percent relative to BAU by the year 2040**; equivalent to an estimated mitigation level of 15.6 million tCO<sub>2</sub>e in that year. This represents an additional targeted contribution, based on the **provision of international support and funding.**” (ibid.).

The NDC estimates that the agricultural sector has the potential to reduce 1.57 million tCO<sub>2</sub>e in 2040 (Republic of Malawi, 2021). The commitment identifies cropping agricultural contributions to come from improved rice management, fertiliser and manure management, and conservation tillage as illustrated in Figure 6 below (Republic of Malawi, 2021). Agricultural reduction strategies do not include forest and land use (FOLU) potential (Republic of Malawi, 2021).

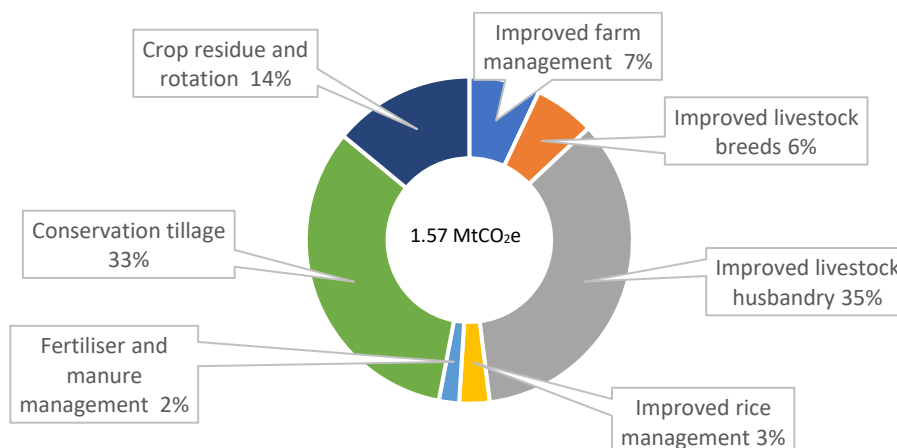


Figure 6: Estimated GHG mitigation potential in 2040 for agriculture measures excluding FOLU (adapted from Republic of Malawi, 2021:24)

The NDC outlines an implementation plan for agricultural contributions to the mitigation strategy. Implementation plans relevant to the sugarcane growing sectors are outlined in Table 10. Key focus areas include:

1. Increasing the use of return of crop residue and crop rotation to improve soil conservation. This would result in an increase in soil carbon stock and improved crop yields.
2. Introducing the practice of conservation tillage to improve soil conservation. This would result in an increase in soil carbon stock and improved crop yields.
3. Increasing the use of conservation or zero tillage farming. This would result in avoided GHG emissions from diesel use as tractors will not be used for ploughing and tilling before crop planting.
4. Improving fertiliser management through the increased use of organic waste in soil fertilisers and compost manure, as well as increasing carbon stock retention in soils, and reducing N<sub>2</sub>O emissions from mineral N-fertiliser use.

Table 10: NDC implementation plan for agricultural activities relevant to sugarcane growing

NDC measure	Line ministry (focal point)	Other key implementing entities	Total funding estimated	Adaptation and resilience co-benefits	Alignment with SDGs	Timeline		
						2020-2025	2025-2030	2030-2040
<b>Conservation agriculture: crop residue and rotation.</b> Support and implementation of the planned expansion targets for crop residue and crop rotation to improve soil conservation, as well as increase soil carbon stock and improved crop yields.	MOA (Department of Crop Development)	MOFNR, LUANAR, NGOs, donors	US\$ 472m UC <sup>2</sup> : US\$ 236m C <sup>3</sup> : US\$ 236m	Increased food security and agricultural resilience through enhanced soil fertility, increased crop stability, and reduced soil erosion.  Cleaner water provision, through reduced nutrient and soil runoff.	1, 2, 6, 13	X	X	X
<b>Conservation agriculture: conservation tillage.</b> Support and implementation of the planned expansion targets for conservation tillage to improve soil	MOA (Department of Crop Development)	Department of Land Resources and Conservation, MOFNR,	<US\$ 1m	Increased food security and agricultural resilience through enhanced soil fertility, increased crop stability, and reduced soil erosion.	1, 2, 6, 13	X	X	X

<sup>2</sup> UC: Unconditional contributions

<sup>3</sup> C: Conditional contributions

conservation, increase soil carbon stock and improved crop yields.		LUANAR, NGOs, donors		Cleaner water provision, through reduced nutrient and soil runoff.				
<b>Conservation tillage within for commercial crop farming.</b> Use of conservation or zero tillage farming, resulting in avoided GHG emissions from diesel use in tractors used in ploughing and tilling before crop planting.	MOA (Department of Crop Development)	District Agriculture Development, offices, NGOs	US\$ 1m 100% unconditional	Reduced dependence on imported fossil fuel energy and increased food security.	1, 2, 7, 13	X	X	X
<b>Promotion of efficient fertiliser use and manure management.</b> Improved fertiliser management through increased use of organic waste in soil fertilisers and compost manure, increased carbon stock retention in soils, and reduced N <sub>2</sub> O emissions from mineral N-fertiliser use.	MOA (Department of Crop Development)	Department of Land Resources and Conservation, MOFNR, LUANAR, NGOs, donors	US\$ 369m UC: US\$ 148m C: US\$ 221m	Enhanced effectiveness of fertiliser application supports the resilience and agricultural efficiency of vulnerable farmers. Reduced compostable waste-related health risks such as dengue fever for example. Enhanced soil fertility and reduced soil erosion.	1, 2, 6, 11, 12, 13	X	X	X

Source: Adapted from Republic of Malawi, 2022:33-44

In implementing these measures, financial support is provided by the Malawian domestic budget for unconditional contributions, as well as international support and funding for conditional contributions (Republic of Malawi, 2021). For agricultural contributions, implementation support is expected to be provided as indicated in Table 11 for each action relevant to sugarcane growing.

*Table 11: Financial support required for implementing mitigation measures*

<b>Mitigation measure</b>	<b>Conditional</b>	<b>Unconditional</b>
Fertiliser and manure management	40%	60%
Crop residue and rotation	50%	50%
Improved farm management	10%	90%
Conservation tillage	50%	50%

Source: Republic of Malawi (2021)

To support Malawi’s low emissions development, the EAD, with the support of US AID’s Protecting Ecosystems and Restoring Forests in Malawi programme (PERFORM), has developed a GHG Inventory, specific standard operating procedures (SOPs) and GHG emissions calculators for Managed Agricultural Soils and Emissions Calculator, as well as Land Cover Change Emissions Calculator (EAD & US AID, n.d.). These were developed by sectoral experts. Specifically, for agriculture, this was managed by the Lilongwe University of Agriculture and Natural Resources (LUANAR) and the Ministry of Agriculture in line with the UNFCCC data requirements (Respondent 6, 2022).

The purpose of developing the GHG Inventory was based on the need to have accessible resources to collate and determine data. The tools made available by the UNFCCC were web-based without the option to return to work when interrupted (i.e., the web-based programme does not continuously save work and if interrupted by a power cut is required to start from the beginning), which was impractical for a country like Malawi with 12-hour rolling blackouts

and limited internet access. A solution to this was an MS Excel tool that could work with and understand calculations (Respondent 6, 2022).

In the implementation, each SOP and calculator is expected to be completed by relevant government bodies, respectively the Crop Development Officer in the Ministry of Agricultural and Food Production, and the Department of Forests (EAD & US AID, 2019; EAD & US AID, 2019). Overall (for all sectors) the NDC mitigation measures require an estimated US \$41.8 billion (Republic of Malawi, 2021) until 2040. Challenges are recognised to include the limited domestic budget for the implementation of actions and limited involvement with the private sector investment in climate change and environmental activities.

#### *5.1.2 Associated British Foods, AB Sugar, Illovo Sugar Africa, and Illovo Sugar Malawi*

Illovo Sugar Malawi is a subsidiary of Illovo Sugar Africa. Illovo Sugar Africa is a multinational company with operations across Malawi, Tanzania, South Africa, Zambia, and Eswatini; it is considered to be Africa's biggest sugar producer (Illovo Sugar Africa, 2022). Annually, the company produces 6 million tons of cane, with 9 million tons of cane procured from contracted outgrowers (Illovo Sugar Africa, 2022). Illovo Sugar Africa is a subsidiary of parent company AB Sugar, part of the Associated British Foods (ABF) holding company.

Following AB Sugar's sustainability programme – *global mind, LOCAL CHAMPIONS* – Illovo Sugar was included in AB Sugar's commitment to reduce its carbon footprint by 30% by 2030 (AB Sugar, 2022). The company states it has reduced direct emissions by 18% since 2017 through the improvement of sugar production using increased renewables and energy reduction technologies, as well as diversifying its product range (AB Sugar, 2022). ABF state that AB Sugar's commitment scope is an "end-to-end supply chain carbon footprint" (Associated British Foods, 2021: 26). This end-to-end supply chain carbon footprint implicates Growers as a supplier to Illovo Sugar Malawi, and ultimately AB Sugar.

AB Sugar uses its sustainability programme – *global mind, LOCAL CHAMPIONS* – to implement the GHG reduction programme in the larger context of other programmes relating to social, environmental, and economic benefits within the communities in which it operates across

Africa, Asia and Europe (AB Sugar, 2022). The *global mind, LOCAL CHAMPIONS* programme is described by a manager at AB Sugar to be underpinned in the following:

“Our local champions are the people who have the agency and the context to make the change ...” (Respondent 2, 2022)

“But our job as a group [...] is to look to the horizon for our businesses on the agendas that they might not see at that point because they’re [the subsidiary companies] busy being a business and making sugar, and creating energy, and looking after their companies, and looking after their communities as we might see things coming on the horizon. So, it’s our job as a global mind to do that.” (Respondent 2, 2022)

And in addition,

“... it’s less about the group, but more about the global-ness of our organisation and the contacts and connections.” (Respondent 2, 2022)

Coming together at the local scale, the AB Sugar manager explained it as “keeping two tensions in pull” (Respondent 2, 2022). This is interpreted as meeting both local and global socio-economic and environmental needs, as well as agendas, at the same time. This was noted through the statement:

“[name of the employee in Malawian entity] drives his business to the agendas that he believes matter both globally and locally, he keeps those two tensions in pull.” (Respondent 2, 2022)

As part of the resource efficiency pillar of the *global mind, LOCAL CHAMPIONS* programme, AB Sugar set a 30% carbon emission reduction by 2030 target in 2018 across its entire portfolio of companies and its 25,000 global partner growers (AB Sugar, 2018). This was deemed by the representative interviewed in their subsidiary company as,

“[t]hey put a peg in the sand.” (Respondent 1, 2022)

On 7 September 2022, AB Sugar announced its commitment to setting a near-term science-based emission reduction target in consultation with the Science Based Targets initiative (SBTi) (AB Sugar, 2022). This would see the target being transformed from a 30% carbon reduction to a 1.5°C world target for the near term to 2030 (Respondent 2, 2022). The research notes that emission reduction targets may allow for offsetting emissions, but science based targets do not include the possibility for offsetting emissions. However, this is still in process, and for now, all plans in place are to achieve a 30% reduction target across the group of companies.

To achieve this target, AB Sugar has calculated GHG emissions for each subsidiary company, but has not publicly disclosed them. Using these results, each company is expected to determine areas of reduction. This was aggregated up to the group level to be able to consolidate across the companies and determine overarching programmes (Respondent 2, 2022). At a group level, such programmes have been designed to include a water efficiency programme (minimising water losses), which reduces the need for pumping and therefore electricity use, trialling green cane harvesting, and renewable energy. These programmes will be implemented at different times across the group's portfolio of business. In addition, the representative from AB Sugar stressed the need to look at programmes in a 'non-binary' manner, looking and working in the surrounds and local context of the business.

“With any project that you create, you look at those projects within the surrounds. We don't ever just do a project to reduce GHG. A project has to be something about how it fits into the future of our industry or the future of the labour force in that country, the future of our ability to be a business, to respond to our customers.” (Respondent 2, 2022)

This was confirmed through Illovo Sugar Africa's experience, indicating that each country has been expected to provide rough carbon calculations for their operations. Using these calculations, Illovo Sugar Africa and Illovo Sugar Malawi have begun listing areas of opportunity to reduce emissions within their local context (Respondent 1, 2022).

At Illovo Sugar Malawi, numerous projects have been undertaken in the country to increase production efficiencies, such as irrigation and fertiliser application. However, these have not been undertaken under the auspices of a strategically targeted carbon reduction strategy. This has been due partly to COVID-19 interruptions (Respondent 1, 2022). Going forward, the short-term plan is to ensure all 'quick wins' are identified and met. This includes optimising irrigation and fertiliser efficiencies and determining whether existing projects have allowed for reduction as required.

For long-term feasibility studies and planning, Illovo Sugar Africa has identified the potential to shift to green/mechanised harvesting, moving away from pre-burn harvests, among other things (Respondent 1, 2022; Respondent 8, 2022; Respondent 7, 2022). Importantly, shifting to some form of mechanised or semi-mechanised harvesting without pre-burn would require changes to field layout, number and type of employees required, machinery and potentially a different cane variety.

Programmes to be developed are done within country-level contextual requirements and autonomously from AB Sugar, but are in line with the overarching 30% reduction target. AB Sugar will play the role of providing feedback on programmes and sharing of ideas between subsidiaries (Respondent 1, 2022). The autonomy remains at a country level, with no clear engagement with Malawian authorities, and no knowledge of the NDC or governmental policy commitments or programmes. This was not verbally communicated but was apparent through facial expressions and exclamations during the interviews (noting subjectivity in this claim).

AB Sugar maintains an annual performance improvement programme – expected to drive value through businesses and their associated projects – which look at saving cost and investment into the future. As such, each project is tied to specific key performance indicators (KPIs) associated with water and energy reduction (Respondent 2, 2022). On the GHG reduction programme, once there are defined country-level programmes in place, KPIs will be placed on various organisational roles. KPIs will see annual performance bonuses being influenced by meeting reduction targets (Respondent 1, 2022).

### 5.1.3 Growers

Smallholder sugar farmers have pooled their land, turning it into a collective farm run by professional managers. This pooling and receipt of dividends from collective farming has resulted in land owners renting their plots out to professional managers to employ workers and to enable themselves to reap profit without working the land and finding work elsewhere (Respondent 4, 2022). In southern Malawi, three Grower groups contribute to the Illovo Mill (who also offtake from their own estates). These include Kasinthula Cane Growers Association, Phata, and Cattle Farming Company (who owns two estates Kaombe and Sande). The first two are outgrower schemes, while the latter is an independently owned estate with some fields of sugarcane under pivot (i.e., under irrigation), dedicated to local community Trusts.

Kasinthula, a Growers association in southern Malawi noted that they do not have formal GHG reduction programmes in place, nor do they know of other Growers in the south with these programmes. As a group of Growers, they would usually undertake strategic projects in line with one another as this affects what goes into the Illovo Mill and all production (Respondent 3, 2022). In general, there is no uniform approach to a climate mitigation response between the Growers. Kasinthula notes:

“If somebody can be appointed to take it on, but right now it's not discussed at all.”  
(Respondent 3, 2022)

However, Kasinthula are conscious of the need to reduce emissions. The company's representative highlighted their thinking about ways in which they could reduce emissions, as well as other actors undertaking some initial work. This has included trials of new cane varieties and green cane harvesting on the Illovo estate, as well as Kaombe estate.

Future thinking relates to the use of chopper harvesters that are already used for seed planting and could be used for mechanical harvesting to stop the practice of burning. However, this is expected to result in job losses of about 2,500 to 3,500 cane cutters in the region (250 of which are employed annually by Kasinthula) (Respondent 3, 2022). In addition

to social implications, the implementation of purely mechanical harvesting may be hindered by diesel shortages in the country. This would affect harvesting as well as haulage (Respondent 3, 2022).

Better soil conservation and management techniques are other avenues that can be practised to achieve higher carbon potential. Key components include fertiliser management by increasing fertiliser efficiencies to reduce overall cost. Adjusting the type and use of vehicles to remove cane from the field is another strategy. Currently, Growers use haulage vehicles that can carry up to 36 tonnes and are designed for tarmac, causing soil compaction in the field. Different vehicles for infield and road transportation are not used due to cost. This equipment is contracted and managed by Unitrans. Kasinthula, Phata, and Kaombe all contract the company under the same legal agreements due to cost and on five (5) year agreements (with the most recent having been signed just a year ago). Notably, changing to a more suitable vehicle in the field would happen naturally if mechanised harvesting is practised.

New sugarcane varieties, such as Reunion (R579), have been thought to be a good alternative to other more traditional varieties. This variety is self-stripping as it seems to shed its leaves itself (or has less foliage), requiring less burning and is easier to be harvested by hand. In addition, the foliage falls to the ground before a top burn (a shorter, less intense burn, rather than a full burn) is undertaken, providing a composting action and enrichment of soil health. Another variety that can 'self-trash' and which does not require any burn and manual harvesting has been trialled by Kaombe without success due to excessive cost (Respondent 3, 2022). In discussing this aspect with the Kasinthula representative questions of accurate GHG reporting or accounting of their emissions to consider the different varieties and their biomass was brought up,

“[...] and I'm quite certain that if it was measured, there would be far less carbon going into the atmosphere on this variety [referring to Reunion] than versus a typical conventional variety.” (Respondent 3, 2022)

The inability to consider the type of variety when determining emissions is potentially a key limitation in GHG accounting methodologies in their general assumptions of carbon potential per crop, as well as how much biomass is burnt in practice (Respondent 3, 2022). The Shire Valley Transformation Project will also see less reliance on grid power, thereby reducing GHG emissions. This is a result of the canalisation of water which is being gravity fed to farms instead of pumping directly from the Shire River (Respondent 3, 2022).

#### *5.1.4 Financiers*

AgDevCo has previously or is currently invested in three sugarcane estates in southern Malawi, Phata (an outgrower cooperative), Kasinthula (an outgrower cooperative), and Cattle Farming Company (not a cooperative, but a company with two estates Kaombe and Sande, both with pivots dedicated to a Community Trust). AgDevCo is an impact investment fund investing in private businesses, including limited liability companies, cooperatives, or smallholder schemes. It is not a consulting organisation, it is not a grant fund, nor is it a charitable foundation (Respondent 4, 2022). The fund seeks to maximise sustainable development impact while maintaining financial performance and solvency. To implement this strategy, all investments are committed to following specific investment policies.

Investment policies provide the framework of investment and are aligned with requirements to ensure that there are controls in place at companies in which they invest. These controls ensure there is no fraud, sexual abuse, or other issues that may result in public relations disaster or a host government prohibiting work in a specific country (Respondent 4, 2022; Respondent 5, 2022). This ensures that negative impacts are minimised while maximising positive developmental impact. AgDevCo's climate strategy, in particular, commits the company to net zero operational portfolio-wide GHG emissions in time. Each investment across the portfolio will ultimately be subject to its GHG reduction plans, depending on leverage. Specifically for sugarcane assets, there is the notion to increase carbon potential by maximising non-productive land assets, increasing material inputs efficiencies, and looking to understand the implications of sugarcane burning. However, reduction opportunities that

alter the product itself (i.e., stopping burning of cane) would be subject to the mill (i.e., Illovo Sugar Malawi) emission reduction requirements.

A Financier with a long history in foreign investment supporting development in sub-Saharan Africa debated the line on which responsible investment should be treading in minimising negative impacts (Respondent 4, 2022; Respondent 5, 2022). The participant used and acknowledged the stereotype of a cotton outgrower as an example.

“The involvement of the private sector has led to making cotton more profitable, therefore putting more money in the pocket of an outgrower. The outgrower decides to expand his current plot to plant cotton, he expands using a plot that one of his wives is using for food production. The outgrower has increased profits but drinks it away, leaving the family producing less food and he’s become an alcoholic.

The outgrower’s gross margin has improved through the provision of technology, extension, and access to fertiliser and improved varieties, but his family has also been destroyed. The opportunity has been provided to the outgrower, but it has been misused.” (Respondent 4, 2022)

A lot of important information is apparent in this statement, including trends that move away from food production to commercial crop, the operation, and structure of outgrowers; a generally stereotypical view of outgrowers, gender representation, and access to land. While these are not the focus of this research, they provide a context to some of the relationships and perceptions that exist in the sector.

On the idea of providing training and extended services to outgrowers – such as financial management, awareness on substance abuse, and gender-based violence – the respondent questioned whether doing so makes the private sector, “imperial terministic moralizers” (Respondent 4, 2022). To avoid this label, he suggested that private businesses can be “nudged” through AgDevCo investment (Respondent 4, 2022). This is being done through specific investment conditionalities, such as the implementation of internationally aligned

systems and controls to manage environmental, social, and governance aspects in line with accepted standards like the International Finance Corporation (IFC) Performance Standards.

However, concerns were expressed of being too stringent to avoid business-seeking capital going elsewhere. Further, AgDevCo would prefer not to use lower interest rates or something similar to incentivise clients. AgDevCo thus looks for a private business that is open to the creation of a “synergy” based on mutual understanding of each party’s mandate and objectives (Respondent 4, 2022). This is evidenced through the following statement:

“Most things have good and bad consequences. More things have unanticipated consequences than what you are aiming for. I’m aiming for perfection, but what you can reasonably hope for is, on balance, things are better” (Respondent 4, 2022).

### 5.1.1 Summary

In summary, each actor has a different commitment, varied focus area, and differing forms of implementation, as outlined in Table 12. **Error! Reference source not found.**

Table 12: Summary of actors, agenda, and implementation strategy

Actor	Commitment	Focus Areas	Implementation
Malawi Government (EAD)	51% reduction from BAU by 2040	Material inputs (fertiliser) Efficiency	Through ministerial departments
AB Sugar/Illovo	30% reduction by 2030	Material inputs (fertiliser) Efficiency Burning	Specific targets and programmes devised at the company level
Growers	None yet – follow Illovo/Financier requirements	Material inputs (fertiliser) as required by Illovo/Financiers	As required by Illovo/Financiers
Financiers	Net zero GHG emissions in time (across portfolio)	Efficiency Sequestration Burning	Shareholder agreements/technical assistance

## 5.2 The diffusion – determining the drivers of emission reduction agendas

The results provided a strong indication from all actors of the need to work toward developing and implementing an emission reduction strategy. Drivers were found to be widespread with some core components coming through. These included genuine intent, legal requirements, market and customers, as well as financing options. Respondents from AB Sugar and investment companies aptly put it as the need for transformation, highlighting genuine intent, with society, investors, and others pushing for change or evolution.

“What we’re wanting to do as a business is still have our ... [social] permit to operate, if you want to use those terms. But also, businesses have to transform, and society wants us to transform, and investors want us to transform, and others.” (Respondent 2, 2022)

“There are many aspects of looking after your employees, looking after the environment, looking after carbon footprint, which if they are done well, will have a positive impact on the business. You will save money. You will have a more productive workforce. You will have less waste in your business. You will also, especially in the world that is changing, have access to certain markets.” (Respondent 4, 2022)

### 5.2.1 *Genuine intent*

All actors indicated a genuine intent about the need to do something about their company emissions. Genuine, in the case of this research, refers to a sincerity expressed or felt through interviews. As these expressions are subjective, genuine is not referred to as authentic or truthful as it could not be verified. Generally, this intent was positive with the need to enable a more conducive environment for future generations, make a safer workplace, and assist or work towards a global goal of limiting global warming. However, one peripheral actor alluded to an intent that may be perceived as negative. Whereby one key actor (leader) was associated with corruption and self-enrichment, relating to the acceptance of donor grants to undertake these programmes, allowing for allowances to be paid.

A respondent from South African Canegrowers, remarking on emission reduction programmes, observed:

“... it’s the right thing to do.” (Respondent 7, 2022)

This sentiment was shared by all participants interviewed. Other themes that came through showed genuine intent driven by company and industry evolution and providing for a better future. Nonetheless, some views noted the incentives of personal gratification (i.e., corruption).

A representative of US AIDs consulting arm, commenting on Malawi’s intent on developing the GHG Inventory and associated SOPs, remarked:

“The government of Malawi [...] a least developed country making a good faith effort to sort of follow the general guidance and requirements of the UNFCCC in the first national communications and the second national communications and the [...] biennial update reports and all that.” (Respondent 6, 2022)

Good faith, as well as the need to follow international frameworks in reducing emissions, was found as a driver for the Malawian Government in developing its GHG inventory. However, based on discussions with the participant from US AID’s consulting arm, this was identified to be based on a single individual, the late Director of the EAD. The representative from US AID’s consulting arm deemed the agency’s participation in this programme to be considered a direct result of the

“... request from the then Director of Environmental Affairs, who wrote to the US government and asked for assistance.” (Respondent 6, 2022)

Reflecting on the pivotal role played by the government official, the respondent noted:

“He was a real forward thinker. ‘He said, look we can keep doing this the same way or we can get better at it. His vision was that if Malawi had a functional greenhouse gas inventory system and they were able to show, look, we’re taking this stuff seriously,

we're trying to be as credible as we can as an LDC. If we could sort of do better than other countries in our block or our grouping, we can certainly use that to access climate finance, whether adaptation or mitigation. He was a super smart super forward-looking guy and that's what he wanted." (Respondent 6, 2022)

However, this intent seemingly changed after his death. The participant from US AID's consulting arm suggests that genuine intent has changed to that of personal gratification with new leadership. Recollections of interactions with new officials included the following statement:

"But you know, when we would approach her on these topics, she would say things like, 'well, I can't take away an opportunity for someone to benefit, that wouldn't go over well in Malawi.'" (Respondent 6, 2022)

It should be noted that corruption being referenced as a form of genuine intent is only identified as an issue when speaking about the reporting or accounting of emissions, and not when speaking to actual climate mitigation programmes. This is described in section 5.2.4 below.

The driver of genuine intent was echoed by an Illovo Sugar Africa representative who suggested that there was a belief that the responsibility and efforts to reduce GHG emissions were in line with IPCC studies and those limiting emissions to a 1.5°C temperature rise with all institutions (Respondent 1, 2022). The sugarcane industry is slower than all other industries, including mining, in proactively putting GHG reductions in the environmental policies (Respondent 1, 2022). No reasoning for the slow pace at which reduction programmes are being implemented was found during discussions. However, upon personal reflection, this could be a result of low profitability of the primary agricultural sector in the African context (where most profits are found in processing) and the limited additional capital available to undertake 'additional' work.

This movement toward emission reduction is described by an AB Sugar representative as the need for transformation of business practice (AB Sugar, 2022). The company further

emphasised that there is a need for “investing in the future”, which a GHG reduction programme, along with other programmes including water, safety, and human rights-related programmes could assist in achieving.

### *5.2.2 Legal requirements*

Legal requirements were found to be another key driver across three of the four actors. For the actors that are legally required to implement GHG reduction strategies, this is either required by their holding companies through legislation in the United Kingdom (UK) as is the case for ABF, AB Sugar and Illovo Malawi, or as a shareholding requirement by their Financiers, as is the case for some of the Growers. There is also an expectation that Malawi will promulgate legislation requiring emission reductions in the future. As such, Illovo Sugar Malawi sees itself as working towards any legal requirements ahead of time. The Malawian Government is a party to the Paris Agreement which legally requires them to have an NDC, but it is not a legally binding obligation for them to fulfil.

A notable driver for AB Sugar to adopt a 30% reduction target by 2030 was identified as pressure from legislative changes in Europe (Respondent 1, 2022). These legislative changes include the introduction of the UK’s Companies (Strategic Report) 2022 Climate-related Financial Disclosure Regulations, requiring all London Stock Exchange (LSE) listed companies to publicly disclose GHG emissions. AB Sugar’s legal requirement saw the 30% reduction target applied to Illovo Sugar Africa and Illovo Sugar Malawi, as well as their supply chain (Respondent 1, 2022).

Since 2014, the UK require publicly listed firms to undertake mandatory GHG reporting as part of their financial reporting in accordance with the Greenhouse Gas Emissions (Directors’ Reports) 2013 Regulations (Tang & Demeritt, 2018). As such, UK-domiciled companies like Associated British Foods (ABF) and its subsidiary AB Sugar – which own and control Illovo Sugar Africa and Illovo Sugar Malawi – are required to ensure their reporting extends down the value chain.

Currently, Malawi does not have any legal requirements to reduce GHG emissions, nor is there a carbon tax in place. However, as the trend towards legislating national carbon taxes or climate strategies is legalised, AB Sugar is expecting the Malawian Government to legislate GHG emissions reductions in the future. AB Sugar deem their actions as working in advance of costly legislative changes to absorb any shock, this was noted as,

“What we’re trying to do is get ahead of regulation.” (Respondent 2, 2022)

### *5.2.3 Markets and customers*

Markets and customers were identified as another leading driver for two of the key actors – Illovo Sugar Malawi and the Growers – although in different ways. Illovo Sugar Malawi sells both domestically and internationally, but the domestic market does not require specific strategies to be in place. Interestingly, the international market does not have specific requirements for multinationals as they are seen to be leading the field in terms of emission reductions. However, it was acknowledged by all actors that the end user or customer is pushing AB Sugar (the multinational) and its market toward undertaking environmentally and socially responsible business practices.

The sole market for Growers is the Nchalo Mill which is owned and operated by Illovo Sugar Malawi. Any requirements from the Mill are expected to be undertaken by the Growers. Illovo requires the Growers to implement a Farm Sustainability Assessment (FSA) by the Sustainable Agricultural Initiative (SAI) Platform, an agricultural sustainability certification body for all crops. The platform does not require any emission reductions (Respondent 9, 2022). The interview with Bonsucro provided a good overall understanding of the push and pull between customers and producers. Customers are split into multinational exports and domestic supply. Generally, domestic customers require no formal GHG reduction plans or considerations, while multinational companies do (Respondent 8, 2022).

However, those interviewed all highlighted that Illovo (and AB Sugar) do not have the same requirements as others would typically experience from their customers. Multinationals like Coca-Cola, one of Illovo’s biggest clients, while having a GHG reduction target for its supply

chain,<sup>4</sup> has no formal requirement for Illovo to have a GHG reduction strategy (Respondent 1, 2022). Buyers are thought to not ask anything of Illovo specifically regarding GHG reductions as a result of the company's public 30% reduction target by 2030 (Respondent 1, 2022). This is further discussed in detail in section 5.3.

#### *5.2.4 Financing options*

Financing options were identified as the penultimate driving factor behind emission reduction strategies for all key actors.

For the Malawian Government, toeing the line in developing a NDC and implementing related programmes, enables international donor agency funding for programmes. It also provides green financing for countries to develop programmes without having to draw on a small tax base for this spend. The experience of one actor in previous work as a civil servant in the Malawian Government was that the government would accept donor funds to begin projects with the expectation of absorbing operating costs into national budgets two to three years following the commencement of a donor-funded project (Respondent 4, 2022).

However, the history of the Malawian Government is one of building up spending promises, but when the time comes to commit their own money, they cannot (Respondent 4, 2022). The personal experience of this actor is that these programmes ultimately collapse where the government does not have the tax revenue to sustain their commitments. Another actor did not share this view, and saw the acceptance of donor money as a handout which is gladly accepted by governments in an effort to not to spend national budget (Respondent 6, 2022). This was evidenced through the following statement:

“It's something that they can and should be doing on their own, but if somebody is giving them money to do it, they will always accept the money.” (Respondent 6, 2022)

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<sup>4</sup> Coca-Cola has a 25% carbon emissions reduction by 2030 and net zero by 2050 target for their full value chain (set in 2015) (The Coca-Cola Company, 2022)

For the Growers, few Financiers would offer terms of high risk and low return to enable turn-around and the creation of financially viable businesses. As such, they have few financing options to choose from. In turn, Illovo Sugar Malawi and their holding companies rely on Financiers to invest in Growers to ensure the availability of cane.

Investment into these Growers companies was initially met with doubt due to cooperative structures being hard to manage (fragmented management leading to poor quality and poor yield), as well as the reputation and history of failure of these companies. However, in line with its mandate of high risk and low reward, Financiers decided to commit capital to each of the three Grower estates in southern Malawi (Respondent 4, 2022).

Investments in these companies are imperative to the success of Illovo Sugar Malawi. Without investment in Growers, the volume of throughput going into the mills would be unviable (Respondent 2, 2022).

### 5.3 The linkages – collaboration and interactions between actors and their agendas

It was evident from all actors that GHG emission reduction strategies will be implemented in the sugarcane growing industry in southern Malawi. This was aptly put by the SA Canegrowers representative:

“There is an acceptance I think [...] the realization that it’s probably going to happen.”  
(Respondent 7, 2022)

However, their rollout and synergies are likely to be undertaken to varying degrees. This section highlights the collaboration and interaction between actors and their agendas. These include how engagement and methodological differences between actors have led to a discrepancy between agendas. It was found that collaboration between actors may potentially lead to the achievement of one another's goals, while at the same time, also potentially causing wider socio-economic issues and hindrances. These suggest the likelihood of ‘anarchic inefficiencies’.













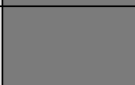

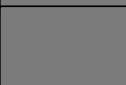
All the private sector actors engage with one another, but not with the Malawian Government. This is illustrated in Table 13, which highlights general relations between the actors. Private sector actors noted that they had never been approached by the Malawian Government about the development of the GHG inventory, nor for implementation of the NDC plan. AB Sugar, particularly, were taken aback by this lack of communication given that sugar is the second highest export earner in the country.

“We would rather our governments knew stuff so we can then show how much change we’re making, to make it better for them.” (Respondent 2, 2022)

However, by the same token, there was no indication from AB Sugar that they have actively looked to engage with government, other than what is disclosed publicly through their website with the Malawian Government. A driver of this lack of engagement by the Malawian Government was noted by US AID’s consulting arm to be a result of the non-structured implementation of donor-funded programmes:

“There’s a kitty of money that’s available and it’s meant to support the least developed countries to do a better job of reporting in terms of quality, consistency, and timeliness. But it’s just not delivered in a super structured way.” (Respondent 6, 2022)

*Table 13: Engagement between actors on GHG emission reduction strategies*

	AB Sugar (and companies)	Growers	Financiers	Legend						
EAD				<table border="1"> <tr> <td></td> <td>There is collaboration or interaction</td> </tr> <tr> <td></td> <td>There is no collaboration or interaction</td> </tr> <tr> <td></td> <td>This is a duplicate box and is already considered within the diagram.</td> </tr> </table>		There is collaboration or interaction		There is no collaboration or interaction		This is a duplicate box and is already considered within the diagram.
	There is collaboration or interaction									
	There is no collaboration or interaction									
	This is a duplicate box and is already considered within the diagram.									
Growers										
Financiers										

As discussed in section 5, focus areas that apply to all actors include fertiliser use, resource efficiency, and conservation agricultural practices. Burning applies to AB Sugar and Financiers, but not to the Malawian Government; and a focus on non-productive land areas is only a focus for the Financiers (see Table 14). Land use is not considered at all by the Malawian Government and is not included in their NDC, which excludes FOLU. The manner in which emissions are quantified strongly relates to the type of focus areas for reductions.

Table 14: Similarities in GHG emission reduction agendas

	AB Sugar (and Companies)	EAD	Financiers
Fertiliser use			
Conservation Agriculture			
Resource efficiency			
Burning			
Non-productive (sequestration)			

Legend	
	Focus area
	Not a focus area

The Financier further remarked that where actors use different terminology, but are doing the same thing, there is no use in lecturing one another on their use of terminology (Respondent 4, 2022). However, where this difference of use becomes a barrier or smokescreen, and misinterpretations are apparent, collaboration is impeded. The same Financier aptly noted that:

“For important matters, the actors, their terminology, and what we’re looking for is to, you know, problem solving. So anything which is becoming a barrier to sound development, we want to solve it.” (Respondent 4, 2022)

Further, and in line with both Kasinthula and AB Sugar indications, GHG accounting methodologies do not always correspond with those of other actors (i.e., Scope 3 [emissions

further down the value chain, or not directly under management control], or Science Based Target Methodology, or with local activity on the ground (i.e., variety of cane). This was emphasised by an AB Sugar representative through the notion that their customers are in the same process that they are in, with no single entity completely satisfied or understanding what they should be doing in terms of emission reductions.

“Everybody's asking each other what's going on in Scope 3. ‘Is it fertiliser for you or is it logistics?’, ‘What's your emissions number on so and why? Well, I've got this emissions number where yours are sugar company’. ‘Are you going to do this or that or the other?’ It's kind of like everybody's kind of trying to fish around in this muddy hole at the moment. And I think there will be greater clarity to come. But we're all still there, you know, muddy.” (Respondent 2, 2022)

#### 5.4 Synthesis of findings

Four key groups of actors were identified through this research. These included: (1) the group of companies within ABF, comprising AB Sugar, Illovo Sugar Africa, and Illovo Sugar Malawi; (2) the sugarcane growers (referred to as the ‘Growers’); (3) foreign investment firms (referred to as the Financiers); and (4) the Malawian Government. Each actor group had a different emissions reduction agenda, and some were seen to be more sophisticated in their agenda than others.

Drivers of emission reduction agendas were found to be widespread with some core components coming through. These included genuine intent, legal requirements, market and customers, as well as financing options. Collaboration between actors on these agendas was explored through the engagement between actors, the focus areas of their agendas, and hindrances to engagement. Lack of engagement between actors highlighted the discrepancy between agendas. This collaboration was found to potentially lead to the achievement of one another's goals, while at the same time also potentially causing wider socio-economic issues and hindrances.

## Chapter 6

### Discussion

#### 6 Discussion

Findings reveal that emission reductions in the sugarcane growing industry in southern Malawi are not necessarily governed by a polycentric system. This chapter outlines the argument of elements of polycentricity at play, but concludes that the governance system cannot yet be defined as polycentric.

This is discussed through the various actors and their agendas, the types of diffusion (through drivers) of the emission reduction agendas amongst actors, as well as the linkages or collaboration/interactions between them. Although not a core focus of this research, such linkages may have potential implications for each actor, as well as for the wider socio-economic realm of peripheral actors in southern Malawi. A brief discussion on the potential implications of these findings for social equity and justice is also provided, including opportunities for future research.

Although the system may not yet be classified as polycentric, findings highlight the need to increase focus on a wider range of actors and levels in governance, including those of international, supranational, transnational, and subnational (Wurzel, Liefferink & Torney, 2019). Each actor has commenced a process of co-governance in their management of emissions through their activities, historically this would have been directed solely by the state. In contrast, businesses are moving beyond their traditional role of creating wealth and economic change are now including the pursuit of development goals that go beyond business performance (Van Westen et al, 2019; Mawdsley, et al.;2018). This is as a result of the private sector being seen as more effective and efficient in raising investment capital and targeting goals than their public sector and civil society counterparts (ibid.). However, this is not necessarily seen by the author as a form of neoliberal or retro-liberal reform (Van Westen,

2019), as there are variations in the state pushing these agendas on business. For example the UK government requires private sector action, but the Malawian government does not yet have specific requirements for business. Actors with emission reduction agendas.

The results indicated that the sugarcane sector in Malawi is complex and is characterised by numerous state and non-state actors. The research identified key actors (leaders), including:

- multinational companies (ABF, AB Sugar, Illovo Sugar South Africa, and Illovo Sugar Malawi);
- key actors (followers) (the Growers including outgrower schemes);
- Financiers (also multinational by way of domicile and where capital is committed: AgDevCo, BII);
- and numerous other ‘peripheral’ actors, including sustainability certification organisations (Bonsucro, SAI Platform), industry bodies (SUGAM, SACG), customers (Coca-Cola, Heineken), employees, and donor agencies (US AID).

To some extent, each key actor has a form of mitigation programme. However, they are differentiated as either leaders or followers, each playing a different role. The leadership of an actor is recognised as those who are first ‘movers’ in introducing specific policy measures or showing commitment or ambition on the highest level (Wurzel, Liefferink & Torney, 2019). This was evident through both AB Sugar and the Malawian Government’s agendas, within national and local contexts, as well as a regional sectoral context.

At the local level, and in a regional sectoral (southern Africa, sugarcane growing) context, AB Sugar’s leadership could specifically be identified as cognitive leadership. This was identified through AB Sugar intentionally setting an agenda to ‘get ahead of legislation’, or commencing programmes on their own estates and Growers estates. These actions are in line with Wurzel et al.’s (2019) definition of cognitive leadership as the intentional setting of examples or pushing policies towards others. In contrast, the Malawian Government’s leadership could be identified as structural based on review of their documentation. The Government NDC, once implemented, may potentially be seen as setting the tone through the country which may result in increased interest in terms of foreign investment related to climate funds. This

naturally fits into the characteristics of structural leadership of ideas and concepts that promote ambitious environmental and climatic measures that also benefit the economy (Wurzel, Liefferink & Torney, 2019).

Notably, perhaps reflecting polycentricity's characteristic of self-coordination (Merino et al., 2012; Jordan et al., 2018; Wurzel et al., 2019), each actor's emission reduction agendas had different targets and plans (see Table 1 and Table 14). These differed from the percentage reduction required, whether CO<sub>2</sub> only or overall GHGs, as well as from focus areas of reduction programmes.

Focus areas for emission reduction programmes spanned from efficiency programmes (material inputs and energy), seen as 'low hanging fruits', to enhancing sequestration opportunities of non-productive land (i.e., land not under crops); seeking alternatives to pre-burning, alongside better soil management practices. Each initiative may ultimately have either direct or more widespread implications for the wider socio-economic and environmental context of Nchalo. For example, in the event that cane pre-harvest burning ceases, there are two potential outcomes, manual hand-harvesting or the use of machinery for harvesting, each with implications.

In another example seen in south Asia, the use of manual green cane harvesting has seen more women employed, which may present new opportunities for women's representation in the workforce, as well as maintaining jobs in the industry. While the complete mechanisation of green cane harvesting has the potential to lead to 2,500 to 3,500 seasonal job losses per annum, there are arguments of enhancing job quality of a few rather than the existing low-quality jobs (where jobs require few skills, are poorly paid, have low stability and poor safety standards) currently available for this service.

For international actors like AB Sugar and the Financiers, local context was reported to have been considered in their reduction plans. However, as formal reduction plans are not yet in place, this cannot be fully verified as yet. Each agenda was also in varying stages of implementation. For example, Illovo has set and commenced working on their reduction plans, the Malawian Government has developed their plans, but based on the private sector

views, there is no sight of implementation, and the Growers are awaiting formal requirements for implementation of required actions.

The varied focus areas allowed to bring into question the type of terminology used by each actor. This was evidenced through each actor speaking to either GHG or carbon emissions, and indicating that different accounting methodologies may be used. The use of terminology was not initially a core theme identified in the literature, with issues of accounting methodologies being more apparent, but terminology was found to drive types of accounting methodologies used, as well as the type of focus area included in an emission reduction agenda.

To some extent, these varied focus areas, the diverse use of terminology by different actors, and different approaches to accounting, may be identified as weaknesses in the polycentric system. This is aligned with Ostrom's (2010; 2012) argument that inconsistent policies, fragmentation, poor coordination, and free-riding are weaknesses of polycentricity. However, in the case of the southern Malawi sugarcane growing industry, it is possibly too early to tell if the fragmentation of agendas is a weakness as emission reduction agendas are relatively immature in their development and implementation.

### 6.1 Diffusion – what is driving the change

Polycentric governance is argued to be an outcome of diffusion (Tosun, 2018). Section 5.2 identified that diffusion is concerned with the spread of policy innovations from one institution to another, and can be a result of internal or external factors (Tosun, 2018; Berry & Berry, 2018). In the case of the sugarcane growing industry in southern Malawi, both internal and external factors were identified to be the driving forces behind the development and implementation of emission reduction strategies, which Tosun (2018) refers to as innovation.

To understand whether internal and external factors are driving diffusion, the research explored the drivers of each of the key actors to identify the motives and reasoning for their carbon emission reduction strategies. Results indicated that drivers of emission reduction

strategies relate to genuine intent, legal requirements, market and customers, and financing options. However, each actor experienced these factors differently. These factors, drivers, and agendas are discussed in the following section and are summarised in Table 15.

*Table 15: Diffusion across the actors*

<b>Factor</b>	<b>Driver</b>	<b>Actor (leader)</b>	<b>Actor (follower)</b>
Internal factors – political	Legal requirements	ABF, Malawian Government	AB Sugar, Illovo Sugar Africa, Illovo Sugar Malawi, Growers
Internal factors – economic	Key contributor to national economy	Illovo Sugar Malawi (Illovo Sugar Africa, AB Sugar, ABF)	Growers, government
Internal factors – social	Market	Illovo Sugar Malawi (Illovo Sugar Africa, AB Sugar, ABF)	Growers
External factors – coercion	Legal requirement (loan agreements), international image	Financiers, Malawian Government	Growers, Agricultural industry

### 6.1.1 Internal factors – political

Legal requirements were found to be key drivers for each of the actors. This provided diffusion of emission reduction strategies through both internal and external factors. Legal requirements for emission reduction strategies were imposed by holding companies through legislation in the UK, as is the case for ABF, and as such, AB Sugar and Illovo Sugar Malawi; or as a shareholding requirement as is the case for some of the Growers by their Financiers. This confirms Cubilla-Montilla et al’s (2020) argument that companies domiciled in countries with stringent environmental laws generally disclose their emissions.

Internal factors were apparent for ABF and its subsidiary companies (AB Sugar, Illovo Sugar Africa, Illovo Sugar Malawi) in adopting their emission reduction strategies. In this case, political, economic, and social internal factors were key in the diffusion of emission reduction

requirements into Malawi and the sugarcane growing industry. For example, local consumer demands required the market to acknowledge and be held accountable for carbon emissions. Economic factors were seen through the influence of Illovo Sugar Malawi, which is a key revenue generator in Malawi, and which diffuses its policy innovation into the local market, thus affecting Growers and other actors.

Such internal factors led to the diffusion of policy innovations into subsidiary companies in Malawi. Knock-on effects have resulted in the (varying) implementation of emission reduction strategies across sugarcane growers in southern Malawi without necessarily involving the government.

#### *6.1.2 Internal factor – social (customer); external factor – competitive pressure (customer)*

All participants interviewed acknowledged that the end user or customer is pushing the multinational, and its value chain, towards undertaking environmentally and socially responsible business practices. This is in line with Bartocci's (2016) argument that purchasing companies are becoming more concerned about the GHG emissions of their inputs as consumers increasingly have the choice to purchase carbon-labelled products. This is apparent for Growers who need to follow the market and legal requirements of Illovo Sugar Malawi. However, their corporate customers for AB Sugar and Illovo Sugar Malawi do not have specific requirements in terms of emission reductions. Further research on the role of 'first movers' on emission reduction strategies within a value chain may help inform this component and assist in identifying power relations across the value chain as a whole.

#### *6.1.3 External Factor – coercion*

Financing options were the penultimate driving factor behind emission reduction strategies for all key actors to varying degrees. Actors perceived that the Malawian Government toed the line in developing a NDC and that implementing related programmes enabled international donor agency funding to reach numerous programmes, but also to secure future green financing for development without having to use a small tax base for this spend. This is

fully in line with Dash & Gimm's (2019) argument that resource-constrained countries are either subject to their national budgets or international aid to fund programmes.

For the Growers, few Financiers would offer terms of high risk, and low return to enable turn-around and the creation of financially viable businesses. In turn, Illovo Sugar Malawi, and subsequently their holding companies, relied on Financiers to invest in Growers to ensure the availability of cane. Exposure to foreign investment is argued to be an indirect and direct driver for the private sector by Doring et al. (2021), and this is evident in the requirements of Growers to start formulating and implementing emission reduction strategies.

#### *6.1.4 Additional factors*

Vulnerability to climate impacts was not identified through interviews as a key driver. However, southern Malawi is frequently impacted by high-intensity tropical storms, as noted in the Malawian Government NDC. This alludes to Dash and Gimm's (2019) argument that a higher climate vulnerability is seen to be linked to more ambitious climate mitigation commitments. This is potentially an important area of further research concerning private sector actors and their willingness of multinationals or Financiers to put money and other resources into reducing emissions for companies that are subject to high intensity and frequency of climate impacts.

Given the weak engagement between AB Sugar and Illovo Sugar Malawi with the Malawian Government on one another's emission reduction programmes, there is no clear indication that business interests are pushing national governmental emission reduction agendas. The purpose of industry promoting national government emission agendas would be to either maintain the status quo or encourage climate action by illustrating responsible business or environmentally friendly changes they are undertaking to assist in enhancing their public image as is argued by Dash & Gimm (2019). Although AB Sugar's commitments are publicly disclosed, it would be speculative to suggest that this is to persuade the Malawian Government to act on their emissions agenda.

An important research finding is that all actors were seemingly driven by genuine intent. No literature identified through this research ascertained genuine intent as a key driver, or a part of an internal or external factor. There is some mention of state politicians being driven by personal views on doing good for the environment and climate (Dash & Gimm, 2019), but this does not extend to private sector actors. This appears to be a key gap in the literature. It should be further noted that any allegation of corruption or ill-intent for undertaking an emission reduction strategy by the Malawian Government is not elaborated on in this research as participants were unable to be interviewed. Elements of corruption or ill-intent, however, are a potential research area to further investigate.

## 6.2 Collaboration and interaction – the linkages between actors

Polycentric literature refers to the collaboration or interaction between actors, both state and non-state, as linkages (Stokke, 2001; Oberthür & Gehring, 2006; Pattberg, Chan, Sanderink & Widerberg, 2018). Understanding the linkages between actors is important in assisting with the understanding of how mutual adjustments are made across the governance landscape through sharing of knowledge, information, and ideas (Widerberg, Pattberg & Kristensen, 2016; Pattberg, Chan, Sanderink & Widerberg, 2018). These linkages are seen through material, functional, and biophysical, and are the 'way of life' (Pattberg, et al., 2018). The interaction between actors in the sugarcane growing industry in southern Malawi on emission reduction strategies has been generally ad hoc to date with no set foundation. However, there are early signs of both direct and indirect, as well as intentional and unintentional interactions. The most significant linkage centred on impact level linkage.

The impact level linkage relates to different governance units having intersecting ultimate targets (Stokke, 2001; Oberthür & Gehring, 2006). Emission reduction targets across the actors in the southern Malawi sugarcane growing industry are all similar, and are thus considered to have an impact level linkage. Each actor recognised the need to reduce emissions through published commitments in the case of the Malawian Government and AB Sugar. The agenda of each of the actors also overlaps in some focus areas, including fertiliser reduction and the practice of conservation agriculture.

Cognitive, commitment, and behavioural linkages are apparent in the findings, but for peripheral actors – such as the UK government, sustainability certification bodies, industry associations, and customers and markets – they have influenced the diffusion of emissions reduction strategies across the sugar sector as a whole. These have, therefore, ultimately influenced the key actors (leaders) identified in this research. This level of influence was not explored as part of this research agenda. However it would be an interesting topic going forward.

Significantly, there was no direct interaction between the two key actors (leaders), the Malawian Government, and AB Sugar. The shared overarching targets of emissions reductions between these two actors was apparent. While agendas to achieve this overall target aligned in terms of conservation agriculture and fertiliser efficiency, they differed in finding alternatives to cane burning. It could be argued that there is a gap in understanding differences in practical methods of achieving linkages or better collaboration between actors at a local scale to achieve linkages, and overall governance of an issue, which creates potential knock-on affects or trade-offs in other aspects.

### 6.3 Considerations relating to equity and justice

The burning of sugarcane accounts for 30% of GHG emissions in the sugarcane growing industry, but also contributes to a significant number of jobs, local economies, and ultimately the national economy. While there is no specific planned course of action for AB Sugar or the Growers, two potential courses of action have been proposed. These include the (1) phasing out of pre-burning mechanical or (2) semi-mechanical harvesting. These actions may potentially lead to various outcomes, including the termination of about 2,500 to 3,000 seasonal cane-cutting jobs (without considering the quality of these jobs in terms of stability, safety or higher wages), or higher quality jobs (where jobs are available) in terms of health or gender representation. These outcomes, if realised, highlight Dubb et al's (2017) argument that as a result of increased global competition, forced efficiencies and increased mechanisation may result in job reductions. In this case, the competition is a result of market and international forced emission reduction programmes.

These outcomes may have positive and negative impacts on Malawi's socio-economic development, but it is unclear what government plans exist to manage the outcomes or how they will ensure a just transition is undertaken. One argument might be that the expected Shire Valley Transformation Project – a project associated with the Green Belt Initiative looking at crop diversification and sustainable use of the Shire River to drive socio-economic development in southern Malawi – might mitigate adverse effects of GHG reduction changes.

Recognition among all parties of the work being undertaken may assist the Malawian Government in reducing their cost allocation included in the NDC. The Malawian Government's estimated unconditional spend to implement its NDC (conservation agriculture, fertiliser efficiency) is US\$ 285m for the NDC period. Better interaction with the private sector (specifically AB Sugar and Illovo Sugar Malawi) may potentially enable improved use of government funds where work is already been undertaken by the private sector, thereby allowing the private sector and, in the case of the sugar industry, multinational companies, to absorb the financial hit of emission reductions. Without doing so, the perpetuation of distributional injustice in emission reduction and international climate policy may continue unjustifiably.

There is potential risk of Growers becoming entrenched as an outcome of emission reduction activities. Entrenchment may be caused by climate mitigation activities resulting in uneven patterns of development or unaffordability, or inaccessibility of the new norm (Sovacool, 2021). In this case, the emission reduction strategies of key actors may exacerbate the Growers' inability to meet participation criteria. Growers would likely need to be kept informed at all times about plans that affect them to ensure they are not excluded from strategies; they do not lose their rights of participation in the industry and are not expected to fulfil demands of internationally aligned capital.

Exclusion runs the risk of appropriation or consolidation of resources by the national government or private companies (Sovacool, 2021). In addition, there should be adequate time for Growers to understand, plan, and budget for these changes where emission reduction requirements are to be implemented. Without such actions, the interventions will

be top-down, driven by the elites (AB Sugar, Financiers, government) who have power, resources, and control over production, finance, and infrastructure, or with connection to the state – the elites (Newell & Simms, 2020).

#### 6.4 Synthesis of discussion

The southern Malawi sugarcane growing industry shows immature elements of polycentric governance in action but is still siloed without much coordination or collaboration between actors and their agendas. Numerous actors in the sugarcane growing industry in southern Malawi have emission reduction agendas. However, some were seen to be leaders (AB Sugar, Malawian Government) and others were seen to be followers (Financiers, Growers). Both internal (political, social) and external factors (market, coercion) were identified to be the driving forces behind the development and implementation of carbon emission reduction strategies. The interaction between actors on their emission reduction strategies has been generally ad hoc to date. However, some signs of both direct and indirect, as well as intentional and unintentional interactions were observed through an impact level linkage.

Any existing coordination and collaboration is a result of emission reduction targets across the actors being similar, with the agenda of each overlapping in some focus areas, including fertiliser reduction and the practice of conservation agriculture. However, importantly, there is no interaction between the private sector and the government on material focus areas, such as moving away from the practice of burning, or on high cost items such as conservation agricultural practices or enhancing efficiencies. In addition, Growers are not being consulted on emission reduction strategies by AB Sugar or the Malawian Government; any emission reduction requirements placed on them, including liability for funding, thus needs to consider their potential exclusion from the market.

## Chapter 7

### Conclusion and recommendations

#### 7 Conclusion and recommendations

This research had the aim of exploring the nature of the governance of emission reduction programmes in the sugarcane growing industry in southern Malawi. Objectives included (i) describing the various actors and their emission reduction agendas; (ii) understanding the relevant drivers of emissions reduction agendas; (iii) interrogating the interaction and collaboration of different actors in attaining their emission reduction agendas; and (iv) exploring the relevance of polycentric governance in the emission reduction agendas of the sugarcane growing industry in southern Malawi.

To achieve the objectives, polycentric literature was explored and applied to the southern Malawi sugarcane growing industry through interviews and mixed media reviews (including documents, videos, and news articles). The research argues that the emission reduction agendas being planned and slowly implemented in the southern Malawian sugarcane growing industry have elements of polycentricity but are still siloed without much coordination or collaboration. This is in line with the globally recognised shift away from traditional governance models of state-centric responses to climate issues, towards increasing diversity and multi-level responses which are also market driven.

The industry is characterised by numerous actors all operating at different levels of governance and transnationally, and all with an emission reduction agenda to some degree. Specifically in southern Malawi, it was found that the Malawian Government and AB Sugar (an ABF subsidiary and holding company of Illovo Sugar Africa and Illovo Sugar Malawi) are the two key actors with emission reduction agendas. These two actors currently showcase structural and cognitive leadership qualities, which may evolve over time, and diffuse their requirements across the sugarcane value chain in Malawi.

Other key actors include Growers and Financiers, but they are deemed to be followers, in that they act through instruction or allow for others to take the lead. Peripheral actors include sustainability certification organisations (Bonsucro, SAI Platform); industry bodies (SUGAM, SACG); customers (Coca-Cola, Heineken); employees; and donor agencies (US AID), each of which have a degree of input into agendas at a local, national, or global scale.

Emission reduction agendas were diffused across actors through internal and external factors, including political, economic, social, and coercion. The research found that drivers of emission reduction strategies included genuine intent, legal requirements, markets and customers, as well as financing options. For ABF and its subsidiary companies, political, economic, and social internal factors were key in the diffusion of emission reduction requirements into Malawi and the sugarcane growing industry. Simultaneously, internal social factors and external competitive pressure factors were apparent amongst ABF and Growers (whose market is Illovo Sugar Malawi). This was a result of local consumer demands requiring the market to acknowledge and be held accountable for emissions.

External factors of coercion were evidenced through the driver of financing, which was a key factor behind emission reduction strategies for all key actors, but to varying degrees. By submitting an NDC and reducing emissions, the Malawian Government potentially has numerous other funding options at their disposal, while Growers are subject to Financier requirements and Illovo Sugar Malawi as their sole market. A key finding is that all actors involved were largely driven by genuine intent. However, no literature identified genuine intent as a key driver, or as part of an internal or external factor.

Importantly, the sugarcane growing industry in Malawi is characterised by a long and deep history. This has been underpinned by the country's developmental policy, which commenced post-independence, and continues today, as part of the Green Belt initiative. As the second highest revenue earner in the country, the sugar industry in Malawi is also expected to be a significant emission contributor, forming part of the 30% agricultural contribution to national emissions reported on by the national government. As such, the linkages between all actors and their emission reduction agendas are important to ensure to maintain equity and justice

in balancing or being conscious of trade-offs between socio-economic development and emission reductions. This was seen through three key factors:

1. The emission reduction strategies of AB Sugar and the Malawian Government may materially differ if mechanisation or the semi-mechanisation of cane cutting is introduced to avoid cane burning by AB Sugar (where the burning of cane is a 30% contributor to cane growing emissions). This may have severe implications in terms of employment in the industry (recognising that these jobs require few skills, are poorly paid, have low stability and poor safety standards) and may have knock-on effects in achieving national socio-economic goals. Local context should always be applied in determining emission reduction programmes, and alignment with national governmental priorities should also be considered.
2. The Malawian Government is required to invest a large portion of its national fiscus to implement emission reduction programmes. Several of the focus areas they are looking to implement, such as fertiliser efficiencies and conservation agricultural practices, are the same focus areas of AB Sugar. These will need to be implemented with the support of Growers. Neither the Malawian Government nor AB Sugar and their subsidiaries have collaborated, and no linkage exists between them. Collaboration by the Malawian Government with the private sector thus has the potential to assist in alleviating cost pressures in implementation.
3. Growers will be required to implement changes to their practices, which will lead to increased pressures to meet industry requirements if there is no corporate or multinational backing to assist. Growers thus need to be informed and involved at all times in the development of emission reduction plans to ensure their rights of participation in the industry are maintained.

Polycentricity may greatly assist in meeting global emission reduction goals of achieving net zero emissions, and also has the potential in addressing equity issues. Recommendations to achieve these goals are aligned with Bruns' (2018) principles of polycentricity, and include the following:

- The sugarcane growing industry in southern Malawi should link and collaborate more actively with one another on topics such as emission reductions. Constant rumours and little action have led to speculation, a concern about being excluded from agendas, and large-scale socioeconomic disruptions. The specific nature and formality of such collaborations can be determined by the actors themselves, but, as a first step, strengthened interactions are likely to provide fruitful and practical insights. This could be undertaken through transparency of expectations amongst actors and the integration of each actor's requirements into one working plan for the sector. To do so, more communication and engagement could be undertaken, possibly through working groups or stakeholder consultations.
- Those leading plans for emission reductions and deciding which routes to take should be mindful of the local context. It is recommended that such actors embrace the complexity of the issues at hand and build a response to emission reduction in a manner that looks to benefit as many as possible.
- Linkages and collaboration may assist in co-learning amongst all actors through increased communication. Informed and participating actors who have the opportunity to learn may lead to wider systematic action.
- Further studies on governance and polycentricity should be conducted to understand practical methods of achieving linkages or better collaboration between actors at a local scale to achieve linkages, and overall governance of an issue, which may create potential knock-on effects or trade-offs in other aspects.

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## **Annexures**

**Annex 1**  
**Interview consent form template**

**DEPARTMENT OF ENVIRONMENTAL AND GEOGRAPHICAL SCIENCE**



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Informed Voluntary Consent to Participate in Research Study

Project Title Race to Zero: the actors, agenda, and impacts in the sugarcane industry in Malawi

**Invitation to participate, and benefits:** You are invited to participate in a research study conducted with sustainability and environmental professionals determining and implementing net zero carbon emission strategies. The study aim is to understand the drivers behind net zero carbon emissions in Malawi and the sugarcane sector in particular, determining what trade-offs or benefits there may be in implementing international sustainability agendas at a national and local scale. I believe that your experience would be a valuable source of information, and hope that by participating you may gain useful knowledge.

**Procedures:** During this study, you will be asked to participate in one on one semi-structured interview. Interview questions will be provided prior to the interview for preparation / understanding. Following the interview you are able to update or further contextualise any responses that were provided during the interview.

**Recording:** We may take record audio as part of the study. These will be used as transcriptions to refer back to as part of data analysis to ensure accurate representation and understanding of the discussion. If you object to this, please indicate below.

**Risks:** There are no potentially harmful risks related to your participation in this study.

**Feedback:** You will receive feedback about the results of this research through a synopsis of the results of the study and suggested recommendations on the synergies and potential gaps or trade-offs resulting between the different institutions actions as a result of their application of the net zero carbon emissions agenda.

**Disclaimer/Withdrawal:** Your participation is completely voluntary; you may refuse to participate, and you may withdraw at any time without having to state a reason and without any prejudice or penalty against you. Should you choose to withdraw, the researcher commits not to use any of the information you have provided without your signed consent. Note that the researcher may also withdraw you from the study at any time.

**Confidentiality:** All information collected in this study will be kept private in that you will not be identified by name or by affiliation to an institution. Confidentiality and anonymity will be maintained as pseudonyms will be used.

**What signing this form means:** By signing this consent form, you agree to participate in this research study. The aim, procedures to be used, as well as the potential risks and benefits of your participation have been explained verbally to you in detail, using this form. Refusal to participate in or withdrawal from this study at any time will have no effect on you in any way. You are free to contact me, to ask questions or request further information, at any time during this research.

I agree to participate in this research (tick one box)       Yes       No \_\_\_\_\_ (Initials)

I agree to be audio-recorded       Yes       No \_\_\_\_\_ (Initials)

I agree to the use of properly anonymized audio recordings in the following way – names and positions will be withheld from the study.       Yes       No \_\_\_\_\_ (Initials)

---

Name of Participant

---

Signature of Participant

---

Date

---

Name of Researcher

---

Signature of Researcher

---

Date

## Annex 2

### Interview questions

<b>Participant Organisation</b>	<b>Environmental Affairs Department</b>
<b>Role</b>	Developed NDC, responsible for oversight and developing capacity in implementation
<b>1</b>	Can you provide an overview of the NDC and its intentions for the agricultural sector
<b>2</b>	Can you provide your role in the development of the NDC
<b>3</b>	Can you tell me about the history of the NDC. Who were the main actors involved in initiating it? Who funded it? Were there differences between international interests? If so, can you explain what these were?
<b>4</b>	How were the specific targets and programmes determined?
<b>5</b>	Who assisted in formulating these targets and programmes?
<b>6</b>	What global contexts and policies have shaped the agenda?
<b>7</b>	How was the local Malawian context considered in determining this agenda?
<b>8</b>	Can you provide your role in implementing the NDC
<b>9</b>	Which stakeholders have or are planned to be engaged in implementing the agenda? How will the department be working with local stakeholders implementing this agenda in the sector?
<b>10</b>	Malawi's contribution is minimal so many might ask why emission reduction targets have been set, can you describe the reasoning for this?
<b>Participant Organisation</b>	<b>Department of Forestry</b>
<b>Role</b>	Responsible for implementation of NDC. Would have had input into formulation of NDC.

1	Can you provide an overview of the NDC and its intentions for the agricultural sector
2	Can you provide your role in the development of the NDC
3	Was there an external pressure driving / pushing this agenda? If so, who and how?
4	How were the specific targets and programmes determined?
5	Who assisted in formulating these targets and programmes?
6	What global contexts and policies have shaped the agenda?
7	How was the local Malawian context considered in determining this agenda?
8	Can you provide your role in implementing the NDC
9	Which stakeholders have or are planned to be engaged in implementing the agenda? How will the department be working with local stakeholders implementing this agenda in the sector?
10	Malawi's contribution is minimal so many might ask why emission reduction targets have been set, can you describe the reasoning for this?
<b>Participant Organisation</b>	<b>Department of Crop Development</b>
<b>Role</b>	Responsible for implementation of NDC. Would have had input into formulation of NDC.
1	Can you provide an overview of the NDC and its intentions for the agricultural sector
2	Can you provide your role in the development of the NDC
3	Was there an external pressure driving / pushing this agenda? If so, who and how?
4	How were the specific targets and programmes determined?
5	Who assisted in formulating these targets and programmes?
6	What global contexts and policies have shaped the agenda?
7	How was the local Malawian context considered in determining this agenda?
8	Can you provide your role in implementing the NDC

9	Which stakeholders have or are planned to be engaged in implementing the agenda? How will the department be working with local stakeholders implementing this agenda in the sector?
10	Malawi's contribution is minimal so many might ask why emission reduction targets have been set, can you describe the reasoning for this?
<b>Participant Organisation</b>	<b>Department of Land Resources And Conservation</b>
<b>Role</b>	Responsible for implementation of NDC. Would have had input into formulation of NDC.
1	Can you provide an overview of the NDC and its intentions for the agricultural sector
2	Can you provide your role in the development of the NDC
3	Was there an external pressure driving / pushing this agenda? If so, who and how?
4	How were the specific targets and programmes determined?
5	Who assisted in formulating these targets and programmes?
6	What global contexts and policies have shaped the agenda?
7	How was the local Malawian context considered in determining this agenda?
8	Can you provide your role in implementing the NDC
9	Which stakeholders have or are planned to be engaged in implementing the agenda? How will the department be working with local stakeholders implementing this agenda in the sector?
10	Malawi's contribution is minimal so many might ask why emission reduction targets have been set, can you describe the reasoning for this?
<b>Participant Organisation</b>	<b>Lilongwe University of Agriculture and Natural Resources (LUANAR)</b>
<b>Role</b>	Responsible for implementation of NDC. Would have had input into formulation of NDC.
1	Can you provide an overview of the NDC and its intentions for the agricultural sector
2	Can you provide your role in the development of the NDC

3	Was there an external pressure driving / pushing this agenda? If so, who and how?
4	How were the specific targets and programmes determined?
5	Who assisted in formulating these targets and programmes?
6	What global contexts and policies have shaped the agenda?
7	How was the local Malawian context considered in determining this agenda?
8	Can you provide your role in implementing the NDC
9	Which stakeholders have or are planned to be engaged in implementing the agenda? How will the department be working with local stakeholders implementing this agenda in the sector?
10	Malawi's contribution is minimal so many might ask why emission reduction targets have been set, can you describe the reasoning for this?
11	What are your opinions of or critiques do you have of the NDC?
<b>Participant Organisation</b>	<b>Associated British Foods</b>
<b>Role</b>	Holding Company of AB Sugar - Illovo Africa - Illovo Malawi
1	Can you provide an overview of where the net zero carbon emissions agenda fits in the overall company sustainability programme?
2	Can you provide detail on how the net zero emissions targets and programmes were set
3	What were the drivers / push factors to develop this agenda? Can you be specific to who, and why.
4	Which stakeholders have contributed to setting targets and programmes? What are their roles? How does this practically work?
5	Can you provide detail on how local contexts and laws are considered as part of this agenda
6	What are the implications if these targets and programmes are not achieved?
7	What are the implications if these targets and programmes are achieved?
<b>Participant Organisation</b>	<b>AB Sugar</b>

<b>Role</b>	Subsidiary of ABF, owns Illovo Africa - Illovo Malawi
<b>1</b>	Can you provide detail on how the ABF sustainability programme, and specifically the GHG reduction targets, applies to your operations
<b>2</b>	How is the sugarcane industry globally set to address the reduction in greenhouse gas emissions? What is planned?
<b>3</b>	What has influenced the awareness and need to make this change? Can you be specific to who and why.
<b>4</b>	Can you provide detail on how this is applied to local companies. How do they differ?
<b>5</b>	What are the implications if these targets and programmes are not achieved?
<b>6</b>	What are the implications if these targets and programmes are achieved?
<b>Participant Organisation</b>	<b>Illovo Sugar Africa</b>
<b>Role</b>	Subsidiary of AB Sugar, owns Illovo Malawi
<b>1</b>	How is the sugarcane industry in Africa set to address the reduction in greenhouse gas emissions? What is planned?
<b>2</b>	What has influenced the awareness and need to make this change? Can you be specific to who, and why.
<b>3</b>	Can you provide detail on how the ABF sustainability programme, and specifically the GHG reduction targets, applies to your operations
<b>4</b>	What involvement did Illovo Africa have in setting these reduction targets and programmes?
<b>5</b>	What are the implications if these targets and programmes are not achieved?
<b>6</b>	What are the implications if these targets and programmes are achieved?
<b>7</b>	How does this programme differ from country to country?
<b>Participant Organisation</b>	<b>Illovo Sugar Malawi</b>
<b>Role</b>	Subsidiary of Illovo Africa
<b>1</b>	How is the sugarcane industry in Malawi set to address the reduction in greenhouse gas emissions? What is planned?
<b>2</b>	What has influenced the awareness and need to make this change? Can you be specific to who, and why.

<b>3</b>	What involvement did Illovo Malawi have in setting these reduction targets and programmes?
<b>4</b>	How applicable are these targets and programmes to the Malawian context?
<b>5</b>	What are the implications if these targets and programmes are not achieved?
<b>6</b>	What are the implications if these targets and programmes are achieved?
<b>7</b>	How does Malawi's programme differ to other Illovo companies?
<b>Participant Organisation</b>	<b>Sugarcane Growers Association of Malawi</b>
<b>Role</b>	Industry association in Malawi
<b>1</b>	How is the sugarcane industry in Malawi set to address the reduction in greenhouse gas emissions? What is planned?
<b>2</b>	What has influenced the awareness and need to make this change?
<b>3</b>	What role does the association play in the net zero emissions agenda?
<b>4</b>	Who are the other stakeholders contributing to setting targets and programmes? What are their roles? How does this practically work?
<b>5</b>	Specifically, what role does the association play in determining net zero emissions targets and programmes included government policies?
<b>6</b>	Specifically, what role does the association play in determining net zero emissions targets and programmes included in the private sector's programmes, like Illovo Sugar's Global Mind, Local Champion or Bonsucro's GHG reduction standard?
<b>7</b>	How is the industry expected to cope with this change?
<b>Participant Organisation</b>	<b>South African Cane Growers Association</b>
<b>Role</b>	Industry association driving a lot of the change across SSA
<b>1</b>	How is the sugarcane industry set to address the reduction in greenhouse gas emissions? What is planned?
<b>2</b>	What has influenced the awareness and need to make this change?
<b>3</b>	What role does the association play in the net zero emissions agenda in the local SA market, as well as broader SSA market?

<b>4</b>	Who are the other stakeholders contributing to setting targets and programmes? What are their roles? How does this practically work?
<b>5</b>	How is the industry expected to cope with this change?
<b>Participant Organisation</b>	<b>Bonsucro</b>
<b>Role</b>	Sugarcane sustainability certification body - industry good practice standard
<b>1</b>	Can you provide an overview of where the net zero carbon emissions agenda fits in the overall sustainability programme
<b>2</b>	Was there an external pressure driving / pushing this agenda? If so, who/what and how?
<b>3</b>	How are specific targets and programmes determined?
<b>4</b>	Who assisted in formulating these targets and programmes?
<b>5</b>	How are signatory companies leveraged to participate in this agenda?
<b>6</b>	What are the benefits of companies participating in this agenda in low carbon emitting countries?
<b>7</b>	What are the costs for companies participating in this agenda in low carbon emitting countries?
<b>8</b>	What support is provided to companies participating in this agenda in low carbon emitting countries?
<b>Participant Organisation</b>	<b>Growers (1,2,3)</b>
<b>Role</b>	Contracted supplier to Illovo
<b>1</b>	How is the sugarcane industry set to address the reduction in greenhouse gas emissions? What is planned?
<b>2</b>	What changes is the company expected to make into the future? What implications does this have on the company?
<b>3</b>	What has influenced the awareness and need to make this change? Please detail who, what and how on this.
<b>4</b>	What input has the company had on the programmes expected to be implemented by government and its partners?
<b>5</b>	What input has the company had on the programmes expected to be implemented by offtakers and its partners?
<b>6</b>	How coordinated are the different approaches by the stakeholders?

<b>Participant Organisation</b>	<b>Tetratech/US Aid</b>
<b>Role</b>	Contracting party to US AID who developed the GHG Inventory
<b>1</b>	Can you provide an overview of the GHG inventory and its intentions/uses for the agricultural sector
<b>2</b>	Can you provide your role in the development of the GHG inventory
<b>3</b>	Can you tell me about the history of the GHG inventory. Why is it required? Who were the main actors involved in initiating it? Who funded it? Who determined the focus areas (i.e. soil management; land change; combustion)?
<b>4</b>	Can you tell me about the intention for implementation?
<b>5</b>	How would this be applied specifically to the sugarcane growing sector? (i.e. where does cane burning fall into this)
<b>6</b>	What global contexts and policies have shaped the need for this?
<b>7</b>	How was the local Malawian context considered in determining the need for this?
<b>Participant Organisation</b>	<b>BII</b>
<b>Role</b>	Investor body in the region
<b>1</b>	Can you describe the institutions mandate in agriculture
<b>2</b>	Can you describe how this is mandate is implemented
<b>3</b>	Can you describe what influences specific focus areas of responsible investment policies (if able, speak to climate mitigation / carbon reduction)
<b>4</b>	Can you describe how that shapes funding offered to clients (accessibility / legal implications)
<b>5</b>	Can you describe how local context is considered in determining specific requirements of sponsors/clients
<b>6</b>	Can you describe how this enables effective change in the environments in which your business operates (if this does not come out already)
<b>Participant Organisation</b>	<b>NASFAM</b>

<b>Role</b>	Smallholder association for Malawi
<b>1</b>	Can you provide background to what NASFAM's role is in Malawi
<b>2</b>	Can you provide history to the evolution of agriculture in Malawi (small scale, industrial, outgrower). If possible to speak to sugarcane grow
<b>3</b>	Can you tell me about the impacts of commercial agriculture (specifically outgrower programmes) in Malawi. If possible to speak to sugarcane do.
<b>Participant Organisation</b>	<b>Financiers</b>
<b>1</b>	Can you provide your background
<b>2</b>	Can you describe the role of business in effecting transformational change
<b>3</b>	Can you describe what influences this role
<b>4</b>	Can you describe what factors are required to make this happen